

**NATIONAL TRANSPORTATION SAFETY BOARD
PILOT/OPERATOR AIRCRAFT ACCIDENT REPORT**
This form To Be Used For Reporting Civil Aircraft Accidents
Involving Commercial and General Aviation Aircraft

Location

Nearest City/Place, State, Zip Code <u>Puyallup</u>	Date of Accident <u>7-29-2002</u>	Local Time (24 HOUR CLOCK) <u>1910</u>	Zone <u>PDST</u>	Elevation At Accident Site <u>535</u> Feet MSL ____ Feet MSL
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If The Accident Occurred On Approach, Takeoff or Within 3 Miles of An Airport, Complete The Following Information

Proximity To Airport

1. ☐ On Approach	3. ☐ Within 1/2 Mile	5. ☐ Within 1 Mile	7. ☐ Within 3 Miles
2. ☐ Within 1/4 Mile	4. ☐ Within 3/4 Mile	6. ☐ Within 2 Miles	8. ☐ Beyond 3 Miles

Airport Name <u>Pierce County</u>	Airport Ident <u>1S0</u>	Runway/Landing Surface Conditions: 1. ☒ Direction: <u>340</u> 3. ☐ Width: _____ 5. ☒ Condition: <u>Firm</u> 2. ☐ Length: _____ 4. ☒ Surface: <u>Dry Grass</u>
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Phase Of Operation:

1. ☐ Standing	3. ☐ Takeoff	5. ☐ Cruise	7. ☐ Approach	9. ☐ Hover/Maneuver
2. ☐ Taxi	4. ☐ Climb	6. ☐ Descent	8. ☒ Landing	10. ☐ Altitude Of In-Flight Occurrence _____ Feet MSL

Aircraft Information

Registration Mark <u>N7592Y</u>	Aircraft Manufacturer <u>CESNA</u>	Aircraft Type/Model <u>R182</u>	Serial Number <u>R18200411</u>	Cert Max Gross WT <u>3100</u>
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Type Of Aircraft 1. ☒ Airplane 2. ☐ Helicopter 3. ☐ Glider 4. ☐ Balloon	5. ☐ Blimp/Dirigible 6. ☐ Ultralight 7. ☐ Gyroplane 8. ☐ Specify _____	Type Of Airworthiness Certificate 1. ☒ Normal 2. ☐ Utility 3. ☐ Acrobatic 4. ☐ Transport	5. ☐ Restricted 6. ☐ Limited 7. ☐ Experimental 8. ☐ Specify _____	Amateur Built 1. ☐ Yes 2. ☒ No
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Landing Gear

1. ☐ Tricycle—Fixed 2. ☒ Tricycle—Retractable 3. ☐ Tailwheel—Fixed	4. ☐ Tailwheel—Retractable 5. ☐ Tailwheel—Retractable Mains 6. ☐ Amphibian	7. ☐ Skid 8. ☐ Limited 9. ☐ Specify _____	No. Of Seats Flight/Cabin Crew <u>2</u> Pax <u>2</u>
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Stall Warning System Installed

1. ☒ Yes 2. ☐ No	IFR Equipped 1. ☒ Yes 2. ☐ No	Engine Type 1. ☒ Reciprocating—Carburetor 2. ☐ Reciprocating—Fuel Injected	3. ☐ Turbo Prop 4. ☐ Turbo Jet	5. ☐ Turbo Fan 6. ☐ Turbo Shaft
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Engine Manufacturer <u>Lycoming</u>	Engine Model/Series <u>O-540-53C5D</u>	Engine Rated Power 1. <u>235</u> Horsepower 2. _____ Lbs Thrust	Type Of Fire Extinguishing System Used 1. <u>None</u> 2. Specify _____
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Engine(s)	Date of Mfg.	Mfg. Serial No.	Total Time	Time Since Inspection	Time Since Overhaul
Engine No. 1	<u>1/20/1978</u>	<u>L-19522-40A</u>	<u>2537.7</u> Hours	<u>2.4</u> Hours	<u>1277.5</u> Hours
Engine No. 2			Hours	Hours	Hours
Engine No. 3			Hours	Hours	Hours
Engine No. 4			Hours	Hours	Hours

