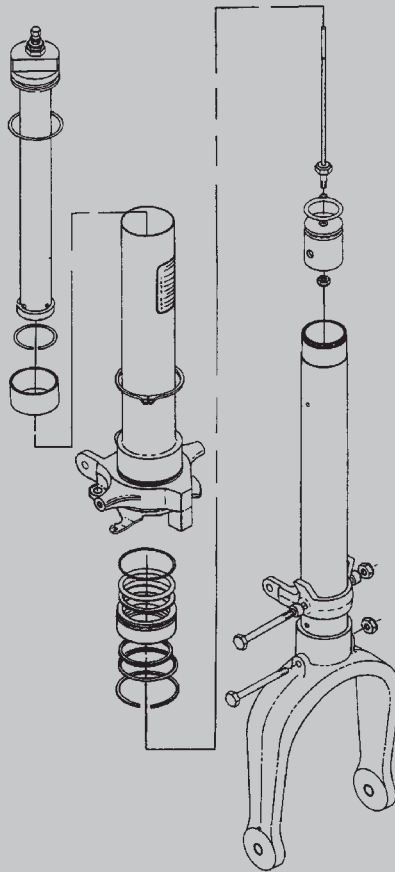


Why Does My Cessna Nose Strut Keep Leaking Down?

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

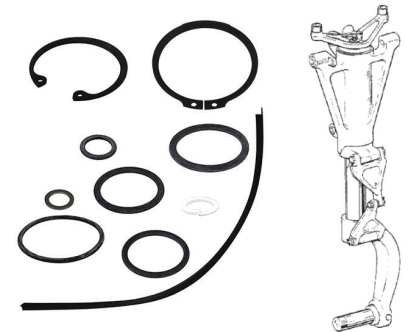
Vast Eligibility for Pipers: PA-22 thru PA-46 aircraft

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.

More kits added!



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

Continued on next page

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-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-12	2	PSR-KT-11	2	PSS-KT-25	1	PSR-KT-9	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
PA-32RT-300, PA-32RT-300T	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 34-8133001 thru 34-8633031	PSS-KT-11 ¹ PSS-KT-11B ³		PSR-KT-6 ³		PSS-KT-7 ⁴ PSS-KT-7B ²		PSR-KT-27 ⁴ PSR-KT-28 ¹	
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

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

Landing and Nose Gear

Aircraft Model	Serial Number	Main Strut				Nose Strut			
		Seal Kit	Qty	Repair Kit	Qty	Seal Kit	Qty	Repair Kit	Qty
PA-42-1000	All					PSS-KT-42	1	PSR-KT-65	1
PA-44-180	4495001 thru 4495013	PSS-KT-25	2	PSR-KT-74	2	PSS-KT-25	1	PSR-KT-74	1
	44-7995001 thru 44-8195026	PSS-KT-25	2	PSR-KT-66	2	PSS-KT-25	1	PSR-KT-9	1
	4496001 thru 4496999	PSS-KT-25	2	PSR-KT-74	2	PSS-KT-25	1	PSR-KT-74	1
PA-44-180T	All	PSS-KT-25	2	PSR-KT-74	2	PSS-KT-25	1	PSR-KT-74	1
PA-46-310P	All	PSS-KT-24	2	PSR-KT-36	2	PSS-KT-27	1	PSR-KT-35	1
PA-46-350P (w/G1000)	All	PSS-KT-24	2			PSS-KT-27	1	PSR-KT-35	1
PA-46-350P (w/o G1000)	4622001 thru 4622200	PSS-KT-24	2	PSR-KT-36	2	PSS-KT-27	1	PSR-KT-35	1
	4636001 thru 4636195	PSS-KT-24	2	PSR-KT-36	2	PSS-KT-27	1	PSR-KT-35	1
	4636196 thru 4636999	PSS-KT-21	2	PSR-KT-43	2	PSS-KT-27	1	PSR-KT-35	1
PA-46R-350T (w/ or w/o G1000)	All	PSS-KT-21	2	PSR-KT-43	2	PSS-KT-27	1	PSR-KT-35	1
PA-46-500TP (w/ or w/o G1000)									

Remote Nose Gear Servicing Port
Eliminates the need to reach up into the nose gear tunnel!
P/N ATRS-100

