

RECIPROCATING ENGINE PROPELLER GOVERNOR

Application Guide

Under license agreement with Woodward Aircraft Engine Systems, Ontic Manufacturing and Engineering, Inc. now has all manufacturing and support responsibility for reciprocating engine propeller governors.

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SINGLE PISTON ENGINE AIRCRAFT

Codes:

= Unavailable; < = Not Current Model or Alternative Model

AIRCRAFT MODEL Engine	GOVERNOR OIL PRESSURE INCREASES PROP PITCH		GOVERNOR OIL PRESSURE DECREASES PROP PITCH	
	Recommended Governor	Replaced or Alternative	Recommended Governor	Replaced or Alternative
AEROFAB (Lake) C-2 LA4-200 Lyc. IO-360	R210776	# C210105		
Lake 250 "Renegade" Lyc. IO, TIO-540	A210775			
BEECH A23-24, A24, A24R, B24R, C24R "Sierra" Lyc. IO-360	A210490	# C290D2 / 3		
BEECH 33, A33, B33, C33, D, E, F "Bonanza" Cont. IO-470 J, K	V210992	# 210452 < A210680	210335 NOTE: For Hartzell Prop BHC-92ZF-1 Only	
BEECH C33A, E33A, E33C, F33A, F33C "Bonanza" Cont IO-520 (2700 RPM)	D210760	# C210452 < D210680		
BEECH T34, T34A "Mentor" Cont O-470	NONE	# 210060	B210688 exch for same. NOTE: For Hartzell Prop BHC-L2YF-4 on T34A only.	
BEECH H35, J35, K35, M35, N35, P35 "Bonanza"	V210992	# 210415 # 210452 < A210680	For Flotorp or McCauley Propellers only.	
Cont O-470, IO-470	210686	# 210175 # 210235 < 210350 # 210419	For Beech Propellers only.	
BEECH S35, V35, V35A, V35B, 36, A36, A36TC, B36TC "Bonanza" Cont IO-520 TSIO-520 (2700 RPM)	D210760	# C210452 < D210680		

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AIRCRAFT MODEL Engine	GOVERNOR OIL PRESSURE INCREASES PROP PITCH		GOVERNOR OIL PRESSURE DECREASES PROP PITCH	
	Recommended Governor	Replaced or Alternative	Recommended Governor	Replaced or Alternative
BELLANCA 14-19-2, 14-19-3 "Viking" Cont. O, IO-470	D210345		D210340	
	For McCauley 2A36C Prop		For Hartzell HC-A2XF-1 Prop	
BELLANCA 14-19-3A Cont. IO-470	H210452			
BELLANCA 17-30, 17-30A Cont IO-520	G210760	# P210452 # 210481 # B210419 < 210685		
BELLANCA 17-31, 17-31A, 17-31TC, 17-31ATC "Super Viking" Lyc. IO-540G, K (Narrow Deck)	M210761	# B210460 < 210681	For Lyc. IO-540K T.O. RPM is 2575 (Narrow Deck Engine)	
	N210761	# A210685	For Lyc. IO-540K T.O. RPM is 2700 (Narrow Deck Engine)	
BELLANCA 17-31A, C Lyc. IO-540K (Wide Deck)	P210761			
BELLANCA 8GCBC "Scout" Lyc. O-360	B210861			
BELLANCA 8KCAB "Decathlon" Lyc. AEIO-320 Lyc. AEIO-360			D210688	
CESSNA R172E, F, G, H, J FR172E, F, H, J (Mgf in France) Cont. IO-360	B210760	< B210680		
	Will replace McCauley Models C290D2 or D3			
CESSNA 177B, 177RG "Cardinal" Lyc. O-360A1F6, or Lyc. IO-360A1B6	B210490	# C210460		
	Will replace McCauley Models C290/T11			
CESSNA 180-180J, 182-182P Cont. O-470 (2600 RPM)	A210760	# 210415 # A210452 < A210680 < 210345	210340	210105
	Will replace McCauley Models C290/T21			
CESSNA 180K, 182Q, 182R Cont O-470U (2400 RPM)	J210681			
	Will replace McCauley Models C290/T14			

