

ONLINE INSTRUCTIONS

32 mm Big Boat CB Traveler Cars

T3201B, T3201B.HL ■ T3202B, T3202B.HL ■ T3203B, T3203B.HL, T3204B, T3204B.HL ■ T3205B, T3205B.HL ■ T3221B, T3221B.HL ■ T3222B, T3222B.HL ■ T3224B, T3224B.HL ■ T3231B, T3231B.HL, T3232B, T3232B.HL ■ T3234B, T3234B.HL ■ T3241B, T3241B.HL ■ T3242B, T3242B.HL ■ T3243B.HL ■ T3244B, T3244B.HL



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

IMPORTANT: See Inspection and Maintenance at end of manual.

Features

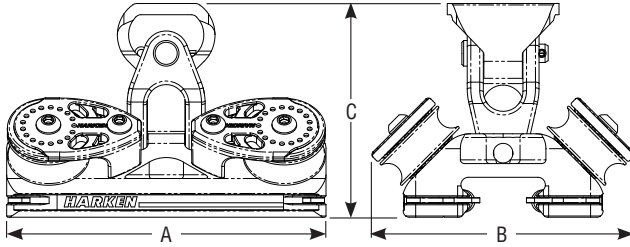
One piece car body: machined from 6061-T6 aluminum for strength and durability.

Hardcoat anodized: Hard Lube impregnated for durability

Captive ball bearings: make cars easy to load and maintain.

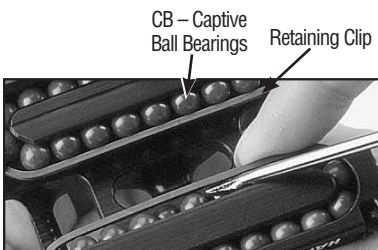
Free running ball bearings in car and in control blocks: make it easy to adjust car under load.

