

USA – Tel: (+1) 262-691-3320 • Web: www.harken.com • Email: harken@harken.com Italy – Tel: (+39) 031.3523511 • Web: www.harken.it • Email: techservice@harken.it

INSTRUCTIONS

Traveler Car Loader and Ball Replacement

Includes CB+ car conversion to non-CB track



WARNING! Strictly follow all instructions to avoid an accident, damage to your vessel, personal injury, or death. See <u>www.harken.com/manuals</u> for additional safety information.

IMPORTANT! See Inspection and Maintenance at end of manual.

Uses: Harken car loaders are used to transfer non-CB cars to and from tracks for maintenance and replacement. Most common uses are for mainsheet cars, genoa leads, Battcars, outhaul cars, spinnaker pole cars, and utility cars.



Ball loading ports

Specifications

		Wi	dth
Part No.	Car loader description	in	mm
HSB116	Small Boat plastic	7/ ₈	22
HMR2	Midrange plastic	1 1/8	27
HMR47	Midrange aluminum 9" (230 mm)	1 1/8	27
HBB1	Big Boat plastic	1 1/4	32
HBB28	Big Boat aluminum 9.5" (240 mm)	1 1/4	32
HBB25	Big Boat aluminum 13" (330 mm)	1 1/4	32
HBB39	Mini-Maxi aluminum 12" (305 mm)	1 ¹¹ / ₁₆	42
HBB72	Mini-Maxi aluminum 16" (405 mm)	1 ¹¹ / ₁₆	42
HBB32	Maxi aluminum 17" (430 mm)	2 ¹ / ₂	64

Note: Aluminum car loaders do not have clips or ball loading ports. Use PVC tape to retain car on loader. Load balls at end of track.



Loading Balls: Non-CB Cars



To load balls in car, hold car on edge and load lower side with correct number of balls. **D0 NOT OVERLOAD.** Consult chart to determine ball quantity.



Remove two (2) clips from car loader. Slide plastic car loader in so loading port is on the side of car without balls. Put one (1) clip on "open" end of the loader.

Load rest of balls through ball loading port into empty bearing race. Wiggle car slightly to move balls into race. **DO NOT OVERLOAD.** Push car to end clip and slide on inner clip to prevent car from rolling back to loading port. Put car back on track.

Note: Some car loaders are aluminum and do not have clips. Use tape wrapped around end to secure car. Load balls by recessing aluminum loader one (1) ball width.

Save your car loader: Plastic car loader is used to transfer cars to tracks and to load bearings if they come out of car.

To load car on track: Slide off plastic spring clip from short end of the car loader. Line it up with end of aluminum track and roll car onto track.

Converting Harken CB+ Cars to Fit Old-Style Non-CB Track



1. **Required:** CB+ car (step 2) Box to catch balls Car loader (see chart) Small flat-bladed screwdriver.



3. Use flat-bladed screwdriver to push retaining clip toward end.



5. Remove the four (4) corner keepers and discard.



2. Confirm convertibility. **IMPORTANT! Older CB cars do not convert to fit non-CB track.** Make sure car has + stamp at one end of track and corner keepers.



4. Pry retaining clip off and dump balls in box.



6. Hold car on edge and load lower side with correct number of balls. **DO NOT OVERLOAD.** Consult chart to confirm quantity.



8. Put one (1) clip on "open" end of loader.

Note: Some car loaders are aluminum and do not have clips. Use tape wrapped around end to secure car. Load balls by recessing aluminum loader one (1) ball width.



7. Remove two (2) clips from car loader. Slide car loader in so loading port is on the side of car without balls.

Fitting Cars to Track (continued)



9. Load rest of balls through ball loading port into empty bearing race.



11. Place clips on car loader. Remove open end clip when ready to roll onto track.

Do not use corner keepers.

Save your car loader: Plastic car loader is used to transfer cars to tracks and to load bearings if they come out of car.



10. While loading balls, wiggle car slightly to move balls into place, or use screwdriver to slide balls to make room for all balls.



12. Align car loader with end of track and gently roll onto track.

Inspect

Frequently inspect shackles and control block fittings for signs of fatigue. Replace as necessary. Make sure every installation includes Harken track endstops. Arrange control tackle so cars do not hit endstops under load.

Maintenance

Traveler cars: Clean by frequently flushing with fresh water. Periodically clean car by squirting a detergent/water solution into center openings. Roll car back and forth to distribute evenly. Flush bearings with fresh water.





