

4. PROCEDURE

A. Final assembly

Adjusting the gear up stops

Before the landing gear doors are adjusted for proper opening and closing, the gear legs **must** be adjusted with respect to their **up limit stops**. Without up limit stops, the full amount of hydraulic pressure would be pulling against the system at all times. The systems were not designed for such a condition.

WARNING: These gear up (or retract) limit stops are critical to safe operation of the landing gear mechanisms. Failure to establish proper limit stops would result in gear failure.

1. All three landing gear retract hydraulic cylinders must create "up stops" within themselves. These "stops" can be internal or external. Internal stops would result if the cylinder piston were to bottom out within the cylinder body. This may be achievable through adjustments of the rod end bearing on the shaft. Due to acceptable builder variations, this is not always possible so we therefore supply you with "cylinder stops" which can be slid over the shaft prior to attaching the check nut and rod end bearing. This will then create an external stop by jamming between the check nut and the face of the cylinder body. See figure 13-1 for these machined aluminum cylinder stops, three are required and supplied.
2. Retract the landing gear (the procedure is the same for either the main gear or the nose gear) and determine if the piston can be made to bottom out within the cylinder when the gear is fully retracted. You will have some amount of adjustment latitude by screwing the rod end bearing either in or out on the piston shaft.

NOTE: The bearing must have been threaded onto the shaft at least 5/16". It must also have sufficient threads remaining (when threaded on to the maximum) to allow for the check nut to thread on first.

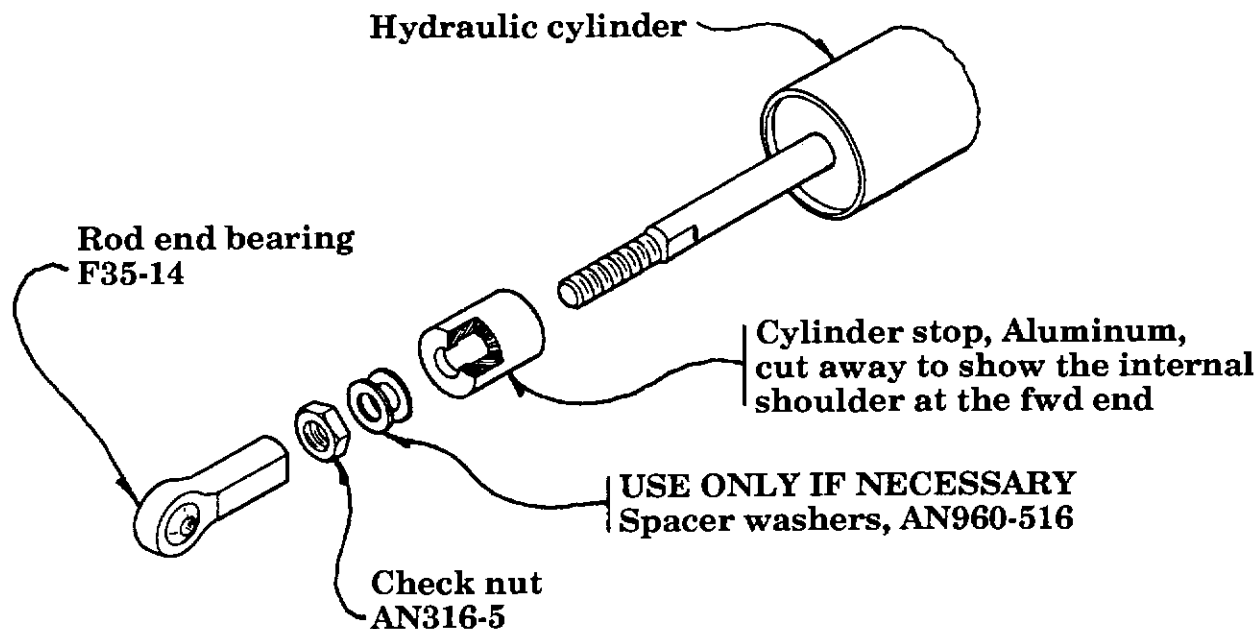
3. If adjustment can be made to create a "bottomed out" piston at full retract, then the "cylinder stop" will not be required.
4. If the above can not be achieved, then attach the cylinder stop sleeve by slipping it onto the piston shaft before the check nut and bearing are attached. The sleeve must be slid on such that its internal "shoulder" is AWAY from the cylinder body. This then allows the sleeve to slide over the shaft and the shoulder prevents it from freely sliding all the way up the shaft. The shoulder therefore functions as a "keeper" to keep the sleeve located at the threaded end of the shaft.
5. Next thread the check nut and bearing onto the shaft.



Hydraulic cylinder stop assembly

(Gear actuator)

Figure 13-1



6. Retract the gear again and establish an external stop by having the sleeve jam between the check nut and the cylinder body. This can be adjusted in two ways:
 - a. The sleeve can be cut down in length if the piston shaft must retract farther into the cylinder in order to achieve full retract position. This will be a trial and fit procedure requiring several on and off installations until the proper dimension is set.
 - b. If the sleeve is not yet tight when the gear is fully retracted, then the dimension will have to be increased. This can be accomplished using 5/16" washers (AN960-516). These washers **MUST** be positioned between the check nut and the sleeve body so that they too are contained at the threaded end of the shaft.

With both of the above adjustment approaches, the bearing can be used to somewhat fine tune the adjustment by threading it more or less onto the shaft. Be sure that the proper amount of threads are engaged, though.

7. When the adjustment is correct, you will be able to (by hand only during this adjustment phase) push the gear into the full retract position and by feeling the sides of the sleeve, note that it is indeed jammed tightly between the check nut and the cylinder body. Tighten the check nut against the rod end bearing. This will complete the adjustment.