

# 2007-04-19

## SUPERIOR AIR PARTS, INC.

Amendment 39-14951

Docket No. FAA-2006-25948; Directorate Identifier 2006-NE-32-AD

### PREAMBLE

#### Effective Date

(a) This airworthiness directive (AD) becomes effective March 12, 2007.

#### Affected ADs

(b) None.

#### Applicability

(c) This AD applies to Superior Air Parts, Inc. (SAP), cast cylinder assemblies, part numbers (P/Ns): SA47000L-A1, SA47000L-A20P, SA47000S-A1, SA47000S-A20P, SA47000S-A21P, SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, SA55000-A20P installed in Teledyne Continental Motors (TCM) 470, 520, and 550 series reciprocating engines. These P/N cylinder assemblies may be installed in the TCM engine models listed in the following Table 1.

**Table 1 - Affected Teledyne Continental Engine Models**

Engine Model	
O-470	-G, -K, -L, -M, -P, -R, -S, -U
IO-470	-C, -D, -E, -F, -G, -H, -L, -M, -N, -P, -R, -S, -U, -V
IO-520	-A, B, BA, C, CB, D, E, F, J, K, L, M, BB, MB
TSIO-520	-AF, B, BB, C, CE, D, DB, E, EB, G, H, J, JB, K, KB, L, LB, M, N, NB, P, R, T, UB, VB, WB
IO-550	-A, B, C, D, E, F, L

These engine models are installed in, but not limited to, the aircraft models listed in the following Table 2:

**Table 2 - Teledyne Continental Motors-related Aircraft Models**

Engine Model	Aircraft Manufacturer	Aircraft Model Designation
IO-470-C	Beechcraft	J, K, M35
IO-470-C	Navion	Navion
IO-470-D	Cessna	310 G & H
IO-470-D	Rockwell	200 A, B, & C
IO-470-E	Cessna	210 & A
IO-470-F	Bellanca	14-19-3
IO-470-F	Cessna	185
IO-470-H	Navion	Range Master

IO-470-L	Beechcraft	B55 Baron
IO-470-M	Gulfstream	500 A.
IO-470-N	Beechcraft	N & P
IO-470-N	Beechcraft	G33
IO-470-S	Cessna	210 B & C
IO-470-S	Cessna	205
IO-470-U	Cessna	310 I & J
IO-470-V/VO	Cessna	310K, L, N, P, & Q
IO-520-A	Cessna	210 D, E, F, G, & H
IO-520-A	Cessna	206
IO-520-A	Cessna	P206
IO-520-A	Rockwell	200 D
IO-520-B	Beechcraft	36 Bonanza
IO-520-B	Beechcraft	A36
IO-520-B	Navion	Range Master
IO-520-BA	Beechcraft	A36
IO-520-BA	Beechcraft	S & V35, V35A, V35B
IO-520-BA	Beechcraft	C33 A
IO-520-BA	Beechcraft	E33 A & C
IO-520-BA	Beechcraft	F33 A & C
IO-520-BA	Navion	Range Master
IO-520-BB	Beechcraft	A36
IO-520-BB	Beechcraft	V35B
IO-520-BB	Beechcraft	F33 A
IO-520-C & CB	Beechcraft	C55-E55 Baron
IO-520-D	Bellanca	17-30 Viking
IO-520-D	Cessna	A188-300 AG Truck
IO-520-D	Cessna	185
IO-520-E	(Cessna 310)	Exec 600
IO-520-E	(Beech Baron)	Pres 600
IO-520-F	Cessna	207
IO-520-F	Cessna	U206
IO-520-K	Bellanca	17-30A
IO-520-L	Cessna	210 K, L, M, N, & R
IO-520-L	Cessna	210N II
IO-520-L	Cessna	210R
IO-520-M	Cessna	310R
IO-520-MB	Cessna	310R
IO-550-A	Cessna	310 Conversion
IO-550-B	Beechcraft	A36
IO-550-B	(Beech Bonanza)	Foxstar
IO-550-C	Beechcraft	58 Baron
IO-550-D	Cessna	185/188 Conversion
IO-550-E	Cessna	310 Conversion
IO-550-F	Cessna	206/207 Conversion
IO-550-L	Cessna	210 Conversion
O-470-M	Cessna	310
O-470-G	Beechcraft	H35
O-470-K	Bellanca	14-19-2
O-470-K	Cessna	180 (230 HP)
O-470-L	Cessna	182
O-470-L	Cessna	180D
O-470-M	Cessna	310 B
O-470-P	Navion	Navion
O-470-R	Cessna	188-230
O-470-R	Cessna	182
O-470-R	Cessna	180 E-J
O-470-S	Cessna	182

O-470-U	Cessna	182
O-470-U	Cessna	180 K
TSIO-520-AF	Cessna	P210N II
TSIO-520-B	Cessna	320D, E & F
TSIO-520-B	Cessna	T310-Q & R
TSIO-520-BB	Cessna	T310R
TSIO-520-BE	Piper	PA-46-310 Malibu
TSIO-520-C	Cessna	T210 F, G, & H
TSIO-520-C	Cessna	TU206
TSIO-520-C	Cessna	TP206
TSIO-520-C&CB	Beechcraft	58 Baron
TSIO-520-CE	Cessna	T210R
TSIO-520-CF	Cessna	P210R
TSIO-520-D	Beechcraft	V35, V35A, V35B-TC
TSIO-520-E	Cessna	402, A & B
TSIO-520-E	Cessna	401, A & B
TSIO-520-EB	Cessna	335
TSIO-520-G	Cessna	T207
TSIO-520-H	Cessna	T210 J, K, & L
TSIO-520-J	Cessna	210 J
TSIO-520-J	Cessna	414
TSIO-520-J	Riley Conversions	340 Super Riley
TSIO-520-L&LB	Beechcraft	58P Baron
TSIO-520-L&LB	Beechcraft	58TC Baron
TSIO-520-M	Cessna	T207
TSIO-520-M	Cessna	TU206
TSIO-520-N	Cessna	414-II Chancellor
TSIO-520-N	Cessna	340
TSIO-520-NB	Cessna	414-II
TSIO-520-NB	Cessna	340
TSIO-520-P	Cessna	P210N
TSIO-520-R	Cessna	T210 M
TSIO-520-R	Cessna	T210N II
TSIO-520-T	Cessna	T188C AG Husky
TSIO-520-UB	Beechcraft	A36TC Bonanza
TSIO-520-UB	Beechcraft	B36TC
TSIO-520-VB	Cessna	402 C
TSIO-520-WB	Beechcraft	58P Baron
TSIO-520-WB	Beechcraft	58TC Baron

