

PROPERTY DAMAGE, SEVERE INJURY AND/OR DEATH COULD RESULT FROM:

(1) FAILING TO FOLLOW THE INSTRUCTIONS CONTAINED IN THIS MAINTENANCE MANUAL;

OR

(2) REPAIRING, MODIFYING OR ALTERING ANY BARBER/SCT PRODUCT IN A MANNER THAT IS NOT INCLUDED IN THIS MAINTENANCE MANUAL.

IF YOUR SPECIFIC APPLICATION:

(1) REQUIRES A DEVIATION FROM THE INSTRUCTIONS CONTAINED IN THIS MAINTENANCE MANUAL;

(2) REQUIRES A REPAIR, MODIFICATION OR ALTERATION OF A BARBER/SCT PRODUCT THAT IS NOT INCLUDED IN THIS MAINTENANCE MANUAL;

OR

(3) RAISES ANY QUESTION ABOUT THE INSTRUCTIONS SPECIFIED IN THIS MAINTENANCE MANUAL,

PLEASE CONTACT YOUR BARBER/SCT REPRESENTATIVE FOR SPECIFIC INSTRUCTIONS REGARDING YOUR APPLICATION.

TO CONTACT YOUR BARBER/SCT REPRESENTATIVE:

PLEASE SEE THE "STANDARD CAR TRUCK COMPANY CONTACT INFORMATION" PAGE AT THE START OF THE FULL MANUAL.

## Section 3

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### Springs

#### 3-A Inspection

- Inspecting Barber Springs

#### 3-B Parts

- Barber Side Springs
- Barber Load Springs
- Barber M-976 AAR Spring Groups
- Common Barber AAR Spring Groups
- Common Barber Dual Rate Spring Groups

#### 3-C Repair

- Repairing Barber Springs

If possible, please supply side frame or bolster AAR code number (9 digit) and casting pattern number, when ordering replacement components.

# Section 3-A

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## Springs

### Inspection

- Visually inspect for broken springs, excess pitting, or detrimental rust
- Measure free height and replace if less than scrap/condemning height (see spring tables in section 3-B for details)

# Section 3-B

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## Springs

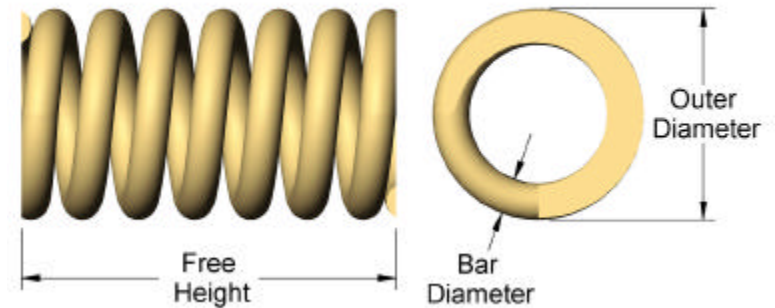
### Parts

- Barber Side Springs
- Barber Load Springs
- Barber AAR M-976 AAR Spring Groups
- Common Barber AAR Spring Groups
- Common Barber Dual Rate Spring Groups



