Aviation Investigation Final Report

Location:	El Cajon, California	**Accident Number:**	GAA17CA372
Date & Time:	June 20, 2017, 14:15 Local	**Registration:**	N5424V
Aircraft:	Cessna 172RG	**Aircraft Damage:**	Substantial
Defining Event:	Landing gear not configured	**Injuries:**	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

The flight instructor reported that, during a stage check for the commercial pilot training course, the private pilot student completed the "G.U.M.P. [gas, undercarriage, mixture, propeller] check" on downwind in the traffic pattern. He added that, before the turn to the base leg, "everything was normal, and the gear was selected down by the student." He added that he observed three green landing gear extended indication lights illuminated. He further added that, after a normal landing touchdown, when the airplane slowed to 40 knots in the ground roll, the right main landing gear collapsed, and the airplane veered off the runway to the right. He reported that he did not visually check to see if the right main landing gear were extended.

The private pilot reported that, "on downwind we followed the G.U.M.P. checklist and verified that the landing gear were down. My instructor checked the right [main landing gear] and I checked the left [main landing gear]." He added that, on base, he "checked the landing lights with green [lights]." He further added that, after a normal touchdown, the right main landing gear collapsed, and the airplane veered off the runway to the right.

The right elevator sustained substantial damage.

The Federal Aviation Administration Aviation Safety Inspector performed a functional test of the airplane's landing gear system 1 day after the accident. The inspector observed the landing gear retracting, extending, and locking down into place "several times." He added that, during two gear extension cycles, he "simulated an air load on the right main landing gear by pulling back on it as it extended; the gear extended and locked down properly without discrepancies."

According to a commercial pilot witness, while he was driving a car along an airport perimeter road, he had a "head-on-view of the aircraft landing." He added that he observed a "red and white C172RG" airplane on final approach that "appeared to not have the gear down." He added that he stopped his car and continued to watch the airplane, and as it passed off to his right, he observed the "front wheel" down

and both main landing gear "hanging." He subsequently observed the airplane touch down on the left main landing gear first and then skid off the runway to the right.

It is likely that the landing gear selector was moved to the "down" position on short final approach, which did not allow sufficient time for the right main landing gear to fully extend and lock into place.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The pilot's failure to extend the landing gear with sufficient time to allow the landing gear to fully extend and the flight instructor's failure to visually check to see if the right main landing gear were extended.

Findings

Personnel issues	Delayed action - Student/instructed pilot
Personnel issues	Identification/recognition - Student/instructed pilot
Aircraft	Gear extension and retract sys - Incorrect use/operation
Personnel issues	Forgotten action/omission - Instructor/check pilot
Personnel issues	Monitoring equip/instruments - Instructor/check pilot

Factual Information

History of Flight

Landing	Landing gear not configured (Defining event)
Landing-landing roll	Abnormal runway contact
Landing-landing roll	Runway excursion

Pilot Information

Certificate:	Private	**Age:**	22,Male
Airplane Rating(s):	Single-engine land	**Seat Occupied:**	Left
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	None	**Toxicology Performed:**	No
Medical Certification:	Class 1 With waivers/limitations	**Last FAA Medical Exam:**	June 12, 2015
Occupational Pilot:	No	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 238 hours (Total, all aircraft), 28 hours (Total, this make and model), 117 hours (Pilot In Command, all aircraft), 48 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft), 1.6 hours (Last 24 hours, all aircraft)		

Flight instructor Information

Certificate:	Commercial; Flight instructor	**Age:**	51,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Right
Other Aircraft Rating(s):	None	**Restraint Used:**	Unknown
Instrument Rating(s):	Airplane	**Second Pilot Present:**	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Instrument airplane	**Toxicology Performed:**	No
Medical Certification:	Class 3 Without waivers/limitations	**Last FAA Medical Exam:**	May 3, 2016
Occupational Pilot:	Yes	**Last Flight Review or Equivalent:**	March 27, 2016
Flight Time:	(Estimated) 6800 hours (Total, all aircraft), 700 hours (Total, this make and model), 5000 hours (Pilot In Command, all aircraft), 320 hours (Last 90 days, all aircraft), 100 hours (Last 30 days, all aircraft), 9 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Cessna	**Registration:**	N5424V
Model/Series:	172RG	**Aircraft Category:**	Airplane
Year of Manufacture:	1980	**Amateur Built:**	
Airworthiness Certificate:	Normal	**Serial Number:**	172RG0528
Landing Gear Type:	Retractable - Tricycle	**Seats:**	4
Date/Type of Last Inspection:	April 27, 2017 100 hour	**Certified Max Gross Wt.:**	2658 lbs
Time Since Last Inspection:		**Engines:**	1 Reciprocating
Airframe Total Time:	12652 Hrs as of last inspection	**Engine Manufacturer:**	LYCOMING
ELT:		**Engine Model/Series:**	O-360-A1A6
Registered Owner:	SORBI AVIATION INC.	**Rated Power:**	180 Horsepower
Operator:	California Flight Academy	**Operating Certificate(s) Held:**	Pilot school (141)