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	Recommended Governor	Replaced or Alternative	Recommended Governor	Replaced or Alternative
CESSNA R182 Lyc. O-540	A210761 Will replace McCauley Models C290/T16		NOTE: For installations that do not comply with 1982-3 Cessna Control Cable Rerouting SB 82-15 or SL	
CESSNA TR182, FR182, 182RG Lyc. O-540	L210761 Will replace McCauley Models C290/T21		NOTE: For aircraft before S/N 01314 and those without Cessna Control Cable Rerouting Kit SB82-15 or SL 1982-3.	
	G210761 Will replace McCauley Models C290/T22		NOTE: For aircraft S/N 01314 and later and those with Cessna Control Cable Rerouting Kit SB 82-15 or SL 1982-3.	
CESSNA 185, 185A, 185B, A85C, 185D, 185E, 188, 188A, 188B Cont. O, IO-470 (2625 RPM)	A210760 Will replace McCauley Models C290/T11	# 210345 # A210452 < A210680		
CESSNA A185E, A185F, A188, A188A, A188B Cont. IO-520 (2850 RPM)	G210760 for same Will replace McCauley Models C290/T9	# P210452 < B210419		
CESSNA 205, 205A, 210, 210A, 210B, 210C Cont. IO-470 (2625 RPM)	210657 Use with McCauley propellers.	# 210345 # 210415 # A210452 # A210680	210340	# 210270
CESSNA 206, P206, P206A thru P206E, U206, 210D, thru 210J Cont. IO-520A, J (2700 RPM)	C210680 For same Will replace McCauley models C290/T5	# D210452 < A210415	Use with Hartzell HC-A2XF-1 Propeller.	
CESSNA U206B-G, U206B-210K, L, M, N Cont. IO-520F, L (2850 RPM)	210488 Will replace McCauley models C290D2 or D4.	# L210452 # 210462 < A210419	NOTE: CESSNA P/N 1250838-1 Cover Race and P/N 1250838-2 Retainer are required when replacing the C290D4 with the 210488 governor.	
CESSNA TP206A-E, TU206A-G, T207, T207A, T207F-N, P210N Cont. TSIO-520C, H, P, R (2700 RPM) CESSNA T206, T210 "Ram Conversion" Cont. TSIO-520	210937 Will replace McCauley models C290D2 or D4	# G210452 # 210927	NOTE: CESSNA P/N 1250838-1 Cover Race and P/N 1250838-2 Retainer are required when replacing the C290D4 with the 210937 governor	
CESSNA 207, 207A Cont. IO-520 (2850 RPM)	210488 Will replace McCauley models C290D2 or D	# 210462	NOTE: CESSNA P/N 1250838-1 Cover Race and P/N 1250838-2 Retainer are required when replacing the C290D4 with the 210488 governor	

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AIRCRAFT MODEL Engine	GOVERNOR OIL PRESSURE INCREASES PROP PITCH		GOVERNOR OIL PRESSURE DECREASES PROP PITCH	
	Recommended Governor	Replaced or Alternative	Recommended Governor	Replaced or Alternative
CIRRUS VK30 Cont. IO-520	210985			
FUJI FA200-180 Lyc. IO-360	B210452			
GULFSTREAM 114, 114A Lyc. IO-540	J210345 210903 (Oversize pump)		Four P/N 1117-478 studs are required when retrofitting J210345 or 34-828 governors.	
HUGHES 269 Helicopter	210635			
MAULE M-4-180, M-4-220, M-5-220 Franklin 6A-335-B1A Franklin 6A-350-C1	210905	# 210453 # 210660		
MAULE M-4-210, C, S, T, M-5-210C Cont. IO-360	B210760	# F210452 < B210680		
MAULE M-5-210TC Lyc. TO-360	C210681			
MAULE M-5-180C, M-6-180, MX-7-180 Lyc. O-360	H210776	< H210681		
MAULE M-5-235, M-6-235 Lyc. O-540 B210761	210933	# F210681		
MEYERS A, B, C Cont. O, IO-470	E210345		E210340	
	For Hartzell HC-C2YF1 or McCauley 2A36C propellers		For Hartzell HC-82XF-1 Propeller.	
MEYERS 200B, C, D Cont. IO-520 (2700 RPM)	D210452			

