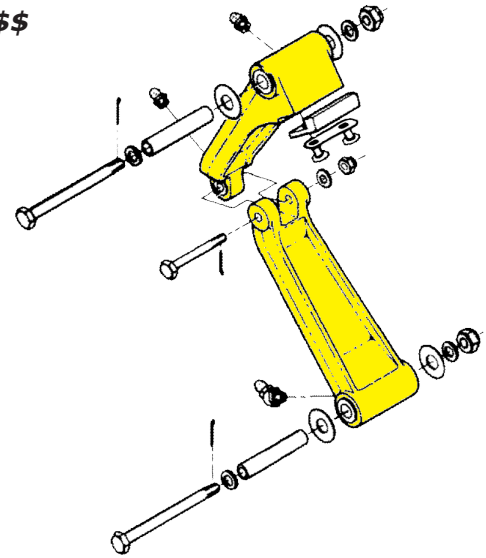
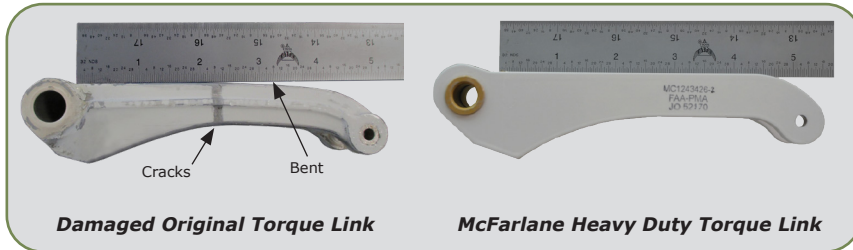


Replacement Torque Links for Cessna 100 & 200 Series Aircraft

Replace your bent Torque Links and worn Stop Lugs with our assemblies! Ours are stronger, last longer, and cost less.

- Stronger alloy — made from a high-strength billet
- More metal to resist cracking and bending
- Increased service life
- Substantial cost savings \$\$\$
- Primed and painted, ready for installation
- Complete with pre-installed Stop Lug, Bushings, and Grease Fittings

Save thousands \$\$\$



Use this chart to purchase Torque Links without bushings and stop lugs

Torque Link with Bushings	Torque Link without Bushings
MC0442506-1	1715
MC0442506-2	1716
MC0442506-12	1715
MC0543035-3	1717
MC0543035-8	1718
MC1243635-1	1715

See next page for Stop Lug and Safety Plate details

Torque Link Assembly						
Aircraft	Serial Number	Upper	Lower	Stop Lug	Safety Plate	Stop Lug Safety Plate & Bolt Kit
150D ¹ ,E,F ¹ , F150F ¹	15060477 thru 15063457 F150-0001 thru F150-0055	MC0442506-1 ³	MC0442506-2 ³	MC0442506-8 ³	MC0442506-9 ³	TLSL-KT-1
150G,H,J, F150G,H,J	All	MC0442506-1 ²	MC0442506-2 ²	MC0442506-8	MC0442506-9	TLSL-KT-1
150K,L,M, A150K,L,M, F150K,L,M, FA150K,L,M	All	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-1
FRA150L,M	All	MC0442506-1	MC0442506-2			
152, A152, F152, FA152	All	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-1
172B,C	All	MC0543035-8	MC0543035-3			
172D,E,F,G, F172D,E,F,G	All	MC0543035-8 ⁴	MC0543035-3 ⁴			
172H,I,K,L,M ¹	17245893 thru 17263458	MC0442506-1 ⁴	MC0442506-2 ⁴	MC0442506-8	MC0442506-9	TLSL-KT-1 ³ TLSL-KT-2 ²
172M ¹ ,N,P,Q	17263459 and on	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-2
172R,S	All	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-1
172RG	All		MC0442506-2			
F172H,K,L,M ¹	F17200655 thru F17201234	MC0442506-1 ⁴	MC0442506-2 ⁴	MC0442506-8	MC0442506-9	TLSL-KT-1 ³ TLSL-KT-2 ²
F172M ¹ ,N,P	F17201235 and on	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-2
FR172E,F,G	All	MC0442506-1 ⁴	MC0442506-2 ⁴	MC0442506-8	MC0442506-9	TLSL-KT-1 ³ TLSL-KT-2 ²
FR172H,J	All	MC0442506-1 ²	MC0442506-2 ²	MC0442506-8	MC0442506-9	TLSL-KT-1
FR172K	All	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-2
P172D	All	MC0543035-8 ⁴	MC0543035-3 ⁴			
R172E,F,G,H	All	MC0442506-1 ³	MC0442506-2 ³	MC0442506-8	MC0442506-9	TLSL-KT-2
R172K	All	MC0442506-1	MC0442506-2	MC0442506-8	MC0442506-9	TLSL-KT-2
175A,B,C	All	MC0543035-8	MC0543035-3			
177RG, F177RG	All		MC0442506-2			
182A ¹ ,B,C,D	34754 thru 18253598	MC0543035-3				

Notes:

- ¹ Partial model eligibility
 - ² Standard Nose Strut
 - ³ Heavy Duty Nose Strut
 - ⁴ Standard and Heavy Duty Nose Struts
 - ⁵ Replacement bolts for upper torque links on these aircraft is P/N MC1243422-1
 - ⁶ Replacement shims for upper torque links on these aircraft are P/N MC1243618-2 is 0.020" and P/N MC1243618-3 is 0.011"
- Upper Torque Links use Lube Fitting P/N AS15002-1P where applicable
Lower Torque Links use Lube Fitting P/N AS15002-3P where applicable