# Barber Side Springs

Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
B-111	19/32	3 1/4	6 9/16	10 3/8	3,639	9 15/16
B-321	17/32	2 7/8	6 9/16	10 1/8	2,792	9 11/16
B-331	17/32	3 3/16	6 9/16	11 5/8	2,726	11
B-332	11/32	2	6 9/16	11 5/8	1,261	11
B-353	13/16	4 7/8	6 9/16	11 3/16	6,285	10 5/8
B-354	17/32	3 1/8	6 9/16	11 1/2	2,855	10 15/16
B-355	13/16	4 7/8	6 9/16	10 3/4	5,690	10 1/4
B-356	9/16	3 1/8	6 9/16	10 3/4	3,368	10 1/4
B-357	13/16	5	6 9/16	10 1/4	4,576	9 13/16
B-358	13/16	4 7/8	6 9/16	11	6,030	10 7/16
B-359	1/2	3 1/8	6 9/16	11 5/8	2,591	11
B-360	25/32	4 7/8	6 9/16	11 13/16	5,681	11 3/16
B-361	17/32	3 3/16	6 9/16	11 13/16	2,827	11 3/16
B-362	23/32	4 7/8	6 9/16	10 3/4	2805	10 1/4
B-370	11/16	4 1/2	6 9/16	11 1/4	3,230	10 11/16
B-371	15/32	3	6 9/16	11 3/4	1,699	11 1/8
B-421	43/64	3 11/16	6 9/16	10 3/8	4,711	9 15/16
B-422	13/32	2 3/16	6 1/16	9 3/4	1,821	9 5/16
B-432	43/64	3 7/8	6 9/16	11 1/16	4,641	10 1/2
B-433	7/16	2 13/32	6 15/16	11 3/8	2,040	10 13/16
B-434	13/32	2 13/32	6 1/16	10 3/4	1,635	10 3/16
B-540	19/32	3 11/16	6 9/16	11 1/4	2,832	10 11/16
B-541	5/8	3 13/16	6 9/16	11 1/4	3,374	10 11/16
B-542	17/32	3 3/16	6 9/16	11 1/4	2,524	10 11/16
B-701	29/32	5 1/2	6 9/16	11 1/4	7,811	10 11/16
B-702	9/16	3 9/16	6 9/16	11 3/4	2,601	11 1/8
B-703	3/8	2 5/16	6 9/16	12	1,270	11 3/8



Material: Springs conform in all respects to alloy steel listing in AAR Specification M-114-90 (or latest revision).

Springs with bar diameter under 1/2" can be cold wound per manufacturer's discretion.

The part number can be found within the first turn from the end (on either the outside or the inside of the spring).

Always Use Original  
Barber Parts

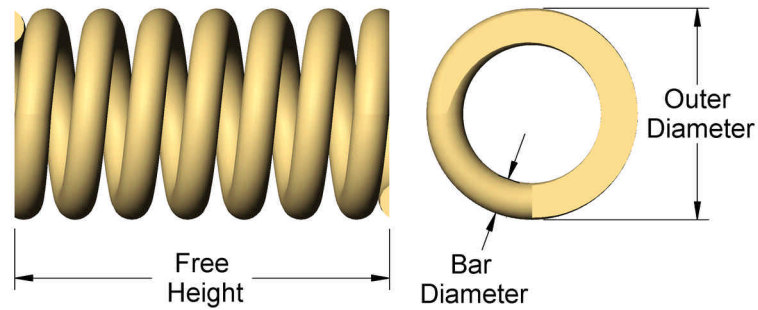


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# Barber Load Springs



AAR Freight Car						
Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
D2-Outer	1 7/32	5 1/2	6 5/8	8 1/4	15,959	7 15/16
D2-Inner	11/16	2 15/16	6 5/8	8 1/4	5,386	7 15/16
D3-Outer	1 1/16	5 1/2	6 9/16	9 1/16	10,721	8 5/8
D3-Inner	21/32	3 1/4	6 9/16	9 1/16	4,299	8 5/8
D4-Outer	1	5 1/2	6 9/16	9 5/8	9,128	9 1/16
D4-Inner	5/8	3 3/8	6 9/16	9 5/8	3,433	9 1/16
D5-Outer	61/64	5 1/2	6 9/16	10 1/4	8,266	9 5/8
D5-Inner	5/8	3 3/8	6 9/16	10 5/16	4,204	9 5/8
D6-Inner	21/32	3 7/16	6 9/16	9 15/16	4,707	9 5/16
D6A-Inner	3/8	2	5 11/16	9	1,536	8 3/8
D7-Outer	15/16	5 1/2	6 9/16	10 13/16	8,642	10
D7-Inner	5/8	3 1/2	6 9/16	10 3/4	4,108	10

