KNIGHT

steel rail

System Installation and Component Specifications

April 29, 1999

HELP US HELP YOU...

fig. 9

Overhead Rail Suspension System.

Available in dual or single bridge configurations. Dual Bridge shown above ***(fig. 9).***

Know What Type Of Structural Supports Are In Your Work Environment.

- I-beam overhead structural steel ***(fig.1-1)***
- C-channel overhead structural steel ***(fig. 1-2)***
- No overhead structural steel available - Floor mounted system required

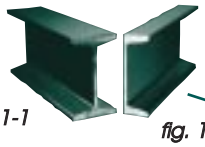


fig. 1-1

fig. 1-2

Floor Mounted Rail Suspension System.

Available in dual or single bridge configurations. Single Bridge shown below ***(fig. 10)***.

Know Your Elevations - Operator Elevation, Construction Plane And Suspension Points.

- Fixed height hangers
- Adjustable height hangers ***(fig. 2)***
- Short stack hangers
- Extended stack hangers
- Low profile hangers

fig. 2

fig. 10

fig. 3

fig. 4

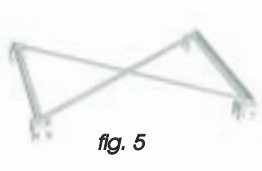


fig. 5

Choose Your Runway.

- 5300 SERIES steel
- 5500 SERIES steel anti kick-up ***(fig. 3)***
- 5700 SERIES steel

Choose Your End Trucks.

- Single bridge end truck
- Dual bridge end truck ***(fig. 4)***
- Dual trolley end truck

Choose Your Accessories.

- End caps
- Bridge brace(s) ***(fig. 5)***
- Sway bracing
- Mid-rail stops
- Air tractor

1. Know your Infrastructure.
Knight structural hangers are designed to work in conjunction with **I-beam** or **C-channel** structural supports. The various standard Knight structural hangers are designed to fit flanges ranging from 2 inches to 11 inches. If an **Overhead Rail Suspension System** ***(fig. 9)*** cannot be used, Knight Industries offers a **Floor Mounted Rail Suspension System** ***(fig. 10)*** constructed with steel I-beam posts.

2. Know if your structure is level.
Make sure you are working in a level environment. If not, then it may be necessary to use **Adjustable Height Hangers** to compensate for unevenness.

3. Know your elevations - Operator working height and structural suspension points.
It is important to know the relationship between your working height and the elevation of your overhead structure. **Extended Stack Hangers** are available for use in situations where high ceilings would normally be a problem. Extended stack hangers can only be used in conjunction with direct load applications and require ***Sway Bracing*** when longer than 2 feet (maximum length 12 feet). If stack-up measurements indicate tight head clearance, Knight offers **Short Stack Hangers** that can reduce hanger stack-up dimensions by half or more. If stack-up heights are still too great **Knight's Low-Profile End Trucks** ***(fig. 11)*** can be used. In this patent-pending design, the bridge is mounted between the runways. Although travel is limited to the area between the runways, total system stack-up height can be reduced by as much as 15 Inches.

4. Choose your runway.
Decide what type of rail you want to use to build your runways. Your choices include 4000, 4500 and 4800 series rail All profiles are light weight and have inherently smooth running surfaces.

5300 SERIES rail can be used for offset or direct loads less than 500 lbs. 4500 and 4800 series rail is ideal for cantilevered or offset loads greater than 500 lbs. with a maximum load bearing capacity of 1000 lbs.
(THE RECOMMENDED CAPACITIES AS LISTED ABOVE ALSO APPLY TO BRIDGE SELECTION AS DISCUSSED IN ITEM 6 - "CHOOSE YOUR BRIDGE")

Knight Industries would like to help you find a safe and efficient solution to your ergonomic challenges. Supplied with basic data about your company's application and environment, our qualified representatives can assist you in selecting options and developing alternatives when designing your rail system. The diagram and descriptions below will give you a fundamental understanding of the Knight Rail System.

fig. 8

Make Sure Your System Is Secured With Safety Cable.

Knight Rail Systems are safety cabled with 1/4 inch galvanized aircraft cable ***(fig. 8)***. (Federal spec. #RR-W-410D, meeting military spec. #MIL-W-83420D for dimensional tolerancing and strength.***)***

Telescoping Bridge System.

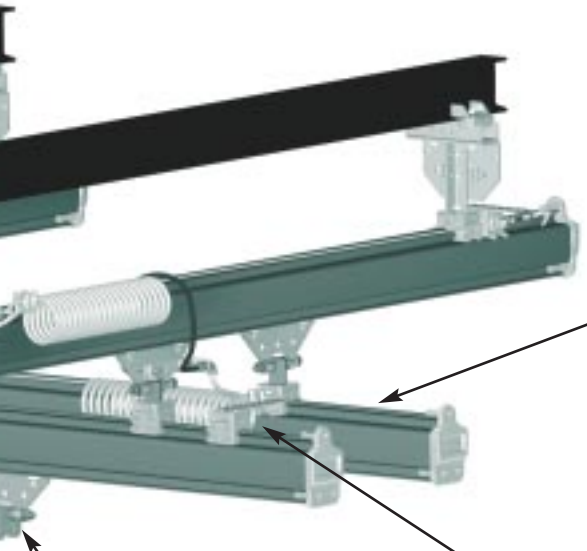


fig. 7

Choose Your Bridge (Single Or Dual Configuration).

- 5300 series steel
- 5500 series steel anti kick-up ***(fig. 7)***
- 5700 series steel

fig. 6

Choose Your Trolleys.

- Boss trolley
- Yoke trolley ***(fig. 6)***
- Eyehook trolley
- Balancer trolley

Choose A Hose Management Kit.

- 3/8 or 1/2 Inch festooned hose
- 3/8 or 1/2 Inch coiled hose

fig. 11

Low Profile End Truck.

5. Choose your end trucks

An **End Truck** is actually a combination of a trolley and a rail structural hanger that joins the runway to the bridge. End trucks are designed to interact with different size rails. For Information on combining steel rail with aluminum rail, call Knight Customer Service. Whatever your system configuration, the end truck trolley must fit the runway, and the end truck hanger must fit the bridge.

6. Choose your bridge

A runway/bridge system allows for total freedom of movement in the X-Y or horizontal plane, providing access to your entire work area. Bridge rail selection is similar to runway rail selection with one additional consideration - are you offset (cantilevered) or direct loading? For direct load applications, (typically balancer applications), a **Single Bridge** is used. For offset load applications, a 5500 SERIES anti kick-up system is used. All dual bridge systems require a **Bridge Brace** ***(fig 5.)***.

7. Choose your load trolley(s)

Load Trolleys must match the material and profile of the rail you selected for the bridge portion of your rail system. Most single bridge configurations are balancer applications and will require a **Balancer Trolley** ***(see Knight Industries "Balancers" Brochure)***, or a **Boss or Eyehook Trolley**. For dual bridges a Yoke Trolley is used.

8. Choose your hose management

There are four variations of **Hose Management** available for your rail system:

1. 3/8 inch festooned hose management.
2. 3/8 inch coiled hose management.
3. 1/2 inch festooned hose management.
4. 1/2 inch coiled hose management.

Festooned Hose

Festooned hose utilizes hose trolleys and will fit any length rail system. When designing a system, allow for hose trolley accumulation when returning a bridge or fixture to the end of the runway. Hose trolley accumulation will reduce the total travel length of your load.

Coiled Hose

Coiled hose is supported by a runner cable, which runs the length of the rail and is supported at each end by a hose management cable bracket. Coiled hose has a natural tension and may cause the bridge or fixture to drift. Leader hose is attached near the fixture end of the messenger cable to reduce drift and also to reduce wear on the lead coil.

Left to Right:
RSD55000A, RSD5300A and RSD5700A rail sections.

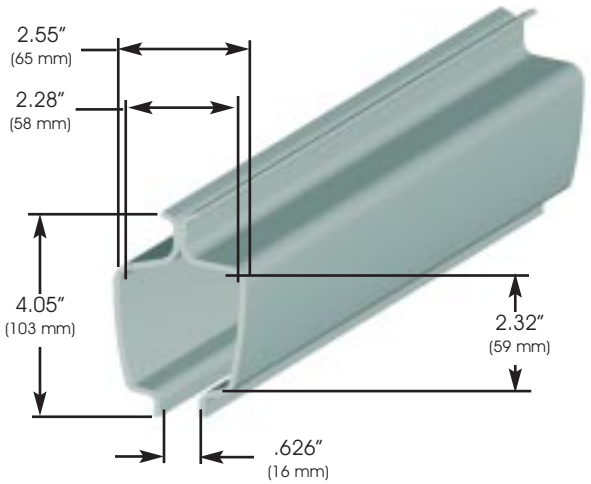
Recommendations:
This precision steel alloy enclosed track rail is recommended for load ratings from 1000 lbs. (454 kg) to 2000 lbs.(908 kg). Knight steel rail is ideal for offset and side loading applications. All rail comes standard in 5 ,6, 7 & 8 meter lengths. However, rail is cut to specified lengths per customer request and pre-drilled for end cap installation. Additionally, rail sections are square saw cut so joints are flush and bosses are pre-welded for splice kits. Knight steel rail is designed with a bottom flange on which a powered trolley can run for automatic return.

Recommended Capacities

STEEL RAIL							
Span		RSD5700		RSD5500		RSD5300	
Ft.	M	lb.	kg.	lb.	kg.	lb.	kg.
5	1.524	1000	453	1000	453	500	226
6	1.829	1000	453	1000	453	500	226
7	2.133	1000	453	1000	453	500	226
8	2.438	1000	453	1000	453	500	226
9	2.743	1000	453	1000	453	500	226
10	3.048	1000	453	1000	453	375	170
11	3.353	1000	453	1000	453	375	170
12	3.658	1000	453	800	362	375	170
13	3.962	1000	453	800	362	250	113
14	4.267	1000	453	800	362	250	113
15	4.572	1000	453	800	362	125	56
16	4.877	800	362	650	295	125	56
17	5.181	800	362	650	295	100	45
18	5.486	800	362	650	295	100	45
19	5.791	650	295	650	295	80	36
20	6.096	650	295	650	295	80	36

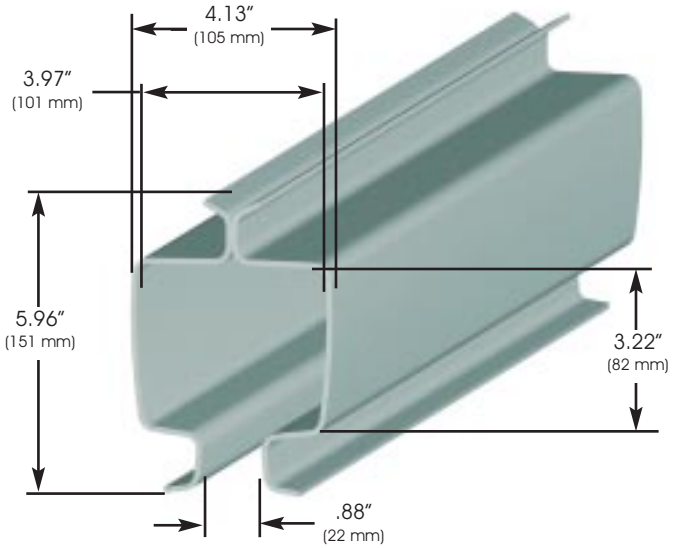
NOTE: Recommended capacities are based on a deflection rating of 1/450

RSD5300A Rail



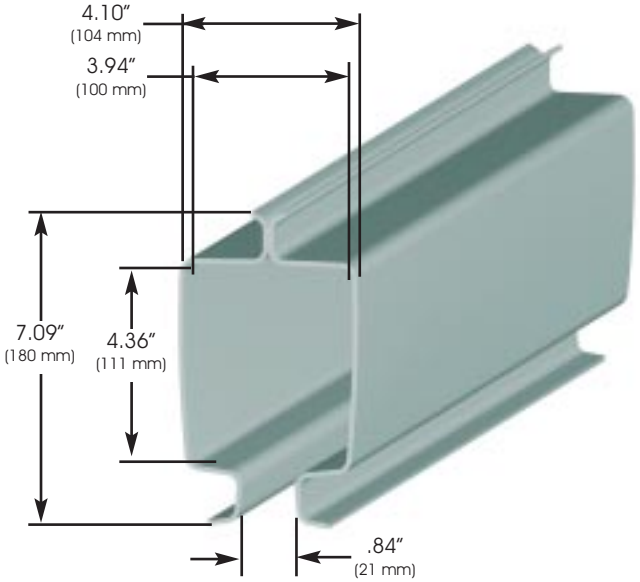
5300 Series Rail Specifications	
Overall Vertical Height	4.045" (103mm)
Wall Thickness	0.125" (3.175 mm)
Internal Running Surface (Width)	1.45" (37 mm)
Weight	4.52 lbs./ft. (2.05 kg/m)
Available Lengths	Up to 29.7' (9.0 m)

RSD5500A Rail



5500 Series Rail Specifications	
Overall Vertical Height	5.96" (151mm)
Wall Thickness	0.16" (4 mm)
Internal Running Surface (Width)	3.38" (86 mm)
Weight	9.82 lbs./ft. (14.61kg/m)
Available Lengths	Up to 25' (7.6 m)

RSD5700A Rail



4800 Series Rail Specifications	
Overall Vertical Height	7.09" (180 mm)
Wall Thickness	.16" (4.06 mm)
Internal Running Surface (Width)	3.34" (85 mm)
Weight	11.11 lbs./ft. (16.53kg/m)
Available Lengths	Up to 25' (7.6 m)

ASSEMBLY# RTA5301

5300 SERIES STEEL RAIL BALANCER TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Slide two M16 x 2 x 100 hex head cap screws ***(F)*** through the holes on one of the plates on the balancer mount using a 16mm flat washer ***(G)*** between the screw head and the mounting plate. Slide two 5/8 x 1" spacers ***(H)*** on each bolt and slide the bolts through the mounting holes on the trolley. Install the four remaining spacers, two per bolt, between the trolley and the second balancer mounting flange. Push the bolts through the other balancer mounting plate, tightening the M16 x 2 reverse lock nuts ***(I)***, again using 16mm flat washers between the nuts and the mounting plate. **The bolt should not rotate by hand when correctly tightened. Do not over-tighten.** For other brands of balancers, an adapter can be ordered. Call Knight customer service for part numbers.