Continued on next page

Replacement Torque Links continued from previous page

Torque Link Assembly						
Aircraft	Serial Number	Upper	Lower	Stop Lug	Safety Plate	Stop Lug Safety Plate & Bolt Kit
182E,F,G,H,J	All		MC0543035-3 ⁴			
182K,L,M,N	All	MC0442506-1 ³	MC0442506-2 ³	MC0442506-8 ³	MC0442506-9	TLSL-KT-2 ³
182K,L,M,N,P1	18257626 thru 18262465	MC0442506-12 ²		MC0442506-11 ²	MC0442506-9	TLSL-KT-4 ²
182P ¹	18260826 thru 18262465		MC0442506-2 ²	MC0442506-11	MC0442506-9	TLSL-KT-4
182P ¹ ,Q,R, T182T, F182P,Q	18262466 and on	MC0442506-12	MC0442506-2	MC0442506-11	MC0442506-9	TLSL-KT-4
182S,T, T182T	All	MC0442506-12		MC0442506-11	MC0442506-9	TLSL-KT-3
FR182,R182,T182,TR182	All		MC0442506-2			
205	All	MC0543035-3 ⁴				
206H, T206H	All	MC1243635-1 ⁴	MC0442506-2 ⁴	MC1243629-2 ⁴	MC0442506-9	
P206B,C,D,E, TP206B,C,D,E	All		MC0442506-2 ⁴	MC0442506-8 ³	MC0442506-9 ³	TLSL-KT-2
TU206B,C,D,E,F ¹ U206B,C,D,E,F ¹	U206-0657 thru U20602199	MC1243635-1 ⁴	MC0442506-2 ⁴	MC0442506-8 ³	MC0442506-9 ³	TLSL-KT-2
TU206F, ¹ G, U206F ¹ ,G	U20602200 thru U20607020	MC1243635-1 ⁴	MC0442506-2 ⁴	MC1243629-2 ⁴	MC0442506-9 ³	
207, 207A, T207, T207A	All	MC1243635-1 ⁴	MC0442506-2 ⁴	MC1243629-2 ⁴	MC0442506-9	
208, 208B	All	See details below				
210G,H, T210G,H	All	⁵ ⁶				
210J,K,L,M,N,R, T210J, T210K,L,M,N,R, P210N,R	All	MC1243426-2 ⁵ ⁶		MC1243038-1		

Notes:

- ¹ Partial model eligibility
 - ² Standard Nose Strut
 - ³ Heavy Duty Nose Strut
 - ⁴ Standard and Heavy Duty Nose Struts
 - ⁵ Replacement bolts for upper torque links on these aircraft is P/N MC1243422-1
 - ⁶ Replacement shims for upper torque links on these aircraft are P/N MC1243618-2 is 0.020" and P/N MC1243618-3 is 0.011"
- Upper Torque Links use Lube Fitting P/N AS15002-1P where applicable
Lower Torque Links use Lube Fitting P/N AS15002-3P where applicable

Nose Gear Torque Link Assemblies

Improved to reduce wear and prevent cracks
Upper P/N AF2643084-1
Lower P/N AF2643084-2

- Approved for all Cessna 208, 208B models
- Hard aluminum surface to reduce wear
- Precision fit and ready for installation
- Designed to prevent cracking in threaded grease fitting holes
- Durable powder coating finish

P/N AF2643084-1 (Upper)



P/N AF2643084-2 (Lower)



Manufactured by Airforms Inc.

Torque Link Stop Lugs and Safety Plate for Cessna Aircraft

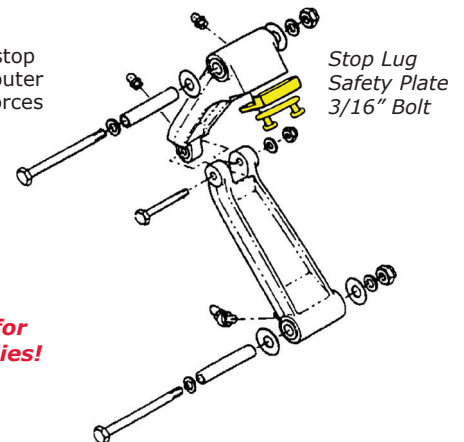
Replace worn out stop lugs to reduce drag!

This often overlooked but important part is affordable at McFarlane! The torque link stop lug is a sacrificial part that hammers against a flat spot on the lower part of the shock strut outer tube when the strut extends after take off. This prevents the strut from overextending and forces the nose wheel and rudder system into proper alignment for flight.

Due to repeated hammering with every takeoff, these stop lugs must be periodically replaced. Excessive wear can allow overextension of the strut. They also often wear unevenly resulting in inconsistent alignment of the nose wheel in flight which then causes extra drag and yaw. The extra yaw can require increased rudder trim which causes even more drag. So yes, replacing a torque link stop lug can reduce drag!

- Safety plate features bend up tabs to secure stop lug bolts
- Super tough 4130 alloy steel
- Kits include stop lug, safety plate and applicable 3/16" bolts.

**See previous page for
Torque Link Assemblies!**



More Important Than You Think

Overextension of the nose strut due to a worn out stop lug can lead to a cascade of problems. McFarlane A&P mechanics have seen struts over extend to the point where the metering pin comes out of the orifice. This results in loss of dampening action and the pin hammering the orifice every landing and distorting and enlarging it. Over time, the excess nose strut travel and lack of dampening can result in fatigue cracks in the torque link arms. McFarlane recommends thoroughly inspecting all nose strut components when replacing a severely worn stop lug.