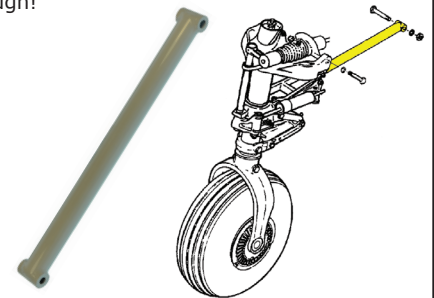
- For Cessna 205, 206, and 207
- Relocates the servicing port to the side of the nose gear tunnel
- Simplifies servicing of the nose gear strut



Cessna Aircraft	With STC Installed
206, 206H, T206H, P206, P206A,B,C,D,E, TP206A,B,C,D,E, TU206A,B,C,D,E,F,G, U206, U206A,B,C,D,E,F,G	SA02198AD-D
207, 207A, T207, T207A	SA02202AK-D

Nosegear Drag Link
Durable, High Quality Construction!
P/N AD1243600-1

- Corrosion resistant white powder coated finish
- Alaskan Bush Tough!
- 50% off Cessna
- FAA-PMA



Model
U206B,C,D,E,F,G
TU206B,C,D,E,F,G
P206B,C,D,E
TP206B,C,D,E
207, 207A, T207, T207A

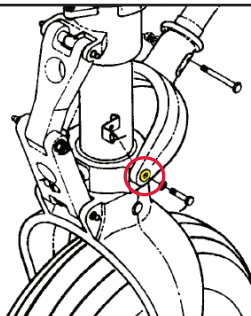
Main and Nose Strut Seal Kit for Beechcraft

Manufactured by Rapco

Aircraft	Main P/N	Nose P/N
B-33, F-33, V-35B, 36, A36, G36, A36TC, B36TC	JMBZMS	JMBZNS

Nose Gear Spring Fork Needle Bearing for Caravan
P/N MS24462-5

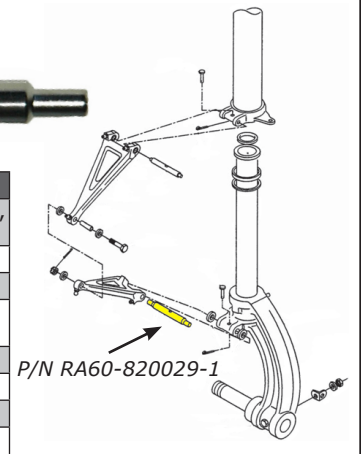
- Fits all Cessna 208 models
- 2 required per aircraft
- Save up to 25%



Tow Pin for Beechcraft
P/N RA60-820029-1

Aircraft
35-A33, 35-B33, 35-C33, 35-C33A, E33,F33, G33, E33A, F33A, F33C
N35, P35, S35, V35, V35A, V35B, 36,A36,A36TC,B36TC, 95-55, 95-A55, 95-B55, 95-C55, D55,E55 56TC, A56TC 58, 58TC, 58P B60

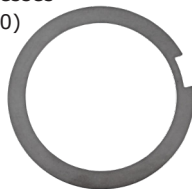
Manufactured by Rapco



Nose Gear Shims for Cessna Aircraft

Just the right fit to remove excessive vertical free play between the collar and strut housing!

- Available in three thicknesses (.006), (.012), and (.020)
- Get exactly what you need, not more!
- Save \$\$\$



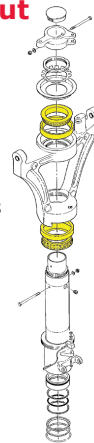
Manufactured by Textron

Aircraft	P/N	Thickness
150, A150, 152, A152, 172, 182, T182	1243030-5	0.006
	1243030-6	0.012
	1243030-7	0.020

Nose Gear Shock Strut Bearing Cups and Cones for Caravan

Bearing Cup
P/N L217813-20629
Bearing Cone
P/N L217849-20629

- Fits all Cessna 208 models
- 2 required per aircraft

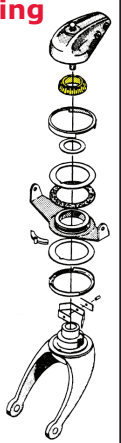


Manufactured by The Timken Company

Tail Wheel Fork Bearing for Cessna Aircraft

Bearing Cup
P/N 08231-20629
Bearing Cone
P/N 08118-20629

Direct replacement for Cessna P/N 0742400-12



Manufactured by The Timken Company