Type Of Maintenance Program

1. ☒ Annual 2. ☐ Manufacturer's Inspection Program 3. ☐ Other Approved Inspection Program(AAIP) 4. ☐ Continuous Airworthiness 5. ☐ Specify _____
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Type Of Last Inspection

1. ☒ Annual 2. ☐ 100 Hours 3. ☐ AAIP 4. ☐ Continuous Airworthiness
--

Date Last Inspection Performed

<u>5/28/2002</u> (M/D/Y)
Time Since Last Inspection <u>2.4</u> Hours
Airframe Total Time <u>2537.7</u> Hours

Emergency Locator Transmitter (ELT)	ELT Manufacturer <u>Deane Margolin</u>	Model/Series <u>ELTG TSOC91</u>	Serial Number <u>9301</u>	Battery Date (M/D/Y) <u>3/03</u>
Switch 1. ☐ On 2. ☐ Off 3. ☒ Armed	Operated 1. ☐ Yes 2. ☒ No	Aided In Accident Location 1. ☐ Yes 2. ☒ No		

Registered Aircraft Owner <u>Roxana Caples</u> <u>Puffin Air</u> <u>John H. Jr Caples</u>	Address <u>Benicia, CA 94510</u>
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Operator Of Aircraft 1. ☐ Same As Registered Owner 2. Name <u>Clover Park Technical College</u> 3. DBS:	Address 1. ☐ Same As Registered Owner 2. <u>1200 Steilacoom Blvd SW</u> <u>Lakewood, WA 98499</u>
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Owner / Operator Information (cont.)																																																																																																												
Operator (Certificate Number) <u>MKS 3230</u>				Operator Designator (4 Letter Designator)																																																																																																								
Purpose Of Flight And Type Of Operation																																																																																																												
Regulation Flight Conductor Under 1. ☒ FAR91 (only) 4. ☐ FAR 121 7. ☐ FAR 133 2. ☐ FAR91D 5. ☐ FAR 125 8. ☐ FAR 135 3. ☐ FAR 103 6. ☐ FAR 129 9. ☐ FAR 137					Operator Authority FAR121 1. ☐ Domestic FAR 133 2. ☐ Flag 6. ☐ Rotorcraft 3. ☐ Supplemental External Load FAR 125 7. ☐ Large Aircraft FAR 135 4. ☐ On Demand 5. ☐ Commuter FAR 129 8. ☐ Foreign			FAR 121, 125, 127, 129, 135 Revenue Operations 1. ☐ Scheduled 2. ☐ Non Scheduled 3. ☐ Domestic 4. ☐ International 5. ☐ Passenger 6. ☐ Cargo 7. Specify _____																																																																																																				
Purpose of Flight 1. ☐ Personal 6. ☐ Aerial Observation 2. ☐ Business 7. ☐ Other Work Use 3. ☒ Educational 8. ☐ Public Use 4. ☐ Executive/Corporate 9. ☐ Ferry 5. ☐ Aerial Application 10. ☐ Positioning																																																																																																												
Pilot Information																																																																																																												
Pilot Name <u>Marshall Leon Collins</u>			Pilot Certificate No. [REDACTED]		Address <u>TACOMA WA 98408</u>			Nationality <u>U.S.A.</u>																																																																																																				
Certificate (s) 1. ☐ Student 3. ☒ Commercial 5. ☒ Flight Instructor 7. ☐ Military 9. ☐ None 2. ☐ Private 4. ☐ Airline Transport 6. ☐ Flight Engineer 8. ☐ Foreign 10. Specify _____																																																																																																												
Rating (s) 1. ☐ None 6. ☐ Helicopter 2. ☒ Single Engine Land 7. ☐ Glider 3. ☐ Single Engine Sea 8. ☐ Free Balloon 4. ☐ Multiengine Land 9. ☐ Airship 5. ☐ Multiengine Sea 10. ☐ Gyroplane			Instrument Rating (s) 1. ☐ None 2. ☒ Airplane 3. ☐ Helicopter			Instructor Rating (s) 1. ☐ None 6. ☐ Instrument Airplane 2. ☒ Airplane S.E. 7. ☐ Instrument Helicopter 3. ☐ Airplane M.E. 8. ☐ Ground Instructor 4. ☐ Helicopter 9. ☐ Specify _____ 5. ☐ Glider																																																																																																						
Type Ratings/Student Endorsements <u>N/A</u>			Date Of Biennial Flight Review or Equivalent (M/D/Y) <u>09-14-00</u>			BFR Aircraft 1. Make <u>Cessna</u> 2. Model <u>172</u>																																																																																																						