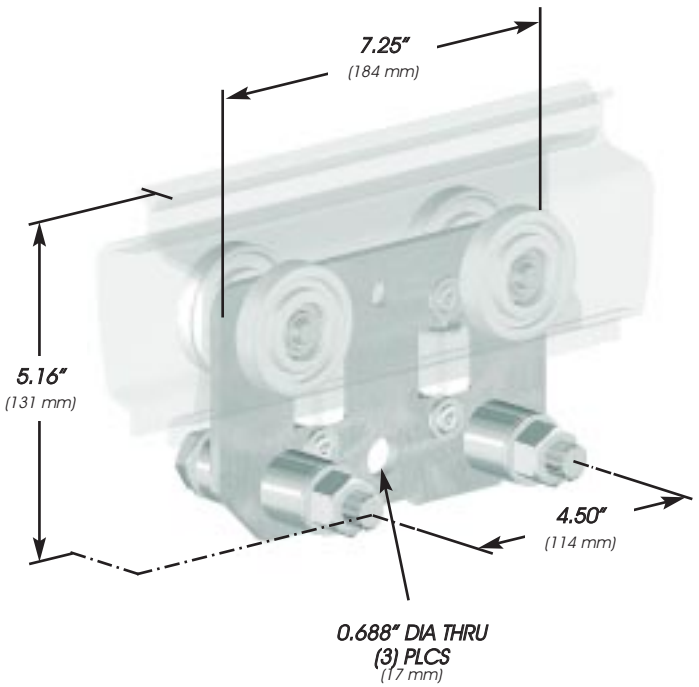
The trolley is supplied with a cable and cable clips. The cable must be looped from the center trolley mounting hole through open holes on both plates of the balancer mount. Install the cable clips provided. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install a trolley with a balancer already attached. Reinstall the end cap and stop assemblies according to instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the balancer mount. The trolley should not be rigid in the balancer mount. Some side to side play between the trolley and the balancer is desirable.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

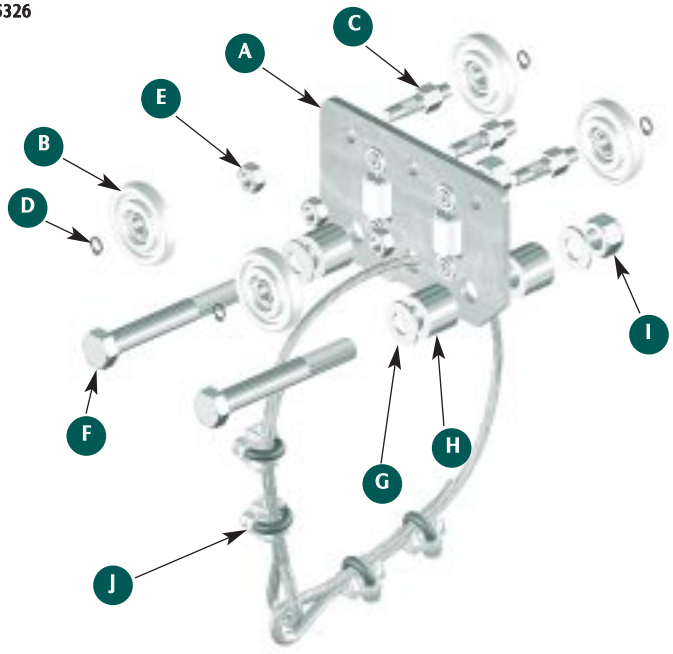
DIMENSIONAL INFORMATION



PART WEIGHT (without safety cable): 4.38 LBS. (1.99 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

BILL OF MATERIALS

A) (1) Required - 5300 SERIES load trolley plate w/ guide roller assemblies - Part# **RTA5326**
B) (4) Required - 5300 SERIES load trolley wheel - Part# **RTD5027**
C) (3) Required - axle for 5300 SERIES load trolley - Part# **RTD5344**
D) (4) Required - snap ring for 5300 SERIES trolley axle - Part# **SH39PA**
E) (3) Required - 7/16-20 rev. lock jam nut
F) (2) Required - HHCS, M16 x 2 x 100, cls. 8.8, ZP
G) (4) Required - FW, 16mm, N, S, stl., ZP
H) (8) Required - 5/8 x 1" spacer - Part# **RTD4324**
I) (2) Required - rev. lock nut, Sty1, M16 x 2, cls. 10, ZP
J) (1) Required - safety cable assembly - Part# **RWA4132**



Recommendations: This trolley is designed as an air balancer mount. There are adapters available to attach this trolley to other brands of air balancer. It can be used for direct loads such as tooling or smaller spring balancers. It should not be used as a chain hoist trolley. Do not rigidly attach arm carriages or fixtures to this trolley. Rigid attachments will create side loading which will cause premature bearing failure.

ASSEMBLY# RTA5303

5300 SERIES STEEL RAIL BOSS TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials on the bottom of this page. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys. The load attach point must be free to pivot on the M16 x 2 x 150 hex head cap screw ***(F)*** without binding on the trolley plate ***(A)***.

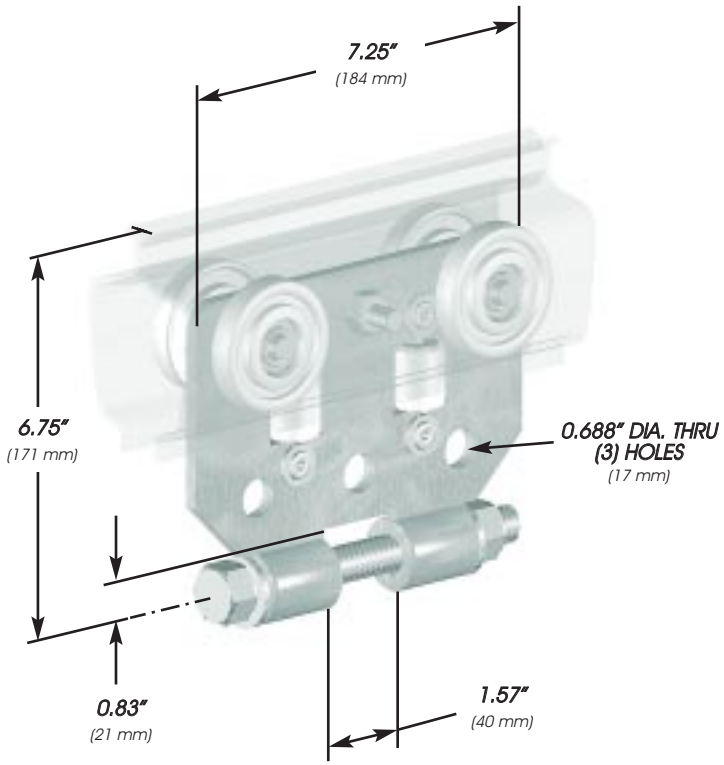
The trolley is supplied with a cable and cable clips. The cable must be looped from the center trolley mounting hole to a secure point on the suspended load. Install the cable clips provided. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the trolley bosses. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the trolley.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' customer service before using in conjunction with other brands of ergonomic rail and components.*

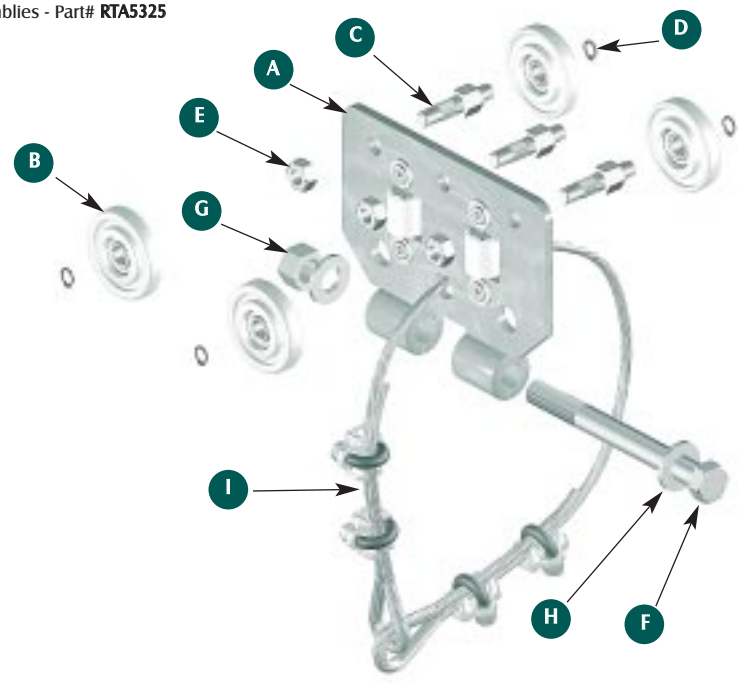
DIMENSIONAL INFORMATION



PART WEIGHT: 4.29 LBS. (1.95 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

BILL OF MATERIALS

A) (1) Required - 5300 SERIES load trolley plate w/ slugs and guide roller assemblies - Part# **RTA5325**
B) (4) Required - 5300 SERIES load trolley wheel - Part# **RTD5027**
C) (3) Required - axle for 5300 SERIES load trolley - Part# **RTD5344**
D) (4) Required - snap ring for 5300 SERIES trolley axle - Part# **SH39PA**
E) (3) Required - 7/16-20 reverse lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, Sty 1, M16 x 2, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for use primarily as a carriage or fixture mount for either offset or direct loads. The hinge mount prevents side loading. This prevents premature wheel bearing failure. The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA5309

5300 SERIES STEEL RAIL YOKE TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Position the yoke ***(I)*** over the item to be suspended. Insert the M16 x 2 x 100 hex head cap screw ***(J)*** with one 16mm flat washer ***(H)*** through one leg of the yoke, then the load mount and the other leg of the yoke. Install the remaining washer and M16 x 2 reverse lock nut ***(G)***. Tighten the nut until just flush with the yoke leg. The bolt should not rotate by hand when correctly tightened.

