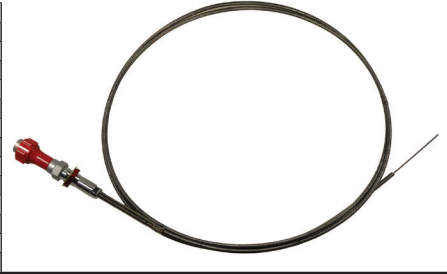


Solid Wire Vernier Mixture Control for Beechcraft, Mooney, Maule, and Stinson Aircraft

FAA-PMA Approved

- Precise mixture control for less than the original replacement part
- Extra long - trim to exact length
- High quality McFarlane manufacture

Make	Model	Serial Number	Part Number
Raytheon (Beechcraft)	19A, M19A, B19,23, A23-19, B23	All	MC600-120
Raytheon (Beechcraft)	35, A35, B35, C35, D35, E35, F35, G35, H35	All	MC600-72
Mooney	M20, M20A, M20B, M20C, M20D	All	MC600-72
Maule	Bee Dee M-4, M4, M-4C, M-4S, M-4T	All with Carbureted Engine	MC600-72
Maule	M-4-220, M-4-220-C, M-4-220S	All with Carbureted Engine	MC600-72
Maule	M-4-220T, M-4-180C, M-4-180S, M-4-180T	All with Carbureted Engine	MC600-72
Maule	M-5-180C, M-5-220T, M-5-235C	All with Carbureted Engine	MC600-72
Maule	M-5-210TC, M-6-180, M-6-235, MX-7-160	All with Carbureted Engine	MC600-72
Maule	MXT-7-160, MX-7-180, MX-7-180A	All with Carbureted Engine	MC600-72
Maule	MXT-7-180, MXT-7-180A, MX-7-180B	All with Carbureted Engine	MC600-72
Maule	MX-7-180C, M-7-235, MX-7-235	All with Carbureted Engine	MC600-72
Maule	MX-7-235A, MX-7-235B, MX-7-235C, M-8-235	All with Carbureted Engine	MC600-72
Univair (Stinson)	108, 108-1, 108-2, 108-3, 108-5	All	MC600-72



Throttle Controls for Grumman Aircraft

FAA-PMA Approved

- Throttle Controls for aircraft manufactured by Grumman American, Gulfstream Aerospace Corp. or Tiger Aircraft LLC.
- McFarlane has developed a longer conduit terminal that allows extra clearance between the swivel joint and the air filter box at the clamp location.
- Thread length has been tailored to allow full adjustment of the Grumman swivel assembly.
- Push rod length has been tailored to ensure that McFarlane throttle controls duplicate the original controls in fit and function.

Model	Serial Number	Part Number
AA-1	AA1-0433 and On	MC507005-1
AA-1A	AA1A-0001 and On	MC507005-1
AA-1B	AA1B-0001 and On	MC507005-1
AA-1C	AA1B-0601	MC507005-1
AA-1C	AA1C-0001 and On	MC507005-1
AA-5	AA5-0001 and On	MC507005-2
AA-5A	AA5A-0283 and On	MC507005-2
AA-5B	AA5B-0001 and On	MC507005-3



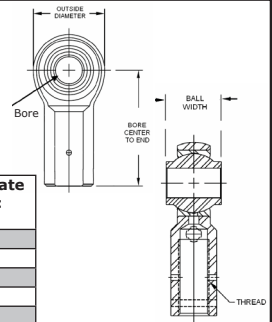
Engine Controls for Bellanca Viking Aircraft

FAA-PMA Approved

Model	Serial Number	Throttle	Propeller	Mixture
17-30A	30263 and On, and aircraft with a S/N prefix: "75-"	MCS191783-18	MCS191783-1	MCS191783-16
17-31A	73-32-128 and On, and aircraft with a S/N prefix "75-"	MCS191783-18	MCS191783-1	MCS191783-17
17-31ATC	73-31067 and On, and aircraft with a S/N prefix "75-"	MCS191783-18	MCS191783-1	MCS191783-17

Rod Ends for Experimental Aircraft

Not for use on certified aircraft.
Not FAA-PMA approved.
See pages 22-24 for FAA-PMA approved rod ends.