Maintenance Tip:

Replace the stop lug if it is no longer flush with the strut, mushroomed, worn rounded, bent away from the torque link, or if it has stress cracks. The safety plate should not be reused.

Cessna Nose Gear Torque Link Repair Kits

FAA-PMA approved P/Ns TL-KT-1 thru TL-KT-11
Includes all commonly replaced torque link parts in a convenient kit:
Bushings, Spacers, Shims, Nuts, Bolts, Washers and Cotter Pins

Prevents nose wheel shimmy!

Cessna Brass Nose Gear Torque Link Shim Kit

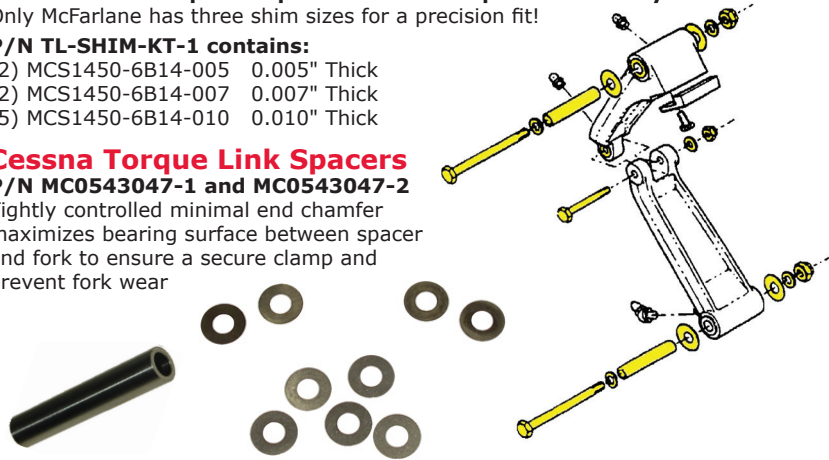
Eliminates undamped torque link motion to prevent shimmy
Only McFarlane has three shim sizes for a precision fit!

P/N TL-SHIM-KT-1 contains:

- (2) MCS1450-6B14-005 0.005" Thick
- (2) MCS1450-6B14-007 0.007" Thick
- (5) MCS1450-6B14-010 0.010" Thick

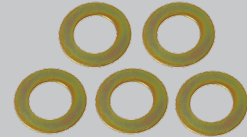
Cessna Torque Link Spacers

P/N MC0543047-1 and MC0543047-2
Tightly controlled minimal end chamfer maximizes bearing surface between spacer and fork to ensure a secure clamp and prevent fork wear



NAS1149F0316P Ultra-Thin Washers

Hard to find 3/16" ID, 0.016" thick standard steel washers are useful for fine tuning the center "knee" joint fit on most Cessna torque links. Available in packs of 5.



Not included in torque link kits

Model	Serial Number	Part Numbers																			
		TL-KT-1	TL-KT-1-H 8	TL-KT-2	TL-KT-4	TL-KT-5	TL-KT-6	TL-KT-7	TL-KT-8 2	TL-KT-9 2 7	TL-KT-10	TL-KT-11	TL-SHIM-KT-1	MC0543047-1	MC0543047-2	MCS1450-6B14-005	MCS1450-6B14-007	MCS1450-6B14-010	MCS1450-6B14-012	MCS1450-6B14-015	
150, 150A,B,C,D,E,F,G,H,J,K,L,M, A150K-M, F150F-M, FA150K-M, FRA150L,M	All	•	•										•								
152, A152, F152, FA152	All	•											•								
172, 172A,B,C,D,E,F,G,H,I,K,L,M,N,P,Q,R,S, F172D-P, FP172, FR172E-K, P172D, R172K	28000 thru 36141, 36150 thru 36153 36142 thru 36149, 36154 thru 172S99999							•													
172RG	All						•														
175, 175A,B,C	All	•																			
177, 177A,B	All									•											
177RG, F177RG	All							•													
182	All	•									•										
182A,B,C,D,E,F,G,H,J,K,L,M,N,P,Q	All	•																			
182R	All																				
182S,T, T182T	All	•																			
F182P,Q	All	•																			
R182, T182, FR182, TR182	All																				
205 (210-5) 205A, (210-5A)	All	•																			
206, P206, P206A, TP206A, TU206A, U206, U206A 3	All	•	•																		
P206B,C,D,E 1, TP206B,C,D,E 1 6	P206-0307 thru P20600641	•																			
P206E 1, TP206E 1	P20600642 thru P20600647																				
TU206B,C,D,E 1, U206B,C,D,E 1 6	U206-0657 thru U20601537	•																			
TU206E 1, F 1, U206E 1, F 1	U20601538 thru U20602199																				
TU206F 1, G, U206F 1, G	U20602200 thru U20607020																				
206H, T206H	All																				
207 1, 207A, T207 1 4, T207A	20700001 thru 20700228 20700229 thru 20700788																				
210, 210A,B,C,D,E,F,G,H,J	All	•																			
210K 3	All	•	•																		
210L 1 5, T210L 1 5	21059503 thru 21060255	•																			
210L 1, M,N,R, P210N,R, T210L 1, M,N,R	21060256 and on																				
T210F,G,H,J,K	All	•																			