This AD also applies to SAP, cast cylinder assemblies, P/Ns SL32000W-A1, SL32000W-A20P, SL32000W-A21P, SL32000WH-A1, SL32000WH-A20P, SL32006W-A1, SL32006W-A20P, SL32006W-A21P, SL36000TW-A1, SL36000TW-A20P, SL36000TW-A21P, SL36000TW-A22P, SL36000W-A1, SL36000W-A20P, SL36000W-A21P, SL36006W-A1, SL36006W-A20P, and SL36006W-A21P installed in Lycoming Engines (LE) 320, 360, and 540 series reciprocating engines and Avco Lycoming 540 series reciprocating engines. These P/N cylinder assemblies may be installed in the LE and AL engine models listed in the following Table 3.

**Table 3 - Affected Lycoming Engines and Avco Lycoming Engine Models**  
**Engine model**

O-320	-A, -B, -C, -D, -E, H
IO-320	-B, -D, -E
LIO-320	-B
AIO-320	-A, -B, -C
AEIO-320	-D, -E

O-360	-A, -B, -C, -D, -F, -G, -J
IO-360	-B, -L, -M
LO-360	-A
AEIO-360	-B, -H
HO-360	-C
HIO-360	-B
O-540	-A, -B, -E, -F, -G, -H, -J
IO-540	-A, -C, -D, -N, -T, -V, -W
AEIO-540	-D

These engine models are installed in, but not limited to, the aircraft models listed in the following Table 4:

**Table 4 -Lycoming Engines and Avco Lycoming-related Aircraft Models**

<b>Engine Model</b>	<b>Aircraft Manufacturer</b>	<b>Aircraft Model Designation</b>
O-320-A	Mooney Aircraft	Mark 20A
O-320-A1A	Piper Aircraft	PA-23-150 Apache
O-320-A1A	Piper Aircraft	PA-22-150 Tri-Pacer
O-320-A1A	Piper Aircraft	PA-22S-150 Tri-Pacer
O-320-A1A	Piper Aircraft	PA-25 Pawnee
O-320-A1A	Doyn Aircraft	Doyn-Cessna 170,170A,170B
O-320-A1A	Dinfia	Ranquel 1A-46
O-320-A1A	Simmering-Graz Pauker	Flamingo SGP-M-222
O-320-A1A	Aviamilano	Scricciolo P-19
O-320-A1A	Vos Helicopter Co.	Spring Bok
O-320-A1A	Mooney Aircraft	Mark 20A
O-320-A1B	Piper Aircraft	PA-22-150 Tri-Pacer
O-320-A1B	Piper Aircraft	PA-22S-150 Tri-Pacer
O-320-A1B	Piper Aircraft	PA-23 Apache
O-320-A1B	Doyn Aircraft	Doyn-Cessna 170,170A,170B
O-320-A1B	S.O.C.A.T.A	Horizon (Gardan)
O-320-A2A	Piper Aircraft	PA-22-150
O-320-A2A	Piper Aircraft	PA-22S-150
O-320-A2A	Piper Aircraft	Agriculture PA-18A-150
O-320-A2A	Piper Aircraft	Super Cub PA-18-150
O-320-A2A	Piper Aircraft	Caribbean PA-22-150
O-320-A2A	Piper Aircraft	PA-25 Pawnee
O-320-A2A	Lake Aircraft	Colonial C1
O-320-A2A	Intermountain Mfg. Co.	Call Air Texas A-5, A-5T
O-320-A2A	Rawdon Bros.	Rawdon T-1, T-15, T-15D
O-320-A2A	Shinn Engineering	Shinn 2150-A
O-320-A2A	Dinfia	Ranquel 1A-46
O-320-A2A	Neiva	1PD-5802
O-320-A2A	Sud	Gardan-Horizon (GY-80)
O-320-A2A	La Verda	Falco F8L Series II, America
O-320-A2A	Malmo	Vipan MF1-10
O-320-A2A	Kingsford Smith	Autocrat SCRM-153
O-320-A2B	Aero Commander	100
O-320-A2B	Piper Aircraft	PA-22-150
O-320-A2B	Piper Aircraft	PA-22S-150
O-320-A2B	Piper Aircraft	Cherokee PA-28-150
O-320-A2B	Piper Aircraft	Super Cub PA-18-150
O-320-A2B	Champion Aircraft	Challenger 7GCA, 7GCB, 7KC
O-320-A2B	Champion Aircraft	Citabria 7GCAA, 7GCRC
O-320-A2B	Champion Aircraft	Agriculture 7GCBA
O-320-A2B	Beagle	Pup 150

