Suggestions On How To Operate The Manual Landing Gear

History repeats itself. Old Mooney's are finding new owners Old lessons are being taught again. And one area where new owners need to learn old tricks is in the operation of the manual landing gear on a pre-J model Mooneys I flew my first Mooney in 1967. I still remember that first takeoff at Hobby Field in Houston. I was all up tight about operating the manual landing gear for the first time. Once airborne, I grabbed the Johnson bar with my right hand and slammed it to the floor like my life depended on it. At the same time we experienced some negative "G's" as my left hand shoved the yoke forward. I guess the guy that said "for every action there is an opposite and equal reaction" must have observed a new Mooney pilot. After a few flights the manual landing gear was tamed, and today, my gear of choice is still a manual gear.

Three most important items in manual gear operation are: 1) proper gear rigging, 2) preload and lubrication, and 3). Properly rigged and lubed, the gear can be easily operated by the smallest and weakest Mooney pilots.

When the original Mooney Mite was first introduced, Pilots learned how to operate the gear by placing the Mite on saw horses and cycling the gear. Today, we're a little big for sawhorses but placing the plane on jacks accomplishes the same thing and is not a bad idea for first time Mooney pilots to practice lowering and raising the wheels.

During a recent annual, we had a Mooney on jacks and the right front seat was out. With my friend Max Rae in the left seat I took photo's of each step of the retraction and extension process. Hopefully these pictures and explanation will help some of you newcomers, tame "the beast."

With the aircraft on jacks, the first item of business is to make sure the area between the seats is clear of books, pencils flashlights and seatbelts. This check is also important in flight. One of the most common restrictions to landing gear retraction is the right hand seatbelt buckle. If a front seat passenger isn't present a good practice is to always latch the right seat belt around the bottom of the seat. Nothing worse than to take off, with an audience watching, retract the gear and be unable to latch the gear in the retracted position because the right seat belt is laying in the floor. Also be careful after an upholstery job. They always put extra backing on the carpet in this area, and you may not be able to latch the gear up.