1 Partial model eligibility
 2 Used on Cessna models with heavy duty landing gear that use AN6 size (3/8-24 UNF) bolts in the upper and lower torque link joints. The normal duty landing gear uses AN4 size (1/4-28 UNF) bolts in the upper and lower torque link joints.
 3 These models may use one of two choices. Aircraft with both upper and lower spacers measuring ~ 2 inches long will use TL-KT-1 (containing two MC0543047-1 spacers). Aircraft with an upper spacer measuring ~ 2.6 inches and a lower spacer measuring ~2 inches will use TL-KT-2 (containing one MC0543047-1 and one MC0543047-2 spacer).
 4 These models may use one of two choices. Aircraft with both upper and lower spacers measuring ~ 2 inches long will use TL-KT-5 (containing two MC0543047-1 spacers). Aircraft with an upper spacer measuring ~ 2.6 inches and a lower spacer measuring ~2 inches will use TL-KT-4 (containing one MC0543047-1 and one MC0543047-2 spacer).
 5 These models may use one of two choices. Aircraft with both upper and lower spacers measuring ~ 2 inches long will use TL-KT-1 (containing two MC0543047-1 spacers). Aircraft with an upper spacer measuring ~ 2.6 inches and a lower spacer measuring ~2 inches will use TL-KT-7 (containing one MC0543047-1 and one MC0543047-2 spacer).
 6 These models may use one of two choices. Aircraft with both upper and lower spacers measuring ~ 2 inches long will use TL-KT-1 (containing two MC0543047-1 spacers). Aircraft with an upper spacer measuring ~ 2.6 inches and a lower spacer measuring ~2 inches will use TL-KT-11 (containing one MC0543047-1 and one MC0543047-2 spacer).
 7 Availability of one component of this kit (0841000-63) is limited. Call for current status.
 8 P/N TL-KT-1H only eligible for serials 15060477 thru 15064532 - **WITH** heavy duty nose gear

Landing and Nose Gear Torque Links

Cessna Caravan Torque Link Repair STC

Minimal downtime repair to keep
208/208B nose gears shimmy-free

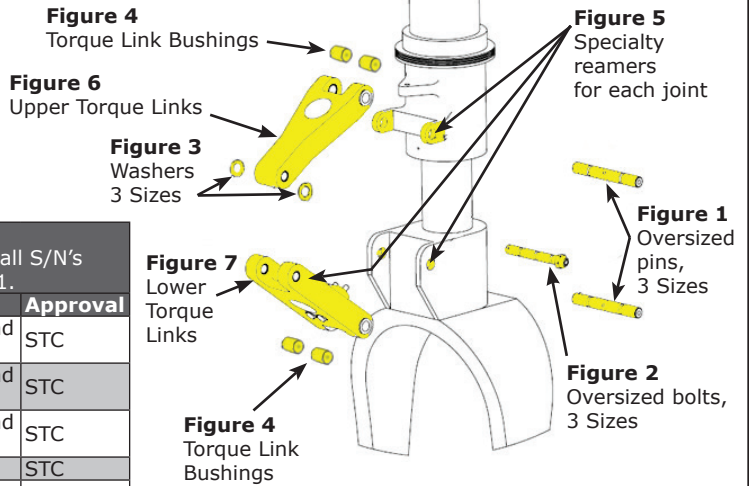
This STC will dramatically reduce nose gear swaps

- Save over \$15K and be flying the same-day
- Reduce downtime by repairing in the field
- Convenient tool kit allows for on-airplane repair
- EASA approved

Eligible model series:

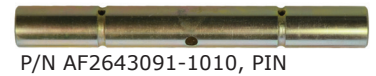
Fits all Cessna 208/208B with "double lug" torque links. Includes all S/N's after 2080133/208B0098 or earlier S/N's equipped with SK208-51.

Fig	Part Number	Description	Approval
5	TOOL KIT + .010	REAMERS, Oversized .010 - short and long piloted reamers + tap handle	STC
5	TOOL KIT + .020	REAMERS, Oversized .020 - short and long piloted reamers + tap handle	STC
5	TOOL KIT + .030	REAMERS, Oversized .030 - short and long piloted reamers + tap handle	STC
5	TOOL KIT 32-604-56-01	REAMERS, all three sizes	STC
6	AF2643084-1	Upper Torque Link	PMA
7	AF2643084-2	Lower Torque Link	PMA
1	AF2643091-1	PIN, Nominal	PMA
1	AF2643091-1010	PIN, Oversize .010	PMA
1	AF2643091-1020	PIN, Oversize .020	PMA
1	AF2643091-1030	PIN, Oversize .030	PMA
2	AF2643092-1	BOLT, Nominal	PMA
2	AF2643092-1010	BOLT, Oversize .010	PMA
2	AF2643092-1020	BOLT, Oversize .020	PMA
2	AF2643092-1030	BOLT, Oversize .030	PMA
3	32-604-37-22005	WASHER, .005 thickness	STC
3	32-604-37-22010	WASHER, .010 thickness	STC
3	32-604-37-22015	WASHER, .016 thickness	STC
4	AF2643085-200	BUSHING, Torque Link	PMA
	STC-TORQUE LINK	Torque Link STC	STC



Tool kits contain:

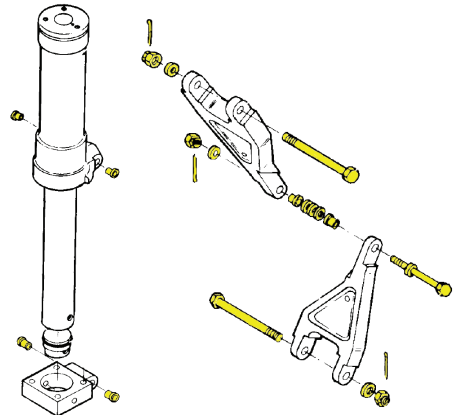
Short and long piloted reamers and tap handle