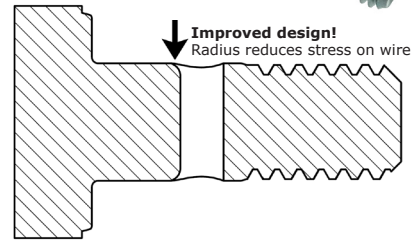
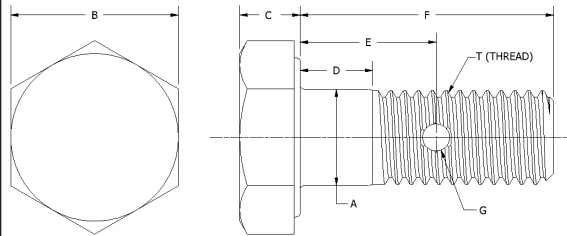


P/N	Bore	O.D.	Bore Ctr to End	Ball Width	Thread	Thread Type	Ultimate Static Load
(~)	(in)	(in)	(in)	(in)	(in)	(~)	(lbs)
MW-3M-500	0.190	0.625	1.062	0.312	10-32	Internal	1,531
GMW-3M-470	0.190	0.750	1.375	0.437	1/4-28	Internal	2,881
GMW-4M-470	0.250	0.812	1.375	0.437	1/4-28	Internal	2,950
MM-3M-500	0.190	0.625	1.250	0.312	10-32	External	1,169

Bolt Style Wire Clamps for Solid Wire Controls for Cessna Aircraft

FAA-PMA Approved

- Unique design to reduce wire stress
- Heat treated stainless steel for wear and corrosion resistance
- The best for less!
- See pages 10-13 to find the correct clamp for your mixture or carb heat control.
- Go to <http://www.mcfarlaneaviation.com/products> to find the correct clamp for all other applications.



Part Number	A	B	C	D	E	F	G	T	Application
	Bolt Dia. (in)	Wrench Size (in)	Thick (in)	Grip Length (in)	Hole Position (in)	Shank Length (in)	Hole Dia. (in)	Thread (~)	
MCS2323-1	0.188	3/8	0.125	0.250	0.183	0.653	0.073	10-32	Carb heat, starter, mixture, cabin heat, fuel shutoff, strainer drain, defrost, shutter, wastegate, oxygen control, de-ice, heater, airbox, alternate air, flap/elevator, pressure air dump, heat exchanger
MCS2323-2	0.250	7/16	0.156	0.312	0.325	0.781	0.073	1/4 - 28	cabin heat, mixture, defrost
MCS2323-3	0.250	7/16	0.156	0.188	0.199	0.539	0.073	1/4 - 28	strainer drain, cowl flaps, carb heat, alternate air
MCS2323-4	0.250	7/16	0.156	0.313	0.312	0.781	0.073	1/4 - 28	mixture, flap indicator, flap guide, fuel shut-off
MCS2323-5	0.188	3/8	0.125	0.125	0.188	0.531	0.073	10-32	cabin air, carb heat, starter, airbox, defrost, flap, shutter, oxygen
MCS2323-6	0.250	7/16	0.156	0.188	0.355	0.656	0.073	1/4 - 28	mixture, hopper, induction
MCS2323-7	0.188	3/8	0.125	0.250	0.192	0.656	0.076	10-32	fuel shut-off, alternate air, flap elevator trim
MCS2323-8	0.188	3/8	0.125	0.250	0.202	0.656	0.096	10-32	fuel shut-off, oxygen control
MCS2323-9	0.250	7/16	0.156	0.438	0.343	0.906	0.129	1/4 - 28	flap control, flap guide
MCS2323-10	0.188	3/8	0.125	0.125	0.204	0.477	0.079	10-32	fuel shut-off, heat exchanger
MCS2323-11	0.188	3/8	0.125	0.250	0.266	0.656	0.076	10-32	mixture, bleed air, fuel selector, flap/elevator
MCS2323-12	0.250	7/16	0.156	0.188	0.357	0.656	0.073	1/4 - 28	mixture, cabin heat, pressurization
MCS2323-13	0.250	7/16	0.156	0.313	0.271	0.781	0.073	1/4 - 28	mixture, alternate air, bleed air
MCS2323-14	0.188	3/8	0.125	0.125	0.132	0.531	0.082	10-32	cabin heat, cabin air
MCS2323-19	0.188	3/8	0.125	0.125	0.200	0.531	0.094	10-32	defroster

Rod Ends for Cessna Aircraft

- Many applications!
- See pages 10-14 for rod ends for Cessna 120 thru 210 engine controls.