Medical Certificate 1. ☐ None 3. ☒ Class 2 2. ☐ Class 1 4. ☐ Class 3			Date Of Last Medical (M/D/Y) <u>3-12-2002</u>		Limitations <u>N/A</u>			Date Of Birth (M/D/Y) [REDACTED]																																																																																																				
Degree Of Injury 1. ☒ None 2. ☐ Minor 3. ☐ Serious 4. ☐ Fatal			Seat Occupied 1. ☐ Left 4. ☐ Front 2. ☒ Right 5. ☐ Rear 3. ☐ Center		Person At Controls At Time Of Accident 1. ☒ Pilot In Control 4. ☐ Non-Pilot 2. ☐ Second Pilot 5. ☐ No One 3. ☐ Both Pilots			Seat Belt Available 1. ☒ Yes 2. ☐ No																																																																																																				
Seat Belt Used 1. ☒ Yes 2. ☐ No			Shoulder Harness Available 1. ☒ Yes 2. ☐ No		Shoulder Harness Used 1. ☒ Yes 2. ☐ No		Source Of Pilot Flight Time Information 1. ☒ Pilot Logbook 4. ☐ Company 2. ☐ Operators Estimate 5. ☐ Specify _____ 3. ☐ FAA Records																																																																																																					
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Flight Time</th> <th>All A/C</th> <th>This Make & Model</th> <th>Airplane Single Engine</th> <th>Airplane Multiengine</th> <th>Night</th> <th>Instrument Actual</th> <th>Instrument Simulated</th> <th>Rotorcraft</th> <th>Glider</th> <th>Lighter Than Air</th> </tr> </thead> <tbody> <tr> <td>Total Time</td> <td>929.0</td> <td>20.4</td> <td>924.6</td> <td>8.4</td> <td>18.9</td> <td>56.6</td> <td>63.1</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command (PIC)</td> <td>745.8</td> <td>15.6</td> <td>745.8</td> <td>0</td> <td>10.3</td> <td>44.1</td> <td>19.0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td>600.7</td> <td>14.9</td> <td>600.7</td> <td>0</td> <td>3.1</td> <td>44.1</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>This Make & Model</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>89.1</td> <td>2.7</td> <td>89.1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>42.6</td> <td>2.7</td> <td>42.6</td> <td>0</td> <td>0</td> <td>8.7</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>5.6</td> <td>2.7</td> <td>5.6</td> <td>0</td> <td>0</td> <td>2.4</td> <td>0</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1.2</td> <td>0</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										Flight Time	All A/C	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument Actual	Instrument Simulated	Rotorcraft	Glider	Lighter Than Air	Total Time	929.0	20.4	924.6	8.4	18.9	56.6	63.1				Pilot In Command (PIC)	745.8	15.6	745.8	0	10.3	44.1	19.0				Instructor	600.7	14.9	600.7	0	3.1	44.1	0				This Make & Model											Last 90 Days	89.1	2.7	89.1	0	0	0	0				Last 30 Days	42.6	2.7	42.6	0	0	8.7	0				Last 24 Hours	5.6	2.7	5.6	0	0	2.4	0										1.2	0			
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						1.2	0																																																																																																					
Second Pilot Information																																																																																																												
Second Pilot Responsibilities At The Time Of Accident 1. ☐ Co-Pilot 2. ☒ Dual Student 3. ☐ Safety Pilot 4. ☐ Check Pilot 5. ☐ None (Pilot-Rated Passenger)																																																																																																												
Pilot Name <u>Michael Allen Welch</u>			Pilot Certificate No. [REDACTED]		Address <u>Kelso WA 98626</u>			Nationality																																																																																																				
Certificate (s) 1. ☐ Student 3. ☐ Commercial 5. ☐ Flight Instructor 7. ☐ Military 9. ☐ None 2. ☒ Private 4. ☐ Airline Transport 6. ☐ Flight Engineer 8. ☐ Foreign 10. Specify _____																																																																																																												