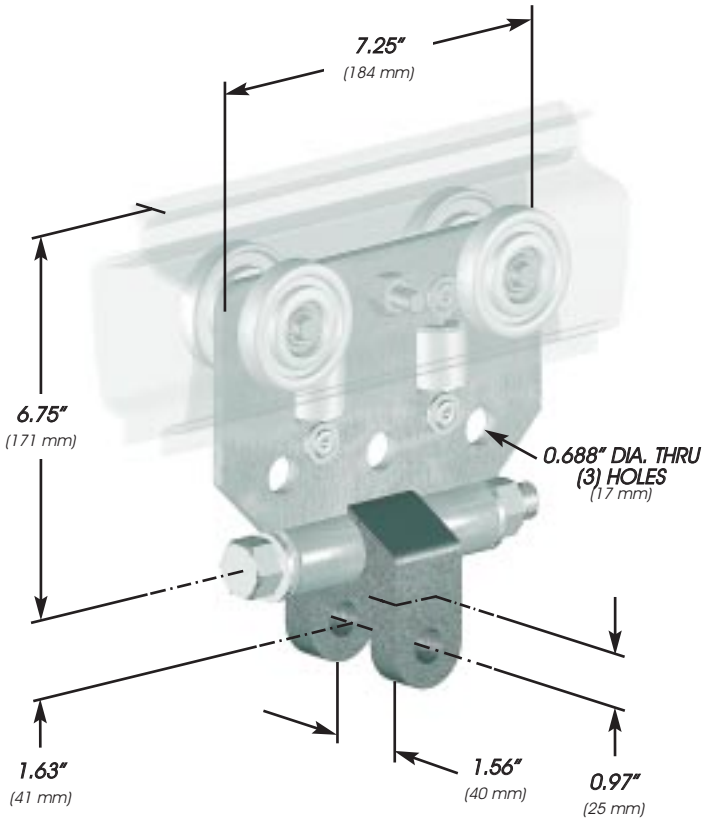
The trolley is supplied with a cable and cable clips. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the yoke. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the yoke.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

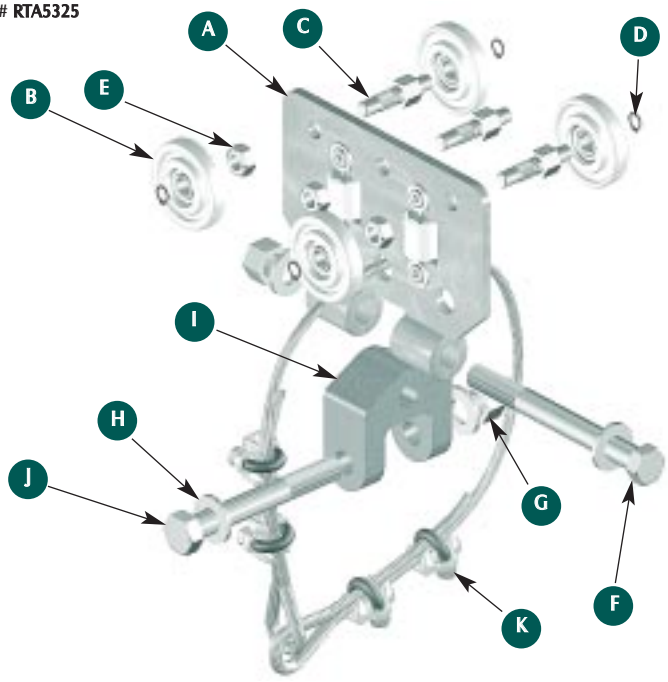
DIMENSIONAL INFORMATION



PART WEIGHT: 7.00 LBS. (3.18 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

BILL OF MATERIALS

A) (1) Required - 5300 SERIES load trolley plate w/ slugs and guide roller assemblies - Part# **RTA5325**
B) (4) Required - 5300 SERIES load trolley wheel - Part# **RTD5027**
C) (3) Required - axle for 5300 SERIES load trolley - Part# **RTD5344**
D) (4) Required - snap ring for 5300 SERIES trolley axle - Part# **SH39PA**
E) (3) Required - 7/16-18 rev. lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, Sty 1, M16 x 2, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - bronze yoke - Part# **RTD4169**
J) (1) Required - HHCS, M16 x 2 x 100, cls. 8.8, ZP
K) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for use as a carriage or fixture mount for either offset or direct loads. The bronze molly yoke provides for a self lubricating, very durable carriage or fixture mount option. The hinged mount prevents side loading. This prevents premature trolley wheel bearing failure. It allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA5329

5300 SERIES STEEL RAIL EYE HOOK TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)***

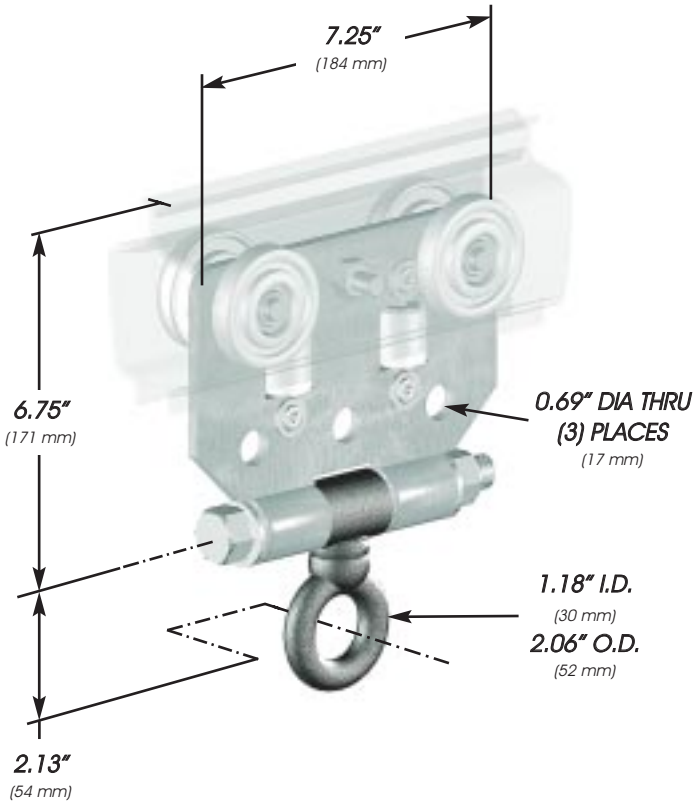
Attach the load to the eye hook ***(I)***. Be sure there is enough clearance for the load hook to nest properly in the eye hook. For best results, the load should swivel on the load hook.

The trolley is supplied with a cable and cable clips. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the yoke. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

NOTE: *If a chain hoist is used on the eyehook trolley and the load is lifted without the trolley being directly over the load, the trolley will accelerate abnormally. If the trolley is allowed to accelerate abnormally and strike the end stop with force, the end stop will wear prematurely. Consult Customer Service to order dampening stops with shocks if this unsafe condition exists. Do not over-tighten nuts. Stress from over-tightening will cause damage to the trolley bosses.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

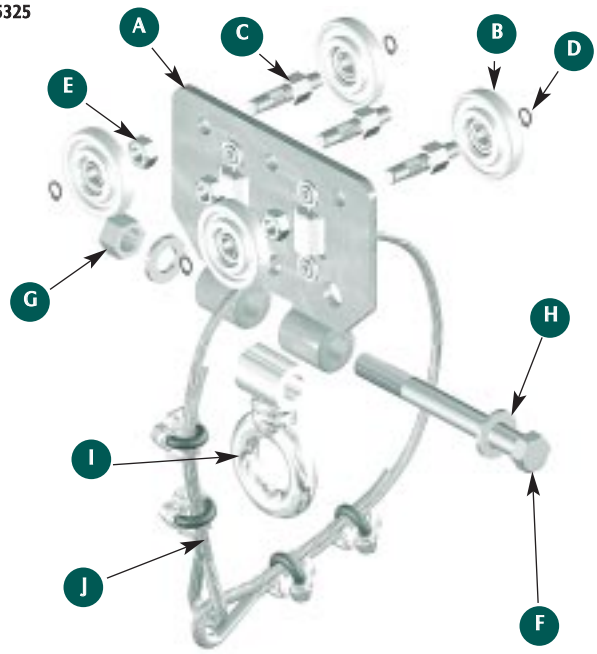
DIMENSIONAL INFORMATION



PART WEIGHT: 5.13 LBS. (2.32 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

BILL OF MATERIALS

A) (1) Required - 5300 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5325**
B) (4) Required - 5300 series load trolley wheel - Part# **RTD5027**
C) (3) Required - axle for 5300 series load trolley - Part# **RTD4144**
D) (4) Required - snap ring for 5300 series trolley axle - Part# **SH39PA**
E) (3) Required - 7/16-18 rev. lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, sty 1, M16 x 2, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - small eye hook - Part# **RTD4147**
J) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for a hook mount, such as a spring cable balancer or a vacuum lift. The hinge feature at the eye hook relieves side loading on the trolley wheel bearings. Side loading will cause premature bearing failure.

ASSEMBLY# RTA5501

5500 SERIES STEEL RAIL BALANCER TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Slide two M16 x 2 x 100 hex head cap screws ***(F)*** through the holes on one of the plates on the balancer mount placing a 16mm flat washer ***(G)*** between the screw head and the mounting plate. Slide two spacers ***(H)*** on each bolt and slide the bolts through the mounting holes on the trolley. Install the four remaining spacers, two per bolt, between the trolley and the second balancer mounting flange. Push the bolts through the other balancer mounting plate, tightening the M16 x 2 reverse lock nuts ***(I)***, again placing 16mm flat washers between the nuts and the mounting plate. The bolt should not rotate by hand when correctly tightened. Do not over-tighten. For other brands of balancers, an adapter can be ordered. Call Knight Customer Service for part numbers.

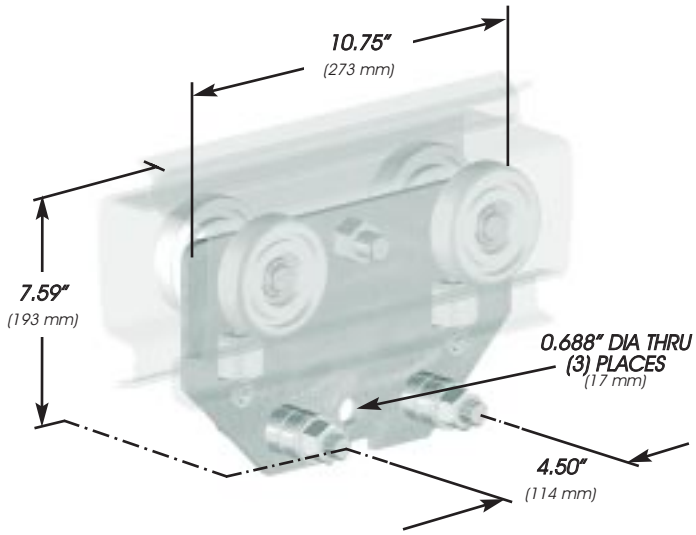
The trolley is supplied with a cable and cable clips. The cable must be looped from the center trolley mounting hole through open holes on both plates of the balancer mount. Install the cable clips provided. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install a trolley with a balancer already attached. Reinstall the end cap and stop assemblies according to instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the balancer mount. The trolley should not be rigid in the balancer mount. Some side to side play between the trolley and the balancer is desirable.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

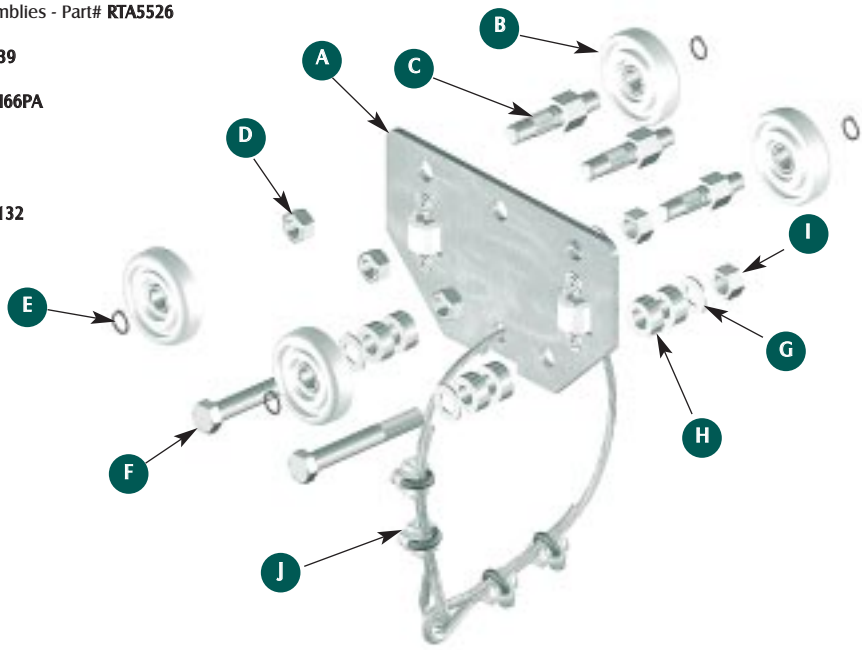
DIMENSIONAL INFORMATION



PART WEIGHT: 8.19 LBS. (3.72 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with guide roller assemblies - Part# **RTA5526**
B) (4) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (3) Required - 3/4-16 rev. lock nut
E) (4) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
F) (2) Required - HHCS, M16 x 2 x 100, cls. 8.8, ZP
G) (4) Required - FW, 16mm, N, S, stl., ZP
H) (8) Required - spacer - Part# **RTD4324A**
I) (2) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
J) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed as an air balancer mount. There are adapters available to attach this trolley to other brands of air balancer. It can be used for direct loads such as tooling or smaller spring balancers. It should not be used as a chain hoist trolley. Do not rigidly attach arm carriages or fixtures to this trolley. Rigid attachments will create side loading. Side loading will cause premature bearing failure.

ASSEMBLY# RTA5502

5500 SERIES STEEL RAIL BOSS TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys. The load attach point must be free to pivot on the M16 x 2 x 150 hex head cap screw ***(F)*** without binding on the trolley plate ***(A)***.

