

COMANCHE LANDING GEAR RETRACTION SYSTEM. INSTALLATION OF MAIN LANDING GEAR BUNGEEES.

THE FOLLOWING ARE ADDITIONAL COMMENTS FOR REPLACING THE BUNGEEES. REFER TO THE PROCEDURE MAURICE TAYLOR HAS PROVIDED [FOLLOWING]; MY COMMENTS AND/OR REFERENCING MAURICE'S PROCEDURE I.E. #X. IT MIGHT MAKE MORE SENSE IF YOU READ MAURICE'S INSTRUCTIONS BEFORE YOU READ THESE FIRST PAGES.

I'VE ALSO BEEN ASKED WHAT A REASONABLE TIME WOULD BE TO DO THIS; ONE HOUR IF YOU ARE WICKED-FAST AND CAN HIT THE HOLE, 1-1/2 HOURS WOULD BE A MORE-NORMAL GUESS, ESPECIALLY IF YOU HAVE TO FUMBLE AROUND WITH LARGE ARMS THAT DON'T FIT WELL INTO THE OPENING. THE ELECTRIC-FLAP AIRFRAMES HAVE AN ADDITIONAL PANEL OPENING THAT MAKES LIFE A BIT EASIER.

ONE NEEDS THE AIRPLANE ON JACKS AND THE TAIL TIED; ALLOW 15 MINUTES FOR PLACING THE AIRPLANE ON JACKS AND REMOVING AGAIN.

#2. THE PROCEDURE I HAVE FOUND MOST EFFICIENT FOR THE BUNGEEES IS AS FOLLOWS. WITH THE AIRPLANE RAISED ON JACKS AND THE TAIL TIED, OPEN THE 30-AMP CB FOR THE GEAR MOTOR, DISCONNECT THE LANDING GEAR TRANSMISSION AND SWING THE GEAR A BIT TO GET IT AWAY FROM OVER-CENTER AND BLOCK THE NOSE WHEEL WITH A 2X4 AS SHOWN IN THE PHOTO BELOW. OBVIOUSLY YOU WILL HAVE TO REMOVE THE WOOD BLOCK TO AGAIN REATTACH THE TRANSMISSION. DON'T FORGET TO RESET THE CB.



#9. LUBRICATE WITH A TINY AMOUNT OF LUBRIPLATE® AERO ON THE THREADS AND THE BRACKET/BOLT CONTACT AREA, THEN REINSTALL. I SUGGEST ONE-TURN AWAY FROM CONTACT; THERE'S PLENTY OF THREAD ENGAGEMENT.

#10. YOU CAN PROCEED FROM HERE AS SUGGESTED BY MAURICE, HOWEVER AN EVEN EASIER TRICK IS TO REMOVE THE CLEVIS SCREW AT THE SIDE BRACE STUD, AND THUS ALLOWING MORE FREEDOM OF MOVEMENT OF THE STRUT ASM, AND YOU WON'T NEED THE HELPER AS SUGGESTED IN AS SUGGESTED IN MAURICE TAYLOR'S INSTRUCTIONS. SEE THE [FINGER POINTING] PHOTO BELOW.

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ADDITIONAL COMMENTS

HANS NEUBERT [THE HANSMEISTER] SUGGESTS REPLACING THE BUNGEEES ANNUALLY; THEY LOSE A SIGNIFICANT PORTION OF THE FORCE EXERTED OVER NEW ONES AFTER 1 YEAR.

WHEN YOU REINSTALL THE ACCESS PANELS BEHIND THE REAR SPAR, ON THE TWIN COMANCHE MODELS THESE COVERS ARE SUPPOSED TO BE SEALED; THE FOLLOWING FROM SECTION 7-24-W IN THE TCSM.

Bungee access cover panel to be sealed with 1/8 inch bead of black 3M sealer #1126, applied to access opening flange.

NOW IS THE OPPORTUNITY TO CHECK THE BUNGEE ROLLER AT THE BUNGEE ARM, IF IT DOESN'T ROTATE IT'S OBVIOUSLY SEIZED. THIS BUNGEE BUSHING ISSUE UNFORTUNATELY IS MOST COMMON; IT HAS SWELLED INSIDE THE ROLLER FROM OVERTIGHTENING THE 1/4" BOLT. THE SOLUTION - I'VE WRITTEN A SEPARATE ARTICLE CONCERNING THESE ROLLERS WHICH IS FOUND ON MY WEBSITE UNDER "LANDING GEAR".