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	Recommended Governor	Replaced or Alternative	Recommended Governor	Replaced or Alternative
MOONEY M20A, B, C, D, E, F, G Lyc. O, IO-360	B210345	# A210315 # B210452		
MOONEY M20J	E210490		Lycoming spacer plate must be used when replacing a McCauley governor.	
MOONEY M20M Lyc. IO-540	H210761			
NAVION D, E, F, G Cont. O, IO-470	210380	# 210105		
NAVION H	F210680	# K210452 # D210680		
REPUBLIC "SeaBee" F.T.C. Conversion Lyc. GO-435			F210472 For Hartzell HC-C3YR Propeller.	
ROCKWELL 111, 112, 112A, 112B Lyc. IO-360	201512		Four P/N 213308 studs are required when retrofitting 34-828 governors.	
ROCKWELL 112TC, 112 TCA Lyc. T0-360	A210512		Four P/N 213308 studs are required when retrofitting 34-828 governors.	
ROCKWELL 114A Lyc. IO-540	210903			
SOCATA TB-20 Lyc. IO-540	F210761	# M210681		
SOCATA TB-21 Lyc. IO-540	F210761			
SOCATA TB-30 Lyc. IO-540			C210938	# 210688
PIPER PA24-180 "Comanche" Lyc. O-360	210305	# 210185 # 210250 # 210260		
PIPER PA24-250 "Comanche" Lyc. O-540	A210991	# A210185 # A210305	A210987	
PIPER PA28-201T PA28R-201T, PA28RT-201T Cont. TSIO-360F	G210681			
STODDARD HAMILTON "Glassair" Lyc. IO-540	D210761 For Narrow deck engines			
Lyc. IO-540	C210761 For Wide deck engines			

TWIN PISTON ENGINE AIRCRAFT

Codes:

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 F = Feathering, UF = Unfeathering, S1 = Type I Synchronizer,
 S2 = Type II Synchrophaser

(For more Synch information, contact Woodward at 815 624-4400)

AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
BEECH D18S, E18S, G18S, H18S *Twin BEECH* With Hartzell propellers only P&W R-985	L210402 Lt Eng Pump UF R210402 Rt Eng Pump UF L210404 Lt Eng UF R210404 Rt Eng UF	# L210506 Lt Eng Pump / UFS1 # R210506 Rt Eng Pump / UFS1 L210505 Lt Eng UFST1 R210505 Rt Eng UFST1	213350 Control Box – Type I or 213780* > 213770 213100 Actuator 213447 Rod End Trimmer 213150 Flex Shaft – No Exch * Microprocessor Update
BEECH C50 *Twin Bonanza* Lyc. GO-480	210159 F for BEECH Props 210406 UF for Hartzell Props	# 210085 F	No Synchronizer Approved
BEECH D50, E50, F50, G50, H50, J50, 65, A65, 70 *Twin Bonanza* and *Queen Air* Lyc. GO-480 Lyc. GSO-480 Lyc. IGSO-480	210385 F 210433 UF 210728 UFS2	# 210190 F < 210365 F	NOTE: To retrofit this aircraft with a Type II Sync system, use 213718 Kit and two 210728 governors. 213730 Control Box – Type II
BEECH 50 Series *Excalibur* conversion Lyc. IGSO-540	A210385 F A210390 UF 210498 UFS1		213350 Control Box – Type I or 213780* > 213770 213100 Actuator 213447 Rod End Trimmer 213150 Flex Shaft – No Exch * Microprocessor update
BEECH 50, 65, 80 Conversion *Excalibur 800* Lyc. IO-720	B210434 UF 210546 UFS1 A210709 UFS2		213350 Control Box – Type I or 213780* > 213770 213100 Actuator 213447 Rod End Trimmer 213150 Flex Shaft – No exch * Microprocessor update 213730 Control Box – Type II NOTE: To retrofit this aircraft with a Type II Sync system, use 213705 Kit and two A210709 governors.
BEECH 55, A55, B55 *Baron* Cont. IO-470	210666 UF 210714** UFS2 B210801 UFS2	# 210355 UF < B210438 UF	Original BEECH Type II Synch used 213699 or 213728** control boxes. The aircraft connector had a 1644-410 resistor and 1641-474 fuse. NOTE: To retrofit this aircraft with a Type II Sync system, use 213705 Kit and two B210801 governors
BEECH 55 Colemill conversion *Baron* Cont. IO-520 Cont. IO-550	D210596 UF E210713 UFS2 A210806 UFS2		213730 Control Box – Type II NOTE: To retrofit this aircraft with a Type II Sync system, use 213705 Kit and two E210713 governors 213730 Control Box – Type II