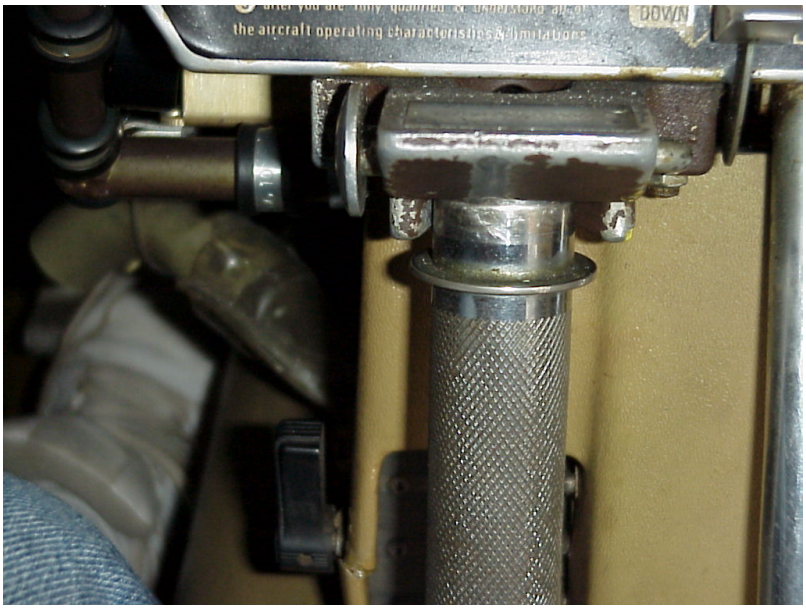

Photo 1

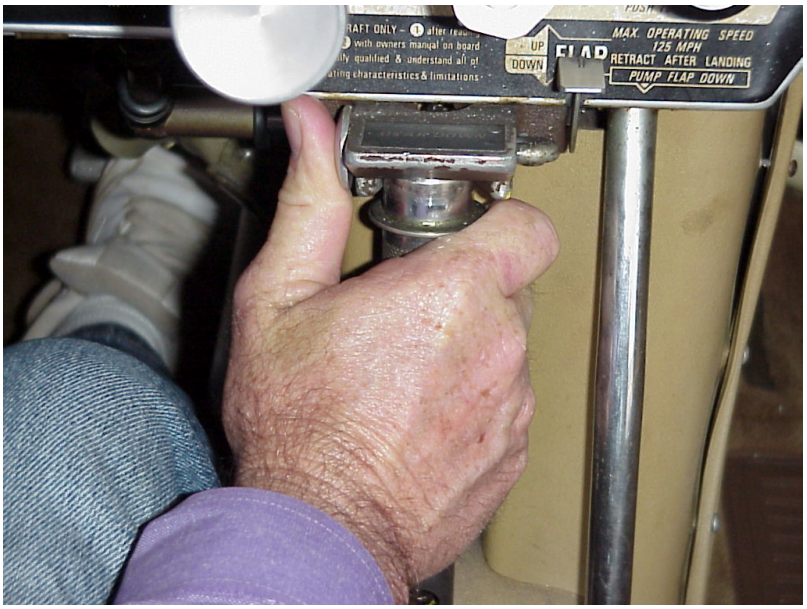

Photo 2

Photo #1 shows the gear handle and safety latch in the down and locked position. Photo #2 shows the first step in the retraction process. The gear safety latch is released by depressing the button to the right. Early “B” and “C” model Mooneys did not have this safety latch, but an early service bulletin provided for an upgrade to the latch. If your Mooney did not have this safety latch, but an early service bulletin provided for the installation of this latch on those models. If your Mooney does not have this latch, it should be installed as soon as possible. It is a significant safety device and could keep the gear from retracting inadvertently.

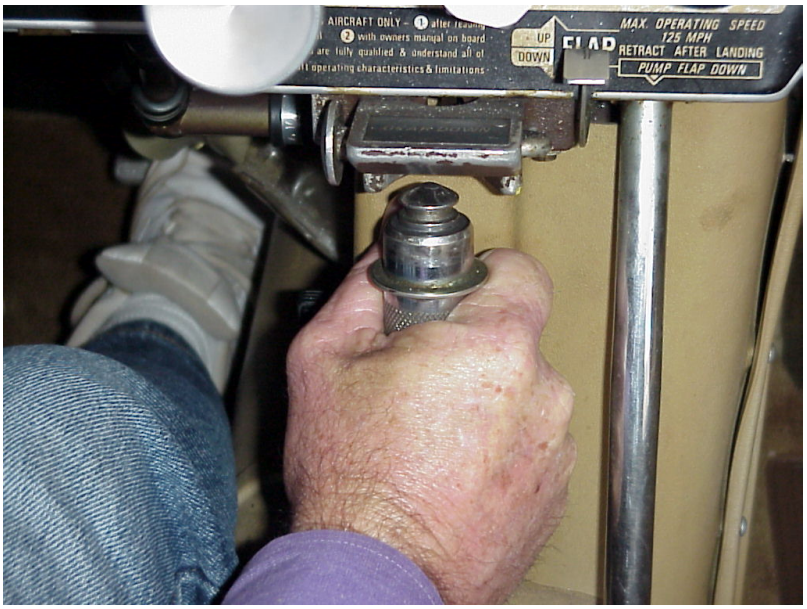

Photo 3

After depressing the safety release with your right thumb, the gear handle should be shoved forward, slightly and at the same time the gear handle should be rotated and slid down as shown in photo #3.

Photo 4

The key to the next move is your left elbow. Before the gear handle is rotated, firmly plant your left elbow into the arm rest. Photo #4. This not only supports your upper body, it allows you to steady the yoke in your left hand and prevents the pitch oscillation know as the Mooney wave.

Pilots that learn in other type aircraft are taught to leave the gear alone until you can no longer land on the runway. Mooney pilots are usually referred to as smart alecks and showoffs, because they retract the gear so quickly.

But there is a reason for this. As you will soon learn, gear retraction is easier at lower airspeeds. The higher the airspeed, the higher the manual gear operating forces become.

