

ELECTRO-MECHANICAL LANDING GEAR TROUBLESHOOTING

by TTCF Staff

Last month, we published an article entitled “A Flight from the Landing Gear’s Perspective.” It explained what happens in a Twin Cessna equipped with electro-mechanical landing gear when the gear switch is moved to the up or down position. On this and the facing page, we’ve published a Landing Gear Troubleshooting Guide. Because the configuration of the panel gear lights changed over the years, these charts only apply to pre-1970 aircraft. We’ll publish charts for post-1970 airplanes in a later issue.

Landing Gear Troubleshooting Guide (Electro-Mechanical)		
Trouble	Probable Cause	Correction
Landing Gear Fails to Retract or Extend	Manual Extension Crank improperly stowed	Stow crank properly
	Defective landing gear actuator	Replace actuator
	Defective reduction unit	Replace reduction unit
Gear Motor Operates	Pin sheared on gear motor	Replace pin
	Broken bolts on retracting linkage or disconnected retracting linkage	Replace broken parts Correct linkage
Landing Gear Fails to Retract or Extend	Circuit Breaker out	Reset Circuit Breaker
	Defective circuit breaker	Replace circuit breaker
	Insufficient electrical power	Recharge batteries Check voltage regulators
Gear Motor Does Not Operate	Defective Up or Down limit switch	Replace switch and adjust
	Defective or incorrectly adjusted landing gear safety switch	Replace and/or adjust landing gear safety switch
	Defective landing gear relay	Replace relay
	Defective landing gear switch	Replace switch
	Defective landing gear motor	Replace motor
	Defective UP or Down electrical circuit	Repair circuit
Manual Extension System Fails to Extend Landing Gear	Manual Extension Crank not fully engaged	Engage Crank fully
	Incorrect adjustment of manual extension linkage	Adjust linkage
	Defective manual extension linkage	Replace defective linkage
	Defective landing gear retracting linkage or actuator	Replace defective linkage or actuator
	Landing gear improperly rigged	Rig landing gear
Landing Gear Shimmies During Fast Taxi, Takeoff, or Landing	Insufficient fluid in shimmy damper	Service shimmy damper
	Internal leakage in shimmy damper	Replace defective seals and/or piston
	Roll pin attaching piston to piston rod sheared	Replace roll pin
	Shimmy damper loose at mounting	Replace worn housing and/or attaching bolt
	Tires out of balance	Replace tires with tread worn unevenly or with flat spots
	Worn or loose wheel bearings	Replace and/or adjust wheel bearings
	Excessive clearance between upper and lower torque links	Adjust clearance
	Worn torque link bushings	Replace bushings

These landing gear charts, along with the ones from the February issue, are available for download on our website under the “TCF Resources” section of the Members Forum.

Landing Gear Troubleshooting Guide (Electro-Mechanical) (continued)		
Trouble	Probable Cause	Correction
Gear Down (Green) Light Fails to Light	Lamp burned out (Press-to-Test)	Replace lamp
	Circuit Breaker out	Reset Circuit Breaker
	Landing gear not fully extended	Extend fully (hand crank) Make flyby with observer to check gear down If gear safe indication is not obtained, be prepared for gear collapse
	Lamp loose	Repair or replace receptacle
	Defective circuit breaker or electrical circuit	Replace circuit breaker or repair circuit
	One or more DOWN indicator switches defective or incorrectly adjusted	Replace defective switches and/or adjust
Gear Up (Red) Light Fails to Light <i>(NOTE: This light is Amber in 310 L, N & P and 320 D, E and F models)</i>	Lamp burned out (Press-to-Test)	Replace lamp
	Circuit Breaker out	Reset Circuit Breaker
	Landing gear not fully retracted	Make flyby with observer to check gear fully retracted If gear extends normally with safe indication - make normal landing If gear safe indication is not obtained, be prepared for gear collapse
	Lamp loose	Repair or replace receptacle
	Defective circuit breaker or electrical circuit	Replace circuit breaker or repair circuit
	Defective or incorrectly adjusted UP limit switch	Replace and/or adjust switch
Gear Down (Green) Light Flickers When Gear is Down	One or more DOWN indicator switches defective or incorrectly adjusted	Replace defective switches and/or adjust
	Loose lamp	Repair or replace receptacle
Gear Up (Red) Light Remains On when Gear is Down	Defective Up Limit Switch	Replace switch and adjust
	Circuit shorted to another system	Locate and repair
Gear Down (Green) Light Remains On when Gear is Up	Circuit shorted to another system	Locate and repair
Gear Warning Horn Sounds when Landing Gear is Down and Throttles Retarded	Defective nose gear DOWN indicator switch	Replace defective switch and adjust
Gear Warning Horn Sounds in Flight when Gear is Down and Throttles are Retarded	Defective nose gear DOWN indicator switch	Replace defective switch and adjust