Model	Part Number	ALLERON PUSH ROD	ALT AIR CONTROL	CARGO DOOR	COOLING MODULATOR	COWL FLAP	COWL FLAP CONTROL	ELEVATOR BOB WEIGHT LINKAGE	FLAP ACTUATOR PUSH ROD	FLAP CONTROL	FLAP PUSH ROD	INERTIAL SEPARATOR ACTR PUSH ROD	INERTIAL SEPARATOR CONTROL	MAIN GEAR DOOR	MAIN GEAR DOOR ACTUATOR	MIXTURE CONTROL	MIXTURE LINKAGE	NOSE GEAR STEERING ROD	NOSE GEAR DOOR	NOSE GEAR DOOR ACTUATOR	OUTBOARD FLAP PUSH ROD	PROP CONTROL	PROP SYNCRO PUSH ROD	REAR PRESSURIZATION CONTROL	RUDDER BAR	RUDDER BELLCRANK PUSH ROD	SPRAY VALVE PUSH ROD	THROTTLE CONTROL	THROTTLE LINKAGE	WATER RUDDER STEERING
150, 150A,B,C,D,E,F,G,H,J	MCS1106-3																													
150K,L,M,A-150L, A-A150L, A150K,L,M	S1819-3																													
F150F,G,H,J	MCS1819-4																													
F150K,L,M, FA150K,L,M, FRA150L,M	MCS1106-3																													
152, A152, F152, FA152	MCS1104-3																													
172,172A,B,C	MCS1105-3																													
172D,E,F,G,H,I,K,L,M,N,P,Q,R	MCS1106-3																													
172RG	MCS1106-4																													
172S, F172D,E,F,G,H,K,L,M,N,P, FP172	MCS1104-3																													
FR172E,F,G,H,J	MCS1106-3																													
FR172K	MCS1106-4																													
P172D	S1819-3																													
R172K	MCS1106-3																													
175, 175A,B,C	MCS1106-3																													
177, 177A,B	MCS1106-4																													
177RG, F177RG	S1823-3																													
180,180A,B,C,D,E,F,G,H,J,K	S1107-3																													
182,182A,B,C,D,E,F,G,H,J,K	MCS1106-3																													
182L,M	MCS1106-4																													
182N S/N 18260056 thru 18260445	MCS1106-3																													
182N S/N 18260446 thru 18260825	MCS1106-4																													
182P,Q,R	MCS1106-3																													
182S,T	MCS1106-4																													
F182P,Q	MCS1106-3																													
FR182, R182	MCS1106-4																													
T182	MCS1106-3																													
T182T	MCS1106-4																													
TR182	MCS1106-3																													
185, 185A,B,C,D,E, A185E,F	MCS1106-4																													
188,188A,B, A188, A188A,B, T188C	MCS1106-3																													
210-5 (205), 210-5A (205A)	MCS1106-4																													
206	MCS1106-3																													
206H	MCS1106-4																													
P206,P206A	MCS1106-3																													
P206B,C,D,E	MCS1106-4																													
T206H	MCS1106-3																													
TP206A,B	MCS1106-4																													
TP206C,D,E	MCS1106-3																													
TU206A,B	MCS1106-4																													
TU206C,D,E	MCS1106-3																													
TU206F S/N U20601701 thru U20602199	MCS1106-4																													
TU206F S/N U20602200 thru U20603521,U206G	MCS1106-3																													
U206,U206A,B,C,D,E,U206F S/N U20601701 thru U20602199	MCS1106-4																													
U206F S/N U20602200 thru U20603521,U206G	MCS1106-3																													
207,207A,T207,T207A	MCS1106-4																													
208,208A,B	MCS1106-3																													
210,210A	MCS1106-4																													
210B,C	MCS1106-3																													
210D,E,F	MCS1106-4																													
210G	MCS1106-3																													
210H,J	MCS1106-4																													
210K,L,M	MCS1106-3																													
210N S/N 21062955 thru 21063168	MCS1106-4																													
210N S/N 21063169	MCS1106-3																													
210N S/N 21063170 thru 21063174	MCS1106-4																													
210N S/N 21063175 thru 21064135	MCS1106-3																													
210N S/N 21064136 thru 21064897	MCS1106-4																													
210R	MCS1106-3																													
P210N S/N P21000001 thru P21000150	MCS1106-4																													
P210N S/N P21000151 thru P21000196	MCS1106-3																													
P210N S/N P21000197	MCS1106-4																													