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BEECH C55, 58A "Baron" Cont. IO-520 Cont. IO-550	210662 UF	< D210439 UF	213350 Control Box - Type I or 213780* > 213770 213100 Actuator 213447 Rod End Trimmer 213150 Flex Shaft - No Exch * Microprocessor update
	C210529 UFS1		Original BEECH Type II Sync used 213669 or 213728** control boxes. The aircraft connector had a 1644-410 resistor and 1641-474 fuse.
	B210710** UFS2 B210800 UFS2	A210800 UFS2	NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213705 and two A210800 governors. 213730 Control Box - Type II
BEECH D55, E55, 58 "Baron" Cont. IO-520 Cont. IO-550	C210529 UFS1		213350 Control Box - Type I or 213780* > 213770 213100 Actuator 213447 Rod End Trimmer 213150 Flex Shaft - No Exch * Microprocessor update
	B210710** UFS2		Original BEECH Type II Sync used 213669 or 213728** control boxes. The aircraft connector had a 1644-410 resistor and 1641-474 fuse.
	A210800 UFS2		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213705 and two A210800 governors.
			213730 Control Box - Type II
BEECH 58P "Baron" Cont. TSIO-520 Cont. TSIO-550	210662 UF		Original BEECH Type II Sync used 213669 or 213728** control boxes. The aircraft connector had a 1644-410 resistor and 1641-474 fuse
	210714** UFS2		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213705 and two A210800 governors.
	B210800 UFS2		213730 Control Box - Type II
	A210800 UFS2		
1981 and later Barons had Type II Fixed Phase Synchrophasers with A210802 Governors			
	A210802 UFS2 Firing Order phaser	5430-952 Speed Generator	213763 Control Box, replace with A213807 Control Box. Replacement requires: One 1631-028 Connector One 1711-526 switch One 33193 instr. Manual A213807 Control Box Type II

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AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
BEECH 565TC, A56TC, 60, A60, B60 "Duke" Lyc. T10-540	210456 UF 210556 UFS1 210726 UFS2 210910 UFS1 Oversize pump on 1981 and later Dukes		213460 Control Box – Type I or 213782* >213770 213100 Actuator 213446 Rod End Trimmer 1551-005 Flex Shaft – No Exch * Microprocessor update
			NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210726 governors. 213730 Control Box – Type II
BEECH 587C, 587CA "Baron" Cont. TS10-520 Cont. TS10-550	210662 UF B210710** UFS2 B210800 UFS2 A210800 UFS2	# 210752 UF Speed reset solenoid is discontinued. # 210753** UFS2 Speed reset solenoid is discontinued.	Original BEECH Type II Sync used 213669 or 213728** control boxes. The aircraft connector had a 1644-410 resistor and 1641-474 fuse. NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213705 and two A210800 governors. 213730 Control Box – Type II
1981 and later Barons had Type II Fixed Phase Synchrophasers with A210802 Governors			
	A210802 UFS2 Firing Order phaser	5430-952 Speed Generator	Replace 213763 Control Box, with A213807 Control Box. Replacement requires: One 1631-028 Connector One 1711-526 switch One 33193 Instr. Manual A213807 Control Box Type II
BEECH 76 "Duchess" Lyc. O-360	L210652 Lt Eng UF R210652 Rt Eng UF	NOTE : A Lycoming spacer plate mst be installed on the engine or governors cannot function.	
BEECH 80, A80, B80, 88 "Queen Air"	A210390 UF 210498 UFS1 210728 USF2		213350 Control Box – Type I or 213780* >213770 213100 Actuator 213446 Rod End Trimmer 213158 Flex Shaft – No Exch * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two A210728 governors. 213730 Control Box – Type II
BEECH 95, B95, B95A, D95A, E95 "Travelair" Lyc. O-360	210360 F 210240 UF	# 210195 F < 210300 F	

