GENERAL

In this section are instructions for the overhaul, inspection and adjustment of the various components of the landing gear and brake systems. Also included are adjustments for the electrical limit, safety and warning switches.

Description and Operation

This airplane is equipped with a retractable tricycle air-oil strut type landing gear which is hydraulically operated by an electric hydraulic pump. A selector handle or switch on the instrument panel to the left of the control quadrant is used to select gear UP or DOWN positions.

Gear positions are indicated by a display of three green lights (for gear down and locked) located above the gear selector and a red warning light (for gear-in-transit or gear-unsafe conditions) in annunciator panel. There is no separate light to indicate that all gears are fully retracted other than all gear lights being out.

The landing gear swings to the down position and each actuator extends to its locked position, a switch located on each actuator activates to indicate by a green light that the individual gear is safely down and locked. When the gear begins to retract and the hydraulic actuators unlock, the down limit switch actuates to the NC circuit and, in series with the NC circuit of the up limit switch, allows the gear unsafe light to come on. The gear unsafe light will remain on until the gear is up and all up limit switches are actuated to their normally open (NO) circuit.

A gear warning horn will sound when power is decreased to approximately 45% unless all three gears are down. This horn will also sound if the flaps are extended beyond approach position if the gears are not down and locked.

The red gear unsafe light also operates simultaneously with the warning horn. Their primary purpose is to give warning when power is reduced below approximately 45% and the landing gear has not reached the down and locked position. This circuit is controlled by the three paralleling down limit switches connected in series with a throttle switch located in the control quadrant. (refer to Chapter 91 for electrical schematics.)

Each landing gear is retracted and extended by a single hydraulic locking cylinder attached to the oleo strut housing. As the gears retract, doors enclose each gear through mechanical linkage. The gears are held in their up position by hydraulic pressure on the cylinder.

A hydraulic system modification and power pak upgrade provides a modification to the hydraulic power pak electrical system which will, under certain conditions, bypass the low pressure switch in the event the switch fails to operate.

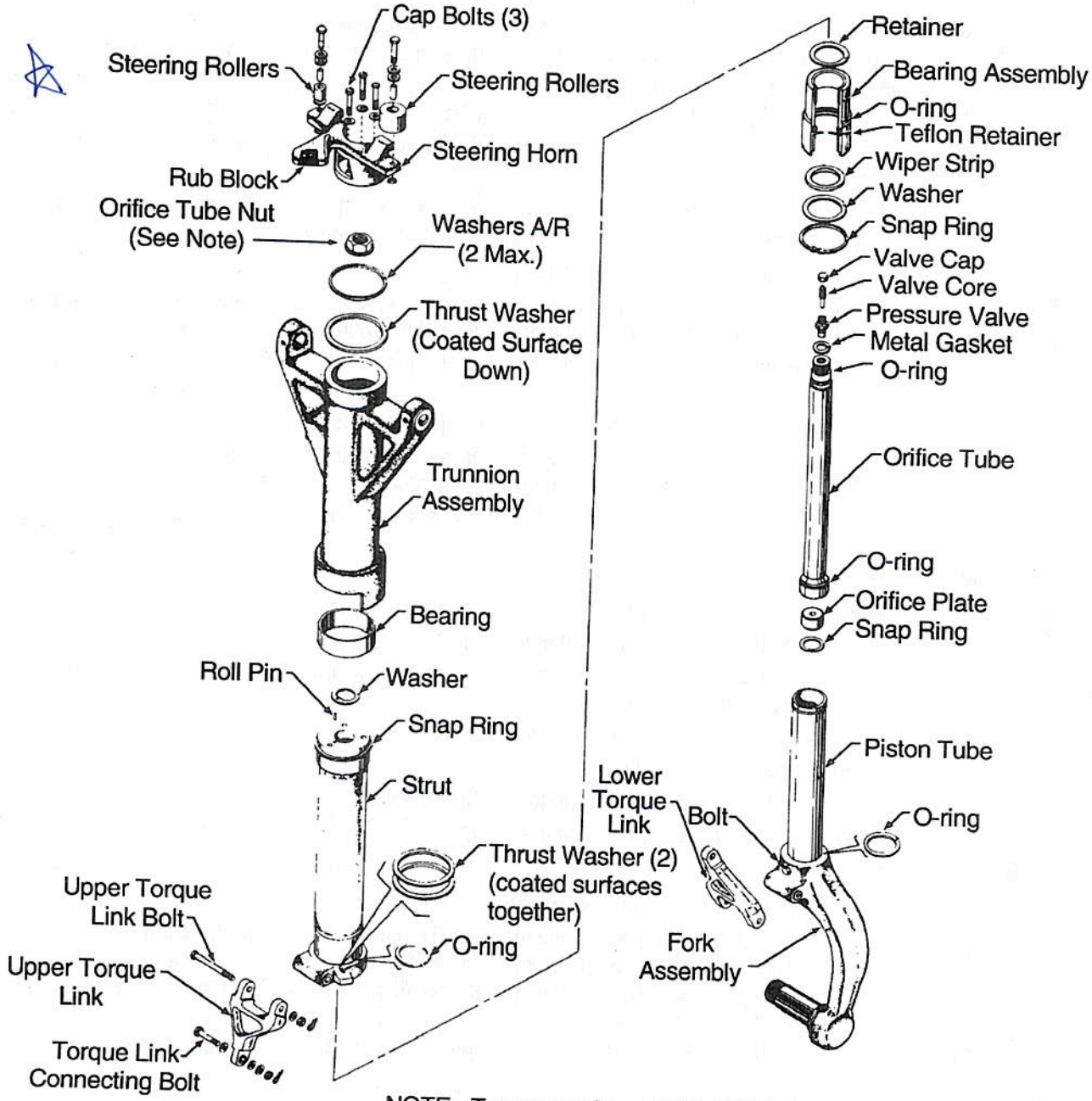
The gear system has a free fall secondary extension system which consists of a valve that is controlled from the panel. A down spring is incorporated in the nose gear to overcome air loads resisting gear extension.