Nose Gear Torque Link Repair Kits for Piper Aircraft

Prevents shimmy by removing looseness in the torque links

- Replaces all common wear torque link components in a convenient kit
- Fits most Piper aircraft
- Contains FAA-PMA parts from PMA Products, standard hardware, or original Piper parts
- Save time and money! No more research and ordering of individual parts



Aircraft	Serial Number	Main Wheel Kit 2 kits req if not labeled Left/Right	Nose Wheel Kit
PA-23, PA23-160	All	PTL-KT-91	PTL-KT-91
PA-23-235	All	PTL-KT-92 w/o Notched Bushings PTL-KT-93 w/Notched Bushings	PTL-KT-92 w/o Notched Bushings PTL-KT-93 w/Notched Bushings
PA-23-250	All	PTL-KT-92 w/o Notched Bushings PTL-KT-93 w/Notched Bushings	PTL-KT-92 w/o Notched Bushings PTL-KT-93 w/Notched Bushings
PA-E23-250	All	PTL-KT-92 w/o Notched Bushings PTL-KT-93 w/Notched Bushings	PTL-KT-92 w/o Notched Bushings PTL-KT-93 w/Notched Bushings
PA-24, PA-24-250, PA-24-260, PA-24-400	All	PTL-KT-36 Left PTL-KT-75 Right	PTL-KT-95
PA-28-140, PA-28-150, PA-28-160, PA-28-180	All	PTL-KT-11	PTL-KT-31
PA-28-151	All	PTL-KT-13	PTL-KT-29

Continued on next page

Nose Gear Torque Link Repair Kits for Piper Aircraft continued from previous page

Aircraft	Serial Number	Main Wheel Kit <i>2 kits req if not labeled Left/Right</i>	Nose Wheel Kit
PA-28-161	2816001 thru 2816119	PTL-KT-4 1	PTL-KT-31
	2841001 thru 2841365	PTL-KT-10	PTL-KT-26
	2842001 thru 2842999	PTL-KT-5	PTL-KT-32
	28-7716001 thru 28-7816253 28-7816254 thru 28-8616057	PTL-KT-15 PTL-KT-4 1	PTL-KT-31
PA-28-181	2843001 thru 2843999	PTL-KT-3	PTL-KT-30
	2890001 thru 2890231	PTL-KT-7	
	28-7690001 thru 28-7890231 28-7890232 thru 28-8690062	PTL-KT-12 PTL-KT-7	PTL-KT-27
PA-28-201T	All	PTL-KT-2	PTL-KT-52
PA-28-235	All	PTL-KT-11	PTL-KT-31
PA-28-236	All	PTL-KT-77	PTL-KT-28
PA-28R-180	28R-30002 thru 28R-31279	PTL-KT-59 Right	PTL-KT-78
	28R-7130001 thru 28R-7130005	PTL-KT-40 Left PTL-KT-60 Right	PTL-KT-81
	28R-7130006 thru 28R-7130013	PTL-KT-39 Left PTL-KT-60 Right	PTL-KT-81
PA-28R-200	28R-30482, 28R-35001 thru 28R-7135062	PTL-KT-40 Left PTL-KT-59 Right	PTL-KT-78
	28R-7135063 thru 28R-7135109	PTL-KT-40 Left PTL-KT-60 Right	PTL-KT-81
	28R-7135110 thru 28R-7635545	PTL-KT-39 Left PTL-KT-60 Right	PTL-KT-81
PA-28R-201, PA-28R-201T	2803001 thru 2837061	PTL-KT-44 Left PTL-KT-61 Right	PTL-KT-81
PA-28R-201	2844001 thru 2844999	PTL-KT-39 Left PTL-KT-68 Right	PTL-KT-100
PA-28R-201, PA-28R-201T	2803001 thru 2837061 28R-7703001 thru 28R-7837317	PTL-KT-44 Left PTL-KT-61 Right	PTL-KT-81
PA-28RT-201, PA-28RT-201T	All	PTL-KT-43 Left PTL-KT-61 Right	PTL-KT-80
PA-30	All	PTL-KT-95	PTL-KT-95
PA-31, PA-31-300, PA-31-325	31-5 thru 31-7812120	PTL-KT-22 w/Notched Bushings	PTL-KT-90 w/o Notched Bushings PTL-KT-98 w/Notched Bushings
	31-7812121 thru 31-8312019	PTL-KT-21 w/o Notched Bushings	PTL-KT-97 w/Notched Bushings PTL-KT-56 w/o Notched Bushings
PA-31-350	31-5001 thru 31-8553002	PTL-KT-25 w/o Notched Bushings PTL-KT-18 w/Notched Bushings	PTL-KT-67 w/o Notched Bushings PTL-KT-73 w/Notched Bushings
PA-31-350 (T1020)	31-8253001 thru 31-8553002	PTL-KT-24 w/o Notched Bushings PTL-KT-17 w/Notched Bushings	PTL-KT-70 w/o Notched Bushings PTL-KT-64 w/Notched Bushings
PA-31P	All	PTL-KT-25 w/o Notched Bushings PTL-KT-18 w/Notched Bushings	PTL-KT-65 w/o Notched Bushings PTL-KT-72 w/Notched Bushings
PA-31P-350	All	PTL-KT-25 w/o Notched Bushings PTL-KT-18 w/Notched Bushings	PTL-KT-65 w/o Notched Bushings PTL-KT-71 w/Notched Bushings
PA-31T, PA-31T1, PA-31T2, PA-31T3	All	PTL-KT-23 w/o Notched Bushings PTL-KT-16 w/Notched Bushings	PTL-KT-65 w/o Notched Bushings PTL-KT-71 w/Notched Bushings
PA-32-260	32-1 thru 32-7700023	PTL-KT-14	
	32-7800001 thru 32-7800008	PTL-KT-9	PTL-KT-33
PA-32-300	32-40000 thru 32-7840043	PTL-KT-14	
	32-7840044 thru 32-7940290	PTL-KT-9	PTL-KT-33
PA-32-301, PA-32-301T	All	PTL-KT-8	PTL-KT-34
PA-32-301FT, PA-32-301XTC	All	PTL-KT-6	PTL-KT-35
PA-32R-300	All	PTL-KT-37 Left PTL-KT-69 Right	PTL-KT-81
PA-32R-301, PA-32R-301T	3213001 thru 3229003	PTL-KT-42 Left PTL-KT-60 Right	PTL-KT-81
	3246001 thru 3257999	PTL-KT-45 Left PTL-KT-63 Right	PTL-KT-80
	32R-8013001 thru 32R-8629008	PTL-KT-42 Left PTL-KT-60 Right	PTL-KT-81
PA-32RT-300, PA-32RT-300T	All	PTL-KT-41 Left PTL-KT-60 Right	PTL-KT-99
PA-34-200	All	PTL-KT-42 Left PTL-KT-60 Right	PTL-KT-86
PA-34-200T	All	PTL-KT-38 Left PTL-KT-58 Right	PTL-KT-86
PA-34-220T	3433001 thru 3447029	PTL-KT-57	PTL-KT-86
	3448038 thru 3448079	PTL-KT-57	PTL-KT-86
	3449001 thru 34-8633031	PTL-KT-57	PTL-KT-86
PA-38-112	All		PTL-KT-1
PA-39	All	PTL-KT-95	PTL-KT-95