O-320-A2B	Arctic	Interstate S1B2
O-320-A2B	Robinson Helicopters	R-22
O-320-A2C	Robinson Helicopters	R-22
O-320-A2C	Varga	Kachina 2150a
O-320-A2C	Cicare	Cicare AG
O-320-A2D	Bellanca Aircraft	Citabria 150 (7GCAA)
O-320-A2D	Bellanca Aircraft	Citabria 150S (7GCBC)
O-320-A2D	Bellanca	Citabria 150S (7G(.HU)
O-320-A2F	Cessna Aircraft	177A
O-320-A3A	Piper Aircraft	Apache PA-23
O-320-A3A	Doyn Aircraft	Doyn-Cessna 170, 170A, 170B
O-320-A3A	Corben-Fettes	Globe Special (Globe GC-1B)
O-320-A3B	Piper Aircraft	Apache PA-23
O-320-A3B	Doyn Aircraft	Doyn-Cessna 170, 170A, 170B
O-320-A3B	Teal II	TSC 1A2
O-320-B1A	Piper Aircraft	Apache PA-23-160
O-320-B1A	Doyn Aircraft	Doyn-Cessna 170, 170A, 170B
O-320-B1A	Malmö	Vipan MF1-10
O-320-B1B	Piper Aircraft	Apache PA-23-160
O-320-B1B	Doyn Aircraft	Doyn-Cessna 170, 170A, 170B
O-320-B2A	Piper Aircraft	PA-22-160
O-320-B2A	Piper Aircraft	PA-22S-160
O-320-B2B	Piper Aircraft	PA-22-160
O-320-B2B	Piper Aircraft	PA-22S-160
O-320-B2B	Beagle	Airedale D5-160
O-320-B2B	Fuji-Heavy Industries	Fuji F-200
O-320-B2B	Uirapuru	Aerotec 122
O-320-B2C	Robinson Helicopters	R22-HP, Alpha, Beta
O-320-B2D	Maule	MX-7-160
O-320-B2E	Lycon	
O-320-B3A	Piper Aircraft	Apache PA-23-160

<b>Engine Model</b>	<b>Aircraft Manufacturer</b>	<b>Aircraft Model Designation</b>
O-320-B3A	Doyn Aircraft	Doyn-Cessna 170, 170A, 170B
O-320-B3B	Piper Aircraft	PA-23-160 Apache
O-320-B3B	Doyn Aircraft	Doyn-Cessna 170, 170A, 170B
O-320-B3B	Sud	Gardan (GY80-160)
O-320-C1A	Piper Aircraft	Apache PA-23-160
O-320-C1A	Riley Aircraft	Rayjay (Apache)
O-320-C1B	Piper Aircraft	Apache PA-23-160
O-320-C3A	Piper Aircraft	Apache PA-23-160
O-320-C3B	Piper Aircraft	Apache PA-23-160
O-320-D1A	Sud	Gardan (GY80)
O-320-D1A	Gyroflug	Speed Cancard
O-320-D1A	Grob	G115
O-320-D1D	Gulfstream	GA-7
O-320-D1F	Slingsby	T67 Firefly
O-320-D2A	Piper Aircraft	Cherokee PA-28S-160
O-320-D2A	Robin	Major DR400-140B
O-320-D2A	Robin	Chevalier DR-360, R-3140
O-320-D2A	S.O.C.A.T.A.	Tampico TB9
O-320-D2A	Slingsby	T67C Firefly
O-320-D2A	Daetwyler	MD-3-160
O-320-D2A	Nash Aircraft Ltd	Petrel
O-320-D2A	Aviolight	P66D Delta
O-320-D2A	General Avia	Pinguino
O-320-D2B	Beechcraft	Musketeer A23

O-320-D2B	Piper Aircraft	Cherokee PA-28-160
O-320-D2J	Cessna	Skyhawk 172 P
O-320-D3G	Piper Aircraft	Cadet PA-28-161
O-320-D3G	Piper Aircraft	Warrior II
O-320-E1A	Grob	G115
O-320-E1C	M.B.B. (Messerschmitt-Boelkow-Blohm)	Monsun (BO-209-B)
O-320-E1F	M.B.B.	Monsun (BO-209-B)
O-320-E2A	Piper Aircraft	Cherokee PA-28-140
O-320-E2A	Piper Aircraft	Cherokee PA-28-150
O-320-E2A	Robin	Major (DR-340)
O-320-E2A	Robin	Sitar
O-320-E2A	Robin	Bagheera (GY-100-135)
O-320-E2A	S.O.C.A.T.A	Super Rallye (MS-886)
O-320-E2A	S.O.C.A.T.A	Rallye Commodore (MS-892)
O-320-E2A	Siai-Marchetti	S-202
O-320-E2A	F.F.A.	Bravo (AS-202/15)
O-320-E2A	Partenavia	Oscar (P66B)
O-320-E2A	Partenavia	Bucker (131 APM)
O-320-E2A	Aeromot	Paulistina P-56
O-320-E2A	Pezetel	Kolibri 150
O-320-E2C	Beechcraft	Musketeer (B19)
O-320-E2C	Beechcraft	Musketeer III (M-23111)
O-320-E2C	M.B.B.	Monsun (BO-209-B)
O-320-E2D	Beechcraft	B19 Sport
O-320-E2D	Cessna	177
O-320-E2D	Cessna	172 I-M
O-320-E2D	Piper Aircraft	PA-28-151
O-320-E2D	Piper Aircraft	PA-28-140
O-320-E2D	Cessna	Cardinal (172.1, 177)
O-320-E2F	M.B.B.	Monsun (BO-209-B)
O-320-E2F	M.B.B.	Wassmer Pacific (WA-5 1)
O-320-E2G	Gulfstream	AA5 Traveler
O-320-E2G	Gulfstream	AA5A Cheetah
O-320-E3D	Beechcraft	B19 Sport
O-320-E3D	Piper Aircraft	Cherokee (140)
O-320-H2AD	Cessna	Skyhawk 172 N
O-320-H2AD	Partenavia	P-66C
O-320A2C	Varga	Kachina 2150
IO-320-B2A	Piper Aircraft	Twin Comanche (PA-30)
IO-320-B1C	Hi	
IO-320-B1C	Shear	
IO-320-B1C	Wing	
IO-320-B1D	Ted Smith Aircraft	Aerostar
IO-320-D1A	M.B.B.	Monsun (BO-209-C)
IO-320-D1B	M.B.B.	Monsun (BO-209-C)
IO-320-E1A	Champion	KCAB
IO-320-E1A	M.B.B.	Monsun (BO-209-C)
IO-320-E1B	Bellanca Aircraft	