Do not use spray lubricants because ball bearings can skid, not roll. Once car and track are dry, apply one (1) to two (2) drops of McLube[®] OneDrop[™] ball bearing conditioner to ball contact surfaces of track. Roll car back and forth through OneDrop conditioner several times to distribute onto bearings. Wipe remaining OneDrop off track. OneDrop conditioner is preferred, but you can also use one (1) to two (2) drops of a light machine oil. Too much oil attracts dirt.



Track: Clean with detergent and water.

Important! Exposure to some teak cleaners and other caustic solutions can result in discoloration of part and is not covered under the Harken warranty.

Warranty

For additional safety, maintenance, and warranty information see <u>www.harken.com/manuals</u> or the Harken catalog.

Car	Bearing	Part number	Description	Car width	
Uai	style		Description	in	mm
		CB+ car CB-only car	Non-CB car	Carl	body dth
	CB+	2726, 2728, 2730, 2732, 2744	Small Boat CB	2 ³ /16	56
	CB+	2727, 2729, 2731, 2733, 2734, 2745	Small Boat CB high-load	2 ³ /16	56
	CB+	2735, 2736, 2737, 2738, 2746	Small Boat CB 1250 series	2 ³ /16	56
	Non-CB	156, 157, 171, 211	Small Boat	2 ³ /16	56
	Non-CB	158, 159, 172, 210, 212	Small Boat high-load	2 ³ /16	56
	Non-CB	214, 215, 247, 440, 441	Small Boat 1250 series	2 ³ /16	56
	CB+	T2701B, T2702B, T2703B, T2705B, T2721B, T2722B, T2731B, T2732B, T2741B, T2742B	T27 Midrange CB	2 ³ /4	70
	CB+	T2701B.HL, T2702B.HL, T2703B.HL, T2705B.HL, T2721B.HL, T2722B.HL, T2731B.HL, T2732B.HL, T2741B.HL, T2742B.HL	T27 Midrange CB high-load	2 ³ /4	70
	CB+	T2704B.HL, T2744B.HL	T27 Midrange CB 2 cars with 2 toggles	2 ³ /4	70
	CB+	1635	Midrange CB windward sheeting	2 ³ /4	70
	CB+	1636	Midrange CB high-load windward sheeting	2 ³ /4	70
ER	CB+	1624, 1628	Midrange CB	2 ³ /4	70
ΙEL	CB+	1629	Midrange CB long	2 ³ /4	70
AV	CB only	1626, 1640	Midrange CB	2 ³ /4	70
T	CB only	1625, 1627, 1641	Midrange CB long	2 ³ /4	70
	Non-CB	1508, 1575, 1594	Midrange	2 ³ /4	70
	Non-CB	1509, 1576, 1595	Midrange long	2 ³ /4	70
	Non-CB	1604	Midrange with 2 toggles	2 ³ /4	70
	CB+	T3201B, T3202B, T3203B, T3205B, T3221B, T3222B, T3231B, T3232B, T3241B, T3242B	T32 Big Boat CB 3000 series	3 ⁵ /16	85
	CB+	T3201B.HL, T3202B.HL, T3203B.HL, T3205B.HL, T3221B.HL, T3222B.HL, T3231B.HL, T3232B.HL, 2341B.HL, T3242B.HL, T3243B.HL	T32 Big Boat CB 4500 series	3 ⁵ /16	85
	CB+	T3204B, T3224B, T3334B, T3244B,	T32 Big Boat CB 5000 series with 2 toggles/shackles	3 ⁵ /16	85
	CB+	T3204B.HL, T3224B.HL, T3234B.HL, T3244B.HL,	T32 Big Boat CB 2 high-load cars with 2 toggles	3 ⁵ /16	85
	CB+	Т3208В	T32 Big Boat CB 2 cars with 2 toggles	3 ⁵ /16	85
	CB+	3176, 3177	Big Boat CB 3000 series windward sheetng	3 ⁵ /16	85
	CB+	3178, 3179	Big Boat CB 4500 series windward sheeting	3 ⁵ /16	85
	CB+	3160, 3163, 3164	Big Boat CB 3000 series	3 ⁵ /16	85