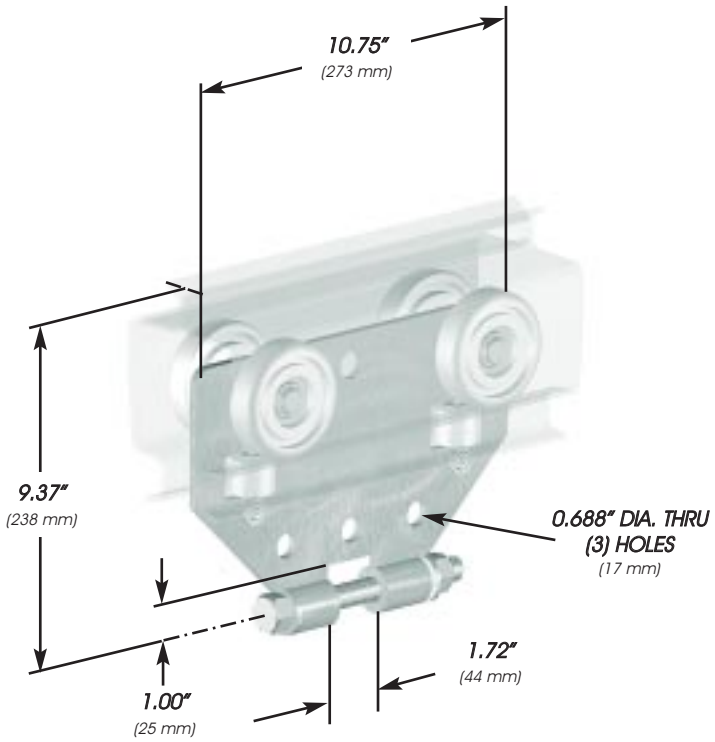
The trolley is supplied with a cable and cable clips. The cable must be looped from the center trolley mounting hole to a secure point on the suspended load. Install the cable clips provided. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the trolley bosses. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the trolley.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system, if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

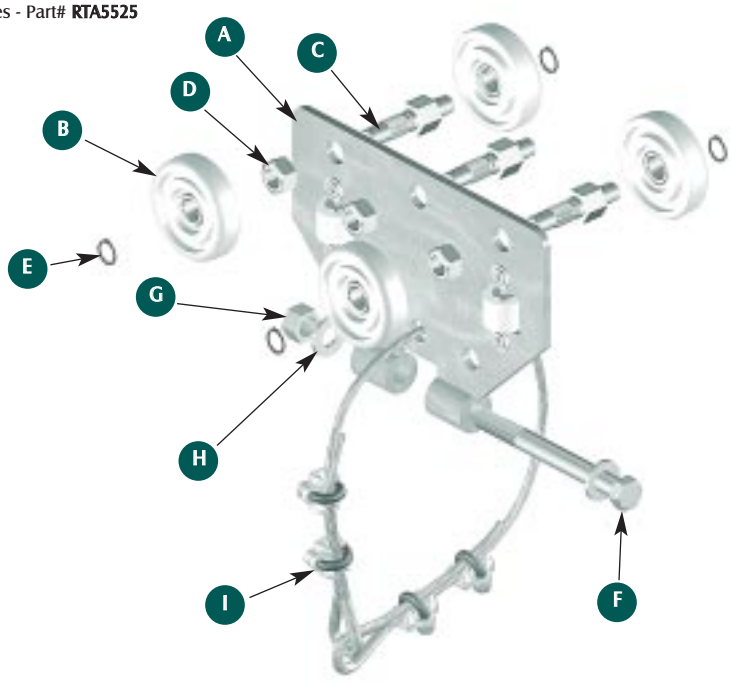
DIMENSIONAL INFORMATION



PART WEIGHT: 8.11 LBS. (3.68 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (4) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (3) Required - 3/4-16 rev. lock jam nut
E) (4) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for use primarily as a carriage or fixture mount for either offset or direct loads. The hinged mount prevents side loading which prevents premature wheel bearing failure. The hinge allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA5503

5500 SERIES STEEL RAIL YOKE TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Position the yoke ***(I)*** over the item to be suspended. Insert the M16 x 2 x 100 hex head cap screw ***(J)*** with one M16 flat washer ***(H)*** through one leg of the yoke, then the load mount and the other leg of the yoke. Install the remaining washer and M16 x 2 reverse lock nut ***(G)***. Tighten the nut until just flush with the yoke leg. The bolt should not rotate by hand when correctly tightened.

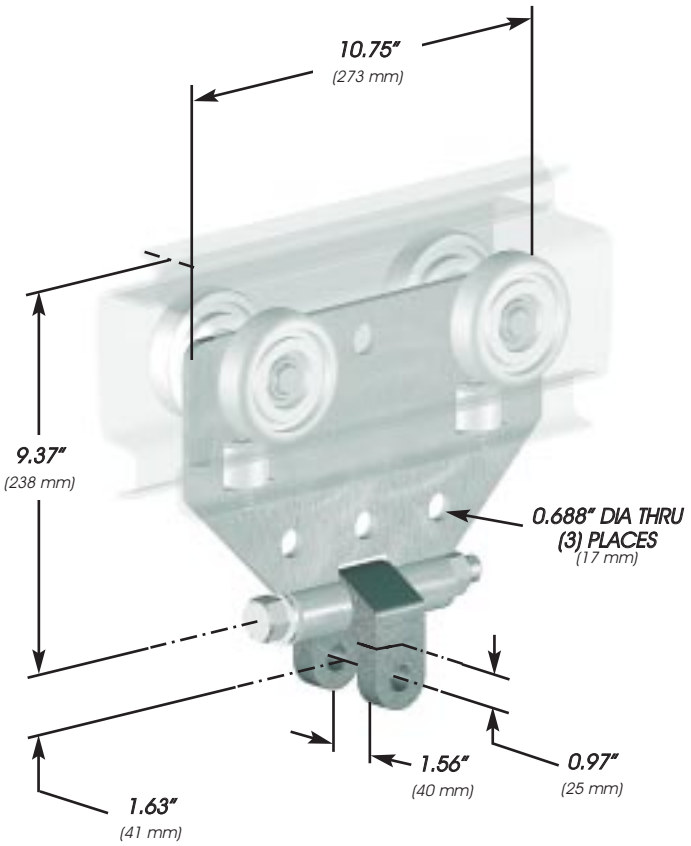
The trolley is supplied with a cable and cable clips. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the yoke. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the yoke.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components..*

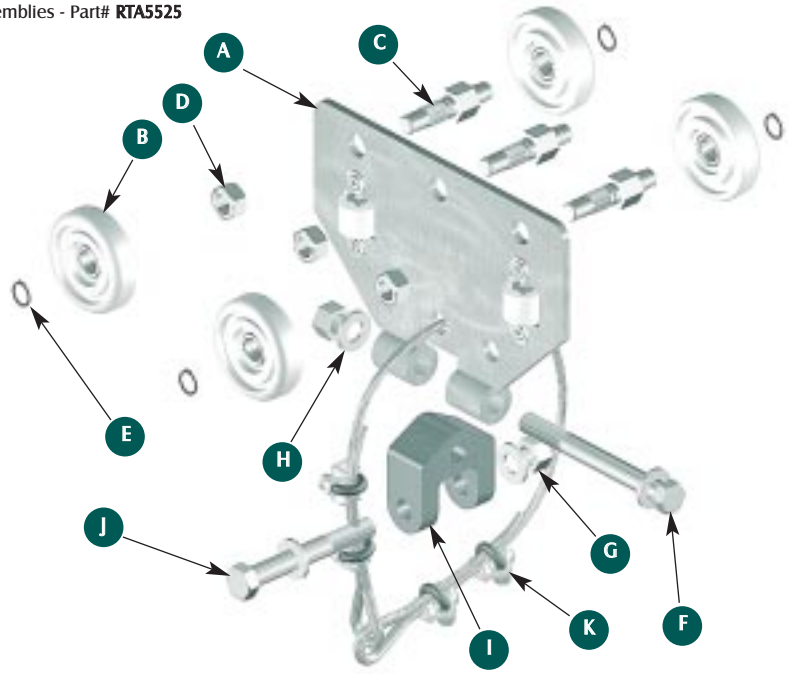
DIMENSIONAL INFORMATION



PART WEIGHT: 10.82 LBS. (4.91 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (4) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (3) Required - 3/4-16 rev. lock jam nut
E) (4) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (2) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
H) (4) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - bronze yoke - Part# **RTD4169**
J) (1) Required - HHCS, M16 x 2 x 100, cls. 8,8, ZP
K) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for use as a carriage or fixture mount for either offset or direct loads. The bronze molly yoke provides a self-lubricating, very durable carriage or fixture mount option. The hinged mount prevents side loading which prevents premature trolley wheel bearing failure. The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA5504

5500 SERIES STEEL RAIL EYE HOOK TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley, if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 450 for end cap with shock installation.)***

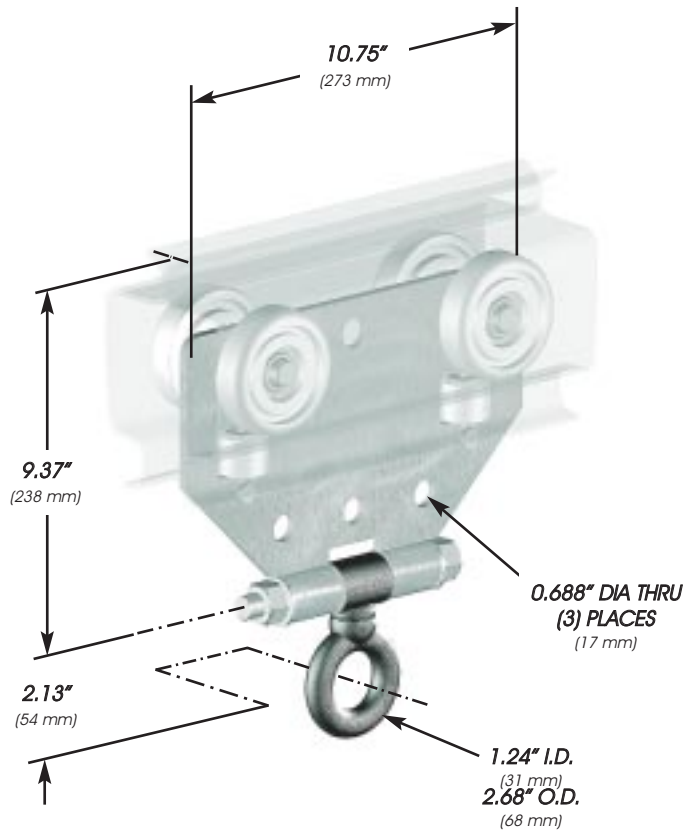
Attach the load to the eye hook ***(I)***. Be sure there is enough clearance for the load hook to nest properly in the eye hook. For best results the load should swivel on the load hook.

The trolley is supplied with a cable and cable clips. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the yoke. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

NOTE: *If a chain hoist is used on the eyehook trolley and the load is lifted without the trolley being directly over the load, the trolley will accelerate abnormally. If the trolley is allowed to accelerate abnormally and strike the end stop with force, the end stop will wear prematurely. Consult Customer Service to order dampening stops with shocks if this unsafe condition exists. Do not over-tighten nuts. Stress from over-tightening will cause damage to the trolley bosses.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

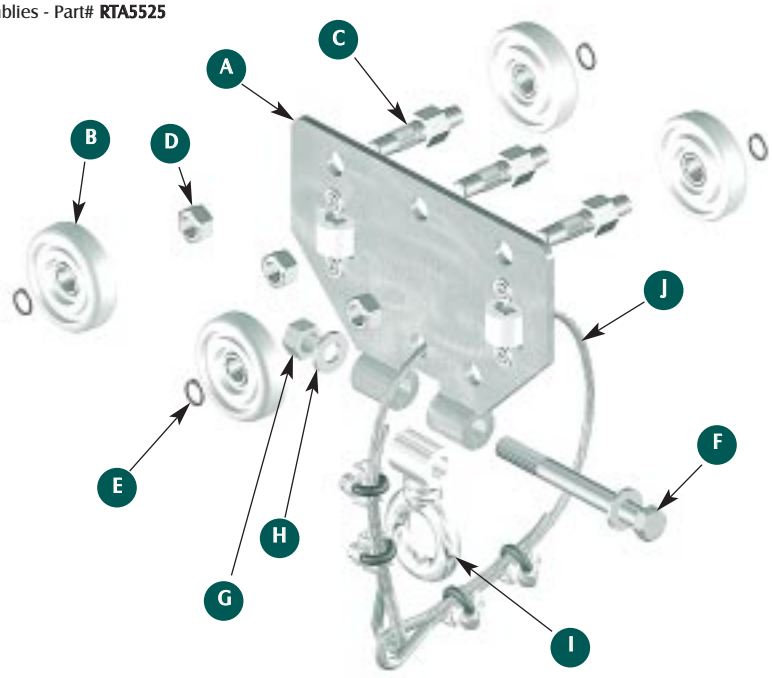
DIMENSIONAL INFORMATION



PART WEIGHT: 9.33 LBS. (4.24 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (4) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (3) Required - 3/4-16 rev. lock jam nut
E) (4) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - eye hook - Part# **RTD4148B**
J) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for a hook mount, such as a chain hoist or vacuum lift. The hinge feature at the eye hook relieves side loading on the trolley wheel bearings. Side loading will cause premature bearing failure.