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AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
BRITTAN NORMAN BN-2, BN2A, BN2A-2, -3, -6, -8, -9, -20, -21, -26, -27 "Islander" Lyc. O-540 Lyc. IO-540	For Narrow deck engines. Governor MAX RPM 2415		
	F210841 F D210659 F 210715 UF D210719 UFS2 D210800 UFS2	< F210444 F < 210275 UF	NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two D210719 governors. 213730 Control Box - Type II
	For Wide deck engines. Governor MAX RPM 2560		
	G210841 F G210659 F B210715 UF F210710 UFS2 F210800 UFS2		213730 Control Box - Type II
BRITTAN NORMAN BN-2A, MK-III-3 "Tri-Islander"	For Narrow deck engines. Governor MAX RPM 2415		
	A210550 F Auto-feather	# 210521 F Discontinued	No Synchronizer approved
	For Wide deck engines. Governor MAX RPM 2560		
	210550 F		No Synchronizer approved
CESSNA 310-3100, 320-320C, 320-I Cont. UC-470 Cont. IO-470	E210659 F 210699 UF B210656 FS1 210678 UFS1 210719 FS2 210704 UFS2	# 210820 F # C210355 F < 210444 F < A210438 UF < 210446 FS1 < A210499 UFS1	213433 Control Box - Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213158 Flex Shaft - No Exch * Microprocessor MODEL
			NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210704 or 210719 governors.
			213730 Control Box - Type II
CESSNA 310/320 "Colemill conversion" Cont. IO-520	A210595 FS1 B210596 UF A210597 UFS1 B210713 UFS2		213433 Control Box - Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213158 Flex Shaft - No Exch
			NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two B210713 governors. 213730 Control Box - Type I
CESSNA 310/320 "Ram Conversion" Cont. TSIO-520	A210710 UFS2 A210719 FS2		213730 Control Box - Type I

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AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
CESSNA 310R Cont. IO-520 Cont. TSIO-520	B210444 F		213433 Control Box – Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213158 Flex Shaft – No Exch * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two A210719 or A210710 governors. 213730 Control Box – Type II
	C210439 UF		
	B210446 FS1		
	A210529 UFS1		
	A210719 FS2		
	A210710 UFS2		
CESSNA T310P, T310Q, 320D, E, F, 340, A, 401, A, 402, A, B, 414 Cont. TSIO-520	B210659 F	< B210444 F	213350 Control Box – Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213158 Flex Shaft – No Exch * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two A210710 or A210719 governors. 213730 Control Box – Type II
	210662 UF	< C210439 UF	
	A210656 FS	< B210446 FS1	
	210661 UFS1	< A210529 UFS1	
	A210719 FS2		
	A210710 UFS2		
CESSNA 340/414 "Ram conversion" Cont. TSIO-520	A210710 UFS2		213730 Control Box – Type II
CESSNA 336, 337 "Skymaster" Cont. IO-360 TSIO-360	210659 F	< 210443 F	213433 Control Box – Type I or 213781* >213770 213100 Actuator 213448 Rod End Trimmer 213539 Flex Shaft * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213704 and two C210710 or C210719 governors.
	C210719 FS2	< A210446 FS1	
	A210715 UF	< 210436 UF	
	C210710 UFS2	< 210529 UFS1	
CESSNA 411, 411A Cont. GTSIO-520	A210444 F		213433 Control Box – Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213450 Flex Shaft * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two B210719 or E210710 governors.
	210439 UF		
	C210446 FS1		
	B210529 UFS1		
	B210719 FS2		
	E210710 UFS2		

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AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
CESSNA 421, A, B Cont. GTSIO-520	210594 F		213433 Control Box – Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213450 Flex Shaft * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210703 or C210713 governors.
	210596 UF		
	210595 FS1		
	210597 UFS1		
	210703 FS2		
	C210713 UFS2		
CESSNA 421C, 404 Cont. GTSIO-520	B210595 FS1		213433 Control Box – Type I or 213781* >213770 213100 Actuator 213447 Rod End Trimmer 213450 Flex Shaft * Microprocessor update NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210703 or D210713 governors.
	D210529 UFS1		
	A210703 FS2		
	D210713 UFS2		

Gulfstream Commander aircraft with Type I Synchronizers:

If the Synchronizer system is not used or not maintained in operating condition and the slave governor's integral pulley trimmer condition is not known, the trimmer should be inspected for proper operation in accordance with the procedures outlined in Woodward Specification Manual 33201.