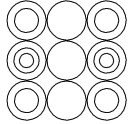
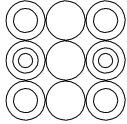
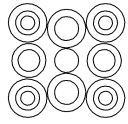
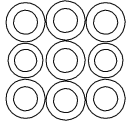
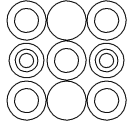
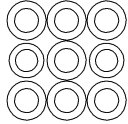
Dual Rate						
Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
B-270	7/8	5 1/2	6 9/16	10 13/16	5,771	10 5/16
B-271	11/16	3 19/32	6 9/16	9	3,767	8 11/16
B-280	13/16	5 7/16	6 9/16	10 7/8	3,991	10 3/8
B-281	19/32	3 9/32	6 9/16	10 7/8	3,974	10 3/8
B-282	9/16	3 9/32	6 9/16	10 3/4	2,821	10 1/4
B-283	25/32	3 3/4	6 9/16	9	6,916	8 11/16
B-285	3/4	3 5/8	6 9/16	9 1/8	6,408	8 13/16
B-291	1 1/16	5 1/2	6 1/16	8 11/16	12,516	8 3/8
B-292	17/32	2 3/4	5	6 1/2	1,901	6 5/16
B-293	5/8	2 3/4	5 1/8	6 3/8	4,079	6 3/16
B-294	21/32	2 3/4	5 1/8	6 3/8	5,505	6 3/16
B-295	1 1/32	5 1/2	6 1/16	8 11/16	10,447	8 3/8
B-296	1/2	2 5/8	3 7/8	5 5/16	2,060	5 1/8
B-297	15/32	2 5/8	4	5 3/8	1,294	5 3/16
B-S97	15/32	2 5/8	3 15/16	4 7/8	883	4 3/4
B-298	13/32	3 1/4	2 1/16	4 11/16	1,195	4 3/8

Material: Springs conform in all respects to alloy steel listing in AAR Specification M-114-90 (or latest revision).




Springs with bar diameter under 1/2" can be cold wound per manufacturer's discretion.

The part number can be found within the first turn from the end (on either the outside or the inside of the spring).

# Barber M-976 AAR Spring Groups

	S-2-D	S-2-D	S-2-HD	S-2-HD-9C	S-2-E	S-2-E*
Spring Travel	3 11/16	3 11/16	3 11/16	3 11/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16
Wedge	907-SW	935-SW	915-SW	915-SW	917-C	945-SW
Bearing Adapter	AAR Standard	AAR Standard	AAR Standard	AAR Standard	AAR Standard	AAR Standard
Adapter Pad	5578	5578	5578	5578	5578	5578
6 1/2 x 9 Bearing Size  286,000 LBS. Max Rail Load						
	7 Outers D-5 4 Inners D-5 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides D-6-A	7 Outers D-5 4 Inners D-5 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides D-6-A	6 Outers D-5 7 Inners D-6 4 Third Loads D-6-A 2 Outer Sides B-353 2 Inner Sides B-354	7 Outers D-5 7 Inners D-5 2 Outer Sides B-353 2 Inner Sides B-354	7 Outers D-5 5 Inners D-5 2 Outer Sides B-360 2 Inner Sides B-361 2 Third Sides D-6-A	7 Outers D-5 7 Inners D-5 2 Outer Sides B-353 2 Inner Sides B-354
	97,996	97,996	106,737	105,570	98,374	105,570
	Solid Capacity (LBS.)					

- Approved S-286 truck system for Open Top Cars with C.G. less than 95 inches, and Covered Hopper Cars with 45'-9" truck centers and C.G. less than 95 1/2 inches.