Car	Car length		# balls	Ball	Ball kit		Ball diameter		Car loader	Car loader CB+ to non-CB
Uui	in	mm	per car	er car material		# Balls	in	mm	Included	Order
				Delrin [®] Torlon®						
	2 ⁷ /8	73	40	Delrin	176	21	1/4	6	_	HSB116
	2 ⁷ /8	73	40	Torlon	177	21	¹ /4	6		HSB116
	4 ¹ / ₈	105	60	Torlon	177	21	¹ /4	6		HSB116
	2 ⁷ /8	73	42	Delrin	176	21	1/4	6	HSB116	_
	2 ⁷ /8	73	42	Torlon	177	21	¹ /4	6	HSB116	_
	4 ³ /8	111	64	Torlon	177	21	¹ /4	6	HSB116	_
	4 ¹ / ₄	108	48	Torlon	1526	25	⁵ /16	8		HMR2
	5 ³ / ₁₆	132	60	Torlon	1526	25	⁵ /16	8	_	HMR2
	4 ¹ / ₄	108	48 x 2	Torlon	1526	25	⁵ /16	8	_	HMR2 x 2
	4 ¹ / ₄	108	48	Torlon	1526	25	⁵ /16	8		HMR2
	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	_	HMR2
ER	4 ¹ / ₄	108	48	Torlon	1526	25	⁵ /16	8	—	HMR2
ΈL	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	—	HMR2
AV	4 ¹ / ₄	108	48	Torlon	1526	25	⁵ /16	8	_	_
÷	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	_	_
	4 ¹ / ₄	108	48	Torlon	1526	25	⁵ /16	8	HMR2	_
	5 ¹ /4	133	60	Torlon	1526	25	⁵ /16	8	HMR2	_
	7 ¹ /4	184	86	Torlon	1526	25	⁵ /16	8	HMR47	_
	5 ³ /8	136	50	Torlon	547	25	³ /8	10	—	HBB1
	7 ⁷ /16	188	72	Torlon	547	25	³ /8	10	_	HBB28
	9 ¹ /8	231	90	Torlon	547	25	³ /8	10	—	HBB25
	7 ⁷ /16	188	72 x 2	Torlon	547	25	³ /8	10	_	HBB28 x 2
	5 ³ /8	136	50 x 2	Torlon	547	25	³ /8	10	—	HBB1 x 2
	5 ³ /8	136	50	Torlon	547	25	³ /8	10	_	HBB1
	7 ⁷ /16	188	72	Torlon	547	25	³ /8	10	_	HBB28
	5 ³ /8	136	50	Torlon	547	25	³ /8	10	—	HBB1

Delrin is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

Car	Bearing	Part number	Description	Car width	
	style		20001191001	in	mm
		CB+ car CB-oni	y car Non-CB car	Car wi	
	CB+	3163, 3165, 3166	Big Boat CB 4500 series	3 ⁵ /16	85
	CB only	3167	Big Boat CB 5000 series with 2 toggles/ shackles	3 ⁵ /16	85
	Non-CB	515, 608, 1928, 1930	Big Boat 3000 series	3 ⁵ /16	85
	Non-CB	558, 609, 1929, 1931	Big Boat 4500 series	3 ⁵ /16	85
H	Non-CB	1939	Big Boat 5000 series with 2 toggles/shackles	3 ⁵ /16	85
VE	Non-CB	1941	Big Boat 6000 series with 3 toggles/shackles	3 ⁵ /16	85
RA.	Non-CB	3074	Big Boat CRX	3 ⁵ /16	85
	Non-CB	3075	Big Boat CRX	3 ⁵ /16	85
	Non-CB	3068	Mini-maxi	4 ³ /8	111
	Non-CB	3070	Maxi	5/4	133
	CB+	3188	Small Boat CB ring	2 ³ /16	56
	Non-CB	780	Spinnaker pole	2 ³ /16	56
Ш	CB+	1645, 1646, 1647	Midrange CB	2 ³ /4	70
PO	CB+	3189	Midrange CB ring	2 ³ /4	70
ER	Non-CB	1578	Midrange 120/130 bell	2 ³ /4	70
AK	Non-CB	1579, 1580	Midrange toggle	2 ³ /4	70
NN	CB+	3097	Big Boat CB 120/130 bell	3 ⁵ /16	85
SPI	CB+	3098, 3099	Big Boat CB toggle	3 ⁵ /16	85
	Non-CB	782	Big Boat 120/130 bell	3 ⁵ /16	85
	Non-CB	783, 784	Big Boat toggle	3 ⁵ /16	85
	CB+	G2227B, G2247B, G222B, G224B	Small Boat CB	2 ³ /16	56
	Non-CB	249	Small Boat	2 ³ /16	56
0	CB+	G272B, G273B, G274B, G2727B, G2737B, G2747B	Midrange CB	2 ³ /4	70
EA	CB+	G273B.HL, G274B.HL, G2737B.HL, G2747B.HL	Midrange CB	2 ³ /4	70
AL	Non-CB	1537	Midrange	2 ³ /4	70
NO	CB+	G323B, G324B, G3237B, G3247B	Big Boat CB	3 ⁵ /16	85
GE	Non-CB	554	Big Boat	3 ⁵ /16	85
	Non-CB	587	Big Boat	3 ⁵ /16	85
	Non-CB	HC4928	Big Boat	3 ⁵ /16	85
	Non-CB	3072	Mini-maxi	4 ³ /8	111

