SINCE 1983

Assembly Alert: **148**

Date: **January 22, 2001**

Subject: **Shimmy Damper**

Compliance: **Manditory**

Models Effected: **S-16 Shekari**

Please follow the enclosed instructions as follows:

Place revised assembly pages in your manual.

Description	Part Number	Qty
1/4" Eye Bolt	AN43B-26A	2
1/4" Tensile Nut	AN365-428A	2
1/4" Thick Washer	AN960-416	3
1/4" Bolt	AN4-26A	1
3/16" Thick Washer	AN960-10	2
Aluminum Spacer, 1/2" dia solid round x 2"	KAAC0012-22	(Make ½" Qty 2)
Multihole Tang	ST-16	1
3/16" Bolt	AN3-4A	1

Contact our parts department to order any needed parts.

Thank you for your attention to this matter. Hopefully we have not inconvenienced you to any great degree. Fly safe!

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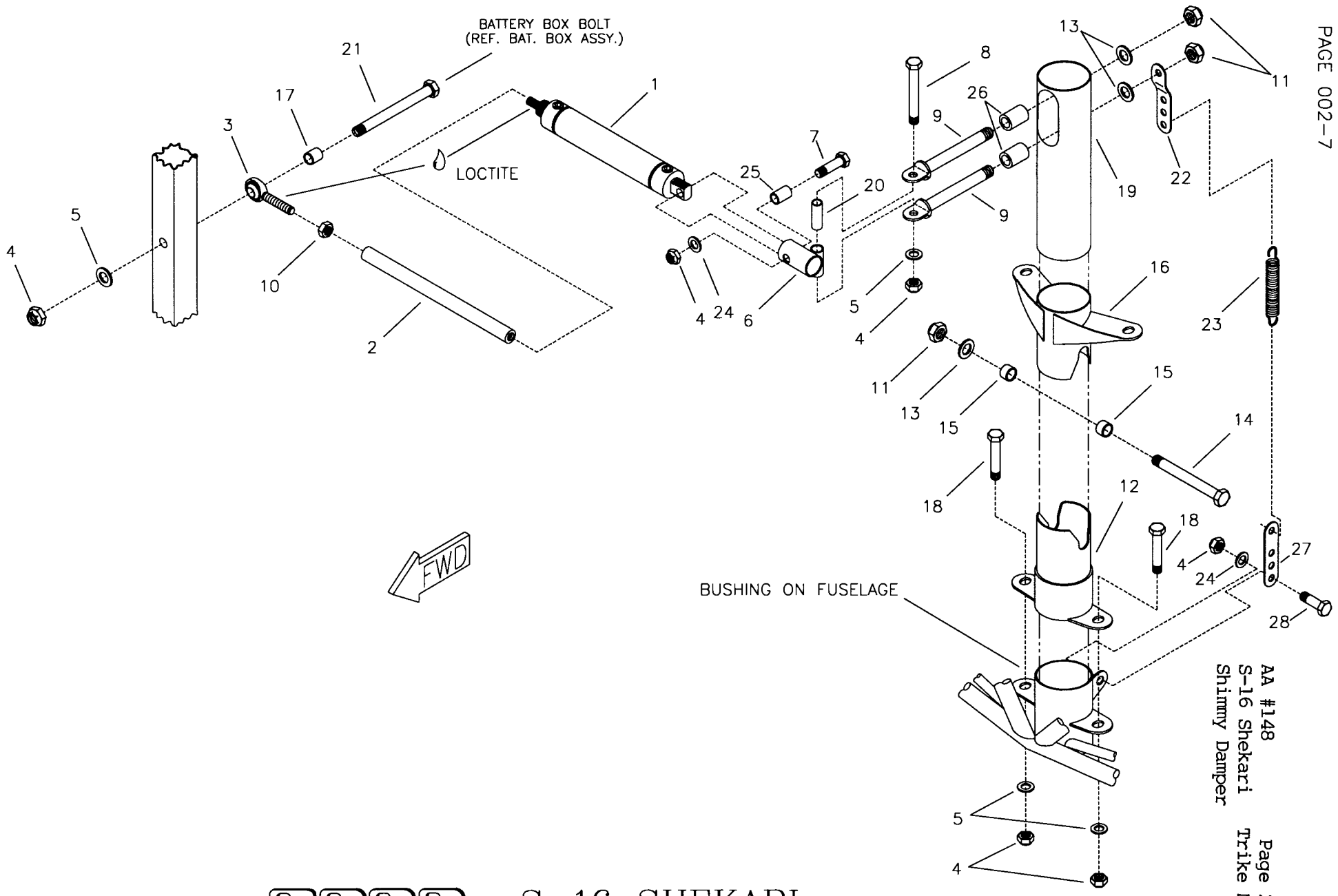

RANS S-16 SHEKARI
NOSE GEAR DISCONNECT ASSEMBLY

AA #148
S-16 Shekari
Shimmy Damper

MD3412
REV.