Dimensions



Part No.	Description	A		B		C		Maximum working load		Breaking load	
		in	mm	in	mm	in	mm	lb	kg	lb	kg
T3201B	Car/shackle	5 ⁹ / ₁₆	136	3 ¹¹ / ₃₂	85	2 ⁵ / ₈	73	3000	1361	7000	3175
T3201B.HL	HL car/shackle	7 ¹ / ₁₆	188	3 ¹¹ / ₃₂	85	2 ⁵ / ₈	73	4500	2041	9000	4081
T3202B	Car/std-up toggle	5 ⁹ / ₁₆	132	3 ¹¹ / ₃₂	85	3 ¹ / ₂	89	3000	1361	7000	3175
T3202B.HL	HL car/std-up toggle	7 ¹ / ₁₆	188	3 ¹¹ / ₃₂	85	3 ¹ / ₂	89	4500	2041	9000	4081
T3203B	Car/std-up toggle/ears	5 ⁹ / ₁₆	132	3 ¹¹ / ₃₂	85	3 ¹ / ₂	89	3000	1361	7000	3175
T3203B.HL	HL car/std-up toggle/ears	7 ¹ / ₁₆	188	3 ¹¹ / ₃₂	85	3 ¹ / ₂	89	4500	2041	9000	4081
T3204B	Car/2 std-up toggles	9 ¹ / ₈	231	3 ¹¹ / ₃₂	85	3 ¹ / ₂	89	5000	2268	10000	4536
T3204B.HL	2 HL cars/2 std-up toggles	15	381	3 ¹¹ / ₃₂	85	3 ¹ / ₂	89	9000	4082	18000	8163
T3205B	Car/soft attachment	5 ⁹ / ₁₆	132	3 ¹¹ / ₃₂	85	2	50	3000	1361	7000	3175
T3205B.HL	HL car/soft attachment	7 ¹ / ₁₆	188	3 ¹¹ / ₃₂	85	2	50	4500	2041	9000	4081
T3221B	Car/shackle/2:1	5 ⁹ / ₁₆	136	3 ³ / ₈	98	2 ⁵ / ₈	73	3000	1361	7000	3175
T3221B.HL	HL car/shackle/2:1	7 ¹ / ₁₆	188	3 ³ / ₈	98	2 ⁵ / ₈	73	4500	2041	9000	4081
T3222B	Car/std-up toggle/2:1	5 ⁹ / ₁₆	136	3 ³ / ₈	98	2 ⁵ / ₈	73	3000	1361	7000	3175
T3222B.HL	HL car/std-up toggle/2:1	7 ¹ / ₁₆	188	3 ³ / ₈	98	2 ⁵ / ₈	73	4500	2041	9000	4081
T3224B	Car/2 std-up toggles/2:1	9 ¹ / ₈	231	3 ³ / ₈	98	3 ¹ / ₂	89	5000	2268	10000	4536
T3224B.HL	2 HL cars/2 std-up toggles/2:1	15	381	3 ³ / ₈	98	3 ¹ / ₂	89	9000	4082	18000	8163
T3231B	Car/shackle/3:1	5 ⁹ / ₁₆	136	4	101	2 ⁵ / ₈	73	3000	1361	7000	3175
T3231B.HL	HL car/shackle/3:1	7 ¹ / ₁₆	188	4	101	2 ⁵ / ₈	73	4500	2041	9000	4081
T3232B	Car/std-up toggle/3:1	5 ⁹ / ₁₆	136	4	101	3 ¹ / ₂	89	3000	1361	7000	3175
T3232B.HL	HL car/std-up toggle/3:1	7 ¹ / ₁₆	188	4	101	3 ¹ / ₂	89	4500	2041	9000	4081
T3234B	Car/2 std-up toggles/3:1	9 ¹ / ₈	231	4	101	3 ¹ / ₂	89	5000	2268	10000	4536
T3234B.HL	2 HL cars/2 std-up toggles/3:1	15	381	4	101	3 ¹ / ₂	89	9000	4082	18000	8163
T3241B	Car/shackle/4:1	5 ⁹ / ₁₆	136	4 ³ / ₈	111	3 ¹ / ₂	89	3000	1361	7000	3175
T3241B.HL	HL car/shackle/4:1	7 ¹ / ₁₆	188	4 ³ / ₈	111	3 ¹ / ₂	89	4500	2041	9000	4081
T3242B	Car/std-up toggle/4:1	5 ⁹ / ₁₆	136	4 ³ / ₈	111	3 ¹ / ₂	89	3000	1361	7000	3175
T3242B.HL	HL car/std-up toggle/4:1	7 ¹ / ₁₆	188	4 ³ / ₈	111	3 ¹ / ₂	89	4500	2041	9000	4081
T3243B.HL	HL car/std-up toggle/4:1	7 ¹ / ₁₆	188	4 ³ / ₈	111	3 ¹ / ₂	89	4500	2041	9000	4081
T3244B	Car/2 std-up toggle/ears/4:1	9 ¹ / ₈	231	4 ³ / ₈	111	3 ¹ / ₂	89	5000	2268	10000	4536
T3244B.HL	2 HL cars/2 std-up toggles/4:1	15	381	4 ³ / ₈	111	3 ¹ / ₂	89	9000	4082	18000	8163

Terms



CB – Captive Ball Bearings
Retaining Clip



Stand-Up Toggle

Center Openings

Control Blocks

Shackle

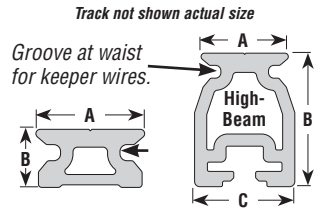
Dead end Bail

Center Openings

Track Compatibility CB CARS ONLY ROLL ON CB TRACK

32mm cars listed above roll on the following tracks. **Note: 32mm cars are CB style and only roll on CB track listed below.** Older tracks do not have the grooves at the waist for the keeper wires. If cars do not fit you must replace track. Contact Harken.