Engine Model	Aircraft Manufacturer	Aircraft Model Designation
IO-320-E2A	Champion	7 KCAB
IO-320-E2A	Champion Aircraft	Citabria
IO-320-E2B	Bellanca Aircraft	
IO/LIO-320-B1A	Piper Aircraft	PA-30 Comanche (2)
IO/LIO-320-B1A	Piper Aircraft	Twin Comanche (PA-39)
AIO-320-B1B	M.B.B.	Monsun (BO-209-C)

AEIO-320-D1B	Slingsby	T67M Firefly
AEIO-320-D2B	Hundustan Aeronautlcs Ltd.	HT-2
AEIO-320-E1A	Bellanca Aircraft	
AEIO-320-E1A	Champion Aircraft	
AEIO-320-E1B	Bellanca Aircraft	
AEIO-320-E1B	Champion Aircraft	Decathalon (8KCAB-CS)
AEIO-320-E2B	Bellanca Aircraft	
AEIO-320-E2B	Champion Aircraft	Decathalon (8KCAB)
O-320-A1A	Riley Aircraft	Riley Twin
O-360-A1A	Beechcraft	Travel Air (95, B-95)
O-360-A1A	Piper Aircraft	Comanche (PA-24)
O-360-A1A	Intermountain Mfg. Co.	Call Air (A-6)
O-360-A1A	Lake Aircraft	Colonial (C-2, LA-4, 4A or 4P)
O-360-A1A	Doyn Aircraft	Doyn-Cessna (170B, 172, 172A, 172B)
O-360-A1A	Mooney Aircraft	Mark "20B" (M-20B)
O-360-A1A	Earl Horton	Pawnee (Piper PA-25)
O-360-A1A	Dinfia	Ranquel (IA-51)
O-360-A1A	Neiva	(IPD-5901)
O-360-A1A	Regente	(N-591)
O-360-A1A	Wassmer	Super 4 (WA-50A)
O-360-A1A	Wassmer	Sancy (WA-40)
O-360-A1A	Wassmer	Baladou (WA-40)
O-360-A1A	Wassmer	Pariou (WA-40)
O-360-A1A	Sud	Gardan (GY-180)
O-360-A1A	Bolkow	(207)
O-360-A1A	Partenavia	Oscar (P-66)
O-360-A1A	Siai-Marchetti	(S-205)
O-360-A1A	Procaer	Picchio (F-15-A)
O-360-A1A	S.A.A.B.	Safir (91-D)
O-360-A1A	Malmo	Vipan (MF-10B)
O-360-A1A	Aero Boero	AB-180
O-360-A1A	Beagle	Airedale (A-109)
O-360-A1A	DeHavilland	Drover (DHA-3MK3)
O-360-A1A	Kingsford-Smith	Bushmaster (J5-6)
O-360-A1A	Aero Engine Service Ltd.	Victa (R-2)
O-360-A1AD	S.O.C.A.T.A.	Tabago TB-10
O-360-A1D	Piper Aircraft	Comanche (PA-24)
O-360-A1D	Lake Aircraft	Colonial (LA-4, 4A or 4P)
O-360-A1D	Doyn Aircraft	Doyn-Beech (Beech 95)
O-360-A1D	Mooney Aircraft	Master 21 (M-20E)
O-360-A1D	Mooney Aircraft	Mark 20B, 20D, (M20B, M20C)
O-360-A1D	Mooney Aircraft	Mooney Statesman (M-20G)
O-360-A1D	Dinfia	Querandi (IA-45)
O-360-A1D	Wassmer	(WA-50)
O-360-A1D	Malmo	Vipan (MFI-10)
O-360-A1D	Cessna Aircraft	Skyhawk
O-360-A1D	Doyn Aircraft	Doyn-Piper PA-23-160
O-360-AIF6	Cessna Aircraft	Cardinal
O-360-AIF6D	Cessna Aircraft	Cardinal 177
O-360-AIF6D	Teal III	TSC (1A3)
O-360-A1G6	Aero Commander	
O-360-A1G6D	Beech Aircraft	Duchess 76
O-360-AIH6	Piper Aircraft	Seminole (PA-44)
O-360-AI LD	Wassmer	Europa WA-52
O-360-AIP	Aviat	
O-360-AIP	Husky	
O-360-A2A	Center Est Aeronautique	Regente (DR-253)

O-360-A2A	S.O.C.A.T.A.	Rallye Commodore (MS-893)
O-360-A2A	Societe Aeronautique Normande	Mousquetaire (D-140)
O-360-A2A	Bolkow	Klemm (KI-1 07C)
O-360-A2A	Partenavia	Oscar (P-66)
O-360-A2A	Beagle	Husky (D5-180) (J1-U)
O-360-A2D	Piper Aircraft	Comanche PA-24
O-360-A2D	Piper Aircraft	Cherokee C PA-28-180
O-360-A2D	Mooney Aircraft	Master 21 (M-20D)
O-360-A2D	Mooney Aircraft	Mark 21 (M-20E)