-  Outer
-  Inner
-  Third

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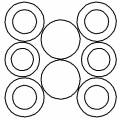
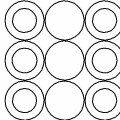
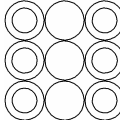
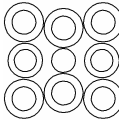
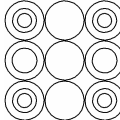
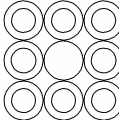
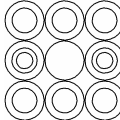
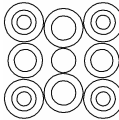
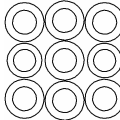
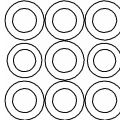
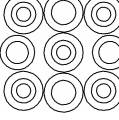


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# Common Barber AAR Spring Groups

	S-2-D	S-2-D	S-2-D	S-2-HD	S-2-HD-9C	S-2-E
Spring Travel	3 11/16	3 11/16	4 1/4	3 11/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size  220,000 LBS. Max Rail Load						 6 Outers D-5 4 Inners D-5 2 Outer Sides B-355 2 Inner Sides B-356
Solid Capacity (LBS.)						84,528
6 1/2 x 12 Bearing Size  263,000 LBS. Max Rail Load	 7 Outers D-5 4 Inners D-5 2 Outer Sides D-7 2 Inner Sides D-7		 7 Outers D-7 4 Inners D-7 2 Outer Sides B-701 2 Inner Sides B-702	 6 Outers D-5 7 Inners D-5 2 Outer Sides B-353 2 Inner Sides B-354		
Solid Capacity (LBS.)	100,178		98,002	97,304		
6 1/2 x 12 Bearing Size  286,000 LBS. Max Rail Load	 7 Outers D-5 4 Inners D-5 4 Third Loads D-6-A 2 Outer Sides D-7 2 Inner Sides D-7	 7 Outers D-5 6 Inners D-5 2 Outer Sides D-7 2 Inner Sides D-7	 7 Outers D-7 6 Inners D-7 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides B-703	 6 Outers D-5 7 Inners D-6 4 Third Loads D-6-A 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D-5 7 Inners D-5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D-5 7 Inners D-5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	106,090	108,586	108,876	106,737	105,570	105,570
7 x 12 Bearing Size  315,000 LBS. Max Rail Load				 7 Outers D-5 7 Inners D-6 5 Third Loads D-6-A 2 Outer Sides B-353 2 Inner Sides B-354		
Solid Capacity (LBS.)				116,771		

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# Common Barber AAR Spring Groups

Single Side Spring Design			
	S-2-A	S-2-B	S-2-C
Spring Travel	2 1/2	3 1/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
5 1/2 x 10 Bearing Size			
177,000 LBS. Max Rail Load	5 Outers D-3 2 Inners D-3 2 Sides B-321	5 Outers D-4 5 Inners D-4 2 Sides B-331	5 Outers D-5 5 Inners D-5 2 Sides B-331
Solid Capacity (LBS.)	67,787	68,257	67,802
6 x 11 Bearing Size			
220,000 LBS. Max Rail Load	5 Outers D-3 5 Inners D-3 2 Sides B-421	7 Outers D-4 3 Inners D-4 2 Sides B-432	7 Outers D-5 4 Inners D-5 2 Sides B-432
Solid Capacity (LBS.)	84,522	83,477	83,960

Single Side Spring Low Conveyance Design			
	S-2-B	S-2-C	S-2-C
Spring Travel	3 1/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size			
	5 Outers D-4 4 Inners D-4 2 Sides B-111	6 Outers D-5 4 Inners D-5 2 Sides B-432	5 Outers D-5 4 Inners D-5 2 Sides B-542
Max Rail Load (LBS.)	177,000	205,000	177,000
Solid Capacity (LBS.)	66,650	75,694	63,194