Second Pilot Information (cont.)													
Rating (s)				Instrument Rating (s)				Instructor Rating (s)					
1. ☐ None		6. ☐ Helicopter		1. ☐ None		1. ☒ None		6. ☐ Instrument Airplane					
2. ☒ Single Engine Land		7. ☐ Glider		2. ☒ Airplane		2. ☐ Airplane S.E.		7. ☐ Instrument Helicopter					
3. ☐ Single Engine Sea		8. ☐ Free Balloon		3. ☐ Helicopter		3. ☐ Airplane M.E.		8. ☐ Ground Instructor					
4. ☐ Multiengine Land		9. ☐ Airship				4. ☐ Helicopter		9. ☐ Specify _____					
5. ☐ Multiengine Sea		10. ☐ Gyroplane				5. ☐ Glider							
Type Ratings/Student Endorsements <i>N/A</i>				Date Of Biennial Flight Review or Equivalent (M/D/Y)				BFR Aircraft 1. Make _____ 2. Model _____					
Medical Certificate 1. ☐ None 3. ☐ Class 2 2. ☐ Class 1 4. ☐ Class 3				Date Of Last Medical (M/D/Y)				Limitations Waivers					
Degree Of Injury 1. ☒ None 3. ☐ Serious 2. ☐ Minor 4. ☐ Fatal				Seat Occupied 1. ☒ Left 3. ☐ Center 5. ☐ Rear 2. ☐ Right 4. ☐ Front				Seat Belt Available 1. ☒ Yes 2. ☐ No					
Seat Belt Used 1. ☒ Yes 2. ☐ No		Shoulder Harness Available 1. ☒ Yes 2. ☐ No		Shoulder Harness Used 1. ☒ Yes 2. ☐ No		1. ☐ Pilot Logbook 2. ☒ Operators Estimate 3. ☐ FAA Records		4. ☐ Company 5. ☐ Specify _____					
Flight Time	All A/C	This Make & Model	Airplane Single Engine	Airplane Multiengine	Night	Instrument Actual Simulated		Rotorcraft	Glider	Lighter Than Air			
Total Time	300		300										
Pilot In Command (PIC)	100		100										
Instructor													
This Make & Model													
Last 90 Days	23.2	2.7	23.2										
Last 30 Days	11.3	2.7	11.3										
Last 24 Hours	2.7												
Other Personnel													
Name	Seat	Address (City & State)			Crew	Non-Revenue	Revenue	Non-Occupant	FAA	Fatal	Serious	Minor	None
1.													
2.													
3.													
4.													
5.													
6.													
Flight Itinerary Information													
Last Departure Point				Time Of Departure		Destination		Flight Plan Filed					
1. Airport ID _____				1. Time _____		1. Airport ID _____		1. ☐ None		4. ☐ VFR/IFR			
2. City/Place _____						2. City/Place _____		2. ☐ VFR		5. ☐ Company (VFR)			
3. State _____				2. Time Zone _____		3. State _____		3. ☐ IFR		6. ☐ Military (VFR)			
If Weather Was Involved, State If Weather Briefing Was Obtained or If Weather Reports Were Checked And How It Was Accomplished													
Fuel On Board At Last Takeoff 75 Gallons or Pounds						Fuel Type 1. ☐ 80/87 4. ☐ 115/145 7. Specify _____ 2. ☒ 100 Low Lead 5. ☐ Jet A 3. ☐ 100/130 6. ☐ Automotive							
Other Services, If Any, Prior to Departure													
Weather Information At The Accident Site													
Source Of Weather Information (Pilot/Operator, Weather Observation)				Light Condition 1. ☐ Dawn 3. ☐ Dusk 5. ☐ Dark Night 2. ☐ Daylight 4. ☐ Bright Night				Visibility _____ Miles		Temp (°F)			