<b>Engine Model</b>	<b>Aircraft Manufacturer</b>	<b>Aircraft Model Designation</b>
O-360-A2E	Std. Helicopter	
O-360-A2F	Aero Commander	Lark (100)
O-360-A2F	Cessna Aircraft	Cardinal
O-360-A2G	Beech Aircraft	Sport
O-360-A3A	C.A.A.R.P.S.A.N.	(M-23111)
O-360-A3A	Societe Aeronautique Normande	Jodel (D-140C)
O-360-A3A	Robin	Regent (DR400/180)
O-360-A3A	Robin	Remorqueur (DR400/180R)
O-360-A3A	Robin	R-3170
O-360-A3A	S.O.C.A.T.A.	Rallye 180GT
O-360-A3A	S.O.C.A.T.A.	Sportavia Sportsman (RS-180)
O-360-A3A	Norman Aerospace Co.	NAC-1 Freelance
O-360-A3A	Nash Aircraft Ltd.	Petre
O-360-A3AD	S.O.C.A.T.A.	TB-10
O-360-A3AD	Robin	Aiglou (R-1 180T)
O-360-A4A	Piper Aircraft	Cherokee "D" PA-28-180
O-360-A4D	Varga	Kachina
O-360-A4G	Beech Aircraft	Musketeer Custom III
O-360-A4K	Grumman American	Tiger
O-360-A4K	Beech Aircraft	Sundowner 180
O-360-A4M	Piper Aircraft	Archer II PA-28-18
O-360-A4M	Valmet	PIK-23
O-360-A4N	Cessna Aircraft	172 (Optional)
O-360-A4P	Penn Yan	Super Cub Conversion
O-360-A5AD	C. Itoh and Co.	Fuji FA-200
O-360-B2C	Seabird Aviation	SB7L
O-360-C1A	Intermountain Mfg. Co.	Call Air (A-6)
O-360-C1E	Bellanca Aircraft	Scout (8GCBC-CS)
O-360-C1F	Maule	Star Rocket MX-7-180
O-360-C1G	Christen	Husky (A-1)
O-360-C2B	Hughes Tool Co.	(269A)
O-360-C2D	Hughes Tool Co.	(269A)
O-360-C2E	Hughes Tool Co.	YHO-2HU Military
O-360-C2E	Bellanca Aircraft	Scout 8GCBC FP
O-360-C4F	Maule	MX-7-180A
O-360-C4P	Penn Van	Super Cub Conversion
O-360-F1A6	Cessna Aircraft	Cutlass RG
O-360-J2A	Robinson	R22
IO-360-B1A	Beech Aircraft	Travel-Air (B-95A)
IO-360-B1A	Doyn Aircraft	Doyn-Piper PA-23-200
IO-360-B1B	Beech Aircraft	Travel-Air (B-95B)
IO-360-B1B	Doyn Aircraft	Doyn-Piper PA-23-200
IO-360-B1B	Fuji	FA-200
IO-360-B1D	United Consultants	See-Bee
IO-360-B1E	Piper Aircraft	Arrow PA-28-180R
IO-360-B1F	Utva	75

IO-360-B2E	C.A.A.R.P.	C.A.P. (10)
IO-360-BIF6	Great Lakes	Trainer
IO-360-B1G6	American Blimp	Spector 42
IO-360-B2F6	Great Lakes	Trainer
LO-360-A1 G6D	Beech Aircraft	Duchess
LO-360-A1H6	Piper Aircraft	Seminole (PA-44)
IO-360-EIA	T.R. Smith Aircraft	Aerostar
IO-360-L2A	Cessna Aircraft	Skyhawk C-172
IO-360-M1A	Diamond Aircraft	DA-40
IO-360-M1B	Vans Aircraft	RV6, RV7, RV8
IO-360-M1B	Lancair	360
AIO-360-B1B	Moravan	Zim (Z-526-L)
AEIO-360-B1G6	Great Lakes	
AEIO-360-B2F	Mundry	CAP-10
AEIO-360-B4A	Pitts	S-1S
AEIO-360-HIA	Bellanca Aircraft	Super Decathlon (8KCAB-180)
AEIO-360-HIB	American Champion	Super Decathlon
HO-360-B1A	Hughes Tool Co.	269A
HO-360-B1B	Hughes Tool Co.	269A
HO-360-C1A	Schweizer	300C
HIO-360-A1A	Hughes Tool Co.	300
HIO-360-A1B	Silvercraft	
HIO-360-B1A	Hughes Tool Co.	Military 269-A-1
HIO-360-BIB	Hughes Tool Co.	269A
HIO-360-D1A	Hughes Tool Co.	269C, 300C
HIO-360-D1A	Schweizer	300C

