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.

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.

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6400 Shafer Court – Ste 450, Rosemont, Illinois 60018, U.S.A.
Phone (847) 692-6050 Email: SCTTechCustomerService@Wabtec.com

Always Use Original
Barber Parts

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)

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Always Use Original
Barber Parts

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

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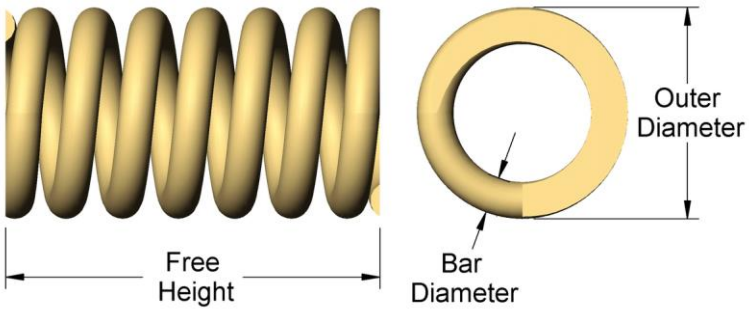
Always Use Original
Barber Parts

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	1,308	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	2,069	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	2,805	10 1/4
B-363	13/16	4 7/8	6 9/16	10 7/8	5,860	10 3/8
B-364	1/2	3 1/8	6 9/16	11 1/2	2,018	10 15/16
B-365	3/4	4 7/8	6 9/16	10 1/4	3,153	9 13/16
B-366	9/16	3 1/4	6 9/16	10 1/4	2,572	9 13/16
B-367	23/32	4 7/8	6 9/16	10 1/2	2,637	10
B-368	9/16	3 9/32	6 9/16	10 1/2	2,653	10
B-369	13/16	4 7/8	6 9/16	10 1/2	5,351	10
B-370	11/16	4 1/2	6 9/16	11 1/4	3,230	10 11/16
B-371	0.458	3	6 9/16	11 3/4	1,778	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	1,970	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	2,225	10 13/16
B-434	13/32	2 13/32	6 1/16	10 3/4	1,770	10 3/16
B-435	43/64	3 7/8	6 9/16	10 5/8	4,190	10 3/16
B-436	7/16	2 13/32	6 15/16	11	2,023	10 1/2
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	1,370	11 3/8

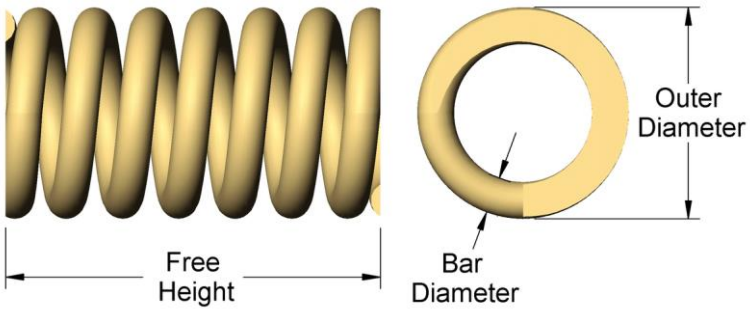


Material: Springs conform in all respects to alloy steel listing in AAR Specification M-114 (latest revision).

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 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	1,635	8 3/8
D7-Outer	15/16	5 1/2	6 9/16	10 13/16	8,642	10 1/16
D7-Inner	5/8	3 1/2	6 9/16	10 3/4	4,108	10

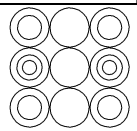
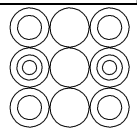
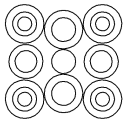
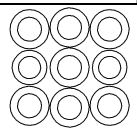
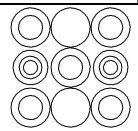
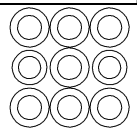
Material: Springs conform in all respects to alloy steel listing in AAR Specification M-114 (latest revision).

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).

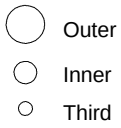
Dual Rate						
Part No.	Bar Dia.	Outer Dia.	Solid Height	Free Height	Solid Capacity	Scrap Height
B-270	7/8	5 1/2	6 9/16	10 13/16	5,771	10 5/16
B-271	11/16	3 19/32	6 9/16	9	3,767	8 11/16
B-280	13/16	5 7/16	6 9/16	10 7/8	3,991	10 3/8
B-281	19/32	3 9/32	6 9/16	10 7/8	3,974	10 3/8
B-282	9/16	3 9/32	6 9/16	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-286	17/32	3 1/4	6 9/16	10 1/2	1,977	10
B-287	27/32	5 1/2	6 9/16	9 7/8	3,643	9 1/2
B-288	23/32	3 1/2	6 9/16	9 1/4	6,008	8 15/16
B-289	11/32	1 13/16	6 1/16	9 1/4	1,291	9 3/8
B-290	19/32	3 9/32	6 9/16	10 1/2	3,629	10
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	2,066	5 1/8
B-297	15/32	2 5/8	4	5 3/8	1,529	5 3/16
B-S97	15/32	2 5/8	3 3/4	4 7/8	1,059	4 3/4
B-298	13/32	3 1/4	2 1/16	4 11/16	1,178	4 3/8
B-299	1 1/16	5 1/2	6 9/16	9 7/16	12,329	9 1/16

