

# HARKEN®

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## INSTALLATION SHEET

### 2744, 2745, 2746 Windward Sheeting Cars; 2752 Windward Sheeting Adapter Kit

2726, 2727, 2728, 2729, 2730, 2731, 2734, 2735, 2736, 2753, 2754 (Small Boat CB cars)

**IMPORTANT! See Inspection and Maintenance at end of manual.**

### Terms

**Windward sheeting** – Mainsheet force on slider assembly opens leeward cleat for one (1) step trimming car to windward.

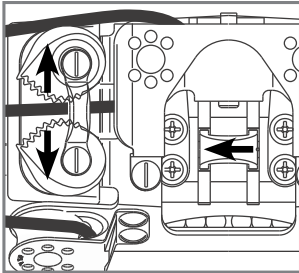
**CB** – Captive bearings. Wire retaining clips hold bearings captive for easy loading onto track and for maintenance.

**CB+ cars** – CB cars that can convert to old-style, non-CB track.

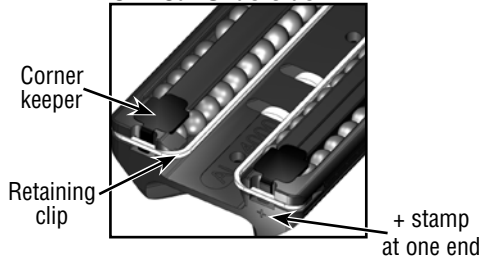
**Corner keepers** – Used on CB+ cars to help retain balls when cars are off track. Introduced beginning of 2015.

**Retaining clips** – Formed wires for holding bearings.

**CB style track** – Track designed with deeper grooves to accept CB car retaining clips.



### CB+ Car Underside



### Specifications

Car	Description	Car width		Car length		Maximum working load		Breaking load	
		in	mm	in	mm	lb	kg	lb	kg
2744	Small Boat CB/low-load	2 1/4	57	2 7/8	73	500	227	2500	1134
2745	Small Boat CB	2 1/4	57	2 7/8	73	850	386	2500	1134
1636	Small Boat CB/high-load	2 1/4	57	4 1/8	105	1250	567	2500	1134

### Track Compatibility

Car	Car width	Track
Small Boat	2 1/4" (57 mm)	373, 374, 2720, 2721, 2725, 2751

CB cars are shipped for use on CB track with grooves at waist to accept retaining clips first supplied by Harken in 2002. See end of manual if you have older track.



373/2720/2751



374/2725



2721

## Mounting 2744, 2745, 2746 Windward Sheeting Cars

1. Position car at end of track, sheave side aft.
2. Gently roll car on track. 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. **Exception: CB+ cars can convert to non-CB cars.**

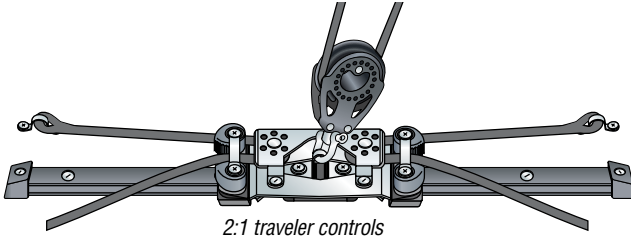


**IMPORTANT! Do not install a stand-up spring between mainsheet block and windward car assembly.**

### Control Lines

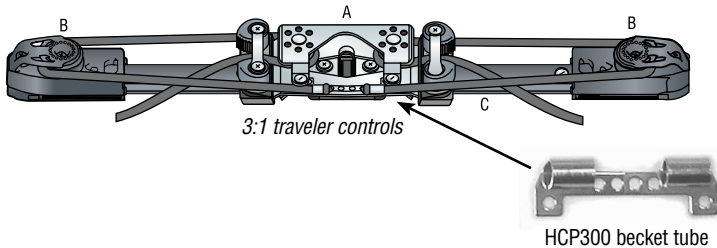
#### 2:1 traveler controls

1. Install a Harken 073 eyestrapp near end of track.
2. Use 6 mm or 8 mm ( $\frac{1}{4}$ " or  $\frac{5}{16}$ " line).
3. Deadend control lines to eyestraps at each end of track.
4. Reeve lines around sheaves and through cam cleats.



#### 3:1 traveler controls

1. Mount a 29 or 40 mm Carbo® block or 2740 control assembly at each end of track.
2. Remove two (2) screws from sheave cover plate. Use Loctite® adhesive on screws and mount HCP300 becket tube.
3. Use 6 mm or 8 mm ( $\frac{1}{4}$ " or  $\frac{5}{16}$ " line). Pass end of line through becket tube and tie an overhand knot.
4. Reeve the line through block at end of track and back to car. Pass around sheave and into cleat.