<b>Engine Model</b>	<b>Aircraft Manufacturer</b>	<b>Aircraft Model Designation</b>
HIO-360-E1AD	Enstrom Helicopter	F28C
HIO-360-E1BD	Enstrom Helicopter	F28C
HIO-360-F1AD	Enstrom Helicopter	Falcon F28F
HIO-360-F1AD	Enstrom Helicopter	Shark 280FX
HIO-360-F1AD	Enstrom Helicopter	Sentine F28F-P
HIO-360-G1A	Schweizer	CB
LHIO-360-C1A	Silvercraft	SH-4 Helicopter
LHIO-360-C1B	Silvercraft	SH-3 Helicopter
O-540-AIA	Rhein-Flugzeugbau	RF-1
O-540-AIA5	Piper Aircraft	Comanche PA-24-150
O-540-AIA5	Helio	Military H-250
O-540-AIA5	Yoeman Aviation	YA-1
O-540-A1B5	Piper Aircraft	Aztec PA-23-250
O-540-A1B5	Piper Aircraft	Comanche PA-24-250
O-540-AIC5	Piper Aircraft	Comanche PA-24-250
O-540-A1D	Found Bros.	FBA-2C
O-540-A1D	Dornier	DO-28-B1
O-540-AID5	Piper Aircraft	Aztec PA-23-250
O-540-AID5	Piper Aircraft	Comanche PA-24-250
O-540-AID5	Piper Aircraft	Military Aztec U-1 1A
O-540-AID5	Dornier	DO-28
O-540-A2B	Aero Commander	500
O-540-A2B	Mld-States Mfg. Co.	Twin Courier 11-500, U-5
O-540-A3D5	Piper Aircraft	Navy Aztec PA-23-250
O-540-B1A5	Piper Aircraft	Apache PA-23-235
O-540-BIB5	Piper Aircraft	Cherokee PA-24-250
O-540-BIB5	Doyn Aircraft	Doyn-Piper PA-24-250
O-540-BID5	Wassmer	WA-421
O-540-B2B5	Piper Aircraft	Pawnee PA-24-235

O-540-B2B5	Piper Aircraft	Cherokee PA-28-235
O-540-B2B5	Piper Aircraft	Aztec PA-23-235
O-540-B2B5	Intermountain Mfg. Co.	Call Air A-9
O-540-B2B5	Rawdon Bros.	Rawdon T-1
O-540-B2B5	S.O.C.A.T.A.	Rallye 235CA
O-540-B2C5	Piper Aircraft	Pawnee PA-24-235
O-540-B4B5	Piper Aircraft	Cherokee PA-28-235
O-540-B4B5	Embraer	Corioca EMB-710
O-540-B4B5	S.O.C.A.T.A.	Rallye 235GT
O-540-B4B5	S.O.C.A.T.A.	Rallye 235C
O-540-B4B5	Maule	Star Racket MX-7-235
O-540-B4B5	Maule	Super Rocket M-6-235
O-540-B4B5	Maule	Super Std. Racket M-7-235
O-540-E4A5	Piper Aircraft	Comanche PA-24-260
O-540-E4A5	Aviamilano	Flamingo F-250
O-540-E4A5	Siai-Marcetti	SF-260, SF-208
O-540-E4B5	Britten-Norman	BN-2
	Piper Aircraft	Cherokee Six PA-32-260
O-540-E4C5	Pilatus Britten-Norman	Islander BN-2A-26
O-540-E4C5	Pilatus Britten-Norman	Islander BN-2A-27
O-540-E4C5	Pilatus Britten-Norman	Islander II BN-2B-26
O-540-E4C5	Pilatus Britten-Norman	Islander BN-2A-2 1
O-540-E4C5	Pilatus Britten-Norman	Trislander BN-2A-Mark 111-2
O-540-F1B5	Omega Aircraft	BS-12D1
O-540-F1B5	Robinson	R-44
O-540-G1A5	Piper Aircraft	Pawnee PA-25-260
O-540-H1B5D	Aero Boero	260
O-540-H2A5	Embraer	Impanema "AG"
O-540-H2A5	Gippsland	GA-200
O-540-H2B5D	Aero Boero	260
O-540-J1A5D	Maule	Star Rocket MX-7-235
O-540-J1A5D	Maule	Super Rocket M-6-235
O-540-J1A5D	Maule	Super Std. Rocket M-7-235
O-540-J3A5	Robin	R-3000/235
O-540-J3A5D	Piper Aircraft	Dakota PA-28-236
O-540-J3C5D	Cessna Aircraft	Skylane RG
IO-540-A1A5	Doyn Aircraft	Doyn-Piper PA-23-250
IO-540-A1A5	Riley Aircraft	Rocket-Cessna 310
IO-540-A1A5	Dornier	DO-8-B 1
IO-540-A1A5	Siai-Marchetti	
IO-540-C1B5	Piper Aircraft	Aztec B PA-23-250
IO-540-C1B5	Piper Aircraft	Comanche PA-24-250
IO-540-C1C5	Riley Aircraft	Turbo-Rocket

<b>Engine Model</b>	<b>Aircraft Manufacturer</b>	<b>Aircraft Model Designation</b>
IO-540-C4B5	Piper Aircraft	Aztec C PA-23-250
IO-540-C4B5	Piper Aircraft	Aztec F
IO-540-C4B5	Wassmer	WA4-2 1
IO-540-C4B5	Avions Pierre Robin	HR 100/250
IO-540-C4B5	Bellanca Aircraft	Aries T-250
IO-540-C4B5	Aerofab	Renegade 250
IO-540-C4D5	S.O.C.A.T.A.	TB-20
IO-540-C4DSD	S.O.C.A.T.A.	Trinidad TB-20
IO-540-D4A5	Piper Aircraft	Comanche PA-24-260
IO-540-D4A5	Siai-Marchetti	SF-260
IO-540-D4B5	Cerva	CE-43 Guepard
IO-540-E1A5	Aero Commander	500-E