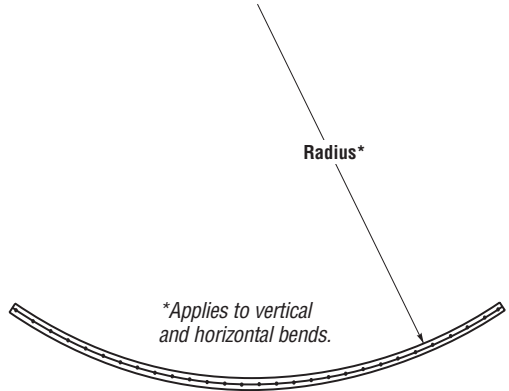
Part No.	A in mm	B in mm	C in mm
Low-Profile Track			
3154, 3155, 3159, R32.1.5M, R32.2.1M, R32.3M, R32.3.6M, R32.6M, 3159.8, 3159.12	1 1/4 32	3/4 19	1 5/8 42
High-Beam Track			
3156, R32HB.1.5M, R32HB.1.8M, R32HB.2.5M, R32HB.3.6M	1 1/4 32	2 1/4 57	1 1/16 30



Curved Track Limitations

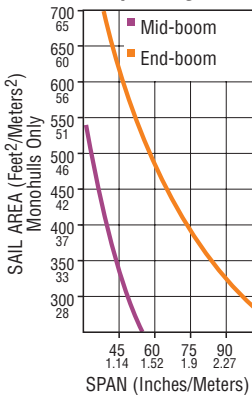
Cars will not roll on curved track if the radius is under the minimum listed below. A shorter car can roll on a smaller radius. Refer to the chart below and make sure the radius is equal or greater than the radius listed for the car. To find the radius go to www.harken.com.

Car	Minimum radius	
	ft	m
3160/3163/3164/3176/3177 T3201B, T3202B, T3203B, T3205B, T3221B, T3222B, T3231B, T3232B, T3241B, T3242B	8	2.44
3161/3165/3166 3172/3178/3179 T3201B.HL, T3202B.HL, T3203B.HL, T3205B.HL, T3221B.HL, T3222B.HL, T3231B.HL, T3232B.HL, T3241B.HL, T3242B.HL, T3243B.HL	18	5.49
T3204B.HL, T3224B.HL, T3234B.HL, T3244B.HL	18	5.49
3167 T3204B, T3224B, T3234B, T3244B	24	7.32



Track for Unsupported Spans

32 mm High-Beam Track Spanning Chart



Harken high beam track is designed for unsupported spans. The length of span depends on the load on the car. The higher the car load the less span the track can handle. If the car is sized correctly, car length determines the spanning capability. Longer, high-load (HL) cars require shorter spans because the loads are so much greater. See track spanning chart in track instructions. www.harken.com



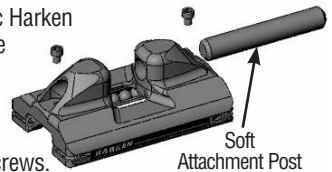
Attaching Mainsheet and Control Blocks



Stand-Up Toggle

Stand-Up Toggles – Harken standup toggles fit specific Harken blocks. To determine mainsheet block compatibility see instructions. (Add Link)

Soft Attachment (T3205B, T3205B.HL) – To attach loops or straps, remove stop screws and push attachment post out. Assemble post using blue Loctite on screws.



Soft Attachment Post

Attaching Splice to Deadend on Car or Controls

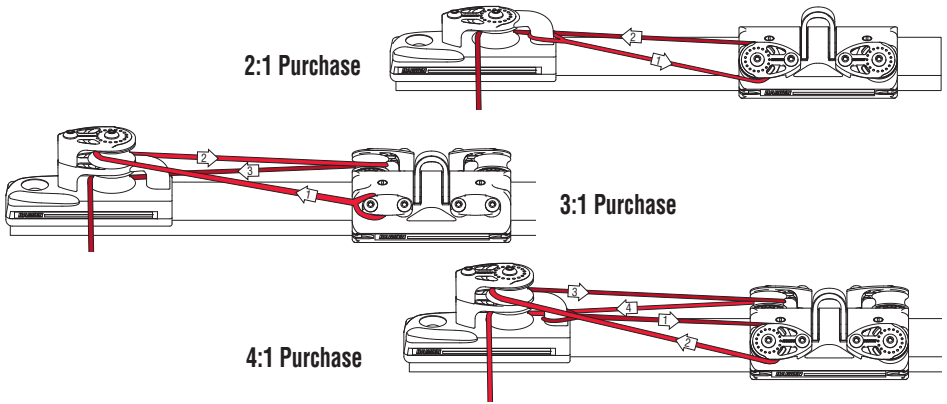
To attach premade splice, pass eye through bail and run tail through to make a hitch without undoing bail. If line is too large for this, remove one screw and rotate dead-end eyestay to load the splice. Reassemble screws using thread locking solution such as Loctite® blue.