ASSEMBLY# RTA5706

5700 SERIES STEEL RAIL BALANCER TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Slide two M16 x 2 x 100 hex head cap screws ***(H)*** through the holes on one of the plates on the balancer mount placing a M16 flat washer ***(I)*** between the screw head and the mounting plate. Slide two spacers ***(J)*** on each bolt and slide the bolts through the mounting holes on the trolley. Install the four remaining spacers, two per bolt, between the trolley and the second balancer mounting flange. After placing M16 flat washers between the nuts and the mounting plate, push the bolts through the other balancer mounting plate, tightening the M16 x 2 reverse lock nuts ***(K)***. The bolt should not rotate by hand when correctly tightened. Do not over-tighten. For other brands of balancers, an adapter can be ordered. Call Knight Customer Service for part numbers.

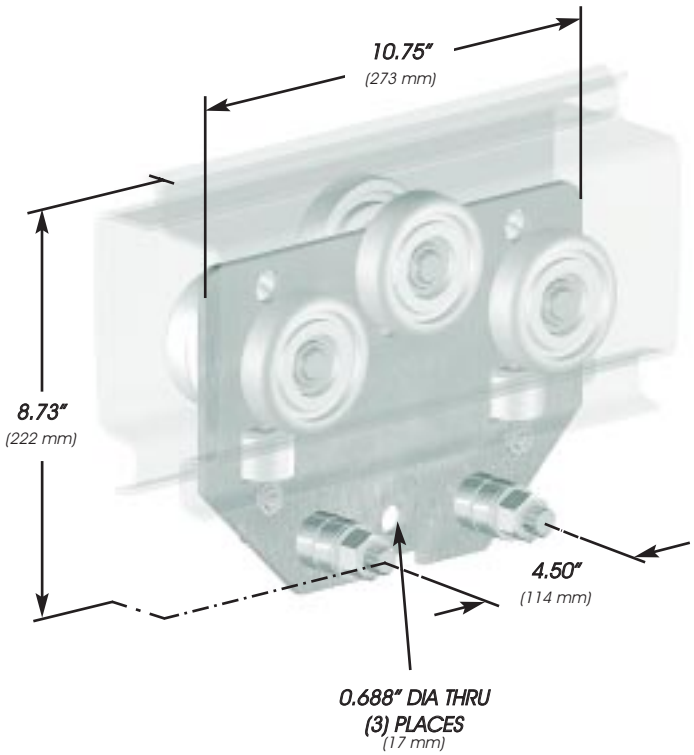
The trolley is supplied with a cable and cable clips. The cable must be looped from the center trolley mounting hole through open holes on both plates of the balancer mount. Install the cable clips provided. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install a trolley with a balancer already attached. Reinstall the end cap and stop assemblies according to instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the balancer mount. The trolley should not be rigid in the balancer mount. Some side to side play between the trolley and the balancer is desirable.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

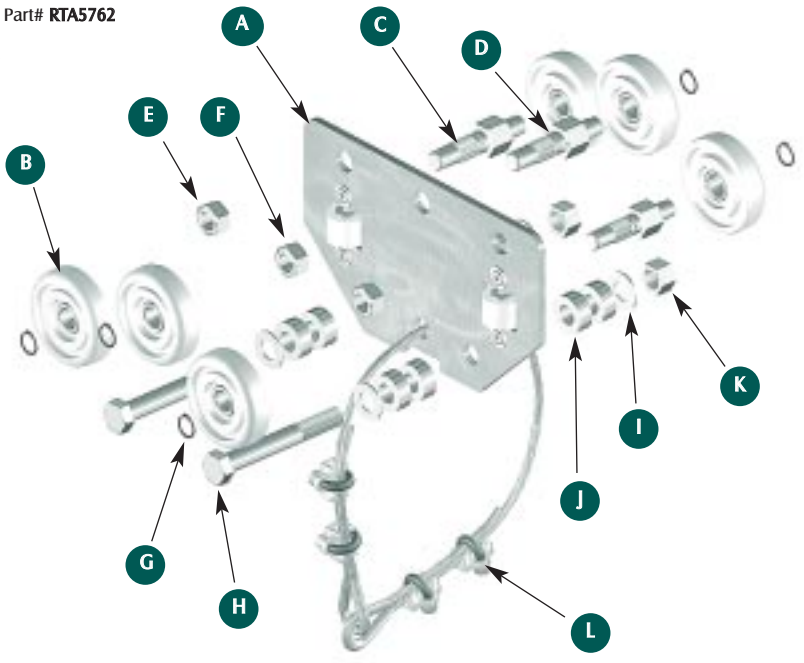
DIMENSIONAL INFORMATION



PART WEIGHT: 9.37 LBS. (4.25 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with guide roller assemblies - Part# **RTA5762**
B) (6) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (2) Required - outer axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (1) Required - inner axle for 5500/5700 series load trolley - Part# **RTD4838**
E) (2) Required - 3/4-16 rev. lock jam nut
F) (1) Required - 3/4-16 rev. lock nut
G) (6) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
H) (2) Required - HHCS, M16 x 2 x 100, cls. 8.8, ZP
I) (4) Required - FW, 16mm, N, S, stl., ZP
J) (8) Required - spacer - Part# **RTD4324A**
K) (2) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
L) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed as an air balancer mount. There are adapters available to attach this trolley to other brands of air balancer. It can be used for direct loads such as tooling or smaller spring balancers. It should not be used as a chain hoist trolley. Do not rigidly attach arm carriages or fixtures to this trolley. Rigid attachments will create side loading. Side loading will cause premature bearing failure.

ASSEMBLY# RTA5702

5700 SERIES STEEL RAIL BOSS TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys. The load attach point must be free to pivot on the M16 x 2 x 150 hex head cap screw ***(H)*** without binding on the trolley plate ***(A)***.

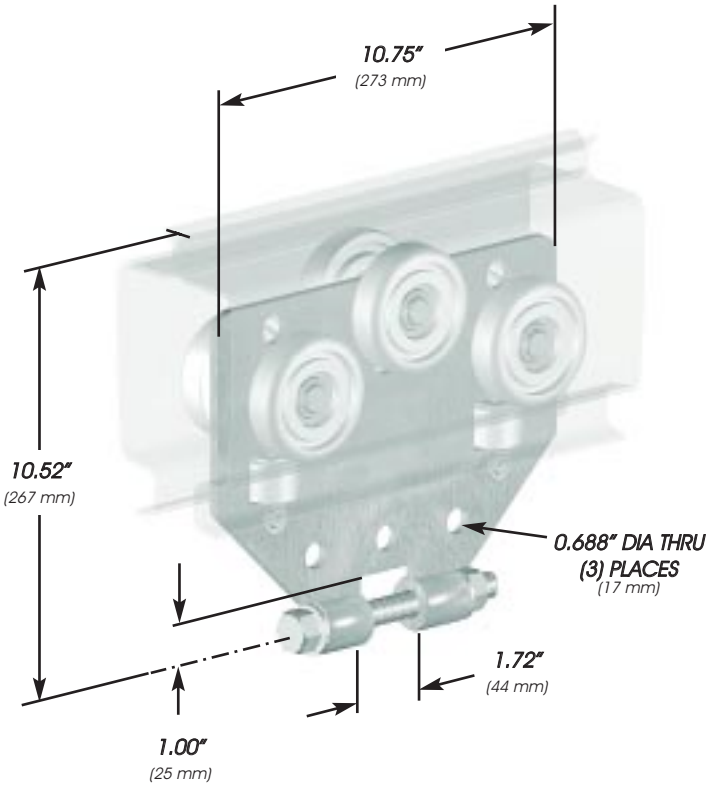
The trolley is supplied with a cable and cable clips. The cable must be looped from the center trolley mounting hole to a secure point on the suspended load. Install the cable clips provided. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the trolley bosses. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the trolley.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

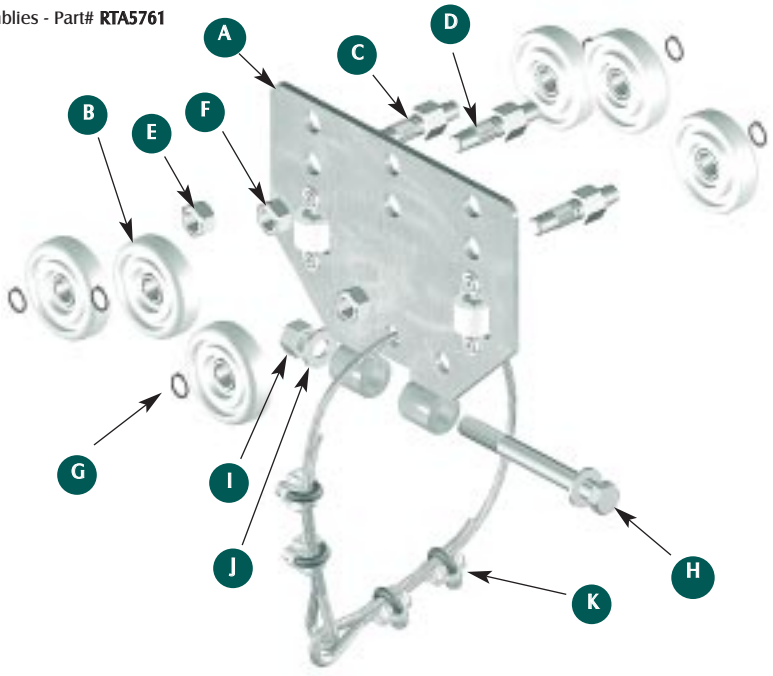
DIMENSIONAL INFORMATION



PART WEIGHT: 9.28 LBS. (4.21 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5761**
B) (6) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (2) Required - outer axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (1) Required - inner axle for 5500/5700 series load trolley - Part# **RTD4838**
E) (3) Required - 3/4-16 rev. lock jam nut
F) (1) Required - 3/4-16 rev. lock nut
G) (6) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
H) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
I) (1) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
J) (2) Required - FW, 16mm, N, S, stl., ZP
K) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for use primarily as a carriage or fixture mount for either offset or direct loads. The hinged mount prevents side loading. This prevents premature wheel bearing failure. The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA5723

5700 SERIES STEEL RAIL YOKE TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Position the yoke ***(K)*** over the item to be suspended. Insert the M16 x 2 x 100 hex head cap screw ***(L)*** with one 16mm flat washer ***(J)*** through one leg of the yoke, then the load mount and the other leg of the yoke. Install the remaining washer and M16 x 2 reverse lock nut ***(I)***. Tighten the nut until just flush with the yoke leg. The bolt should not rotate by hand when correctly tightened.