Weather Information At The Accident Site (cont.)					
Dew Point (°F)	Altimeter Setting "Hg	Sky/Lowest Cloud Condition 1. ☐ Clear 2. ☐ Scattered _____ Feet AGL 3. ☐ Broken _____ Feet AGL 4. ☐ Overcast _____ Feet AGL 5. ☐ Partial Obscuration 6. ☐ Obscured			
Wind Information 1. Direction <u>CALM</u> 2. Velocity _____ Kts 3. Gusts _____ Kts		Restriction To Visibility <u>0</u>	Type Precipitation <u>N/A</u>	Intensity Of Precipitation 1. ☐ Light 2. ☐ Moderate 3. ☐ Heavy 4. Specify _____	
Turbulence (Multiple Entry) 1. ☒ None 2. ☐ Light 3. ☐ Moderate 4. ☐ Severe 5. ☐ Extreme 6. ☐ Clean Air 7. ☐ In Clouds					
Damage To Aircraft And Other Property					
Degree Of Aircraft Damage 1. ☐ None 2. ☐ Minor 3. ☒ Substantial 4. ☐ Destroyed				Fire 1. ☐ Yes 3. ☐ In-Flight 2. ☒ No 4. ☐ On Ground	
Description Of Damage To Aircraft And Other Property <u>structural damage to aircraft belly as a result of gear-up landing, damage to propeller blades.</u>					
Mechanical Malfunction Failure					
1. ☐ No 2. ☒ Yes List The Name Of The Part, Manufacturer, Part No., Serial No. And Describe The Failure <u>Left main landing gear hydraulic brake aluminum tubing Cessna part # 2200001-45. AN fitting at left brake cylinder clocked at incorrect angle resulting in brake line hanging up in gear well. Left gear leg could not be extended as result.</u>			Total Time On Part <u>326.8</u> Hours At Overhaul _____ Hours		
Collision Accident					
If Collision Accident Occurred, Complete The Information For Other Aircraft					
Registration Mark	Aircraft Manufacturer	Aircraft Type/Model	Degree Of Aircraft Damage 1. ☐ Destroyed 3. ☐ Minor 2. ☐ Substantial 4. ☐ None		
Registered Aircraft Owner			Address		
Pilot Name		Address		Pilot Certificate No.	
Evacuation Of Aircraft					
Assistance Received 1. ☐ Outside Person (s) 3. ☐ Slide 5. ☐ Ladder 2. ☐ Auxiliary Lighting 4. ☐ Rope 6. ☐ Specify _____					
Method Of Exit (State Approximate Number Of Persons Using Each Of The Following 1. Main Door _____ 2. Auxiliary Door _____ 3. Emergency Exit _____					
Recommendation (How Could This Accident Have Been Prevented)					
Operator/Owner Safety Recommendation (Optional Entry)					

Additional Flight Crew Members			
For Each Additional Flight Crew Member, Exclusive Of Cabin Attendants Complete The Following Information			
Name _____	FAA Certificate No. _____	Address _____	Title _____
Certificate(s) 1. ☐ Student 2. ☐ Private 3. ☐ Commercial 4. ☐ Airline Transport 5. ☐ Flight Instructor 6. ☐ Flight Engineer 7. ☐ Foreign 8. Specify _____			
Ratings/Endorsements _____		Total Flight Time _____	Flight Time This Accident _____
Name _____	FAA Certificate No. _____	Address _____	Title _____
Certificate(s) 1. ☐ Student 2. ☐ Private 3. ☐ Commercial 4. ☐ Airline Transport 5. ☐ Flight Instructor 6. ☐ Flight Engineer 7. ☐ Foreign 8. Specify _____			
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Ratings/Endorsements _____		Total Flight Time _____	Flight Time This Accident _____

Narrative History Of Flight

Describe What Occurred In Chronological Order, The Circumstances Leading To The Accident And The Nature Of The Accident. Describe The Terrain And Include A Sketch Of Wreckage Distribution If Pertinent. Attach Extra Sheets If Needed. State Point Of Departure, Time Of Departure, Intended Destination And Services Obtained.