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 and Shear Pad	AAR Standard Adapter with 5578 Shear Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad	AAR Standard Adapter with 5578 Pad
	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)	6366 Bearing Adapter with 6367 Shear Pad (S2-86 Radial Adapter)
6 1/2 x 9 Bearing Size 286,000 LBS. Max Rail Load	 7 Outers D5 4 Inners D5 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides D6A	 7 Outers D5 4 Inners D5 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides D6A	 6 Outers D5 7 Inners D6 4 Third Loads D6A 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 5 Inners D5 2 Outer Sides B-360 2 Inner Sides B-361 2 Third Sides D6A	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	97,891	97,891	105,605	105,570	98,538	105,570

- 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.



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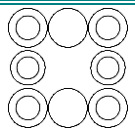
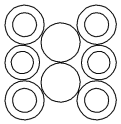
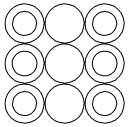
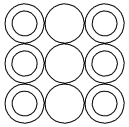
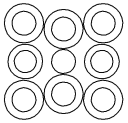
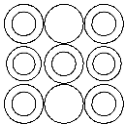
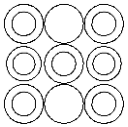
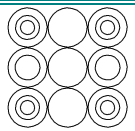
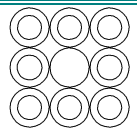
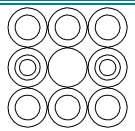
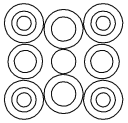
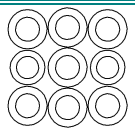
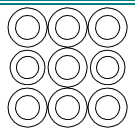
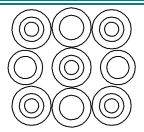
Always Use Original Barber Parts

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-358 2 Inner Sides B-359		 6 Outers D-5 4 Inners D-5 2 Outer Sides B-355 2 Inner Sides B-356
Solid Capacity (LBS.)				82,610		84,528
6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 7 Outers D5 4 Inners D5 2 Outer Sides D7 2 Inner Sides D7		 7 Outers D7 4 Inners D7 2 Outer Sides B-701 2 Inner Sides B-702	 6 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 5 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 5 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	100,178		97,750	97,304	97,162	97,162
6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load	 7 Outers D5 4 Inners D5 4 Third Loads D6A 2 Outer Sides D7 2 Inner Sides D7	 7 Outers D5 6 Inners D5 2 Outer Sides D7 2 Inner Sides D7	 7 Outers D7 6 Inners D7 2 Outer Sides B-701 2 Inner Sides B-702 2 Third Sides B-703	 6 Outers D5 7 Inners D6 4 Third Loads D6A 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354	 7 Outers D5 7 Inners D5 2 Outer Sides B-353 2 Inner Sides B-354
Solid Capacity (LBS.)	104,958	108,586	108,706	105,605	105,570	105,570
7 x 12 Bearing Size 315,000 LBS. Max Rail Load				 7 Outers D5 7 Inners D6 5 Third Loads D6A 2 Outer Sides B-353 2 Inner Sides B-354		
Solid Capacity (LBS.)				115,066		

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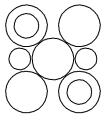
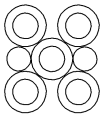
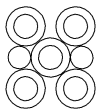
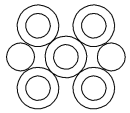
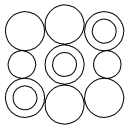
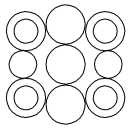
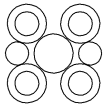
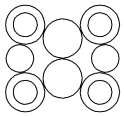
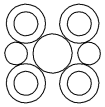
Always Use Original
Barber Parts

