National Transportation Safety Board
Aviation Accident Data Summary

Location:	Buckhannon, WV	**Accident Number:**	ERA14LA086
Date & Time:	01/04/2014, 1735 EST	**Registration:**	N450TX
Aircraft:	CIRRUS DESIGN CORP SR22	**Injuries:**	1 Minor
Flight Conducted Under:	Part 91: General Aviation - Personal		

Analysis

The private pilot was conducting a personal cross-country flight. Although recorded data from the airplane's flight displays indicated that, during the cruise portion of the flight, the airplane conducted several aerobatic maneuvers for which it was not certificated and which exceeded its published limitations, the data also showed that the engine operated normally during the maneuvers; therefore, they did not contribute to the loss of engine power.

According to the pilot, when the airplane was about 5 miles from touchdown and at approach speed, he performed his "prelanding" checklist, which he later stated he knew "by heart"; verifying that the fuel boost pump was on; lowering the wing flaps to 50 percent; and setting the fuel mixture to about 60 percent. About 3 miles from the runway threshold, between about 400 and 500 ft above ground level, the pilot increased the throttle to compensate for the normal airspeed loss on final approach; however, the engine did not respond. He reported that he then "moved his hand in a manner to manipulate both throttle and mixture at the same time" and increased both to maximum, but the engine still did not respond. The pilot determined that the airplane was at, or just below, the published minimums for deploying the ballistic parachute system, and he deployed it. After the parachute was deployed, the airplane struck terrain and a motor vehicle.

During examination of the airplane, the flaps were found fully extended, which was the correct configuration for landing. The throttle was found in the "max" position; however, the mixture control was found in a position about 2 inches forward of the idle "cutoff" position, which was consistent with a cruise setting and indicated that it was not in the "maximum" position as reported by the pilot. Recorded data showed that, during the descent, both a reduction in the manifold pressure and fuel flow occurred and that, subsequently, a distinct reduction in exhaust gas temperature for all six cylinders occurred, corroborating that the mixture control was not advanced to maximum for the descent and landing. This information would have been available to the pilot on the airplane's display system and would have provided him sufficient information to note that his improper positioning of the mixture control was causing the loss of engine power.

During the postaccident engine test run, the throttle was advanced and retarded multiple times with no hesitation or stumbling noted. A magneto check was also performed with minimal drop on either magneto. The engine was then set to about 1,800 rpm to simulate an approach to landing and the mixture control was moved to its as-found position. When the throttle was advanced, the engine stumbled and would not respond when the rpm was increased. Given this evidence, it is likely that the pilot's failure to move the mixture lever to the "full rich" position during the approach to landing led to the reduction in engine power.

According to airplane manufacturer, engine manufacturer, and Federal Aviation Administration guidance, during descent, the mixture was required to be adjusted for smooth engine operation, and before landing, the mixture control was required to be placed in the "full rich" position. As noted, the mixture control was not found in the "full rich" position. Postaccident examination and interviews revealed that the airplane's quick reference handbook and the Pilot's Operating Handbook were not

available for the pilot to reference during the flight. Further, although an electronic set of checklists was available for use on the airplane's multifunction display, the pilot did not indicate that he had used them. If the pilot had referenced the landing checklist (on paper or on the multifunction display) or manuals, he might have recognized the reason the engine was nonresponsive and moved the fuel control mixture to the proper position for landing and prevented the loss of engine power.

Flight Events

Enroute-descent - Miscellaneous/other
Approach - Loss of engine power (total)
Emergency descent - Off-field or emergency landing

Probable Cause

The National Transportation Safety Board determines the probable cause(s) of this accident to be:
The pilot's improper in-flight fuel mixture management and failure to use the appropriate checklist or manuals during approach to landing, which resulted in a loss of engine power.

Findings

Aircraft-Aircraft power plant-Engine controls-Mixture control-Incorrect use/operation - C
Personnel issues-Action/decision-Info processing/decision-Decision making/judgment-Pilot - C
Personnel issues-Task performance-Use of equip/info-Use of manual-Pilot - C
Personnel issues-Task performance-Use of equip/info-Use of checklist-Pilot - C
Personnel issues-Task performance-Use of equip/info-Use of equip/system-Pilot - C
Environmental issues-Physical environment-Terrain-(general)-Contributed to outcome
Environmental issues-Physical environment-Object/animal/substance-Ground vehicle-Contributed to outcome

Pilot Information

Certificate:	Private	**Age:**	29
Airplane Rating(s):	Single-engine Land	**Instrument Rating(s):**	Airplane
Other Aircraft Rating(s):	None	**Instructor Rating(s):**	None
Flight Time:	544 hours (Total, all aircraft), 501 hours (Total, this make and model), 364 hours (Pilot In Command, all aircraft), 58 hours (Last 90 days, all aircraft), 13 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Manufacturer:	CIRRUS DESIGN CORP	**Registration:**	N450TX
Model/Series:	SR22	**Engines:**	1 Reciprocating
Operator:	On file	**Engine Manufacturer:**	CONT MOTOR
Air Carrier Operating Certificate:	None	**Engine Model/Series:**	IO-550-N
Flight Conducted Under:	Part 91: General Aviation - Personal		

Meteorological Information and Flight Plan

Observation Facility, Elevation:	W22, 1635 ft msl	**Weather Information Source:**	Weather Observation Facility
Conditions at Accident Site:	Visual Conditions	**Lowest Ceiling:**	None
Condition of Light:	Dusk	**Wind Speed/Gusts, Direction:**	Calm
Temperature:	6°C / -5°C	**Visibility**	10 Miles
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Marietta, PA (N71)	**Destination:**	Buckhannon, WV (W22)

Airport Information

Airport:	Upshur County Regional Airport (W22)	**Runway Surface Type:**	Asphalt
Runway Used:	29	**Runway Surface Condition:**	Dry
Runway Length/Width:	4201 ft / 75 ft		

Wreckage and Impact Information

Crew Injuries:	1 Minor	**Aircraft Damage:**	Substantial
Passenger Injuries:	N/A	**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None

Administrative Information

Investigator In Charge (IIC):	Todd G Gunther	**Adopted Date:**	06/16/2016
Note:	The NTSB did not travel to the scene of this accident.		
Investigation Docket:	http://dms.ntsb.gov/pubdms/search/dockList.cfm?mKey=88628		