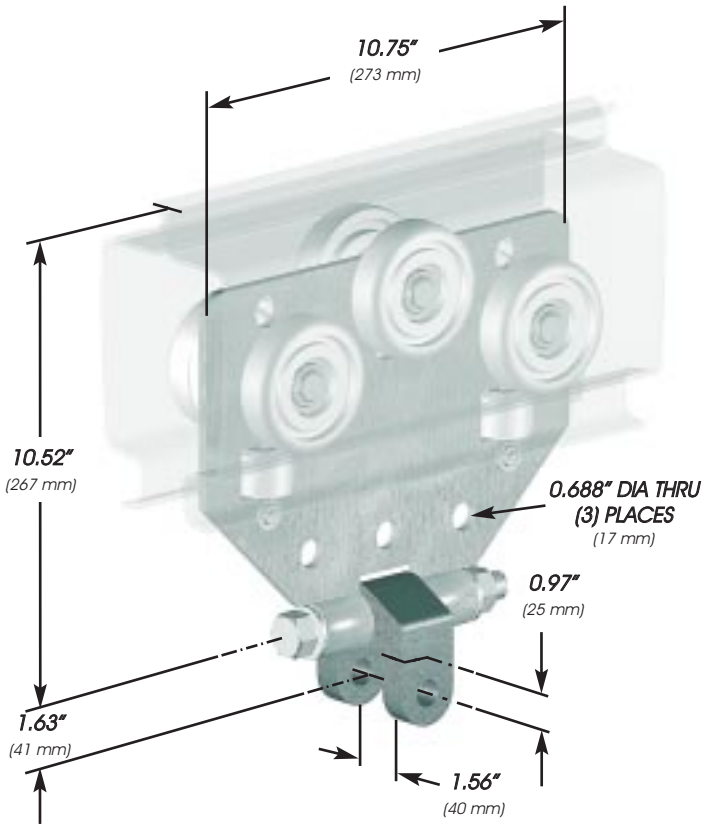
The trolley is supplied with a cable and cable clips. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the yoke. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

NOTE: *Do not over-tighten nuts. Stress from over-tightening will cause damage to the yoke.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with brands of ergonomic rail and components.*

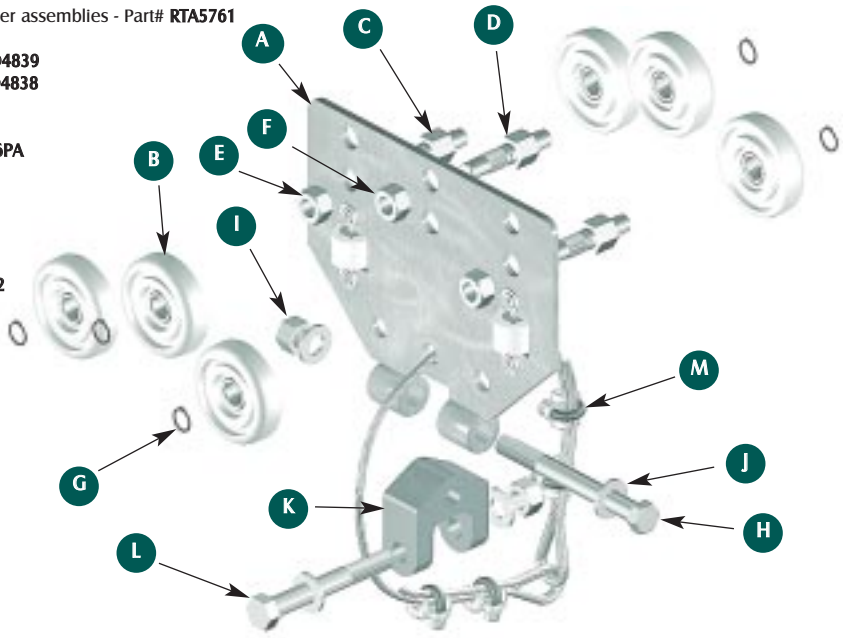
DIMENSIONAL INFORMATION



PART WEIGHT: 11.51 LBS. (5.23 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5761**
B) (6) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (2) Required - outer axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (1) Required - inner axle for 5500/5700 series load trolley - Part# **RTD4838**
E) (2) Required - 3/4-16 rev. lock jam nut
F) (1) Required - 3/4-16 rev. lock nut
G) (6) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
H) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
I) (2) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
J) (4) Required - FW, 16mm, N, S, stl., ZP
K) (1) Required - bronze yoke - Part# **RTD4169E**
L) (1) Required - HHCS, M16 x 2 x 100, cls. 8.8, ZP
M) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for use as a carriage or fixture mount for either offset or direct loads. The bronze molly yoke provides for a self lubricating, very durable carriage or fixture mount option. The hinged mount prevents side loading. This prevents premature trolley wheel bearing failure. The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA5719

5700 SERIES STEEL RAIL EYE HOOK TROLLEY

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

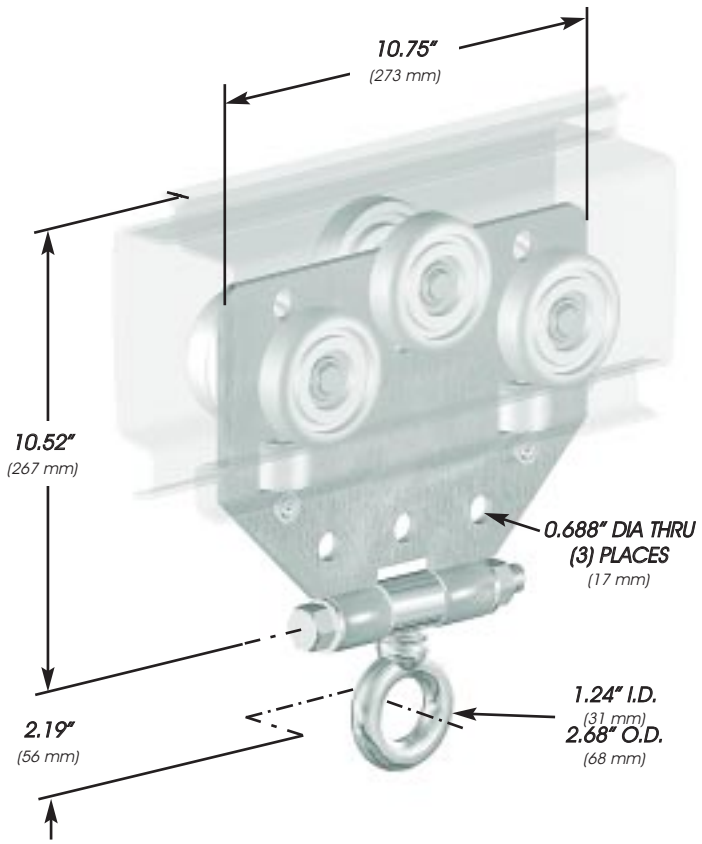
Attach the load to the eye hook ***(K)***. Be sure there is enough clearance for the load hook to nest properly in the eye hook. For best results, the load should swivel on the load hook.

The trolley is supplied with a cable and cable clips. The safety cable must be installed through the center hole on the trolley and through a secure structural item on the device attached to the yoke. ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

NOTE: *If a chain hoist is used on the eyehook trolley and the load is lifted without the trolley being directly over the load, the trolley will accelerate abnormally. If the trolley is allowed to accelerate abnormally and strike the end stop with force, the end stop will wear prematurely. Consult Customer Service to order dampening stops with shocks if this unsafe condition exists. Do not over-tighten nuts. Stress from over-tightening will cause damage to the trolley bosses.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with brands of ergonomic rail and components.*

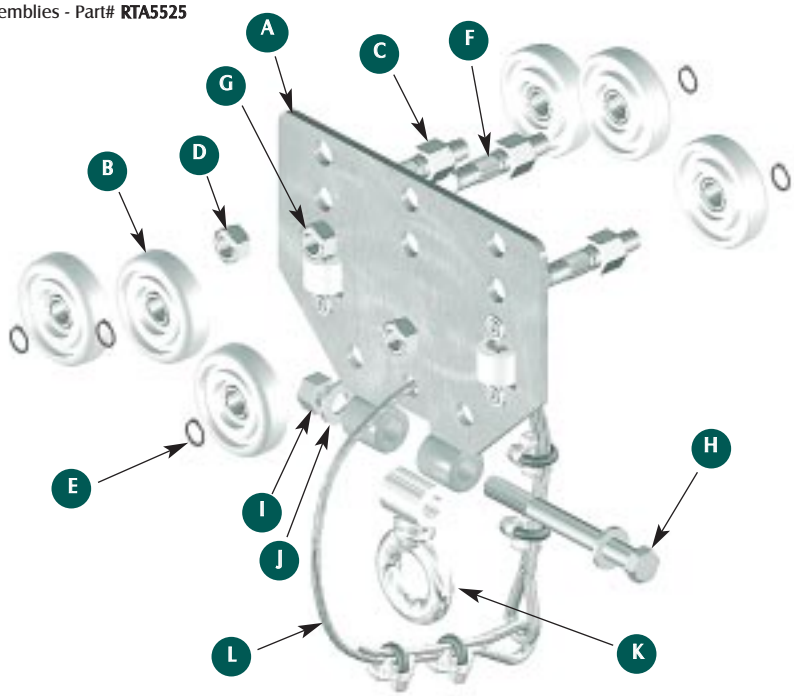
DIMENSIONAL INFORMATION



PART WEIGHT: 10.51 LBS. (4.77 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (4) Required - 5500/5700 series load trolley wheel - Part# **RTD5737**
C) (2) Required - outer axle for 5500/5700 series load trolley - Part# **RTD4839**
D) (1) Required - inner axle for 5500/5700 series load trolley - Part# **RTD4838**
E) (2) Required - 3/4-16 rev. lock jam nut
F) (1) Required - 3/4-16 rev. lock nut
G) (4) Required - snap ring for 5500/5700 series trolley axle - Part# **SH66PA**
H) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
I) (1) Required - rev. lock nut, sty. 1, M16 x 2, cls. 10, ZP
J) (2) Required - FW, 16mm, N, S, stl., ZP
K) (1) Required - eye hook - Part# **RTD4148B**
L) (1) Required - safety cable assembly for load trolleys - Part# **RWA4132**



Recommendations: This trolley is designed for a hook mount, such as an air operated chain hoist or vacuum lift. The hinge feature at the eye hook relieves side loading on the trolley wheel bearings. Side loading will cause premature bearing failure.

ASSEMBLY#RTA6320A

5300 SERIES CONVENTIONAL STEEL LOAD TROLLEY

INSTALLATION INSTRUCTIONS

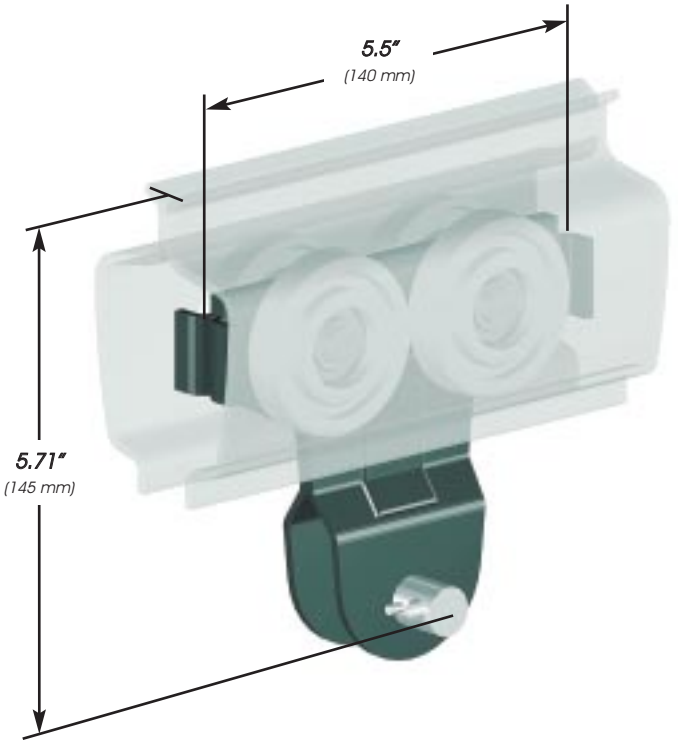
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys. The load attach point must be free to pivot on the pivot pin ***(D)*** without binding on the trolley plate ***(A)***.

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)***

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

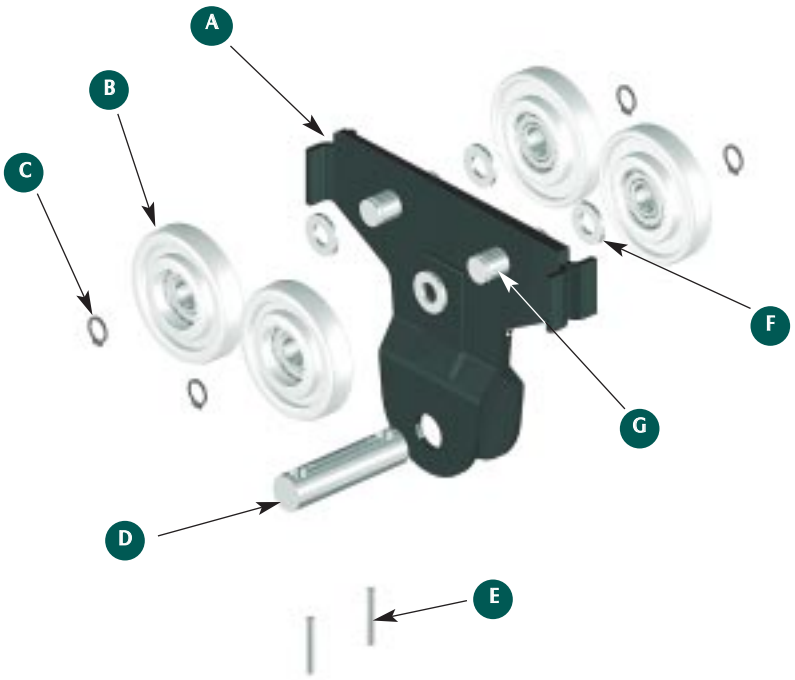
DIMENSIONAL INFORMATION



PART WEIGHT: 1.5 LBS. (38 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

BILL OF MATERIALS

A) (1) Required - trolley plate - Part# **RTD6031**
B) (4) Required - load trolley wheel - Part# **RTD6027**
C) (4) Required - snap ring - Part# **SH 39 PA**
D) (1) Required - pivot pin - Part# **RTD6033**
E) (2) Required - 3/16 x 1" roll pin
F) (4) Required - axle washer - Part# **RTD6035**
G) (2) Required - axle - Part# **RTD6032**



Recommendations: This trolley is designed for use as a carriage or fixture mount for either offset or direct loads. The bronze molly yoke provides for a self lubricating, very durable carriage or fixture mount option. The hinged mount prevents side loading. This prevents premature trolley wheel bearing failure. The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys.