Common Barber AAR Spring Groups

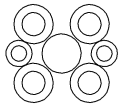
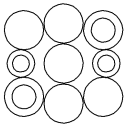
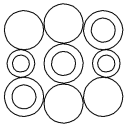
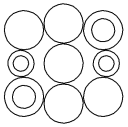
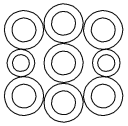
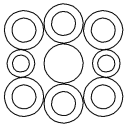
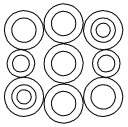
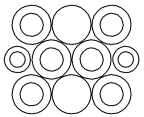
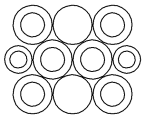
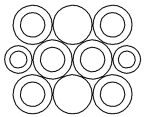
Single Side Spring Design

	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 D3 2 Inners D3 2 Sides B-321	 5 Outers D4 5 Inners D4 2 Sides B-331	 5 Outers D5 5 Inners D5 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 D3 5 Inners D3 2 Sides B-421	 7 Outers D4 3 Inners D4 2 Sides B-432	 7 Outers D5 4 Inners D5 2 Sides B-432
Solid Capacity (LBS.)	84,522	83,477	83,960

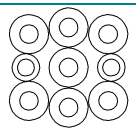
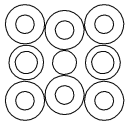
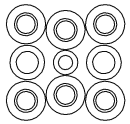
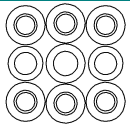
Single Side Spring Low Conveyance Design

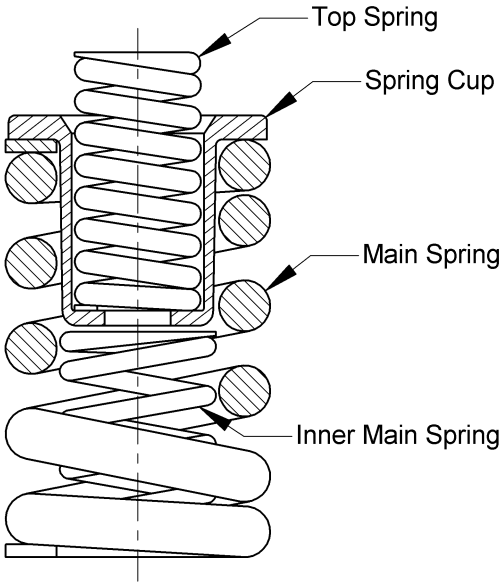
	S-2-B	S-2-C	S-2-C
Spring Travel	3 1/16	3 11/16	3 11/16
Solid Height	6 9/16	6 9/16	6 9/16
6 x 11 Bearing Size	 5 Outers D4 4 Inners D4 2 Sides B-111	 6 Outers D5 4 Inners D5 2 Sides B-432	 5 Outers D5 4 Inners D5 2 Sides B-542
Max Rail Load (LBS.)	177,000	205,000	177,000
Solid Capacity (LBS.)	66,650	75,694	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 D3 4 Inners D3 2 Outer Sides B-421 2 Inner Sides B-422	 7 Outers D4 2 Inners D4 2 Outer Sides B-432 2 Inner Sides B-433	 7 Outers D5 3 Inners D5 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)	84,163	84,494	84,206
6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 7 Outers D3 2 Inners D3 2 Outer Sides B-421 2 Inner Sides B-422	 7 Outers D4 6 Inners D4 2 Outer Sides B-432 2 Inner Sides B-433	 7 Outers D5 6 Inners D5 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)	97,007	98,226	96,818
6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load			 7 Outers D5 7 Inners D6 2 Third Loads D6A 2 Outer Sides B-432 2 Inner Sides B-433
Solid Capacity (LBS.)			107,813
7 x 12 Bearing Size 315,000 LBS. Max Rail Load	 8 Outers D3 6 Inners D3 2 Outer Sides B-421 2 Inner Sides B-422	 8 Outers D4 8 Inners D4 2 Outer Sides B-432 2 Inner Sides B-434	 8 Outers D5 8 Inners D6 2 Outer Sides B-432 2 Inner Sides B-434
Solid Capacity (LBS.)	124,924	113,310	116,606

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	 7 Top B-297 7 Cups 4836 7 Main B-291 2 Outer Sides B-432 2 Inner Sides B-433	6 1/2 x 12 Bearing Size 263,000 LBS. Max Rail Load	 6 Top B-296 6 Cups 4836 6 Main B-291 1 Inner D-5 2 Outer Sides B-355 2 Inner Sides B-356	6 1/2 x 12 Bearing Size 286,000 LBS. Max Rail Load	 6 Top B-297 6 Cups 4836 6 Main B-291 6 Inner Main B-298 1 Inner D-6 1 Inner Inner D-6-A 2 Outer Sides B-355 2 Inner Sides B-356	7 x 12 Bearing Size 315,000 LBS. Max Rail Load	 6 Top B-297 6 Cups 4836 6 Main B-291 6 Inner Main B-298 1 Outer D-5 1 Inner D-6 2 Outer Sides B-355 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.

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