Photo 5

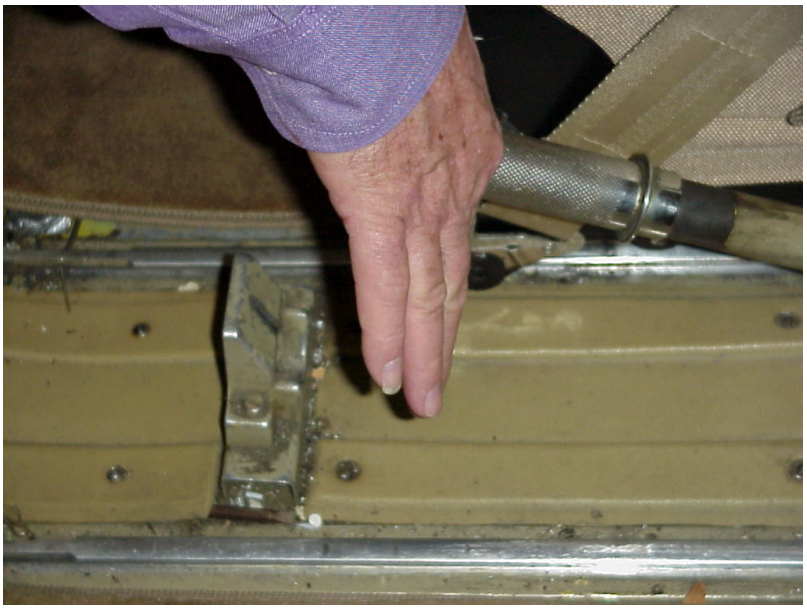

Photo 6

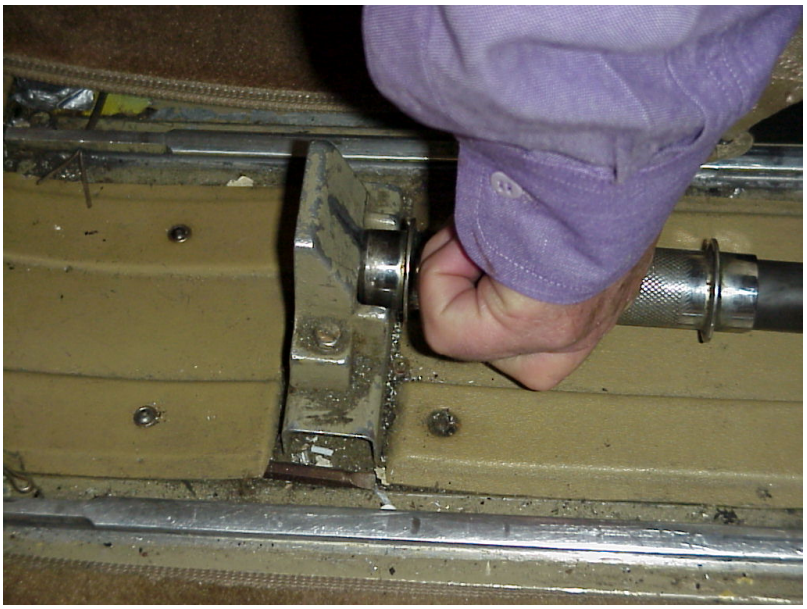

Photo 7

OK, we're in the air, altitude about 20 feet and 80 mph. Gear handle as in photo #3 is released, left elbow planted in the armrest as in photo #4. With a firm and positive motion, rotate the gear towards the floor with out stopping. After the gear rotates through 1/3 of the arc, let the handle rotate between your thumb and forefinger as shown in photo #5. Continue rotation, without stopping, to the floor as shown in photo #6. At the end of the gear handle travel, slide the handle sleeve rearward into the floor latch as shown in photo #7

With the gear retracted, you should have a red unsafe gear light visible at all times. This light is operated by a switch located in the socket just above the gear safety latch. In flight, it is possible to change the red light to green by depressing this switch. It also silences the gear horn if you need to throttle back below 12 to 14 " Manifold pressure.

Gear extension is accomplished by reducing airspeed to 120 mph or less. Unlike retraction, higher airspeeds ease extension. The exception is manual gear Mooney's with 201 style gear doors. At speeds above 100 mph, this action is often painfully high.

Again, check the area between the seats for items that can become wedged or trapped forward to the gear down position.

Photo 8

Ok, we've slowed to 120. Reach down and slide the gear handle forward. Normally the gear handle will move on its own toward the down lock position. Allow the handle to rotate through the palm of your hand as you did while retracting. See photo #8. Just as the gear handle touches the block it locks into, you should feel an increase in pressure. Continue the forward movement of the bar combined with rotating the sleeve and pushing it upward. Once engaged, the green

safelight should illuminate and there will be a gap between the thumb latch and retainer block. The gear is held in the down and locked position by 1) the gear handle being engaged inside the receptacle and 2) the groove on the top of the sleeve being engaged by the thumb safety latch.

Photo 9

Another check to make sure the gear is down and locked is the thumbnail check. See photo #9 Safely latched, you will not be able to slide your thumbnail between the sleeve and retainer block.

In my business, I get to see the result of gear up landings. Very few are caused by mechanical problems. In talking to those that “have”, it’s usually the result of being distracted or doing something out of order.

Two gear ups at our airport over the last 15 years happened the same way. Both pilots had washed their planes and thought they would fly around the patch to blow them off. For some reason, both decided to leave their gear down since they were just “going round the patch”. Unfortunately on short final, they put the gear up.

So remember, on a Mooney gear, down is up and handle up is gear down. Stick with your checklist or routine and don't be confused on short final.