If the trimmer has seized, is worn or malfunctions, it can restrict the governor's control range. The trimmer cannot be repaired. The options are to upgrade to the Type II Synchrophaser or remove the Type I system as shown. ***

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GULFSTREAM COMMANDER 500 Lyc. 0-540	210405 F		
GULFSTREAM COMMANDER 500A Cont. IO-470	210403 F Pump Unfeathering	# 210310 F	
	210409 UF Pump Unfeathering	# 210410 UF	
GULFSTREAM COMMANDER 500A "Colemill Conversion" Cont. IO-520	210647 F		213730 Control Box – Type II
	210648 UF		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210732 governors.
	210732 FS2		

TWIN PISTON ENGINE AIRCRAFT

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 S2 = Type II Synchronizer

(For more Sync information, contact Woodward at 815 624-4400)

AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
GULFSTREAM COMMANDER 550B, U, S Lyc. 10-540 "Shrike"	210428 F	# 210400 F	
	210412 UF	# 210401 UF	
	210586 FS1	*** # 210585 FS1 Rt Eng Slave	NOTE: *** IF NO SYNCHRONIZER IS REQUIRED, replace the 210585 slave with a 210428 or 210412 non-sync governor.
	210733 UFS2		IF A SYNCHRONIZER IS REQUIRED, replace the 210585 slave and the 210586 master governors with two 210733 governors and 213718 Type II Sync Kit.
			213730 Control Box - Type II
			NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210733 governors.
		*** # 210587 FS1 Rt Eng Slave # 210584 UFS1 Left Engine Master	NOTE: *** IF NO SYNCHRONIZER IS REQUIRED, replace the 210587 slave with a 210412 non-sync governor. IF A SYNCHRONIZER IS REQUIRED, replace the 210587 slave and the 210585 master governor with two 210733 governors and 213718 Type II Sync Kit.
GULFSTREAM COMMANDER 500B, U, S "Mr. RPM Conversion" Lyc. 10-720	A210400 F 210731 FS2		213730 Control Box - Type II
	210562 FS2 Oversize pump		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213730 and two 210562 governors.
GULFSTREAM COMMANDER 520, 560, 560A, 560E, 680, 680E, 720	C210403 F	# 210255 F	NOTE: *** Replace the 210533 slave with a C210403 non-sync governor.
	A210513 FS1	# C210310 F *** # 210533 FS1	
GULFSTREAM COMMANDER 560F, 680F, 680FLP	B210403 F	# B210310 F	NOTE: *** Replace the 210514 or 210516 slave and the 210513 or 210516 master governor with 210403 or 210409 non-sync governors.
	B210409 UF	# B210410 UF	
	210513 FS1 Left Eng Master	*** # 210514 FS1 Rt Eng Slave	
	210515 UFS1 Left Eng Master	*** 210516 UFS1 Rt Eng Slave	
GULFSTREAM COMMANDER 680F, FL, FP, FLP "Mr. RPM conversion"	210511 UF		No Synchronizer is approved for this aircraft.

TWIN PISTON ENGINE AIRCRAFT

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(For more Synch information, contact Woodward at 815 624-4400)

AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
GULFSTREAM COMMANDER 685 Cont. GTSIO-520	210688 F 210688 UF 210674 UFS1 210703 FS2 210713 UFS2		213650 Control Box - Type I or 213783* >213770 5485-022 Actuator 213447 Rod End Trimmer 1551-036 Flex Shaft * Microprocessor update 213730 Control Box - Type II
GULFSTREAM COMMANDER 700 Lyc. IO-720	210653 F 210716 UF 210718 UFS2 210758 UFS2 Oversize Pump		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210718 or 210758 governors. 213730 Control Box - Type II
PARTENAVIA P68, P68B (SN 16 +) P68C Lyc. IO-360 A/B	L210844 F Left Engine R210844 F Right Engine L210924 FS2 Left Engine R210924 FS2 Right Engine	< B210655 F Left Engine < C210655 F Right Engine	NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210924 (L&R) governors. 213730 Control Box - Type II
PARTENAVIA P68 Observer P68C-TC Lyc. TC-360	A210844 F	< A210655 F	No synchronizer is approved for this aircraft.
PIPER PA23 PA23-160 "Apache" Lyc. O-320	210413 F 210414 UF	# 210080	No synchronizer is approved for this aircraft.
PIPER PA23-235 "Apache"	210700 F	Use with Hartzell HC-82X Type propellers (Counter weighted) When retrofitting Hartzell B-4 governors, longer mounting studs, 8 each P{/N 1117-478 are required.	
PIPER PA23-250 PA23E-250 "Aztec" Lyc. O-540 IO-540	210721 F Oversize pump for Narrow Deck engines. Governor MAX RPM is 2305 A210721 F Oversize pump for Wide Deck engines. Governor MAX RPM is 2438	Use with Hartzell HC-E2Y Type propellers (Air charged) When retrofitting Hartzell F-6 governors, installation kit P/N 8953-529 (one/aircraft) is required.	