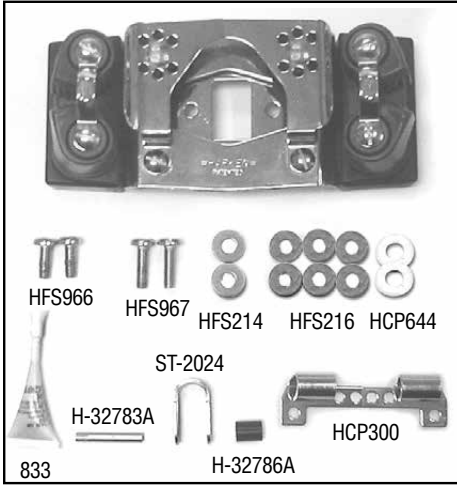
### Stop knots

Always tie a stop knot. Tie knot where knot will catch in sheave and stop car before it hits endstop or jams into track channel. **Note:** the 2746 1250 series car will jam on endstops unless stop knots are used. Use 446 endstop or stop knots.



446 endstop

## Mounting 2752 Windward Sheeting Adapter Kit on 2726, 2727, 2728, 2729, 2730, 2731, 2734, 2735, 2736 Harken Small Boat CB (Contained Ball) Cars

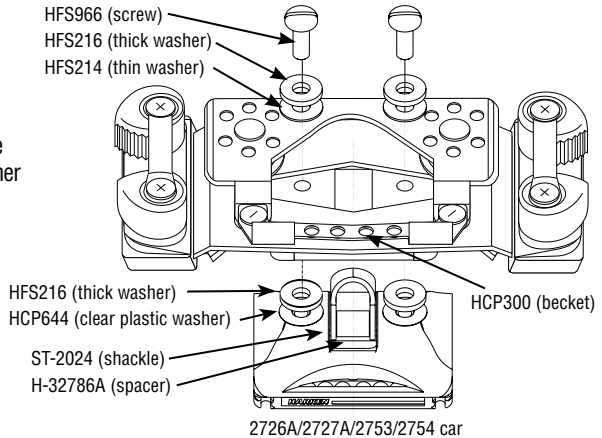


These parts are included with kit:

Part No	Qty	Description
—	1	windward sheeting assembly
<b>HFS966</b>	2	M6X1 16 mm screw
<b>HFS967</b>	2	M6X1 20 mm screw
<b>HFS214</b>	2	thin 6 mm (1/4") washers
<b>HFS216</b>	6	thick 6 mm (1/4") washers
<b>HCP644</b>	2	clear plastic washers
<b>833</b>	1	blue Loctite® adhesive
<b>H-32783A</b>	1	pivot pin for shackle
<b>ST-2024</b>	1	pivot shackle
<b>H-32786A</b>	1	spacer for shackle
<b>HCP300</b>	1	becket plate for 3:1 deadend

### Assembling 2726, 2727, 2753, 2754 – Cars with Pivoting Shackles

1. Remove screws from top of car and discard.
2. Place two (2) clear plastic washers then two (2) thick washers on car body over screw holes.
3. Slide a thick, then a thin washer onto the shorter 16 mm (1/4") screws. Thick washer is against screw head.
4. Coat screws with blue Loctite adhesive. Install windward sheeting assembly. If installing on track, make sure side with sheaves is aft.
5. Make sure shackle pin remains in position and is held captive by screws.



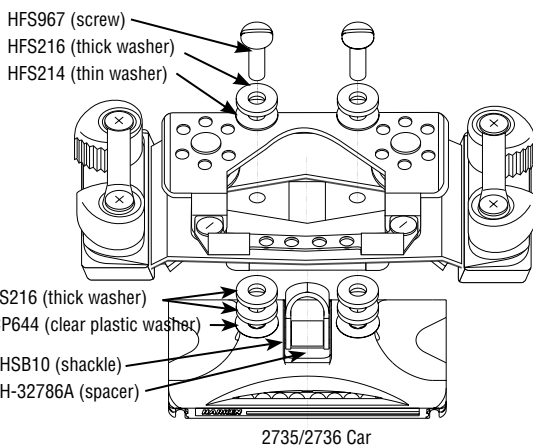
### Assembling 2728, 2729, 2730, 2731, 2734 – Cars without Pivoting Shackles

1. Remove screws holding eyestraps and control sheaves. On 2730 and 2731 cars use small screwdriver to remove black plastic set screws. Push pivot pin out of car. You will not use removed parts.
2. Place black plastic spacer between shackle and insert pivot pin into hole in ends of car as shown. If possible, turn car on its end so plastic spacer stays in place. Otherwise lift plastic spacer slightly to insert pivot pin.  
**Note: You must use H-32786A plastic spacer to insure strength of the shackle.**
3. Follow instructions for 2726/2727 above.