S-16 SHEKARI - NOSE GEAR DISCONNECT ASSEMBLY

#	DESCRIPTION	PART NUMBER	QUANTITY
1.	Shimmy Damper	KSAC0024	1
2.	Aileron Push Pull Tube - AFT	KPCS0083	1
3.	Male Rod End, 1/4" x 1/4"	NM-4	1
4.	3/16" Tensile Nut	AN365-1032A	3
5.	3/16" Thin Washer	AN960-10L	3
6.	Universal Joint	CS-PULMT	1
7.	3/16" Bolt	AN3-11A	1
8.	3/16" Bolt	AN3-14A	1
9.	1/4" Eye Bolt	AN43B-26A	2
10.	1/4" Plain Nut	AN345-416	1
11.	1/4" Tensile Nut	AN365-428A	3
12.	Locking Cam	KPNG0070	1
13.	1/4" Thick Washer	AN960-416	3
14.	1/4" Bolt	AN4-26A	1
15.	Roller Bushing, 3/8" x .095 x 1/4"	KPAC0143	2
16.	Steer Cam	KPNG0071	1
17.	Aluminum Bushing, 1/4" x .028 x 3/8" *	KAAC0012-6	0
18.	3/16" Bolt	AN3-4A	2
19.	Spacer - Nose Gear Disconnect	KPNG0072	1
20.	Aluminum Bushing, 1/4" x .028 x 1" *	KAAC0012-6	0
21.	3/16" Bolt	AN3-13A	1
22.	Multihole Tang **	ST-16	1
23.	Downspring	KSCS0014	1
24.	3/16" Thick Washer	AN960-10	2
25.	Aluminum Bushing, 1/4" x .028 x 13/16" *	KAAC0012-6	0
26.	Aluminum Spacer, 1/2" Diameter Solid Round Stick x 1/2"	KAAC0012-22	0
27.	Multihole Tang	ST-16	1
28.	3/16" Bolt	AN3-4A	1

*Builder must fabricate from raw stock.
**Builder must modify.

7. DRILL AXLE RETENTION HOLES - Locate the center of each axle bushing on the nose gear fork. Drill a #40 hole through the bushings on centerline. See **FIGURE 2-9.** Debur inside and outside.

8. INSTALL WHEEL ASSEMBLY - Install the wheel/tire assembly into the nose fork. ***Note:*** *First, check the axle insertion into the hub bearings. If the axle will not slide into the wheel, spin sand it on a belt or disc sander.* Install the axle with the aluminum bushings on each side. Note that the bushings may need to be filed to fit. Using a #40 drill bit, transfer drill through the pre-drilled holes in the axle bushings on the fork through the axle and install the cotter pins to retain the axle.

9. INSTALL DOWNSPRING – Refer to **FIGURE 2-10** and modify the multi-hole tang. ***Hint:*** *Use the joggle tool.* See **FIGURE 2-27.** Bolt a multi-hole tang to the tab on the lower swivel bushing. Attach the downspring to the multi-hole tang on the lower swivel bushing and the unbent end of the multi-hole tang. Bolt the bent end of the multi-hole tang to the lower eyebolt. Pay attention to the washer placement. ***Hint:*** *It may help to remove the locking bolt from the steer cam.*

10. ATTACH RUDDER PEDALS – ***Note:*** *Proceed with this step once the rudder pedals are in place.* Screw the steering rod linkage onto the threaded end of the steer horn link tube. Screw the eye bolt into the link tube. ***Important:*** *Do* ***not*** *forget to Loctite the threads after a trial fit-up.* ***Note:*** *Remember, it must engage at least ten (10) turns.* Connect the link tube assemblies to steer cam. Center the nose gear, place the rudder pedals in a neutral position and attach the aft end of the link tubes. Adjust the link tubes to maintain the nose gear on a straight course.

11. MAINTENANCE SCHEDULE - While rotating the nose column, lube the swivel bushings with quality grease. This will be required at least every 12 months under normal operations. Disassemble, clean and re-lube the spring every 12 months or as required. To service, weight tail and tie with the nose wheel off the ground. ***Note:*** *Use the weight of the aircraft to compress the nose gear strut.* Remove, clean and re-assemble. Inspect the bolt every pre-flight for wear. Replace if the bolt shows signs of "grooving."