IO-540-EIB5	Aero Commander	500-U
IO-540-EIB5	Shrike	500-S
IO-540-EIB5	Poeschel	P-300
IO-540-GIA5	Doyn Aircraft	Doyn-Piper PA-23-250
IO-540-GIA5	Riley Aircraft	Turbo-Aztec
IO-540-GIA5	DeHavilland	Heron Conversion
IO-540-GIB5	T.R. Smith Aircraft	Aerostar 600
IO-540-GIB5	Found Bros.	Centennial 100
IO-540-G1C5	Intermountain Mfg. Co.	Call Air 1AR821
IO-540-G1DS	Intermountain Mfg. Co.	IAR-822, IAR-826, IAR-823
IO-540-G1F5	Bellanca Aircraft	
IO-540-N IA5	Piper Aircraft	Comanche 260
IO-540-T4A5D	General Aviation	Model 114
IO-540-T4B5	Commander	1 14B
IO-540-T4B5D	Rockwell	114
IO-540-T4C5D	Lake Aircraft	Seawolf
IO-540-WIA5	Maule	MX-7-235, MT-7-235, M7235
IO-540-W1A5D	Maule	Star Rocket MX-7-235
IO-540-W1A5D	Maule	Super Rocket M-6-235
IO-540-W1A5D	Maule	Super Std. Rocket M-7-235
IO-540-W3A5D	Schweizer	Power Glider
IO-540-AB1A5	Cessna Aircraft	Skylane C-182
AEIO-540-D4A5	Christen	Pitts S-2S, S-2B
AEIO-540-D4A5	Siai-Marchetti	SF-260
AEIO-540-D4A5	H.A.L.	HPT-32
AEIO-540-D4A5	Slingsby	Firefly T3A
AEIO-540-D4B5	Moravan	Zlin-50L
AEIO-540-D4B5	H.A.L.	HPT-32
AEIO-540-D4D5	Burkhart Grob	Grob G, 1 15T Aero

These engine models are known to be installed in the aircraft models listed in the following Table 5:

**Table 5 - Superior Air Parts, Inc. -related Aircraft Models**

<b>Engine Model</b>	<b>Aircraft Manufacturer</b>	<b>Aircraft Model Designation</b>
O-360-A3A2	American Champion	7GCBC & 7GCAA

### Unsafe Condition

(d) This AD results from the discovery of nine separated SAP cylinder assemblies installed in TCM 470, 520, and 550 series reciprocating engines and one separated SAP cylinder assembly installed in LE 320, 360, and 540 series reciprocating engines. We are issuing this AD to prevent cylinder separation that can lead to engine failure, a possible engine compartment fire, and damage to the airplane.

### Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

### Determining Which Cast Cylinder Assemblies Are Installed

(f) If aircraft engine records do not list the P/N of the cylinder installed during engine overhaul or repair, visually inspect the cylinders. The affected SAP cylinder head flanges are marked:

SA47000L-A1, SA47000L-A20P, SA47000S-A1, SA47000S-A20P, SA47000S-A21P, SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, or SA55000-A20P or SL32000W-A1, SL32000W-A20P, SL32000W-A21P, SL32000WH-A1, SL32000WH-A20P, SL32006W-A1, SL32006W-A20P, SL32006W-A21P, SL36000TW-A1, SL36000TW-A20P, SL36000TW-A21P, SL36000TW-A22P, SL36000W-A1, SL36000W-A20P, SL36000W-A21P, SL36006W-A1, SL36006W-A20P, or SL36006W-A21P.

### **Cylinder Assembly Removal**

(g) Remove all cylinder assemblies with a serial number of 47LE053559 through 47LF053643, or 47SE054212 through 47SF054251, or 52D0531708 through 52H0532197, or 55E05223 through 55G05289, or 32WE059006 through 32WF059067, or 32WHE05379 through 32WHE05392, or 326WF055517 through 326WF055532, or 36TWF05430 through 36TWG05453, or 36WF058058 through 36WJ058182, or 366WE056944 through 366WL058131 no later than 150 hours total time-in-service (TIS) to preclude cylinder head fatigue failure and separation at the head-to-barrel threaded interface.

(h) For cylinder assemblies with more than 150 hours total TIS on the effective date of this AD, a 10 hour TIS extension is permitted for the purpose of flying the aircraft to a location where maintenance action can be done to meet the requirements of this AD.

(i) After the effective date of this AD, do not install any cylinder assemblies with P/Ns SA47000L-A1, SA47000L-A20P, SA47000S-A1, SA47000S-A20P, SA47000S-A21P, SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, or SA55000-A20P, or SL32000W-A1, SL32000W-A20P, SL32000W-A21P, SL32000WH-A1, SL32000WH-A20P, SL32006W-A1, SL32006W-A20P, SL32006W-A21P, SL36000TW-A1, SL36000TW-A20P, SL36000TW-A21P, SL36000TW-A22P, SL36000W-A1, SL36000W-A20P, SL36000W-A21P, SL36006W-A1, SL36006W-A20P, or SL36006W-A21P, with a serial number of 47LE053559 through 47LF053643, or 47SE054212 through 47SF054251, or 52D0531708 through 52H0532197, or 55E05223 through 55G05289, or 32WE059006 through 32WF059067, or 32WHE05379 through 32WHE05392, or 326WF055517 through 326WF055532, or 36TWF05430 through 36TWG05453, or 36WF058058 through 36WJ058182, or 366WE056944 through 366WL058131 into any engine.

### **Alternative Methods of Compliance**

(j) The Manager, Special Certification Office, FAA, Rotorcraft Directorate, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR **39.19**.

### **Special Flight Permits**

(k) For aircraft with engines that have between 140 hours and 150 hours TIS only, special flight permits may be issued in accordance with **§§ 21.197** and **21.199** of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the requirements of this AD can be done. Special flight permits may not be issued for aircraft that have utilized the provisions of paragraph (h) of this AD.

**Related Information**

(l) Superior Air Parts, Inc. Mandatory Service Bulletin B06-01, Rev. E, dated January 24, 2007, contains information related to the subject of this AD.

(m) Contact Jurgen Priester, Aerospace Engineer, Special Certification Office, FAA, Rotorcraft Directorate, Southwest Regional Headquarters, 2601 Meacham Blvd., Fort Worth, Texas 76137; e-mail: jurgen.priester@faa.gov; telephone (817) 222-5159; fax (817) 222-5785 for more information about this AD.