Car	Car length		# balls	Ball	Ball kit		Ball diameter		Car Ioader	Car loader CB+ to non-CB	
	in	mm	per car	material	Part No.	# Balls	in	mm	Included	Order	
				Delrin® Torlon®							
	7 ⁷ /16	188	72	Torlon	547	25	³ /8	10	_	HBB28	
	9 ¹ / ₈	231	90	Torlon	547	25	³ /8	10	_	_	
	5 ¹ /4	133	50	Torlon	547	25	³ /8	10	HBB1	—	
œ	7 ¹ /4	184	72	Torlon	547	25	³ /8	10	HBB28	—	
Ë	8 ¹ / ₂	216	90	Torlon	547	25	³ /8	10	HBB25	_	
VE	10 ¹ /2	267	110	Torlon	547	25	³ /8	10	HBB25	—	
L RA	5	127	102	Torlon	H-38349A	Rollers	_		—	—	
	7 ¹ /2	191	148	Torlon	H-38349A	Rollers			_	—	
	10	254	72	Torlon	MP-128	1	¹ /2	12	HBB39	_	
	13 ⁷ /8	353	104	Torlon	MP-128	1	¹ / ₂	12	HBB32	—	
	4 ¹ / ₈	105	60	Torlon	177	21	1/4	6	—	HSB116	
	4 ³ /8	111	64	Torlon	177	21	¹ /4	6	HSB116	—	
Ш	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8		HMR2	
PO	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	—	HMR2	
EB	5 ¹ /4	133	60	Torlon	1526	25	⁵ /16	8	HMR2	_	
IAK	5 ¹ /4	133	60	Torlon	1526	25	⁵ /16	8	HMR2	_	
Z	7 ⁷ /16	188	72	Torlon	547	25	³ /8	10		HBB28	
SP	7 ⁷ /16	188	72	Torlon	547	25	³ /8	10		HBB28	
	7 ¹ /4	184	72	Torlon	547	25	³ /8	10	HBB28	—	
	7 ¹ /4	184	72	Torlon	547	25	³ /8	10	HBB28	_	
	4 ¹ /8	105	60	Torlon	177	21	1/4	6		HSB116	
	4 ³ /8	111	64	Torlon	177	21	¹ /4	6	HSB116	—	
0	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	—	HMR2	
EA	9	229	96	Torlon	1526	25	⁵ /16	8	_	Contact Harken	
AL	5 ¹ /4	133	60	Torlon	1526	25	⁵ /16	8	HMR2	—	
NO	9 ¹ / ₈	231	90	Torlon	547	25	³ /8	10	—	HBB25	
GE	7 ¹ /4	184	72	Torlon	547	25	³ /8	10	HBB28	—	
	5 ¹ /4	133	50	Torlon	547	25	³ /8	10	HBB1	_	
	10 ¹ /4	260	104	Torlon	547	25	³ /8	10	HBB25	_	
	13 ¹¹ / ₁₆	348	84	Torlon	MP-128	1	¹ / ₂	12	HBB72	—	

Delrin is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.

Torlon is a registered trademark of Solvay Advanced Polymers.

0	Bearing	Destaumber	Beessintien	Car width		
Car	style	Part number	Description	in	mm	
		Car wi	body dth → I			
	CB+	1648 Midrange CB				
	Non-CB	1615	Midrange	2 ³ /4	70	
A	CB+	3076	Big Boat CB 3000 series	3 ⁵ /16	85	
E	CB+	3096	Big Boat CB 4500 series	3 ⁵ /16	85	
Ы	Non-CB	595	Big Boat 3000 series	3 ⁵ /16	85	
	Non-CB	1771	Big Boat 4500 series	3 ⁵ /16	85	
	CB+	3811	System A CB headboard	2 ³ /16	56	
	CB+	3812	System A CB intermediate car	2 ³ /16	56	
	CB+	3829, 3830, 3831, 3881	System A CB Battcar	2 ³ /16	56	
	CB+	3882, 3883	System A CB high-load	2 ³ /16	56	
	Non-CB	1792, 1807	System A headboard car	2 ³ /16	56	
	Non-CB	1925, 1901, 1944, 1976, 1977	System A batten bar	2 ³ /16	56	
	Non-CB	1894	System A luff car	2 ³ /16	56	
	CB+	3852	System B CB headboard	2 ³ /4	70	
	CB+	3863	System B CB intermediate car	2 ³ /4	70	
	CB+	3856, 3857, 3859, 3879	System B CB Battcar	2 ³ /4	70	
AR	CB+	3860	System B CB reef car	2 ³ /4	70	
1T0	Non-CB	1793	System B headboard car	2 ³ /4	70	
BA	Non-CB	1979	System B intermediate car	2 ³ /4	70	
	Non-CB	1794, 1826, 1902, 1946, 1978, 1980	System B batten car	2 ³ /4	70	
	Non-CB	1895	System B luff car	2 ³ /4	70	
	CB+	3867	System C CB headboard	3 ⁵ /16	85	
	CB+	3871	System C CB intermediate car	3 ⁵ /16	85	
	CB+	3868, 3869, 3870, 3872	System C CB Battcar	3 ⁵ /16	85	
	CB+	3873	System C CB reef car	3 ⁵ /16	85	
	Non-CB	1782	System C headboard car	3 ⁵ /16	85	
	Non-CB	1784, 1795, 1827, 1828, 1829, 1903	System C batten car	3 ⁵ /16	85	
	Non-CB	1785	System C luff car	3 ⁵ /16	85	
	Non-CB	1785HL	System C high-load luff car	3 ⁵ /16	85	