TAIL TIEDOWN INSTALLATION

1. INSTALL TIEDOWN – Using the horizontal stabilizer spar as a guide, mark center on bulkhead #5 near the skin. Place the bearing plate curved side down on centerline and transfer drill #11 into the bulkhead and debur. Bolt the bearing plate to the aft side of bulkhead #5. For the tiedown eye retainer bolts drill #11 through the bearing plate and skin. Debur and bolt on the eye from the bottom. ***Note:*** *This same location attaches the tailspring.*

OPTIONAL NOSE GEAR STRUT FAIRING ASSEMBLY

Note: *Install the nose gear strut fairing after final assembly of the fuselage shells to the cage.*

1. TRIM RUBBER EDGING - Locate the parts shown in the parts manual. Trim the rubber edging to fit the upper fairing.

2. REMOVE NOSE GEAR FORK - Remove the nose gear fork from the nose gear assembly. ***Hint:*** *Use the weight of the aircraft to compress the spring.*

NOSE GEAR ASSEMBLY & INSTALLATION

SPECIAL NOTE: *The S-16 nose gear features a nose gear disconnect. In flight, the nose gear is pulled down by a spring into a centering cam to hold the nose into the slipstream. This eliminates unwanted yaw input and enhances handling. The system has been highly proven on our S-6 Coyote II aircraft, but remains untested on the S-16. Please assemble your aircraft with the disconnect. Once approval is given, you can remove the locking bolt, rather than trying to install it in a finished plane.*

1. INSTALL LOCKING CAM – Select all the parts for the nose gear. ***Note:*** *The nose gear strut is pre-assembled.* Align and bolt the locking cam onto the lower nose gear swivel bushing.

2. FIT GEAR – Slip the nose gear strut into the lower swivel bushing and locking cam. Push the strut until it inserts into the top swivel bushing. ***Hint:*** *Place the cage right side up or down, whichever proves more convenient for assembly.* ***Note:*** *Some filing or reaming of the swivel bushings may be required to allow insertion and free rotation of the nose gear.* However, it is important not to ream any more than necessary to avoid nose gear shimmy. Remove the nose gear strut. Clean any debris from the swivel bushings and strut.

3. INSTALL UNIVERSAL JOINT – Mark front centerline of the strut. See **FIGURE 2-7A.** Extend this line 4" from the top. ***Hint:*** *Support the strut end on a block and rest the axle end of the strut on a table to mark.* Pack and grease the thrust bearing and washer assembly and slip on the nose gear strut. Slip the strut into the lower swivel bushing and locking cam. Position the steer cam and spacer. ***Note:*** *The slot in the spacer goes to the top. Trim off the bottom of the spacer as needed for a snug fit.* Push the strut until it inserts into the top swivel bushing and bottoms out on the bearing assembly. Align the nose gear axle end with the front cage tube. Center the spacer slot on the marked centerline. Mark ¼" below the top of the slot on the centerline. Center punch and drill #30. Bolt the eye bolts to the universal joint. Remove the strut, drill the #30 hole to ¼" through the strut. ***Hint:*** *Use a drill press and v-block for best results.* Mark a second hole below the first on centerline, the same width as the eye bolts on the universal joint. Fabricate (2) aluminum spacers, by cutting length of ½" and drilling trough the center with a ¼ diameter. Install ½" aluminum spacers under head of eyebolt. Re-install the strut and bolt the universal joint to the strut. Finger tighten for now.

4. INSTALL SHIMMY DAMPER – Mark on the outboard battery box support tube, 4" below the centerline of the station 1 crossing tube and drill to #11. See **FIGURE 2-7B.** ***Note:*** *This hole will also be used to mount the battery box.* Remove the plugs from the shimmy damper and fill the cylinder with MIL 5606 Hydraulic Fluid. ***Note:*** *After filling the damper, re-install the plugs.* Cut ¼" bushing and install through universal joint and damper. Tightening the bolt will swell the bushing, making a tight fit. ***This is important****, if play exists, shimmy may result.* Bolt to the universal joint and cage.

5. LOCK STEER CAM - With the cage right side up, push the strut so that the thrust bearing and washers are tight against the lower swivel bushing. View the top of the fork and steer cam from above it. Align the tabs on the steer cam parallel with the fork.

6. INSTALL ROLLER BUSHINGS – Drill roller bushing to ¼". Position a roller bushing tight in the slot of the steer cam. See **FIGURE 2-8.** Transfer drill ¼" through the strut. Be sure the bushing remains tight in the slot. Drill the other side in the same manner. Bolt the roller bushings to the strut so they can still turn, when the strut is unlocked.