1 Partial model eligibility.
 2 P/N S1823-3 is applicable to model 150J only.
 3 P/N S1107-3 is applicable to models 182, 182A,B,C,D only.

Rod Ends for Cessna Aircraft

- Many applications!
- See pages 9-14 for rod ends for Cessna 120 thru 210 engine controls.



Model	P/N	AILERON PUSH ROD	ALT AIR CONTROL	CARGO DOOR	COOLING MODULATOR	COWL FLAP	COWL FLAP CONTROL	ELEVATOR BOB WEIGHT LINKAGE	FLAP ACTR PUSH ROD	FLAP CONTROL	FLAP PUSH ROD	INERTIAL SEPARATOR ACTR PUSH ROD	INERTIAL SEPARATOR CONTROL	MAIN GEAR DOOR	MAIN GEAR DOOR ACTUATOR	MIXTURE CONTROL	MIXTURE LINKAGE	NG STEERING ROD	NOSE GEAR DOOR	NOSE GEAR DOOR ACTUATOR	OUTBOARD FLAP PUSH ROD	PROP CONTROL	PROP SYNCRO PUSH ROD	REAR PRESSURIZATION CONTROL	RUDDER BAR	RUDDER BELCRANK PUSH ROD	SPRAY VALVE PUSH ROD	THROTTLE CONTROL	THROTTLE LINKAGE	WATER RUDDER STEERING
P210N	MCS1106-3																													
S/N P21000198 thru P21000212	S1819-3	•																												
P210N	MCS1819-4																													
S/N P21000213 thru P21000834	MCS1106-3																													
P210R	MCS1106-3																													
T210F	MCS1104-3																													
T210G	MCS1106-3																													
T210H,J	MCS1106-4																													
T210K,L,M	MCS1105-3																													
T210N	MCS1106-3																													
T210R	MCS1106-4																													
310,310B	MCS1104-3																													
310C,D,F,G,H,I,J,J-1,K	MCS1106-3																													
310L,N	MCS1106-3																													
310P,Q	MCS1106-4																													
310R	MCS1106-3																													
E310H,J	MCS1106-3																													
T310P,Q	MCS1106-3																													
T310R	MCS1106-4																													
320,320-1,320A,B,C	MCS1106-3																													
320D,E,F	MCS1106-4																													
335	MCS1106-3																													
336	MCS1106-3																													
337	MCS1106-3																													
337A,B	MCS1106-3																													
337C	MCS1106-3																													
337D	MCS1106-3																													
337E,F	MCS1106-3																													
337G,H	MCS1106-3																													
F337E,F	MCS1106-3																													
F337G,H	MCS1106-3																													
FT337E,F	MCS1106-3																													
FT337GP (FP337)	MCS1106-3																													
FT337HP (FP337H)	MCS1106-3																													
M337B	MCS1106-3																													
P337H	MCS1106-3																													
T337B,C,D	MCS1106-3																													
T337E,F	MCS1106-3																													
T337G	MCS1106-3																													
T337H	MCS1106-3																													
T337H-SP	MCS1106-3																													