IF YOURS ARE NOT SEIZED, CLEAN AND LUBRICATE THE BUSHING AND ROLLER CONTACT AREA WITH A TINY AMOUNT OF LUBRIPLATE® AERO. TIGHTEN THE 1/4" BOLT TO THE POINT OF CONTACT WITH THE BUSHING, PLUS JUST A LITTLE MORE TORQUE, AND CHECK FOR FREE ROTATION. AS YOU TIGHTEN THE BOLT OBSERVE WHETHER THERE IS SOME PREVAILING TORQUE; IF NOT THEN THE NUT PLATE ON THE BUNGEE ARM HAS LOST ITS LOCKING EFFECT AND WILL NEED TO BE REPLACED.

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INSTALLATION OF MAIN LANDING GEAR BUNGEEES.**



BUNGEE TOOL AVAILABLE FOR LOAN TO CURRENT ICS MEMBERS. THIS IS THE TOOL MAURICE REFERS TO IN HIS INSTRUCTIONS

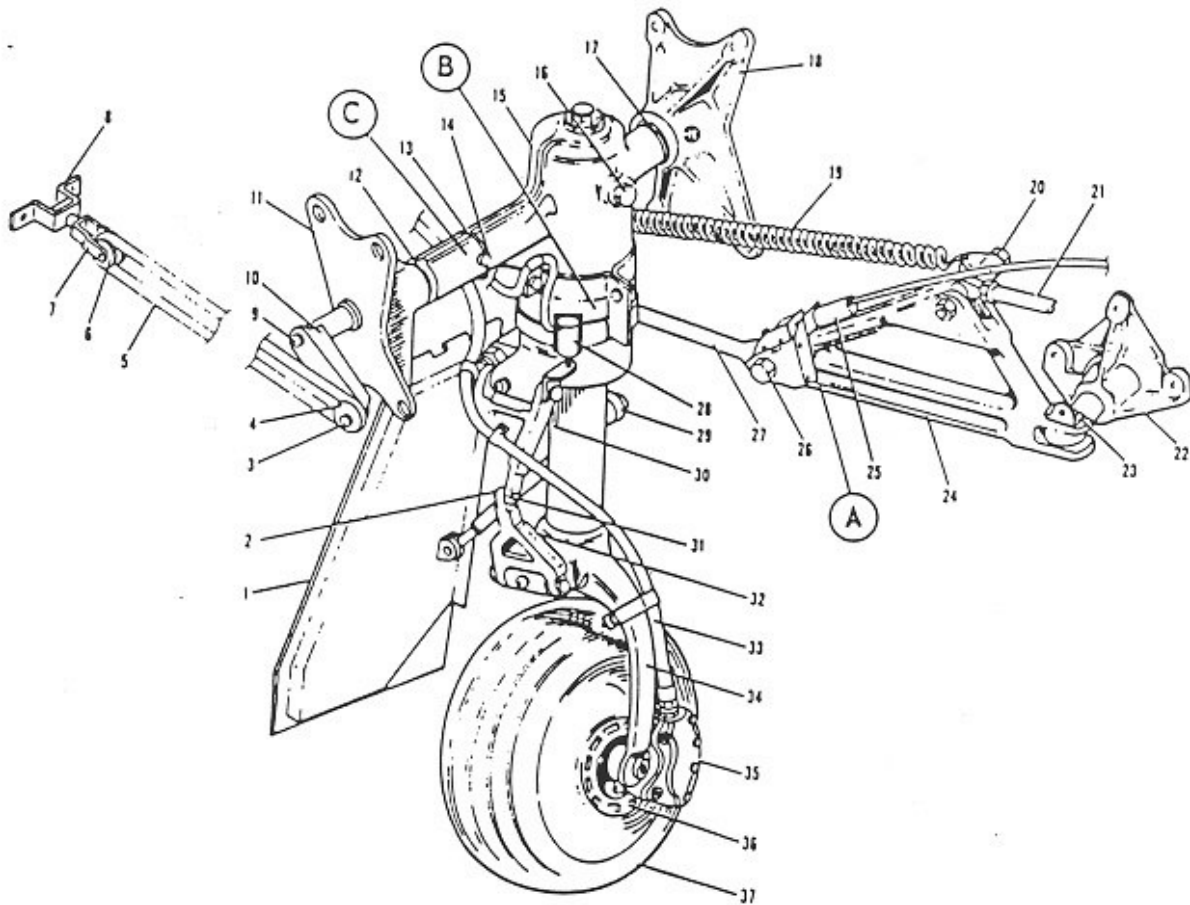


ANOTHER BUNGEE TOOL VERSION FROM BOGERT AVIATION. YOU'LL NEED A ROCK-STEADY VISE ATTACHED TO A HEAVY BENCH TO USE THIS.