Double Side Spring Design			
	S-2-A	S-2-B	S-2-C
Spring Travel	2 1/2	3 1/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size			
220,000 LBS. Max Rail Load	5 Outers D-3 4 Inners D-3 2 Outer Sides B-421 2 Inner Sides B-422	7 Outers D-4 2 Inners D-4 2 Outer Sides B-432 2 Inner Sides B-433	7 Outers D-5 3 Inners D-5 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)	83,865	84,124	83,836
6 1/2 x 12 Bearing Size			
263,000 LBS. Max Rail Load	7 Outers D-3 2 Inners D-3 2 Outer Sides B-421 2 Inner Sides B-422	7 Outers D-4 6 Inners D-4 2 Outer Sides B-432 2 Inner Sides B-433	7 Outers D-5 6 Inners D-5 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)	96,709	97,856	96,448
6 1/2 x 12 Bearing Size			
286,000 LBS. Max Rail Load			7 Outers D-5 7 Inners D-6 2 Third Loads D-6-A 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)			107,129
7 x 12 Bearing Size			
315,000 LBS. Max Rail Load	8 Outers D-3 6 Inners D-3 2 Outer Sides B-421 2 Inner Sides B-422	8 Outers D-4 8 Inners D-4 2 Outer Sides B-432 2 Inner Sides B-434	8 Outers D-5 8 Inners D-6 2 Outer Sides B-432 2 Inner Sides B-434
Solid Capacity (LBS.)	124,600	113,080	116,336

Always Use Original  
Barber Parts

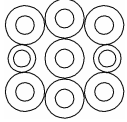
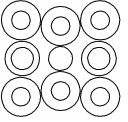
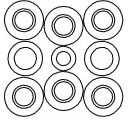
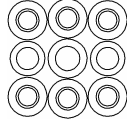


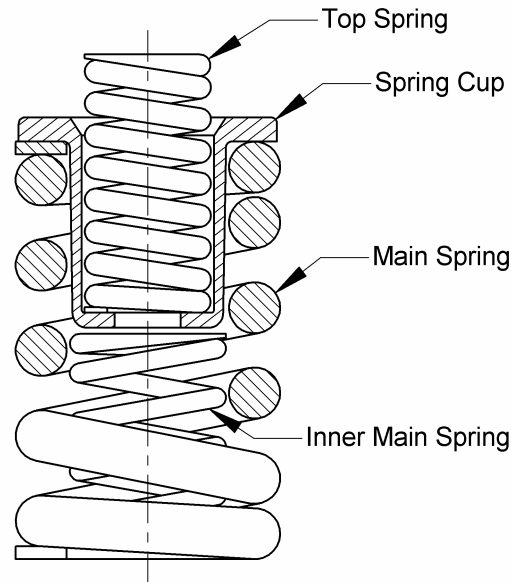
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# Common Barber Dual Rate Spring Groups

S-2-C		S-2-HD		S-2-HD		S-2-HD					
Estimated Light Car Weight	47,000	Estimated Light Car Weight	49,000	Estimated Light Car Weight	43,000	Estimated Light Car Weight	47,200				
Solid Height	6 9/16	Solid Height	6 9/16	Solid Height	6 9/16	Solid Height	6 9/16				
6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load		6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load		6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load		7 x 12 Bearing Size 315,000 LBS. Max Rail Load					
	7 Top		B-297		6 Top		B-296	6 Top	B-297	6 Top	B-297
	7 Cups		4836		6 Cups		4836	6 Cups	4836	6 Cups	4836
	7 Main		B-291		6 Main		B-291	6 Main	B-291	6 Main	B-291
	2 Outer Sides		B-432		1 Inner		D-5	6 Inner Main	B-298	6 Inner Main	B-298
2 Inner Sides	B-433	2 Outer Sides	B-355	1 Inner	D-6	1 Outer	D-5				
		2 Inner Sides	B-356	1 Inner Inner	D-6-A	1 Inner	D-6				
				2 Outer Sides	B-355	2 Outer Sides	B-355				
				2 Inner Sides	B-356	2 Inner Sides	B-356				
Solid Capacity (LBS.)	100,974	Solid Capacity (LBS.)	97,416	Solid Capacity (LBS.)	106,283	Solid Capacity (LBS.)	113,013				



Cupless dual rate spring packages are also available.

Always Use Original  
Barber Parts



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## Section 3-C

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### Springs

#### Repair

- Replace only. No repair allowed.