■ Partial model eligibility



MCS1104-3



MCS1105-3



MCS1106-3



MCS1106-4

Rod End Dimensions		
Part Number	Bore/Eye	Thread
MCS1104-3	0.19	10-32 Internal
MCS1105-3	0.19	10-32 External
MCS1106-3	0.19	1/4-28 Internal
MCS1106-4	0.25	1/4-28 Internal
S1107-3	0.19	3/8-24 External
S1819-3	0.19	1/4-28 Internal
S1823-3	0.19	3/8-24 External
MCS1819-4	0.25	1/4-28 Internal



S1107-3



S1819-3



S1823-3



MCS1819-4



Push Pull Controls and Accessories

Rod Ends for Piper Aircraft

Model	Part Number	Description/Application
PA-18/18A, PA-18-105/125/135/150 & PA-18A-125/135/150 S/N's 18-1 thru 18-8309025 and PA18-150 S/N's 1809001 thru 1809113	CA452-335A	Wing panel assembly, uncovered
PA-22 & PA-22-108/135/150/160	CA452-335A	Wing panel assembly, nose wheel
PA-23-150/160 PA 23-235/PA23-250 / PA 23-250	CA452-335A	Nose gear, main gear
PA-24-180/250/260/400	CA452-412	Landing gear retraction system, flap control mechanism, control surfaces
	CA452-334A	Steering push rod & shimmy dampener, main gear bearing, control system
	CA452-335A	Bungee assembly, nose wheel, landing gear door
	CA452-336A	Flap control, nose gear assembly
PA-28-140/150/160/180/235/R-180/200	CA452-368	Main gear
	CA452-584	Landing gear door
	CA452-860A	Shimmy dampener
PA-28-151/161 S/N 715001 thru 28-7715314, 28-7716001 thru 28-8616057 & 2816001 thru 2816119	CA452-334A	Nose gear
	CA452-335A	Nose gear, control system, flap control
PA-28-161 S/N 2841001 thru 2841365	CA452-334A	Nose gear
PA-28-161 S/N 2842001 & up	CA452-335A	Control system, flap control
	CA452-336A	Flap control
PA-28-181 S/N 28-7690001 thru 28-8690056 & 2890001 thru 2890231	CA452-334A	Nose gear
PA-28-181 S/N 2843001 & up	CA452-335A	Control system
	CA452-336A	Flap control
PA-28R-201/201T S/N 28R-773700, 2837001 thru 2837061, 28R7703002 thru 28R-7803372 & 2803001 thru 2803015	CA452-334A	Nose landing gear, main landing gear
	CA452-335A	Landing gear door, control system, flap control
	CA452-336A	Flap control
	CA452-584	Landing gear door
	CA452-334A	Nose landing gear
	CA452-335A	Landing gear door, control system, flap control
	CA452-336A	Flap control
PA-28R-201 S/N 2844001 & up	CA452-368	Main landing gear
PA-28RT-201/201T	CA452-334A	Nose landing gear
PA-30/39	CA452-335A	Landing gear door
PA-31P	CA452-412	Landing gear retraction system, flap control mechanism
	CA452-335A	Cabin door step
	CA452-412	Cabin door latch, nose landing gear, nose gear steering,
	CA452-335A	Cabin door step
PA-31P-350	CA452-412	Cabin door latch, nose landing gear, nose gear steering, elevator trim
PA-31-300/325, PA-31-350, PA-31-350T1020	CA452-412	Nose landing gear, nose gear steering mechanism
	CA452-335A	Cabin door step, engine control
PA-31T/T1/T2	CA452-412	Cabin door latch, nose landing gear
	CA452-860A	Cabin door snubber
PA-31T3	CA452-335A	Engine controls
	CA452-412	Nose landing gear, nose gear steering
	CA452-334A	Nose gear, main gear, control system
PA-32-260/300/R-300	CA452-335A	Landing gear door, flap control
	CA452-368	Main gear
	CA452-584	Landing gear door
	CA452-860A	Nose gear
	CA452-334A	Nose gear
	CA452-335A	Aileron control, flap control
	CA452-336A	Aileron control, flap control
PA-32-301/301T	CA452-860A	Nose gear
