

SERVICE BULLETIN

Compliance Will Enhance Safety

Supersedes M74-16
TECHNICAL PORTIONS
FAA APPROVED

SUBJECT: Valve Spring Identification
PURPOSE: To ensure correct identification and usage of valve springs.
COMPLIANCE: At the next maintenance requiring complete disassembly of the engine, no later than published TBO.
MODELS
AFFECTED: All Continental Motors, Inc. (CMI) A65, C75, C85, C90, C125, C145, E165, E185 model aviation gasoline (AvGas) engines

I. GENERAL INFORMATION

This Service Document summarizes and consolidates the valve spring combination changes presented in previous releases.

CMI recommends that all valve springs retain color-coded stripe identification (see Figure 1 and Table 1). All valve springs in stockrooms should be color striped. Where necessary, reapply the Dykem® color stripe after the disassembly from an engine and thorough cleaning.

NOTE: Never apply enamel paint to color-code springs.

In order to ensure proper marking, valve springs on hand should be checked against the spring identification and test data shown in Table 1. The stripe should be approximately 1/4" wide and should touch only the outside of each coil.

NOTE: Carefully apply the stripe to ensure it is clearly visible. Do not apply striping in excess to cause runs or drips.

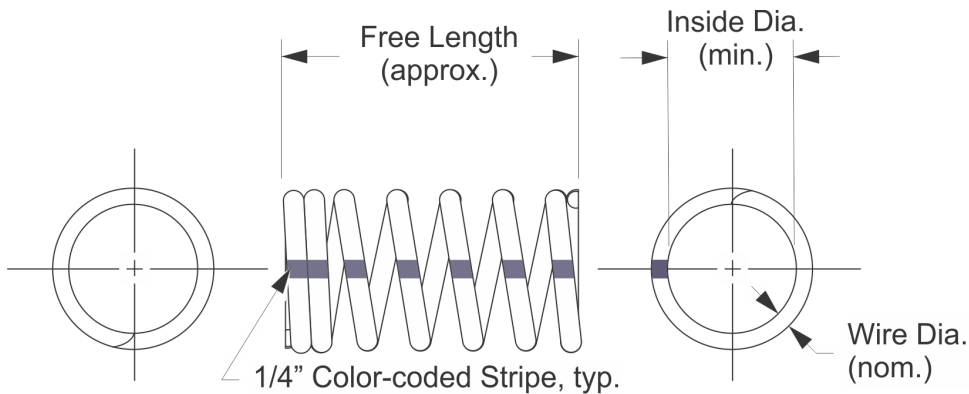


Figure 1. Identifying Characteristics, Springs, typical

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Table 1. Identifying Characteristics, Springs

Engine Models		A65		C75, C85	
Spring Type		Inner Spring	Outer Spring	Inner Spring	Outer Spring
Part Number (P/N)		21365	21366 RFQ Only	24029	24030
Color (Dykem® only, Do Not Use Enamel)		Yellow	Yellow	Purple	White or Orange
Spring Identification (In.)	Direction of Windings	L.H.	R.H.	L.H.	R.H.
	Free Length, Approx.	1.922	2.203	2.312	2.125
	Inside Dia. (Min.)	0.870	1.167	0.880	1.165
	Wire Dia. (Nom.)	0.105	0.135	0.111	0.142
Test Data (Spring Loads)	Compress to...	1.25	1.344	1.528	1.559
	Load (Lbs.)	20.0-22.0	32.5-35.5	25.0-28.0	33.0-37.0
	Compress to...	0.860	0.953	1.137	1.168
	Load (Lbs.)	34.5-37.5	52.0-56.0	40.0-44.0	58.0-63.0

Engine Models		C90, C125, C145			E165, E185	
Spring Type		Inner Spring	Intermediate Spring ¹	Outer Spring	Inner Spring	Outer Spring
Part Number (P/N)		24031	24029	24030	631521	637837
Color (Dykem® only, Do Not Use Enamel)		Green	Purple	White or Orange	LT Blue	Pink
Spring Identification (In.)	Direction of Windings	R.H.	L.H.	R.H.	R.H.	L.H.
	Free Length (Approx.)	1.781	2.312	2.125	2.125	2.100
	Inside Dia. (Min.)	0.630	0.880	1.165	0.917	1.300
	Wire Dia.	0.091	0.111	0.142	0.142	0.177
Test Data (Spring Loads)	Compress to...	1.466	1.528	1.559	1.746	1.791
	Load (Lbs.)	10.0-13.0	25.0-28.0	33.0-37.0	32.0-38.0	49.0-55.0
	Compress to...	1.075	1.137	1.168	1.230	1.275
	Load (Lbs.)	27.0-30.0	40.0-44.0	58.0-63.0	87.0-97.0	126.0-140.0

1. Optional cast iron camshaft configuration is no longer applicable. Three spring combination must be used with later type steel camshafts.

II. PART SUPERSEDURE HISTORY

The following tables are for historical reference information only. This section does not advise the use of products that must be installed together or used in combination with other specified parts when replacing a superseded product. You must consult the latest CMI service information and aircraft regulatory agency publication to validate the use of any product listed in this section.

CMI assumes no responsibility or liability for the improper use of information contained in the Part Supersede History section.

Table 2. Identifying Characteristics, Superseded Springs

Engine Models		C90
Spring Type		Outer Spring
Superseded Part Number (P/N)		24669
Color (Dykem® only, Do Not Use Enamel)		Black
Spring Identification (In.)	Direction of Windings	R.H.
	Free Length, Approx.	2.125
	Inside Dia. (Min.)	1.165
	Wire Dia. (Nom.)	0.148
Test Data (Spring Loads)	Compress to...	1.559
	Load (Lbs.)	43-47
	Compress to...	1.168
	Load (Lbs.)	71-76

Engine Models		E165, E185				
Spring Type		Inner Spring	Optional Inner Springs		Outer Spring	Optional Outer Spring
Superseded Part Number (P/N)		637836	520106 ¹	35988 ²	520105	35989 ²
Color (Dykem® only, Do Not Use Enamel)		Aluminum	Blue	Plain	Blue	Plain
Spring Identification (In.)	Direction of Windings	L.H.	R.H.	R.H.	R.H.	L.H.
	Free Length (Approx.)	2.312	2.406	2.156	2.125	2.187
	Inside Dia. (Min.)	0.880	.912	.912	1.165	1.287
	Wire Dia.	0.111	.142	.142	0.142	.177
Test Data (Spring Loads)	Compress to...	1.528	1.809	1.809	1.559	1.840
	Load (Lbs.)	25.0-28.0	43-49	28-34	33.0-37.0	41-47
	Compress to...	1.137	1.329	1.329	1.168	1.360
	Load (Lbs.)	40.0-44.0	78-88	71-81	58.0-63.0	100-113

1. Permissible with cast iron camshaft, three spring combination preferred and must be used with later type steel camshafts.
2. Use aluminum spacer part number 520023 (not available) with number 35988 and number 35989 spring combination. DO NOT use spacer with spring combination consisting of part numbers 520105, 520106 or 637836.

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