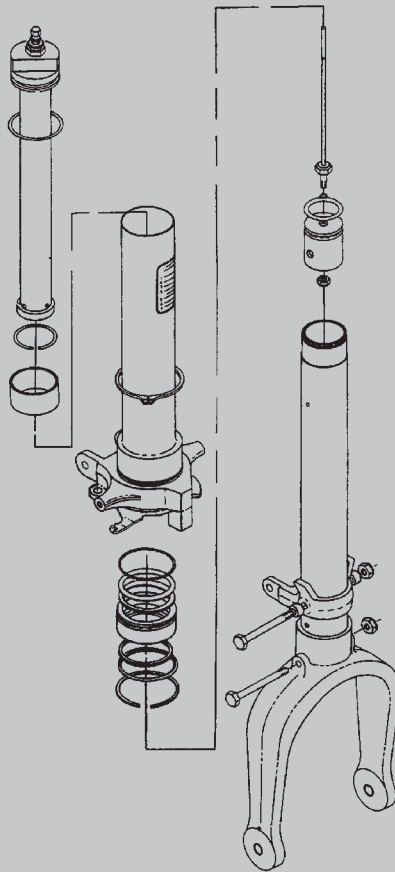
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Why Does My Cessna Nose Strut Keep Leaking Down?

By Dave McFarlane

Cessna Nose strut "leak down" has plagued Cessna owners for the last 65 years. Why is it that a month after you reseal the nose strut you find the strut down again or just low and showing signs of a little MIL-5606 on the pretty chrome? It always happens on Sunday when no one is around to help you service it. You service it up the next week only to have it do it again next month. After several strut reseals most people just resign to servicing it often and consider it part of owning a Cessna. Piper and Beech struts do not leak down or need to be resealed often and they are high pressure!

With a strong belief that everything that goes wrong on an airplane has a reason that can be explained by physics, we did some research. It was observed that the low time leaking O-ring that was removed always showed signs of being slightly twisted and otherwise like new. Further experiments and close evaluations proved that the O-ring would twist from friction caused by an oxidized hydraulic fluid film on the chrome strut. You probably have noticed how MIL-5606 hydraulic fluid tends to dry and get sticky after it is exposed to air. Add a little runway dust to the back side of the strut and it really gets sticky. The low operating pressures of the Cessna strut does not put a lot of holding pressure to stabilize the sealing O-ring. It was observed that the sticky film on the chrome strut can grab and adhere to the O-ring during a normal strut action cycle. If the sticky film is not evenly dispersed on the strut, the O-ring is rolled a little on the filmy side only. This uneven rolling action puts a slight twist in the O-ring. This slight twist can break the normal seal between the strut and the



O-ring allowing a slow unpredictable leak.

It seemed logical that if you lowered the friction on the O-ring surface you could eliminate the problem. A hunt was on for a low friction O-ring that would resist being rolled and would have good durability. After many experiments with Teflon® coated and other specialty O-rings only partial success was achieved. They either were not as durable or the sealing characteristics were not as good as the standard rubber O-ring.

A break finally came at Airventure Oshkosh when Tony Brand of Horsham Aviation Services located in Horsham, Victoria, Australia came by and explained how they solved the problem. They had observed the same twisting of the strut O-ring and went on to explain how they replaced the round O-ring with a square ("X" style) O-ring that can not rotate. The standard backup rings were simply reversed to match the square sides of the new style O-ring. The "X" O-rings have the same material as the standard ones. Brilliant! Why didn't we think of that!? We rushed home and changed all the O-ring seals in five of the airplanes on the field. One of them was our 152 trainer that takes a lot of abuse. We were going to find out if those innovative Aussies knew what they were talking about. Sure enough, that was almost five years ago and we have never had to service the nose strut (not even with air) on any of the aircraft with the square O-rings! My hat goes off to the boys from Down Under for saving the industry thousands of man hours every year and making the Cessna fleet more reliable! Thank you!