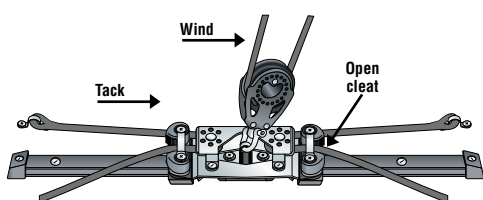
## Assembling 2735/2736 – Long Car (105 mm, 4 1/8") with Toggle or Fixed Sheaves/Eyestraps

1. Remove screws holding eyestraps and control sheaves. On 2735 car use small screwdriver to remove black plastic set screws and push pivot pin out of car. You won't use removed parts.
2. Place two (2) clear plastic washers and four (4) thick washers on top of car.
3. Slide thick, then thin washer onto longer screws (20 mm). Thick washer is against screw head.
4. Coat screws with blue Loctite® adhesive and install windward sheeting assembly. If installing on track, make sure side with sheaves is aft.
5. Make sure the shackle pin remains in position and is held captive by the screws.

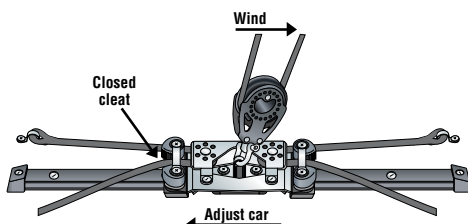


### Using Your Harken Windward Sheeting Car

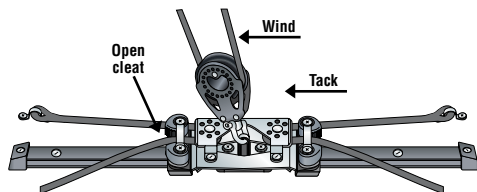
It is much easier to use the windward sheeting traveler car than to describe how it works.



Position car by pulling windward traveler control line.



Don't release line from leeward cleat to pull car to windward.



Tack and car will stay in place. Now pull car to windward on new tack without releasing leeward control line.

If car is pulled to windward and then dropped to centerline before a tack, there will be slack in leeward control line. Car will drop below centerline on new tack.

### Override Cleating for Slatting Conditions

For conditions where there is little wind and large waves, you may need to install override cleats on deck at outboard ends of track to stabilize car. Use Harken Cam-Matic® cam cleats.

### Mooring/Motoring

Tie the windward sheeting car to one side while motoring or when moored. Otherwise car may work loose and be damaged when it hits track ends. You can also cleat the traveler lines in the override cleats as mentioned above.

Loctite is a registered trademark of Henkel AG & Company KGaA.

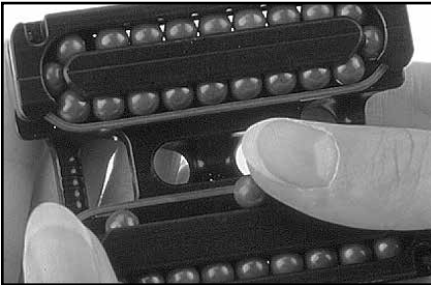
## Removing Ball Bearings from CB Cars



Position the car on edge and gently push one (1) ball at a time from the center of the retaining clip.

**Do not remove the retaining clip from the car!**

## Loading Ball Bearings into CB Cars



Position car on edge with retaining clip in place. Gently push one (1) ball at a time into car from center of clip. Allow balls to roll into return race and insert remaining balls.

**Do not overfill the car!**

### Ball/Retaining Clip Replacement Chart

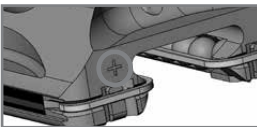
CB car	Description	Ball part no.	Balls per car
2726, 2728, 2730	Small Boat	176* (21/set)	40*
2727, 2729, 2731, 2734	Small Boat high-load	177* (21/set)	40*
2735, 2736	Small Boat 1250	177* (21/set)	60**

\* 6 mm (1/4") Delrin® ball bearings

\*\* 6 mm (1/4") Torlon® ball bearings

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.

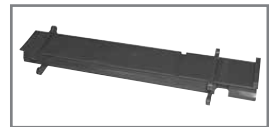
## CB + Cars can Convert to Fit Old-Style, Non-CB Track



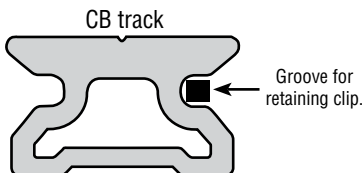
CB+ cars designed for CB track.



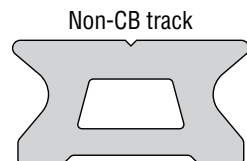
CB+ cars can convert to run on old-style, non-CB track.