**Material Incorporated by Reference**

(n) None..

**FOR FURTHER INFORMATION CONTACT:** Jurgen Priester, Aerospace Engineer, Special Certification Office, FAA, Rotorcraft Directorate, Southwest Regional Headquarters, 2601 Meacham Blvd., Fort Worth, Texas 76137; telephone (817) 222-5159; fax (817) 222-5785.

Issued in Burlington, Massachusetts, on February 13, 2007.

**Peter A. White**, *Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.*

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2006-25948; Directorate Identifier 2006-NE-32-AD; Amendment 39-14951; AD 2007-04-19]**

**RIN 2120-AA64**

**Airworthiness Directives; Superior Air Parts, Inc. (SAP), Cast Cylinder Assemblies Part Numbers Series: SA47000L, SA47000S, SA52000, SA55000, SL32000W, SL32000WH, SL32006W, SL36000TW, SL36000W, and SL36006W**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule; request for comments.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain SAP cast cylinder assemblies installed in Teledyne Continental Motors (TCM) 470, 520, and 550 series reciprocating engines, Lycoming Engines (LE) 320, 360, and 540 series reciprocating engines, Avco Lycoming (AL) 540 series reciprocating engines, and Superior Air Parts, Inc. (SAP) 360 series reciprocating engines. This AD requires removing from service certain SAP part numbered (P/N) cast cylinder assemblies installed in TCM, LE, and AL reciprocating engines. This AD also requires removing from service certain cast cylinder assemblies installed as original equipment in SAP reciprocating engines, or in certain overhauled or repaired SAP reciprocating engines. This AD results from nine separated SAP cylinder assemblies in TCM reciprocating engines and one in LE reciprocating engines. We are issuing this AD to prevent cylinder separation that can lead to engine failure, a possible engine compartment fire, and damage to the airplane.

**DATES:** This AD becomes effective March 12, 2007.

We must receive any comments on this AD by April 24, 2007.

**ADDRESSES:** Use one of the following addresses to comment on this AD:

- DOT Docket Web site: Go to <http://dms.dot.gov> and follow the instructions for sending your comments electronically.
- Government-wide rulemaking Web site: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001.
- Fax: (202) 493-2251.

- Hand Delivery: Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- **FOR FURTHER INFORMATION CONTACT:** Jurgen Priester, Aerospace Engineer, Special Certification Office, FAA, Rotorcraft Directorate, Southwest Regional Headquarters, 2601 Meacham Blvd., Fort Worth, Texas 76137; telephone (817) 222-5159; fax (817) 222-5785.

**SUPPLEMENTARY INFORMATION:** SAP informed the FAA on July 12, 2006, that at least nine SAP cylinder assemblies installed in TCM 470, 520, and 550 series reciprocating engines and one installed in LE 320, 360, and 540 series reciprocating engines had separated at the cylinder head-to-barrel threaded interface because SAP omitted a heat treat process step during cylinder barrel manufacture. This omission resulted in higher stresses in the cylinder head-to-barrel threaded interface, leading to fatigue cracking and cylinder head separation. The lowest time-in-service (TIS) for a cylinder assembly known to have separated from this defect is 202 hours TIS. SAP isolated this defect to a specific production lot of 1,354 barrel forgings used as original equipment on SAP O-360 engines and in SAP PMA cylinder assemblies as replacement parts for various TCM, LE, and AL engine models. This AD addresses the barrels used in SAP PMA cylinders installed in the engines listed below.

**Cylinder Assembly Eligibility**

Series Engines	P/N Cylinder Assemblies
TCM 470, 520, and 550	SA47000L-A1, SA47000L-A20P, SA47000S-A1, SA47000S-A20P, SA47000S-A21P, SA52000-A1, SA52000-A20P, SA52000-A21P, SA52000-A22P, SA52000-A23P, SA55000-A1, or SA55000-A20P
LE 320, 360, and 540 and AL IGO 540	SL32000W-A1, SL32000W-A20P, SL32000W-A21P, SL32000WH-A1, SL32000WH-A20P, SL32006W-A1, SL32006W-A20P, SL32006W-A21P, SL36000TW-A1, SL36000TW-A20P, SL36000TW-A21P, SL36000TW-A22P, SL36000W-A1, SL36000W-A20P, SL36000W-A21P, SL36006W-A1, SL36006W-A20P, or SL36006W-A21P
SAP 360	SL36006W-A20P

**FAA's Determination and Requirements of This AD**

The unsafe condition described previously is likely to exist or develop on other TCM 470, 520, and 550; LE 320, 360, and 540; AL 540, and SAP 360 series reciprocating engines of the same type design with SAP cast cylinder assemblies that have as original equipment, or have been overhauled or repaired using SAP part numbers listed in the table above. For that reason, we are issuing this AD to prevent cylinder separation which can lead to engine failure, a possible engine compartment fire, and damage to the airplane. This AD requires removing from service installed SAP cast cylinder assemblies listed in the table above, no later than 150 hours total TIS to preclude cylinder head fatigue failure and separation at the head-to-barrel threaded interface.

## **FAA's Determination of the Effective Date**

Since an unsafe condition exists that requires the immediate adoption of this AD, we have found that notice and opportunity for public comment before issuing this AD are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

## **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to send us any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. FAA-2006-25948; Directorate Identifier 2006-NE-32-AD" in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it.

We will post all comments we receive, without change, to <http://dms.dot.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the DMS Web site, anyone can find and read the comments in any of our dockets, including the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78) or you may visit <http://dms.dot.gov>.

## **Examining the AD Docket**

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

## **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;

2. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Safety.

### **Adoption of the Amendment**

Under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701.

### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive: