

## Oleos

Oleos are kind of like dampers; if you think about it, they perform the same function. The important thing is that their characteristics be the same, at least the two front ones and the two rear ones need to be the same.

Especially on the older ships, they need to be bled occasionally. If the ratio between the oil and the air (nitrogen) in the four struts is not the same, then the struts will have different dampening characteristics. This can contribute to ground bounce. (Ground rock)

To bleed the oleos, lift the helicopter, (or jack one strut at a time), and disconnect the top of the top universal block from the cross tube. (See pictures below) Deflate the strut and attach a clear vinyl tube with a small hose clamp to the Schrader Valve, run the tube into a can of MIL-H-5606.

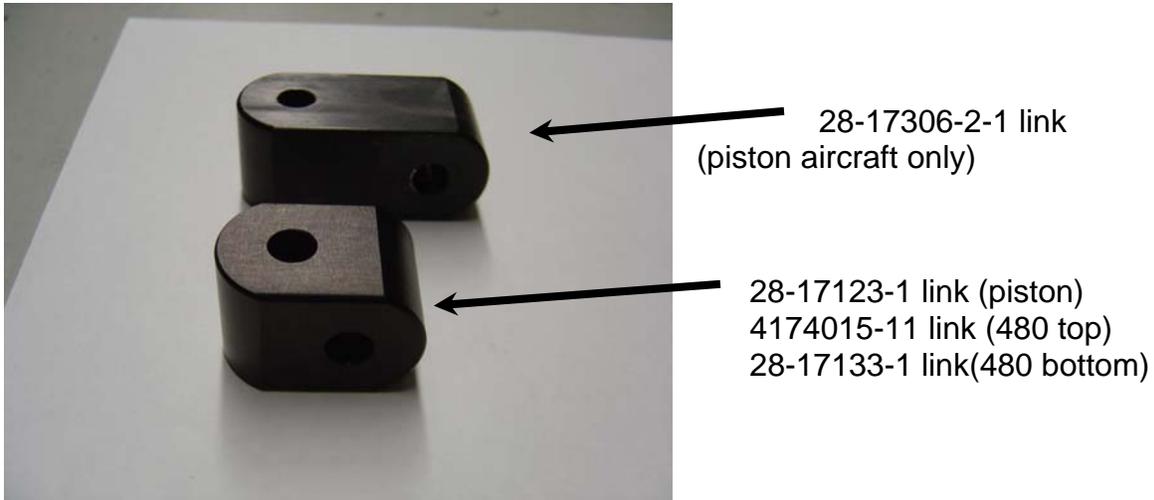
Pump the strut in and out until the fluid is clear as it runs back into the can. Then collapse the strut completely and remove the hose. When all 4 of the struts are serviced using this procedure the fluid/air ratio will be the same in each strut.

While the strut is loose, it's a great time to set the drag of the universal blocks. Many times you will actually discover the reason for the ground bounce while stroking the oleos. The four oleos should feel the same while being stroked. If one is tight or bound up you have probably found the problem and will need to disassemble that oleo strut.

The 60 inch pound guideline called out in the maintenance manual for the universal block pivot bolts frequently doesn't work very well especially on the older ships. Lubricate the bolts through the U blocks, then and tighten the nuts in each position until very slight drag is felt on the U block. When you attach the top U block back to the cross tube, you will have to guess at the torque, (use 60 inch/lbs) but there is really no other way to set the drag.

You also will need to check the torque on the inboard strut attach point. They need to be free to move, but not rattling loose. On older helicopters, the oleo universal blocks are aluminum and subject to wear. For some years now they have been fabricated out of stainless steel and hold up better. If the blocks or the strut attach points are worn, they will have to be replaced as this looseness can contribute to ground bounce.

Set the pressures on the two front oleos to be the same, and the two rear ones to be the same. I used to use 450 on all 4 for A and C, and 550 on the rear for F and FX, but to some degree that will depend on your regulator and experience.



It is important to realize that when the helicopter is based at locations at higher altitudes this will affect the required nitrogen pressures in the oleos, as will the installation of the “extended bocks” Extended blocks change the geometry of the landing gear, effectively increasing the pressure in the oleos. The gas (nitrogen) pressure in the struts will need to be reduced if any combinations of longer blocks are installed. My experience is that pressures of around 300 lbs are effective if long blocks are installed in all positions.

Many helicopters in the field have one set of long blocks installed in each rear oleo installation. This combination usually works well with normal pressures.

## 480 SERIES HELICOPTERS

For the 480 series helicopters hoist the helicopter or jack the helicopter so the landing gear is off of the ground, or so the particular oleo strut is fully extended. Set the pressure in the front oleos to 250 psi, and the rear ones to 525 psi. (The maintenance manual states 300 psi for the front, 450 rear, but the above numbers are what we are currently using on the production line)

Do not use Procedure A. on page MM-4-26 in the 480 maintenance manual which services the oleos while the weight of the helicopter is on the landing gear.



1. Lift helicopter
2. Attach a hose to the air valve and place the loose end in a container as hydraulic oil may be discharged from the oleo when the pressure is released. Secure the end of the hose to the air valve with a hose clamp or safety wire, an air-tight connection is necessary.
3. Loosen the air valve and slowly and carefully bleed the pressure out of the strut.



Pivot bolt

Universal Block

4. Remove the top pivot bolt so the strut can be swung out, pivoting on the bottom universal block.

5. Fill the container with MIL-5606 Hydraulic fluid.
6. Pump strut in-and-out until fluid is clear,(without air bubbles) on the "in" stroke.
7. Collapse the strut completely and remove the tube from air valve..
8. Set pivot bolt tensions as per the above procedures.
9. Reattach strut at top pivot bolt.
10. Service strut with nitrogen.