TWIN PISTON ENGINE AIRCRAFT

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(For more Synch information, contact Woodward at 815 624-4400)

AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
PIPER PA23-250 PA23E-250 "Aztec"	210723 FS2 Oversize pump (12 volt sync) For Narrow Deck engines Governor MAX RPM is 2305		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210720 or 210723 governors or 12 volt systems only. For aircraft with 24 volt systems, use Kit P/N 213718 and two L210909 governors.
	210720 FS2 Oversize pump (12 volt sync) For Wide Deck engines Governor MAX RPM is 2305		
	L210909 FS2 Oversize pump (24 volt sync) For Wide Deck engines Governor MAX RPM is 2438		
PIPER PA-31-310 "Navajo C" Lyc. T10-540	210706 F Oversize pump	# 210705 F	213730 Control Box – Type II NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210572 governors.
	210572 UFS2 Oversize pump For Narrow Deck engines with 2305 MAX RPM	When retrofitting Hartzell F-6 governors, longer mounting studs, 8 each P/N 1117-478 are required.	
	A210706 F Oversize pump	# A210705 F	213730 Control Box – Type II
	A210572 UFS2 Oversize pump For Wide Deck engines with 2439 MAX RPM	NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210572 governors.	
		When retrofitting Hartzell F-6 governors, longer mounting studs, 8 each P/N 1117-478 are required.	
PIPER PA310 "Colemill conversion" "Panther Navajo" Lyc. T10-540	210707 UFS2		213730 Control Box – Type II
PIPER PA-31-350 PA31-325 "Chieftain Navajo C/R" COLEMILL "Panther II" Lyc. T10-540 LT10-540	L&R 210908 F (Counter-Rotating) Oversize pump	# L&R 210679 UF (Counter-Rotating)	NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210909 or 210913 governors. 213730 Control Box – Type II
	L&R 210914 UF (Counter-Rotating) Oversize pump	When retrofitting 210679 governors, longer studs, 8 each P/N 1711-478 are required.	
	L&R 210909 FS2 (Counter-Rotating)	When retrofitting Hartzell F-6 governors, installation kit P/N 8953-533 (one/aircraft) is required.	
	L&R 210913 UFS2 (Counter-Rotating) Oversize pump		
PIPER PA31P "Pressurized Navajo" Lyc. T1G0-541	210664 UF 210665 UFS1	< 210463 UF < 210464 UF	213350 Control Box – Type I or 213780* >213730 5485-016 Actuator 213448 Rod End Trimmer 213192 Flex Shaft – No Exch * Microprocessor update

TWIN PISTON ENGINE AIRCRAFT

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AIRCRAFT and ENGINE APPLICATION	RECOMMENDED GOVERNOR	REPLACED or ALTERNATIVE GOVERNOR	SYNCHRONIZER and SYNCHROPHASER DESCRIPTION
PIPER PA34-200T "Seneca II" Cont. TSIP-360 LTSIO-360	C210659 F Left Engine 210658 F Right Engine L210755 FS2 Left Engine R210755 FS2 Right Engine		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210755 (L&R) governors. 213730 Control Box - Type II
PIPER AEROSTAR 600 601 601P	210700 F For Narrow Deck Engine	MAX Governor RPM is 2305 For Narrow Deck Engines	NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two 210572 governors 213730 Control Box - Type II
	210702 UF Oversize pump For Narrow Deck engine.	When retrofitting Hartzell F-6 governors, longer mounting studs, 8 each P/N 1117-478 are required for either Narrow or Wide Deck engine applications.	
	210572 FS2 Oversize pump For Narrow Deck engine. A210572 FS2 Oversize pump For Wide Deck engines.		NOTE: To retrofit this aircraft with a Type II Sync, use kit PN 213718 and two A210572 (wide deck) governors. 213730 Control Box - Type II
PIPER AEROSTAR 602P J2	B210572 FS2 Oversize Pump		

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