The nose gear is steerable through a 60 degree arc by use of the rudder pedals. As the gear retracts, the steering linkage becomes separated from the gear so that rudder pedal action with the gear retracted is not impeded by the nose gear operation. The nose gear rotates 90° to stow in the horizontal position underneath the luggage compartment floor. A steering bungee is also incorporated in the nose wheel steering mechanism.

The main wheels are equipped with dual piston, single-slotted disc hydraulic brakes.

The parking brake is set by depressing both toe brakes and setting a push-pull valve lock on the instrument panel.

GRIDS 3C20 THRU 3C24
INTENTIONALLY BLANK



NOTE: Torque nut from 500 to 600 inch-pounds.

Nose Gear Oleo Strut Assembly
Figure 1

2. Nose Gear Oleo

A. Disassembly

The nose gear oleo assembly may be removed and disassembled from the gear oleo housing with the gear removed from or installed on the airplane.

(1) Place the airplane on jacks. (refer to Jacking, 7-10-00).

(2) Place a drip pan under the nose gear to catch spillage.

(3) Remove air and oil from the oleo strut. Depress the air valve core pin until the strut chamber pressure has diminished, remove the filler plug and, with a small hose, siphon as much hydraulic fluid from the strut as possible.

(4) To remove the complete strut and fork assembly from the oleo housing:

(a) Cut the safety wire on the three cap bolts that retain the steering arm to the strut. Remove the bolts.

(b) Remove the snap ring, thrust washer, and washers (if any) at the top of the strut housing.

(c) Pull the complete strut and fork assembly from the bottom of the housing.

(5) To remove the piston tube and fork from the strut:

(a) Separate the upper and lower torque links by removing the link connecting bolt assembly. Separate the two links. noting the amount of spacer washers between the two links.

(b) Compress the piston tube. Reach up along the tube and release the snap ring from the annular slot at the bottom of the strut.

(c) Pull the piston tube with its component parts from the strut.

(d) The piston tube components may be removed from the piston tube by removing the retainer from the annular slot at the top of the piston tube.

(e) Slide the bearing assembly (with inner O-ring and teflon retainer), wiper ring, washer and snap ring off of the piston tube.

(6) To remove the orifice tube:

(a) Remove the orifice tube retaining nut from the top of the strut assembly.

(b) Pull the orifice tube down and out of the strut.

(c) The orifice plate is removed from the bottom of the orifice tube by releasing the snap ring that holds the plate in position.

(7) To remove the piston tube plug with O-ring:

(a) Remove the bolt assembly.

(b) Insert a rod up through the hole in the body of the fork.

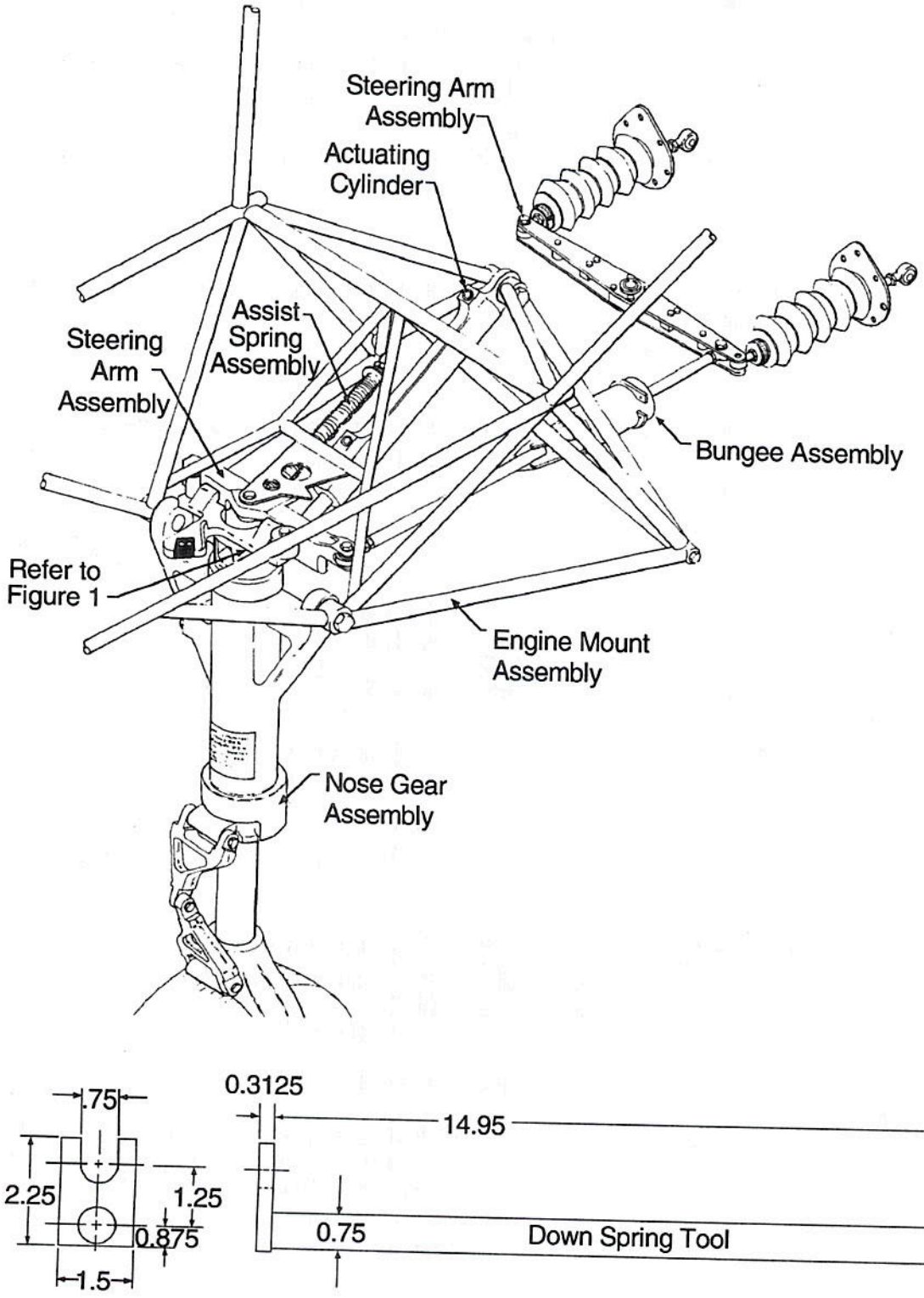
(c) Push the plug out through the top of the tube.

B. Assembly

(1) Ascertain that parts are cleaned and inspected.

(2) To install the piston tube plug, first lubricate the tube plug and O-ring with hydraulic fluid (MIL-H-5606) and install the O-ring on the plug. Lubricate the inside wall of the tube, insert the plug into the top of the tube and push it to the fork end. Align the bolt holes of the fork, tube and plug and install the bolt assembly.

(3) If desired, cement a cork in the hole in the bottom of the fork body to prevent dirt from entering between the fork and tube.



Nose Gear Installation
Figure 2

D. Adjustment

(1) Remove the engine cowl.

(2) Place the airplane on jacks. (refer to Jacking 7-10-00.)

(3) Place gear in UP position. Gear should retract until it touches gear up stop, located on right hand side of nose gear wheel well opening.

(4) Adjust gear for retracted position only, as follows:

(a) Loosen locknut where actuator rod-end bearing attaches to trunnion.

(b) Adjust actuator for full retraction.

(c) Tighten locknut.

(5) Repeat step (4) as needed.

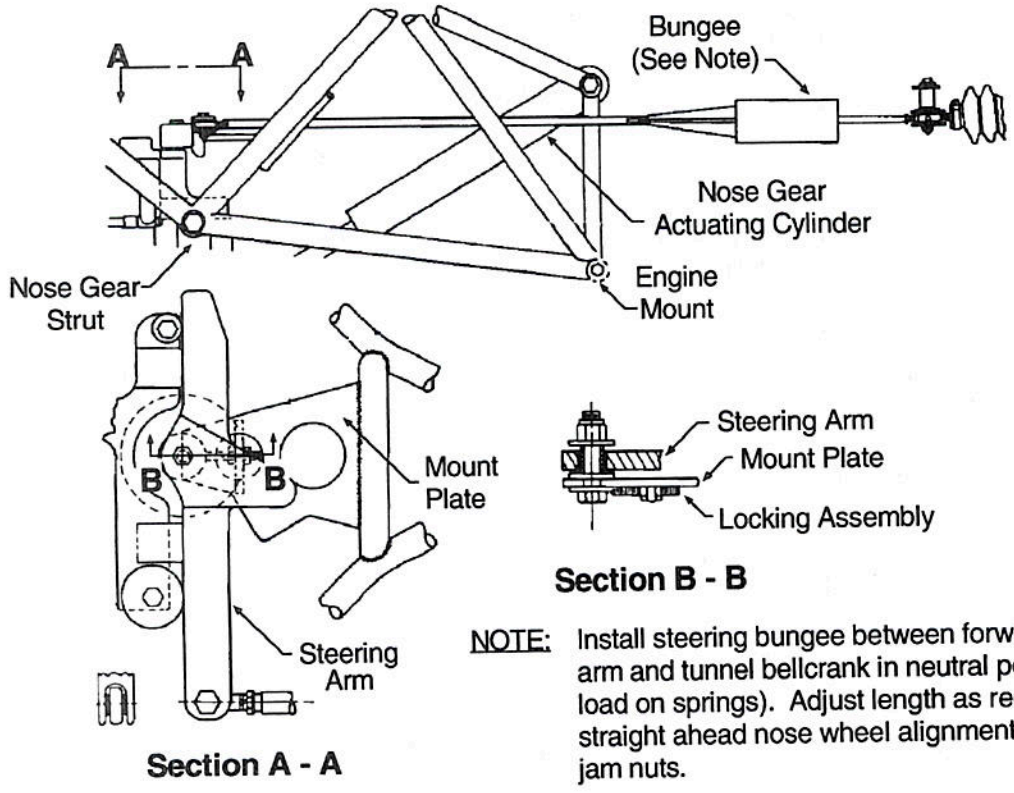
(6) Place gear in DN position. Extended position is determined by the cylinder locking. (refer to Nose Gear Actuator Assembly, 32-30-00)

(7) Remove airplane from jacks.

E. Alignment

(1) Place the airplane on a smooth level floor that will accommodate the striking of a chalk line.

(2) Ascertain that the nose gear is properly adjusted as given in Nose Gear Assembly - Adjustment, above.



NOTE: Install steering bungee between forward steering arm and tunnel bellcrank in neutral position (no load on springs). Adjust length as required for straight ahead nose wheel alignment and tighten jam nuts.

Nose Gear Adjustment
Figure 3