INSTRUCTIONS FOR USE OF BUNGEE TOOL

1. Do NOT use pry bars, screw drivers or any other tool of this nature to get the bungee on the tool.
2. Put aircraft on jacks (inside hangar) and raise the gear using the normal electrical system. If the aircraft has a two position gear switch only (up and down position) then this can be done by first, with master switch off, select up on gear. Then with master switch on just long enough to raise gear just the few inches, disconnect the gear and put it back to down position by hand.
3. There are three ways to remove the old bungee and any of them will work.
 - (a) You can insert the bungee tool in the bungee - it is a bit hard to get the large end in at the bungee arm. Then with the gear disconnected, use the emergency system to move the gear just enough to take the tool and bungee off the bungee arm.
 - (b) Pry the bungee off the bungee arm roller using a Snap-on pry bar or large screw driver. Caution: this is a strong slingshot but it won't go very far as the outer cords will hold it.
 - (c) You can cut the bungee and if you do this, cut it slowly so at the last end only a few of the bands are left as you finish cutting.
4. Once the bungee is free of the pulley on the bungee arm, grasp it and rotate it counter clockwise to remove pulley (item 6) and bracket (item 7) with the old bungee.
5. Remove cotter pin from roller on the bracket just removed and remove roller.
6. Remove bungee tool from old bungee on stretcher. Then remove roller under wing nut and install pulley (item 6) which was removed from aircraft and snug down wing nut.
7. Install new bungee on stretcher. Then tighten or turn in screw almost all the way. Then install bungee tool in bungee.
8. Back screw out until small end of bungee tool is firmly against roller. Continue loosening screw until bungee and tool are free. Loosen wing nut and remove bungee tool with bungee and roller attached.
9. Install the bracket (item 7) and pin removed plus the cotter pin. Take this assembly to the airplane and with the help of a flashlight, screw bolt with bracket and pulley with bungee and tool attached into fitting (item 8). Tighten until just snug by hand. If tool does not line up to go over pulley on bungee arm, loosen just enough so that it will.
10. With helper in aircraft, move gear by hand until tool with bungee on it fits over pulley and then move gear enough to let you take the tool out with bungee on bungee arm pulley.
11. The gear transmission was left in the best position to easily hook it up. Move the gear by hand toward up just enough to hook up transmission. Put gear switch in down position and then turn master switch on until gear is down and you have a green light.
12. REMEMBER: bungee arms can be installed in two different positions but only one is correct. And the left and right arms are different but they will go on either side. With the gear down and viewing from back to front, the left gear arm should be at approximately 3:30 to 4:30 position and the right side approximately 7:30 to 8:30. If you find they are correctly positioned, remove one at a time so there will be no confusion about their proper placement.
13. Now install roller that was removed from bungee stretcher and install old bungee and bungee tool on the stretcher as you found it when it came to you. Properly repackage and return.

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| 1. MAIN GEAR DOOR | 29. DOOR RETRACTION ROD |
| 2. BOLT ASSEMBLY | 30. UPPER TORQUE LINK |
| 3. ATTACHMENT BOLT | 31. SHIM WASHERS |
| 4. BUNGEE PULLEY | 32. LOWER TORQUE LINK |
| 5. BUNGEE CORD | 33. BRAKE LINE |
| 6. BUNGEE PULLEY | 34. FORK ASSEMBLY |
| 7. BRACKET | 35. BRAKE CYLINDER ASSEMBLY |
| 8. FITTING | 36. WHEEL |
| 9. ATTACHMENT BOLT | 37. TIRE |
| 10. BUNGEE ARM | 38. SWITCH ACTUATOR ROD |
| 11. STRUT SUPPORT FITTING, REAR | 39. SAFETY SWITCH, EARLY |
| 12. SHIMS | 40. JAM NUT |
| 13. SAFETY WIRE | 41. ACTUATOR ARM |
| 14. STUD | 42. DOWN LOCK SWITCH, EARLY |
| 15. STRUT HOUSING | 43. SUPPORT BEARING, REAR |
| 16. STRUT FILLER VALVE | 44. SHIM |
| 17. SHIMS | 45. SNAP RINGS |
| 18. STRUT SUPPORT FITTING, FRONT | 46. BARREL NUT |
| 19. ASSIST SPRING | 47. BARREL NUT |
| 20. BOLT ASSEMBLY | 48. SUPPORT BEARING, FRONT |
| 21. PUSH-PULL CABLE | 49. ATTACHMENT BOLT |
| 22. SIDE BRACE SUPPORT BRACKET | |
| 23. PIVOT BOLT | |
| 24. UPPER DRAG LINK | |
| 25. DOWN LIMIT SWITCH, LATE | |
| 26. PIVOT BOLT | |
| 27. LOWER DRAG LINK | |
| 28. SAFETY SWITCH, LATE | |

Figure 7-9. Main Landing Gear Installation (Left)