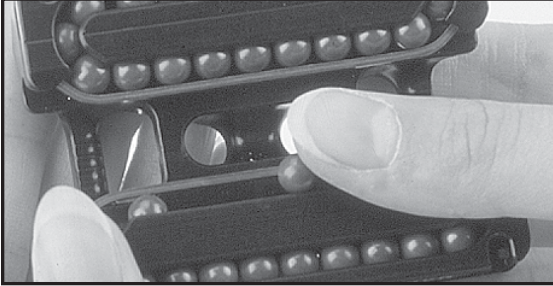
Installing Traveler Car on Track

Position car at end of track and gently roll on. Car should roll on easily, if not check to make sure you are using CB track. **Do not remove ball retaining wires.** Cars will not roll unless they have retaining clips. If any balls are lost refer to following instructions for quantities and how to load.

Reeving Cars and End Control Blocks



Loading Ball Bearings into CB Cars



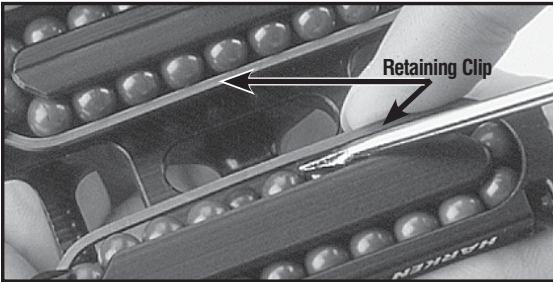
Position car on edge with retaining clip in place. Gently push one ball at a time into car from center of clip. Allow balls to roll into return race and insert remaining balls. **Do not overfill car!**

Ball Replacement Chart

Car	Car Length	Balls Per Car	Balls	Order	Balls Per Set	Ball Ø
T3201B, T3202B, T3203B, T3205B, T3221B, T3222B, T3231B, T3232B, T3241B, T3242B	5 ³ / ₈ " (136 mm)	50	Torlon	547	25	3 ³ / ₈ " (10mm)
T3201B.HL, T3202B.HL, T3203B.HL, T3205B.HL, T3221B.HL, T3222B.HL, T3231B.HL, T3232B.HL, T3241B.HL, T3242B.HL, T3243B.HL	7 ⁷ / ₁₆ " (188 mm)	72	Torlon	547	25	3 ³ / ₈ " (10mm)
T3204B, T3224B, T3234B, T3244B	9 ¹ / ₈ " (231 mm)	90	Torlon	547	25	3 ³ / ₈ " (10mm)
T3204B.HL, T3224Bj.HL, T3234B.HL, T3244B.HL	15" (381 mm)	144*	Torlon	547	25	3 ³ / ₈ " (10mm)

*Coupled car assembly—each car has 72 balls

Removing Ball Bearings from CB Cars



Position car on edge and gently push one ball at a time from center of retaining clip. **Do not remove retaining clip from car!**

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 McLube™ is a registered trademark of McGee Industries, Inc.
 Torlon® is a registered trademark of Solvay Advanced Polymers.

Inspect

Frequently inspect shackles and control block fittings for signs of fatigue and replace as necessary. Make sure every installation includes Harken track end stops. Arrange control tackle so cars do not hit end stops 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 then flush bearings with fresh water.

Do not use spray lubricants because ball bearings may skid not roll. Apply one to two drops of McLube® OneDrop™ conditioner to ball contact surfaces of track. Roll car back and forth through OneDrop several times to distribute onto bearings. Wipe remaining OneDrop off track. OneDrop is preferred but you can also use one to two 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 www.harken.com/manuals or the Harken catalog.