6	Car length		# balls	Ball	Ball kit		Ball diameter		Car loader	Car loader CB+ to non-CB	
Uar	in	mm	per material Part # car No. Balls in m		mm	Included	Order				
	International In			Delrin® Torlon®					ų		
	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	_	HMR2	
_	5 ¹ /4	133	60	Torlon	1526	25	⁵ /16	8	HMR2	_	
IAU	5 ¹ /4	133	50	Torlon	547	25	³ /8	10		HBB1	
JTH	7 ¹ /4	184	72	Torlon	547	25	³ /8	10		HBB28	
0	5 ¹ /4	133	50	Torlon	547	25	³ /8	10	HBB1	_	
	7 ¹ /4	184	72	Torlon	547	25	³ /8	10	HBB28	—	
	4 ¹ /8	105	60 x 2	Torlon	177	21	1/4	6	_	HSB116 x 2	
	2 ¹ /4	57	32	Torlon	177	21	1/4	6		HSB116	
	2 ⁷ /8	73	40	Torlon	177	21	1/4	6		HSB116	
	4 ¹ /8	105	60	Torlon	177	21	1/4	6	_	HSB116	
	3 ⁵ /8	92	52 x 2	Torlon	177	21	1/4	6	HSB116 x 2	_	
	3	76	40	Torlon	177	21	1/4	6	HSB116	_	
	2 ¹ /8	54	30	Torlon	177	21	1/4	6	HSB116	_	
	5 ³ /16	132	60 x 2	Torlon	1526	25	⁵ /16	8	—	HMR2 x 2	
	2 ⁹ /16	68	28	Torlon	1526	25	⁵ /16	8	_	HMR2	
	4 ⁵ / ₁₆	109	48	Torlon	1526	25	⁵ /16	8	_	HMR2	
AR	5 ³ /16	132	60	Torlon	1526	25	⁵ /16	8	_	HMR2	
1C	4 ³ /8	111	48 x 2	Torlon	1526	25	⁵ /16	8	HMR2 x 2		
BA	3 ¹³ /16	97	40	Torlon	1526	25	⁵ /16	8	HMR2	_	
	3 ¹³ /16	97	40	Torlon	1526	25	⁵ /16	8	HMR2	_	
	2 ³ /4	70	30	Torlon	1526	25	⁵ /16	8	HMR2	_	
	9 ¹ /8	232	90 x 2	Torlon	547	25	³ /8	10	_	HBB25 x 2	
	3 ³ /4	96	34	Torlon	547	25	³ /8	10	—	HBB1	
	5 ³ /8	136	50	Torlon	547	25	³ /8	10	_	HBB1	
	9 ¹ /8	231	90	Torlon	547	25	³ /8	10	_	HBB25	
	5 ¹ /2	140	52 x 2	Torlon	547	25	³ /8	10	HBB1 x 2	_	
	4 ³ / ₄	121	44	Torlon	547	25	³ /8	10	HBB1	_	
	4	102	36	Torlon	547	25	3/8	10	HBB1	_	
	4	102	36	Torlon	547	25	³ /8	10	HBB1	_	

Г

Delrin is a registered trademark of E. I. du Pont de Nemours and Company or its affiliates.



USA – Tel: (+1) 262-691-3320 • Web: www.harken.com • Email: harken@harken.com Italy – Tel: (+39) 031.3523511 • Web: www.harken.it • Email: techservice@harken.it