PA-32-301 XTC	CA452-334A	Nose gear
	CA452-335A	Aileron control, flap control
PA-32-301FT	CA452-336A	Aileron control
	CA452-860A	Nose gear
	CA452-334A	Nose gear, main gear
PA-32R-301/301T S/N 32R-8013001 thru 32R-8613005, 321001 thru 3213103, 32R-8029001 thru 32R-8629006 & 3229001 thru 3229003	CA452-335A	Landing gear door, aileron control, flap control
	CA452-336A	Aileron control, flap control
	CA452-368	Main gear
	CA452-334A	Main gear
	CA452-335A	Landing gear door, aileron control, flap control
PA-32R-301/301T S/N 3246001 & up & 3257001 & up	CA452-336A	Aileron control, flap control
	CA452-368	Main gear
PA-34-200	CA452-334A	Nose gear, aileron control, rudder trim, hydraulic system
	CA452-335A	Nose & main gear door actuation, flap control
	CA452-336A	Flap control
	CA452-368	Main gear
PA-34-200T	CA452-334A	Air conditioning, Condenser & scoop, nose gear, hydraulic system rudder trim
	CA452-335A	Nose & main gear door actuation
	CA452-336A	Flap control
	CA452-368	Main gear
	CA452-584	Aileron assembly, nose & main gear actuation
PA-34-220T S/N 34-8133001 thru 34-8633031, 3433001 & up, & 3448001 & up, PA-34-220T S/N 3447001 thru 3447029, & 3449001 & up	CA452-334A	Nose gear, rudder trim hydraulic system, air conditioning, condenser & scoop
	CA452-335A	Nose & main gear door actuation, aileron control, flap control
	CA452-336A	Flap control
PA-34RT-300/300T	CA452-334A	Nose gear, main gear, control system
	CA452-335A	Landing gear door, flap control
	CA452-336A	Flap control
	CA452-368	Main gear
	CA452-584	Landing gear door
PA-36-285/300/375	CA452-584	Elevator & elevator trim control
PA-42/PA42-720	CA452-335A	Cabin door step, engine controls
PA-42-1000	CA452-412	Cabin door latch, nose landing gear, nose gear steering, elevator control
PA-44-180/180T S/N 44-7995001 thru 44-8207020 & 4495001 thru 4495013	CA452-334A	Nose landing gear, main gear
PA-44-180 S/N4496001 & up	CA452-335A	Landing gear door, aileron control, flap control
	CA452-336A	Aileron control, flap control
	CA452-584	Landing gear door
PA-46-310P/350P S/N 46-8408001 thru 46-8608067, 4608001 thru 4608140 & 4622001 thru 4622200	CA452-334A	Nose gear, nose & main gear door, actuation
	CA452-335A	Nose & main gear door actuation
	CA452-412	Flap drive - electrical
	CA452-860A	Flap drive - electrical, flap drive & hydraulic
PA-46-350P S/N 4636001 & up	CA452-334A	Nose gear, nose & main gear door actuation
PA-46R-350T S/N 4692001 & up	CA452-335A	Main gear
	CA452-412	Flap Drive-Mechanical
	CA452-860A	Flap Drive-Mechanical
PA-46-500TP S/N 4697002,4697340,4697399 & up with G1000	CA452-334A	Nose gear, nose gear door actuation
	CA452-335A	Main gear door actuation
	CA452-412	Flap Drive-Mechanical
	CA452-860A	Flap Drive-Mechanical
PA-46-500TP S/N4697001 & up without G1000	CA452-334A	Nose gear, nose & main gear door actuation
	CA452-335A	Nose & main gear door actuation
	CA452-412	Flap Drive-Mechanical
	CA452-860A	Flap Drive-Mechanical

Piper Rod End Dimensions		
Part Number	Eye	Thread
CA452-334A	0.19	1/4-28 External
CA452-335A	0.19	1/4-28 Internal
CA452-336A	0.19	1/4-28 Internal
CA452-368	0.50	1/2-20 Internal
CA452-412	0.25	5/16-24 External
CA452-860A	0.25	1/4-28 External
CA452-584	0.19	Spherical