ASSEMBLY# RTA6520A

5500 & 5700 SERIES CONVENTIONAL STEEL LOAD TROLLEY

INSTALLATION INSTRUCTIONS

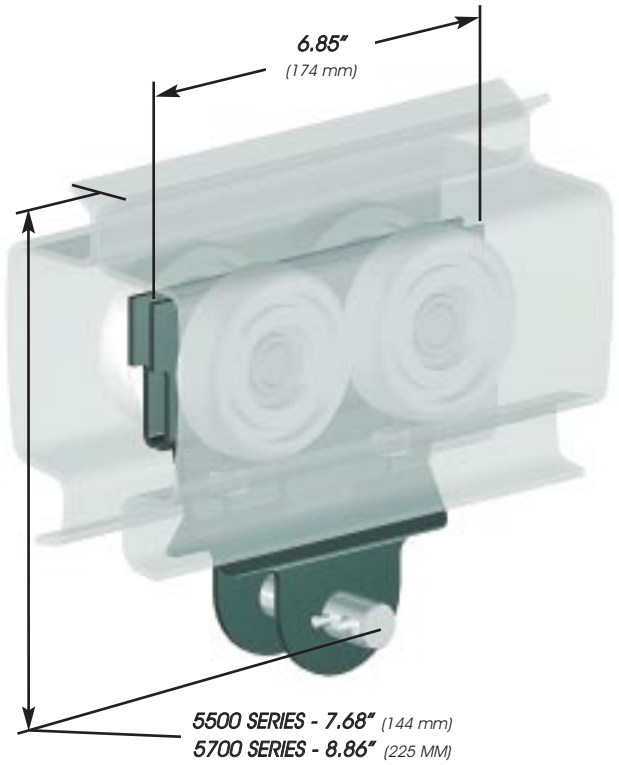
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

The hinge mount allows for smooth arm carriage travel without the binding that is characteristic of rigid mounted trolleys. The load attach point must be free to pivot on the pivot pin ***(D)*** without binding on the trolley plate ***(A)***.

Remove the end cap/end cap with shock and stop assemblies from the end of the rail. Roll the trolley into the open end of the rail or use a lift assist to install the trolley if the load is already attached. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.)***

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

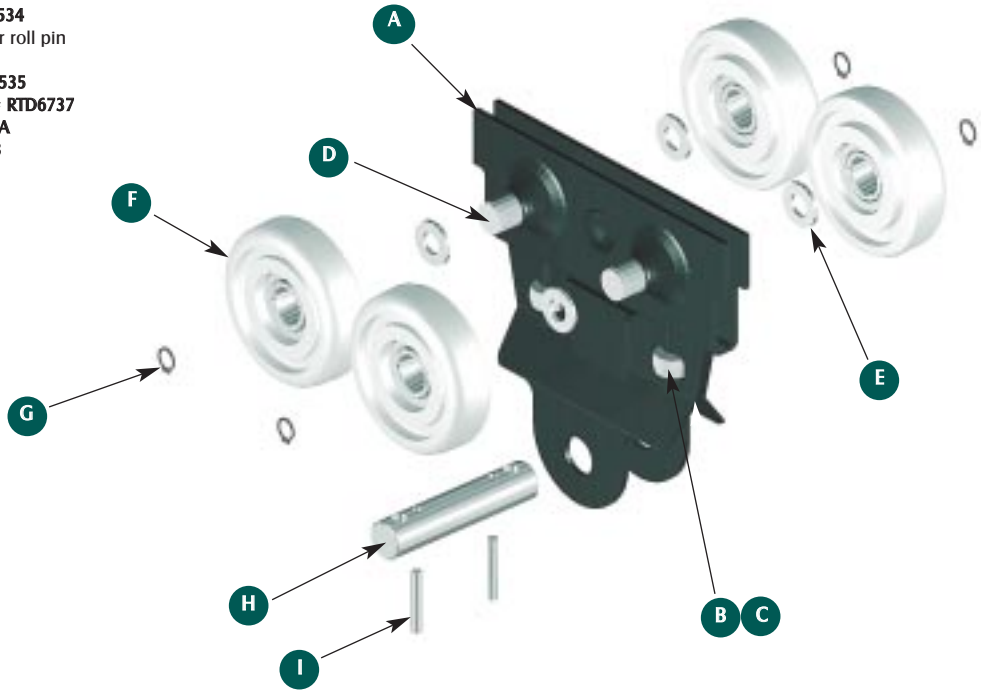
DIMENSIONAL INFORMATION



PART WEIGHT: 5 LBS. (127 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - trolley plate - Part# **RTD6531**
B) (2) Required - guide roller - Part# **RTD6534**
C) (2) Required - 3/16 x 1 3/8" guide roller roll pin
D) (2) Required - axle - Part# **RTD6532**
E) (4) Required - axle washer - Part# **RTD6535**
F) (4) Required - load trolley wheel - Part# **RTD6737**
G) (4) Required - snap ring - Part# **SH 66 PA**
H) (1) Required - pivot pin - Part# **RTD6533**
I) (2) Required - 3/16 x 1 3/8" roll pin



Recommendations: This trolley is designed for a hook mount, such as an air operated chain hoist or vacuum lift. The hinge feature at the eye hook relieves side loading on the trolley wheel bearings. Side loading will cause premature bearing failure.

ASSEMBLY# RES5025

5300 SERIES STEEL RAIL SINGLE TROLLEY END TRUCK FOR SINGLE BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(M)***, M10 x 1.5 rev. lock nuts ***(N)*** and 10mm flat washers ***(O)*** from the pair of mounting brackets ***(P)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

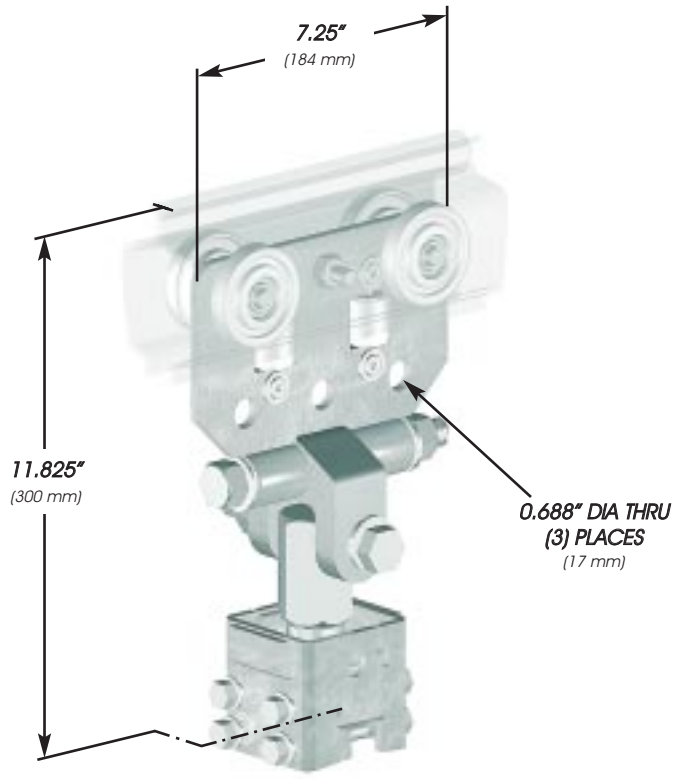
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)*** Loosen the M10 x 1.5 rev. lock nuts ***(N)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(P)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION

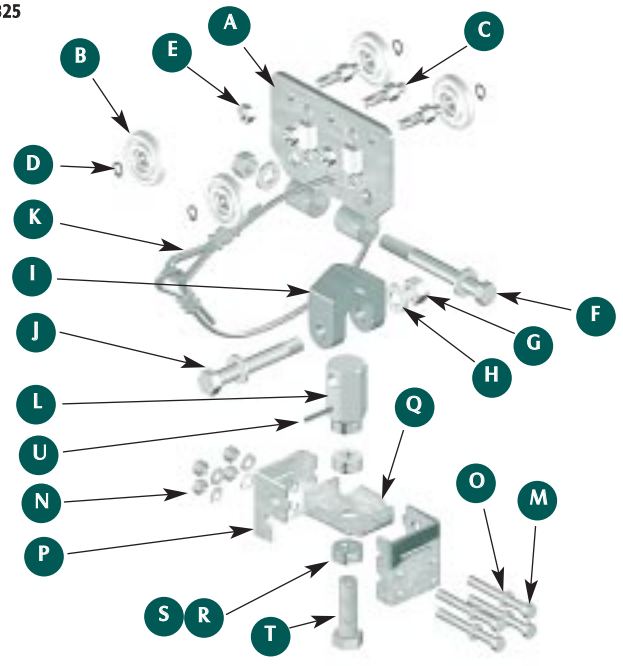


PART WEIGHT: 11.49 LBS. (5.21 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

- **A)** (1) Required - 5300 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5325**
- **B)** (4) Required - 5300 series load trolley wheel - Part# **RTD5027**
- **C)** (3) Required - axle for 5300 series load trolley - Part# **RTD5344**
- **D)** (4) Required - snap ring for 5300 series trolley axle - Part# **SH39PA**
- **E)** (3) Required - 7/16-20 rev. lock jam nut
- **F)** (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
- **G)** (2) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
- **H)** (4) Required - FW, M16, N, S, stl., ZP
- **I)** (1) Required - bronze yoke - Part# **RTD4169**
- **J)** (1) Required - HHCS, M16 x 2 x 100mm, cls. 8.8, ZP
- **K)** (1) Required - safety cable assembly for load trolleys - Part# **RWA4129**
- **L)** (1) Required - end truck pivot - Part# **RED4168**
- **M)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **N)** (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
- **O)** (8) Required - FW, 10mm, N, S, stl., ZP
- **P)** (2) Required - mounting bracket - Part# **RHD5172**
- **Q)** (1) Required - hanger bracket - Part# **RHD5173**
- **R)** (2) Required - thrust nut - Part# **NTA 1220**
- **S)** (4) Required - thrust washer - Part# **TRD 1220**
- **T)** (1) Required - 3/4-10 x 2 1/2" HHCS
- **U)** (1) Required - 3/16" x 1 1/2" roll pin

*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***



Recommendations: This end truck is intended for use on single bridges only. It rolls inside a 5300 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a universal connector that prevents binding. It allows a pivotal bridge action which permits easier bridge movement. Single bridges of this type are to be assembled on site by the end user.

ASSEMBLY# RES5072

5300 SERIES STEEL RAIL SINGLE TROLLEY END TRUCK FOR DUAL BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(K)***, M10 x 1.5 rev. lock nuts ***(M)*** and 10mm flat washers ***(L)*** from the pair of mounting brackets ***(N)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

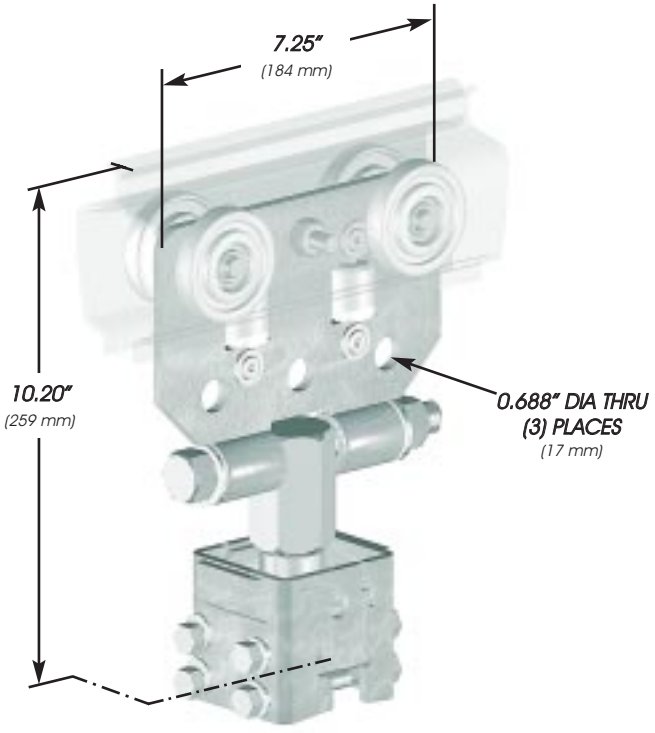
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)*** Loosen the M10 x 1.5 rev. lock nuts ***(M)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(N)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