Order HSB116 car loader.



Track built after 2002. No need to convert car.



Track built before 2002.

## Converting CB + Cars to Run on Non-CB Track

**Important! Requires CB+ cars. See complete instructions at [www.harken.com/manuals](http://www.harken.com/manuals).**



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



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



3. Remove retaining clips and corner keepers over box to catch balls.



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



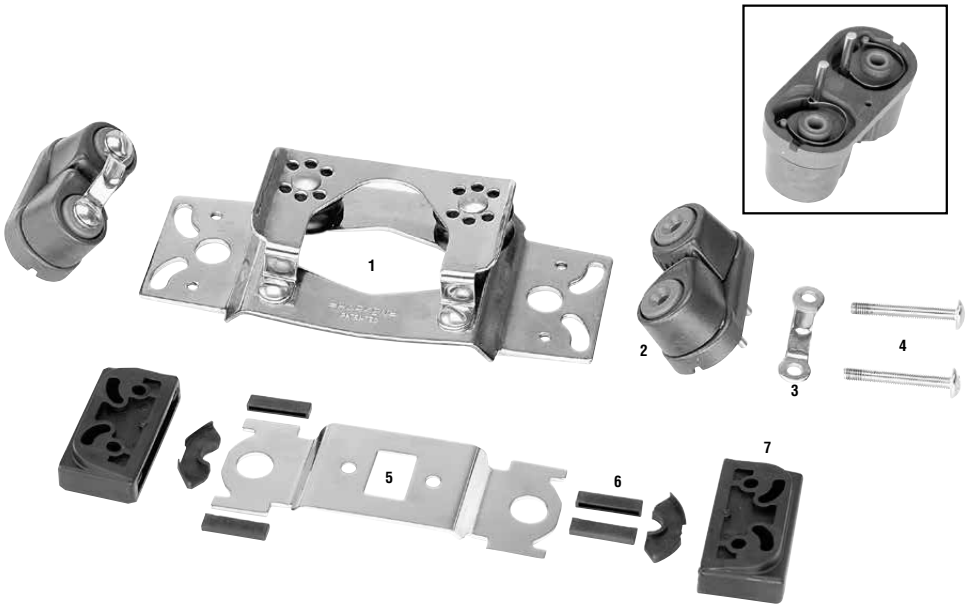
5. Remove two (2) clips from car loader. Slide car loader in so loading port is on the side of car without balls.



6. Put one (1) clip on open end of loader. Load rest of balls through ball-loading port into empty bearing race. Consult chart to confirm quantity. Line up car loader with track and gently roll car onto track.

**Do not use corner keepers**

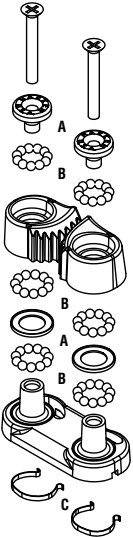
## 213 Windward Sheeting Assembly Parts



### Windward Sheet Assembly Parts List

No.	Part No.	Qty	Description
1	*	1	Top plate with sheaves
2	150SP	2	Cam cleats (modified)
3	201	2	Eyestraps, low profile
4	HFS107	4	Screws 10-32X1.500 slotted trusshead (TH)
5	*	1	Bottom plate
6	HCP218	2	Slide set
7	HCP216	2	Endcaps

\*Parts not available separately, order 2752.



**Important:** Balls are loose and will spill out when cam caps are removed.

### 150SP Replacement Parts – Order Part No. 150KIT

**150KIT. Contains:**

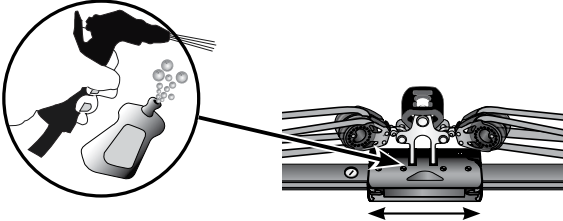
No.	Part No.	Qty	Description
A	HSB86	1	Plastic kit (cam caps and washers) 2 each
B	150BALLS	1	Ball bearing set (66)
C	MS-006	2	Torsion springs

## Inspect

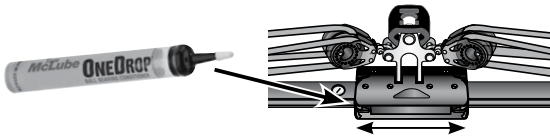
Frequently inspect shackles and control block fittings for signs of fatigue. Replace as necessary. Make sure every installation includes Harken track endstops. Arrange control tackle so cars do not hit endstops under load.

## 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 [www.harken.com/manuals](http://www.harken.com/manuals) or the Harken catalog.