Our FAA-PMA seal kit, P/N MCKS172-1F now includes the square ("X" style) O-ring and instructions for reversing the back up rings.

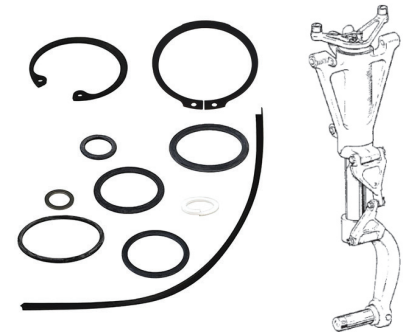
Main and Nose Strut Seal and Repair Kits for Piper Aircraft

Vast Eligibility for Pipers: PA-22 thru PA-46 aircraft

McFarlane has main and nose, strut seal kits and repair kits for Piper aircraft. Kits are model and serial number specific giving you only the parts required, saving you time and money. All components are industry standard or original Piper parts.

- Save time and money!
- Reference your model and serial number for the best fit kit
- One kit = parts for one strut

PSS seal kits contain rubber and plastic parts.
PSR repair kits contain the required PSS seal kit and commonly needed metal parts.



Aircraft Model	Serial Number	Main Strut				Nose Strut			
		Seal Kit	Qty	Repair Kit	Qty	Seal Kit	Qty	Repair Kit	Qty
PA-22, PA-22-108, PA-22-135, PA-22-150, PA-22-160, PA-22S-135, PA-22S-150, PA-22S-160	All	N/A	N/A	N/A	N/A	PSS-KT-19	1	PSR-KT-31	1
PA-23, PA-23-160	All	PSS-KT-3	2	PSR-KT-77	2	PSS-KT-3	1	PSR-KT-77	1
PA-23-235, PA-23-250, PA-E23-250	All	PSS-KT-3	2	PSR-KT-14	3	PSS-KT-3	1	PSR-KT-14	3
PA-24, PA-24-250, PA-24-260, PA-24-400	All	PSS-KT-1	2	PSR-KT-1	2	PSS-KT-1	1	PSR-KT-1	1
PA-28-140, PA-28-150, PA-28-160	28-01 thru 28-3281 28-10003 thru 28-10719 28-20002 thru 28-21639	PSS-KT-10	2	PSR-KT-34	2	PSS-KT-19	1	PSR-KT-75	1
	28-3282 thru 4377 28-10720 thru 28-7710089 28-21640 thru 28-7725290					PSS-KT-20	1	PSR-KT-60	1
PA-28-151	All	PSS-KT-36	2	PSR-KT-58	2	PSS-KT-18	1	PSR-KT-26	1

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Landing and Nose Gear Nose Strut Parts



Main and Nose Strut Seal and Repair Kits for Piper Aircraft continued from previous page