Point of Departure 150
APPROX @ 1620 Time Departure Local time
Destination Local Flight

I Hereby Certify That The Above Information Is Complete And Accurate To The Best Of My Knowledge

Date Of This Report

11-5-2002

Signature Of Pilot/Operator

[Redacted Signature]

Signature Of Person Filing Report Other Than Pilot/Operator

1. Signature

2. Type Or Print Name

3. Title

For NTSB Use Only

NTSB Accident No.

SEA02LA139

Reviewed By NTSB Office Located At

Seattle, WA

Name Of Investigator

D. Hogenson

Date Report Received

11-07-02

On July 29, 2002 Mike Welch and I went through the pre-flight checklist and did a normal engine run-up, according to the aircraft checklist for N7592Y. All systems checked out OK. Just prior to take-off we reviewed the emergency procedures for engine failure on the take-off roll and engine failure in-flight procedures. We lined up on centerline, ran the engine up to take-off power with the brakes on. All engine instruments indicated "in the green". The brakes were released and the aircraft accelerated normally to lift-off speed (50 knots). We then rotated and the aircraft lifted off normally and we accelerated to 80 knots indicated air speed at 500 feet AGL. Manifold pressure was reduced to 23 inches and rpm reduced to 2300rpm, which is a normal climb power setting. We exited the traffic pattern to the south, climbing to 3000 feet and leveled off, reducing the manifold pressure to approximately 21 inches and the rpm to 2200rpm.

About 12 miles to the south of ISO, we slowed the aircraft down to flap operating speed, extended 20 degrees of flaps, and reduced the manifold pressure to 15 inches with the gear in the up position and checked to see that the gear warning horn was working properly. It went off as the manifold pressure was reduced to 15 inches. We then cleaned up the airplane and proceeded to slow the aircraft up to check the stall warning horn. The horn went off at approximately 55 knots indicated. We then accelerated the aircraft up to 100 knots indicated airspeed and I extended the gear, saw a green-light gear-down indication, looked over my right shoulder to verify visually that the right main gear was down and locked. I then turned to Mike Welch and asked him to verify the left main gear was down and locked. His reply was that it was not. At first I thought he was joking and told him to look again and verify that the gear was down and locked. He looked down and back again and turned back again to me and said "No, the gear is not down." At this point I retracted the gear, verified that the gear circuit breaker was in and again moved the gear lever to the

down position and saw the gear-down indicator light turn green again. I looked over my right shoulder, verified visually right gear down and locked and then asked Mike to verify the left gear down and locked. He again said that the gear was not down. I cycled the gear one more time with the power on with the same results. At this point I told Mike that we would try to manually extend the gear. With the gear level in the up position I pulled the gear circuit breaker and then moved the gear lever to the down position and told Mike to extend the lever on the emergency gear handle. He attempted to do this and was unable to get the handle to extend. I attempted to do the same with the same results. I then told Mike to get out the POH and turn to the emergency gear extension portion and we reviewed and were unable to identify why the gear handle would not extend. At this point I contacted another flight instructor (Barbara Griffith) who was flying N5955E in the vicinity and asked her if she had any advice on how to get the lever to extend. The only thing she could suggest was rotating the red knob on the end of the lever. We attempted to do this several times each and were unsuccessful. Mike then said, "I think it might have turned." I reached down and the handle extended normally. Then I pumped the gear down manually, had a green-light gear-down and locked. I then looked over my right shoulder and visually verified right gear down and locked. I asked Mike to verify left gear down and his reply was "No, the left gear is not down." We continued to review emergency gear extension procedures with no success in getting the gear to lower.

At this time I requested the other flight instructor in 55E to fly under and visually inspect the gear from below to see if we were getting any movement. She verified that the left gear was still inside the wheel well. While she was underneath, I retracted and extended the gear several times and each time I did this, she was able to see the left gear move slightly in the wheel well.