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	KSEE,387 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	21:47 Local	**Direction from Accident Site:**	0°
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	10 knots / None	**Turbulence Type Forecast/Actual:**	/ None
Wind Direction:	290°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.79 inches Hg	**Temperature/Dew Point:**	34°C / 15°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	El Cajon, CA (SEE)	**Type of Flight Plan Filed:**	None
Destination:	El Cajon, CA (SEE)	**Type of Clearance:**	VFR
Departure Time:	14:15 Local	**Type of Airspace:**	Class D

Airport Information

Airport:	GILLESPIE FIELD SEE	**Runway Surface Type:**	Asphalt
Airport Elevation:	387 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	27R	**IFR Approach:**	None
Runway Length/Width:	5342 ft / 100 ft	**VFR Approach/Landing:**	Full stop;Traffic pattern

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:**	32.82611,-116.972503(est)

Preventing Similar Accidents

Preventing Rote Callouts (SA-018)

The Problem

Occasionally, pilots will make callouts without first verifying the cockpit indication that corresponds with the callout because they are acting out of habit and make the callouts based on what they expect to see but do not take the time to verify it. Rote callouts can prevent or delay the pilots' proper response during a critical phase of flight or cause the pilots to think that an action has been taken when it has not. All pilots can be vulnerable to making errant callouts if they become complacent, which allows habits and expectations to influence their responses. Taking explicit steps to direct attention, methodically verify the status of a checklist item, and make callouts using standard phraseology can reduce the chances of making errors.

What can you do?

- Do not become complacent and respond out of habit when running a checklist. For every callout, there should be a corresponding indication or setting. Train yourself to direct your attention on the indicator or display long enough to be sure of what the indicator is telling you every time. Physically touching a control or pointing to an indicator can be a useful technique.
- Adopt a methodical pace when reading or responding to checklist items so that you can ensure that you see and verify each cockpit indication.
- Cross check related indications to see if the aircraft's performance is changing. For example, a callout of "flaps fifteen" may be accompanied by a characteristic change in pitch attitude and airspeed, so know what to expect on the other instruments, not just the flap position indicator.
- Be attentive to an indicator's color and do not anticipate a color change before it occurs. For example, a thrust reverse indicator is often amber when reversers are in transit but green when reversers are fully deployed.
- Make a point of giving and receiving a proper response to checklist callouts. Improper or nonstandard phraseology, nods, mumbles, and nonverbal signals are unacceptable.
- Operational distractions, such as radio calls, can interrupt or drown out a callout. Stay focused and assertive and repeat the callout if needed. Prevent nonoperational distractions, such as cockpit conversations, by implementing a "sterile cockpit" where callouts are expected.
- Set an example. If you make your callouts crisp and catch any missed indications, your fellow pilot will likely follow suit.
- Awareness is a large part of the solution. Add callout awareness to your preflight briefings and be ready to verbalize each and every discrepancy.

See https://www.ntsb.gov/Advocacy/safety-alerts/Documents/SA-018.pdf for additional resources.

The NTSB presents this information to prevent recurrence of similar accidents. Note that this should not be considered guidance from the regulator, nor does this supersede existing FAA Regulations (FARs).

Administrative Information

Investigator In Charge (IIC):	Gerhardt, Adam
Additional Participating Persons:	Gregory C Nolting; FAA/ FSDO; San Diego, CA
Original Publish Date:	October 17, 2017
Last Revision Date:	
Investigation Class:	Class
Note:	This accident report documents the factual circumstances of this accident as described to the NTSB.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=95447