Aircraft Model	Serial Number	Main Strut				Nose Strut			
		Seal Kit	Qty	Repair Kit	Qty	Seal Kit	Qty	Repair Kit	Qty
PA-28-161	2816001 thru 2816119 2841001 thru 2841365 2842001 thru 2842999 28-7716001 thru 28-8616057	PSS-KT-36	2	PSR-KT-58	2	PSS-KT-18	1	PSR-KT-26	1
PA-28-180	28-671 thru 28-3281 28-3282 thru 28-7205328 28-730501 thru 28-7505260	PSS-KT-10	2	PSR-KT-34	2	PSS-KT-19	1	PSR-KT-75	1
PA-28-181	2890001 thru 2890231 28-7690001 thru 28-8690062	PSS-KT-36	2	PSR-KT-58	2	PSS-KT-20	1	PSR-KT-60	1
	2843001 thru 2843999	PSS-KT-33	2	PSR-KT-9	2	PSS-KT-20B		PSR-KT-60B	1
PA-28R-180, PA-28R-200	All	PSS-KT-12	2	PSR-KT-11	2	PSS-KT-4	1	PSR-KT-20	1
PA-28-201T	All	PSS-KT-31	2	PSR-KT-44	2	PSS-KT-37	1	PSR-KT-59	1
PA-28R-201	2844001 thru 2844999 2837001 thru 2837061	PSS-KT-12	2	PSR-KT-17	2	PSS-KT-12	1	PSR-KT-10	1
	28R-7737002 thru 28R-7837317	PSS-KT-11	2	PSR-KT-8	2	PSS-KT-4B	1	PSR-KT-18	1
PA-28R-201T	2803001 thru 2803012 28R-7703001 thru 28R-7803373	PSS-KT-11	2	PSR-KT-8	2	PSS-KT-4B	1	PSR-KT-18	1
PA-28RT-201, PA-28RT-201T	All	PSS-KT-12	2	PSR-KT-17	2	PSS-KT-25	1	PSR-KT-9	1
PA-28-235	28-10001 thru 28-10719 28-10720 thru 28-7210033	PSS-KT-10	2	PSR-KT-34	2	PSS-KT-19	1	PSR-KT-75	1
	28-7310001 thru 28-7710089					PSS-KT-20	1	PSR-KT-60	1
PA-28-236	2811001 thru 2811050 28-7911001 thru 28-8611008	PSS-KT-31	2	PSR-KT-44	2	PSS-KT-26	1	PSR-KT-76	1
	2811001 thru 2811050					PSS-KT-18	1	PSR-KT-26	1
PA-30	All	PSS-KT-1	2	PSR-KT-1	2	PSS-KT-1	1	PSR-KT-15	1
PA-31	31-2 thru 31-7812120 31-7812121 thru 31-8312019	PSS-KT-23	2	PSR-KT-56	2	PSS-KT-34	1	PSR-KT-52	1
	31-2 thru 31-7812120					PSS-KT-39	1	PSR-KT-62	1
PA-31-300, PA-31-325	31-7812121 thru 31-8312016 31-8312017 thru 31-8312019	PSS-KT-23	2	PSR-KT-56	2	PSS-KT-34	1	PSR-KT-52	1
	31-5001 thru 31-8352036					PSS-KT-39	1	PSR-KT-62	1
PA-31-350	31-8352037 thru 8553002	N/A	N/A	N/A	N/A	PSS-KT-34B	1	PSR-KT-52B	1
PA-31-350 (T1020)	All	PSS-KT-22	2	PSR-KT-47	2	PSS-KT-34	1	PSR-KT-53	1
PA-31P	All	PSS-KT-13	2	PSR-KT-67	2	PSS-KT-16	1	PSR-KT-68	1
PA-31P-350	All	PSS-KT-22	2	PSR-KT-47	2	PSS-KT-33	1	PSR-KT-49	1
PA-31T	31T-7400002 thru 31T-8120050 31T-8120051 thru 31T-8120104	PSS-KT-52B	2	PSR-KT-55	2	PSS-KT-33	1	PSR-KT-49	1
	31T-1104004 thru 31T-7804000 31T-7804001 thru 31T-8104055	PSS-KT-52	2	PSR-KT-54	2	PSS-KT-33B	1	PSR-KT-49B	1
PA-31T1	31T-8104056 thru 31T-8304003 31T-1166001 thru 31T-8166000	PSS-KT-52B	2	PSR-KT-55	2	PSS-KT-33	1	PSR-KT-49	1
	31T-8104056 thru 31T-8304003	PSS-KT-52	2	PSR-KT-54	2	PSS-KT-33B	1	PSR-KT-49B	1
PA-31T2	31T-1166001 thru 31T-8166000 31T-8166001 thru 31T-8166013	PSS-KT-52	2	PSR-KT-54	2	PSS-KT-33	1	PSR-KT-49B	1
	31T-8166001 thru 31T-8166013 31T-8166014 thru 31T-8166076	PSS-KT-52B	2	PSR-KT-55	2	PSS-KT-33	1	PSR-KT-49	1
PA-31T3	All	PSS-KT-52	2	PSR-KT-54	2	PSS-KT-33B	1	PSR-KT-49B	1
PA-32-260, PA-32-300	All	PSS-KT-32	2	PSR-KT-45	2	PSS-KT-33	1	PSR-KT-49	1
PA-32-301, PA-32-301T, PA-32-301FT, PA-32-301XTC	All	PSS-KT-10	2	PSR-KT-32	2	PSS-KT-2	1	PSR-KT-23	1
PA-32R-300	All	PSS-KT-9	2	PSR-KT-33	2	PSS-KT-20	1	PSR-KT-60	1
PA-32R-301, PA-32R-301T	3213001 thru 3213103 3229001 thru 3229003	PSS-KT-12	2	PSR-KT-11	2	PSS-KT-4B	1	PSR-KT-18	1
	3246001 thru 3246999 3257001 thru 3257999	PSS-KT-4B	2	PSR-KT-73	2	PSS-KT-4	1	PSR-KT-20	1
	32R-8013001 thru 32R-8613006 32R-8029001 thru 32R-8629008	PSS-KT-4B	2	PSR-KT-73	2	PSS-KT-4	1	PSR-KT-20	1
	All	PSS-KT-28	2	PSR-KT-40	2	PSS-KT-28	1	PSR-KT-39	1
PA-34-200	All	PSS-KT-12	2	PSR-KT-11	2	PSS-KT-7B	1	PSR-KT-71	1
PA-34-200T	All	PSS-KT-4B	2	PSR-KT-70	2	PSS-KT-7B	1	PSR-KT-29	1
PA-34-220T	3447001 thru 3447029 3449001 thru 3449999	PSS-KT-43	2	PSR-KT-69	2	PSS-KT-7	1	PSR-KT-29	1
	3448001 thru 3448079 3433001 thru 3433172	PSS-KT-11 ¹		PSR-KT-6 ³		PSS-KT-7 ⁴		PSR-KT-27 ⁴	
	34-8133001 thru 34-8633031	PSS-KT-11B ³				PSS-KT-7B ²		PSR-KT-28 ¹	
	All								
PA-39	All	PSS-KT-1	2	PSR-KT-1	2	PSS-KT-1	1	PSR-KT-15	1
PA-42	All	PSS-KT-40	2	PSR-KT-63	2	PSS-KT-42	1	PSR-KT-65	1
PA-42-720	42-5501003 thru 42-5501060 42-8301001 thru 42-8301002	PSS-KT-40	2	PSR-KT-63	2	PSS-KT-42	1	PSR-KT-65	1
PA-42-720R	All	PSS-KT-40	2	PSR-KT-63	2	PSS-KT-42	1	PSR-KT-65	1

- ¹ Use only when bearing has (1) O-ring on ID
- ² Use only when bearing has (1) O-ring groove on ID
- ³ Use only when bearing has T-seal and backup ring or (1) O-ring with (1) backup ring
- ⁴ Used to replace O-ring and (1) backup ring or a T-Seal and (2) backup rings in ID