After 20 to 30 minutes of attempting to lower the gear with her watching, I asked her what her fuel supply was and she said they had a couple of hours already burned out of the airplane. She asked what kind of assistance, if any, she could offer at that point. I told her there was nothing else that they could do at that time other than returning to 150 and contacting the Chief Pilot by phone. Another Clover Park student at 150 happened to be monitoring our radio transmissions and told me that they were contacting the Chief Pilot. At this time, due to the many other aircraft operating in the immediate vicinity, I contacted Seattle Approach Control on 121.85 and informed them I was having a gear problem and asked for any assistance they might be able to offer. I was given a transponder squawk code and asked what I would like to do. I requested to proceed north and operate the aircraft at 3000 feet just to the east of Lake Tapps and the Enumclaw area and do some high G maneuvers to try and shake the gear loose, as well as burn off fuel in anticipation of having to do a gear-up landing. I also let them know that I wanted to go to Boeing Field when I was ready to do the gear-up landing. Seattle Approach told me they would notify Boeing tower and have emergency equipment standing by. At this time Seattle Approach asked if there was any other assistance they could offer. My response was for them to contact a mechanic who was familiar with the Cessna 182 gear system and might have some advice to offer.

While waiting to hear from the mechanic, we attempted approximately 30 gear extensions with power and a dozen manual extensions, all while pulling positive Gs, with negative results. The last attempt at lowering the gear manually, I pumped the gear lever until the pressure in the gear system was to the point I feared I might break the gear handle off. At approximately 2 hours into the flight the advice from the mechanics on the ground was to not cycle the gear any more. Shortly after this, just as I was getting ready to request a vector to Boeing Field from Approach, Seattle

Approach called me and said the Chief Pilot at Clover Park wanted me to return and land the aircraft in the grass at Thun Field (150). I agreed to do this, and proceeded directly to 150, orbited overhead at 3000 feet and let ATC know that I wanted to switch over to the advisory frequency. ATC approved this. I then announced to Pierce County Traffic that we were orbiting over the field at 3000 feet and would be making a gear-up landing on the grass. There was another aircraft in the traffic pattern. I requested information on wind conditions on the field and runway-in-use. His reply was that the winds were favoring runway 34. At this point our Chief Pilot(Bill Coyner) came on the radio and verified that the winds were favoring runway 34. He suggested landing the aircraft in the grass on the east side of runway 34. I told him that I would be landing on the west side of runway 34 because I believed it was more level, even surface and offered the least amount of obstructions. I was concerned if I lost directional control of the aircraft on touchdown that the trees on the east side of the field were too close and posed a hazard.

Bill agreed and said that when I was ready to land the aircraft to let him know and he would have the emergency equipment standing by on the field. At this time I told him to go ahead and get them out there and when they are ready, let me know and I would land the aircraft. I reviewed gear-up landing procedures several times with Mike and assigned him to shut off the fuel selector valve as soon as he saw me pull the fuel mixture control upon touchdown and then for him to turn off the ignition. We also reviewed exiting the aircraft and making sure that when we turned downwind, we opened the doors and shut down any unnecessary electrical. We could see the fire trucks move into position, one at the north end of the runway and one at the south end of the runway. We received a radio call from Bill that they were ready. I responded that we were prepared to put the aircraft down. I then called Pierce County Traffic and notified them that I was

descending from 3000 feet to maneuver for a 45 degree entry for left traffic runway 34 Pierce County gear-up landing in the grass. I notified Pierce County Traffic that I was turning downwind for landing and was turning off my avionics master switch at this time. We then opened the doors, Mike turned off the beacon light and the avionics master. I did a normal descent, 10 degrees of flaps, abeam the numbers, throttle back to 14 inches of manifold pressure, prop control full forward, momentarily applied carburetor heat, pitched for 85 knots, turned base, pitched for 75 knots, extended flaps to 20 degrees, turned final, pitched for 65 knots and extended full flaps to 40 degrees. I told Mike to go ahead and turn off the master switch at this time, held 65 knots, picked my aiming point, flared the aircraft, entered ground effect, and slowly reduced the power while holding the aircraft in a slightly tail-down attitude until we made contact with the ground. At this point I pulled the mixture to idle cut-off. Mike shut off the fuel supply, turned the ignition to the off position and the aircraft slid to a stop. We exited the aircraft without injury to either of us, and apparently minimal damage to the aircraft. The touchdown time was approximately 7:05pm. Total duration of the flight: 2.7 hours.

Upon initial inspection of the aircraft on July 30, 2002 the left main gear was found to be hanging up in the wheel well because the aluminum brake line was catching on the lip of the wheel well and would not allow the gear to extend.