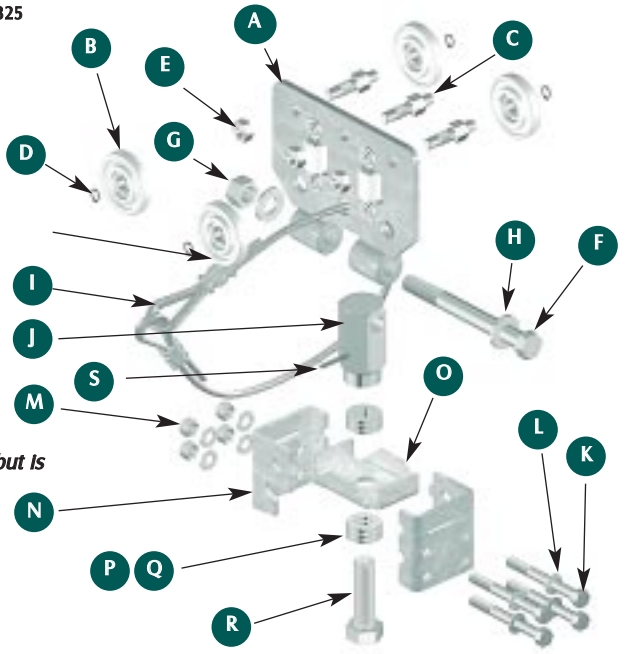
DIMENSIONAL INFORMATION



PART WEIGHT: 8.77 LBS. (3.98 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

BILL OF MATERIALS

A) (1) Required - 5300 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5325**
B) (4) Required - 5300 series load trolley wheel - Part# **RTD5027**
C) (3) Required - axle for 5300 series load trolley - Part# **RTD5344**
D) (4) Required - snap ring for 5300 series trolley axle - Part# **SH39PA**
E) (3) Required - 7/16-20 rev. lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut M16 x 2, sty. 1, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - safety cable assembly for load trolleys - Part# **RWA4129**
J) (1) Required - end truck pivot - Part# **RED4168**
K) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
L) (8) Required - FW, 10mm, N, S, stl., ZP
M) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
N) (2) Required - mounting bracket - Part# **RHD5172**
O) (1) Required - hanger bracket - Part# **RHD5173**
P) (2) Required - thrust nut - Part# **NTA 1220**
Q) (4) Required - thrust washer - Part# **TRD 1220**
R) (1) Required - 3/4-10 x 2 1/2" HHCS
S) (1) Required - 3/16" x 1 1/2" roll pin



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end truck is intended for use on dual bridges only. It rolls inside a 5300 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a bearing and hex swivel for durability and long life. It is used in conjunction with a bridge brace to help square the dual bridge and eliminate kick-up. Standard dual bridge centers are two feet. Dual bridges are assembled at the manufacturer's facility. Dual bridges over 15' should have two bridge braces. (See page 45 for more information on installing bridge braces).

ASSEMBLY# RES5073

5300 SERIES STEEL RAIL DUAL TROLLEY END TRUCK FOR DUAL BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(L)***, M10 x 1.5 rev. lock nuts ***(M)*** and 10mm flat washers ***(N)*** from the pair of mounting brackets ***(O)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

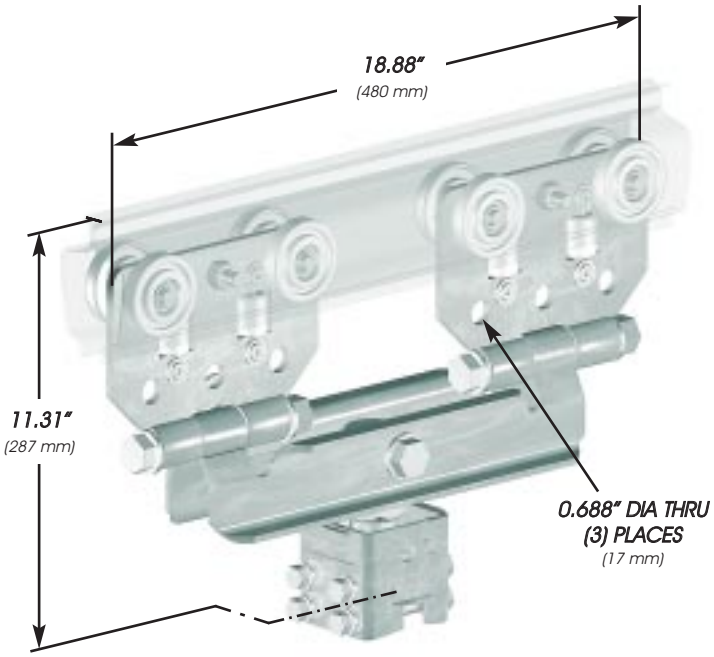
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.)*** Loosen the M10 x 1.5 rev. lock nuts ***(M)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket* ***(O)*** *as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

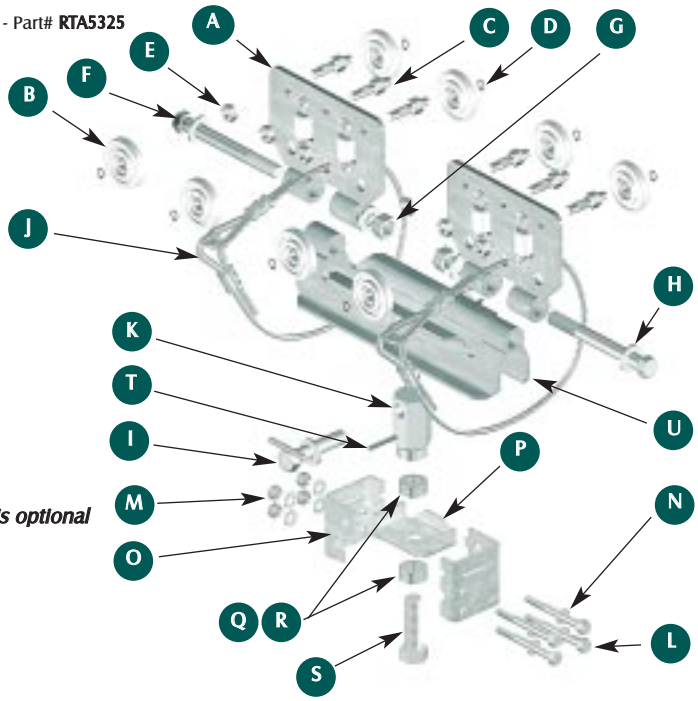
DIMENSIONAL INFORMATION



PART WEIGHT: 18.40 LBS. (8.35 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (2) Required - 5300 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5325**
B) (8) Required - 5300 series load trolley wheel - Part# **RTD5027**
C) (6) Required - axle for 5300 series load trolley - Part# **RTD5344**
D) (8) Required - snap ring for 5300 series trolley axle - Part# **SH39PA**
E) (6) Required - 7/16-20 rev. lock jam nut
F) (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (3) Required - rev. lock nut M16 x 2, sty. 1, cls. 10, ZP
H) (6) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - anti-rotate bolt - Part# **RED4313A**
J) (2) Required - safety cable assembly for load trolleys - Part# **RWA4129**
K) (1) Required - end truck pivot - Part# **RED4168**
L) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
M) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
N) (8) Required - FW, 10 mm, N, S, stl., ZP
O) (2) Required - mounting bracket - Part# **RHD5172**
P) (1) Required - hanger bracket - Part# **RHD5173**
Q) (2) Required - thrust nut - Part# **NTA 1220**
R) (4) Required - thrust washer - Part# **TRD 1220**
S) (1) Required - 3/4-10 x 2 1/2" HHCS
T) (1) Required - 3/16" x 1 1/2" roll pin
U) (1) Required - Dual trolley end truck bracket - Part# **REA4164**



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5300 series track and will suspend either 5300, 5500 or 5700 series steel rail. The truck features two load trolleys with an all steel trolley connector. On longer bridges, 15' and over, the dual trolley feature distributes the overall load across a wider stance, thus improving bridge travel performance over the single trolley model.

ASSEMBLY# RES5519

5500 SERIES STEEL RAIL SINGLE TROLLEY END TRUCK FOR SINGLE BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(M)***, M10 x 1.5 rev. lock nuts ***(N)*** and 10mm flat washers ***(O)*** from the pair of mounting brackets ***(P)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

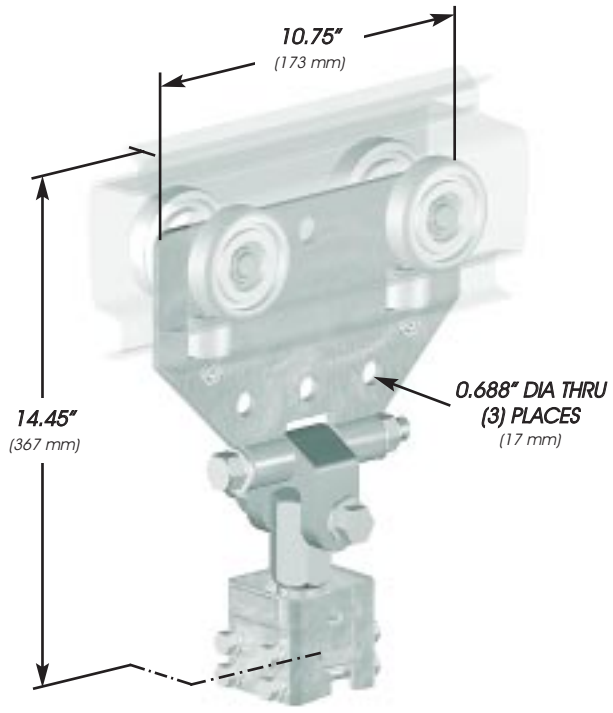
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M10 x 1.5 rev. lock nuts ***(N)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(P)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

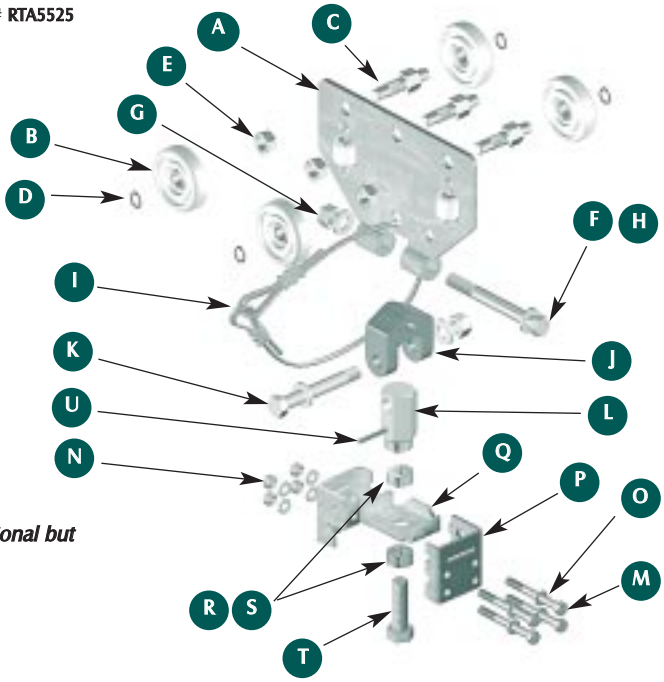
DIMENSIONAL INFORMATION



PART WEIGHT: 15.31 LBS. (6.95 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (4) Required - 5500 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5500 series load trolley - Part# **RTD4839**
D) (4) Required - snap ring for 5500 series trolley axle - Part# **SH66PA**
E) (3) Required - 3/4-16 rev. lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
H) (4) Required - FW, M16, N, S, stl., ZP
I) (1) Required - safety cable assembly for load trolleys - Part# **RWA4129**
J) (1) Required - bronze yoke - Part# **RTD4169**
K) (1) Required - HHCS, M16 x 2 x 100mm, cls. 8.8, ZP
L) (1) Required - end truck pivot - Part# **RED4168**
M) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
N) (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
O) (8) Required - FW, 10mm, N, S, stl., ZP
P) (2) Required - mounting bracket - Part# **RHD5172**
Q) (1) Required - hanger bracket - Part# **RHD5173**
R) (2) Required - thrust nut - Part# **NTA 1220**
S) (4) Required - thrust washer - Part# **TRD 1220**
T) (1) Required - 3/4-10 x 2 1/2" HHCS
U) (1) Required - 3/16" x 1 1/2" roll pin



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end truck is intended for use on single bridges only. It rolls in a 5500 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a universal connector that prevents binding. It allows a pivotal bridge action which permits easier bridge movement. Single bridges of this type are to be assembled on site by the end user.

ASSEMBLY# RES5517

5500 SERIES STEEL RAIL SINGLE TROLLEY END TRUCK FOR DUAL BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(K)***, M10 x 1.5 rev. lock nuts ***(M)*** and 10mm flat washers ***(L)*** from the pair of mounting brackets ***(N)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

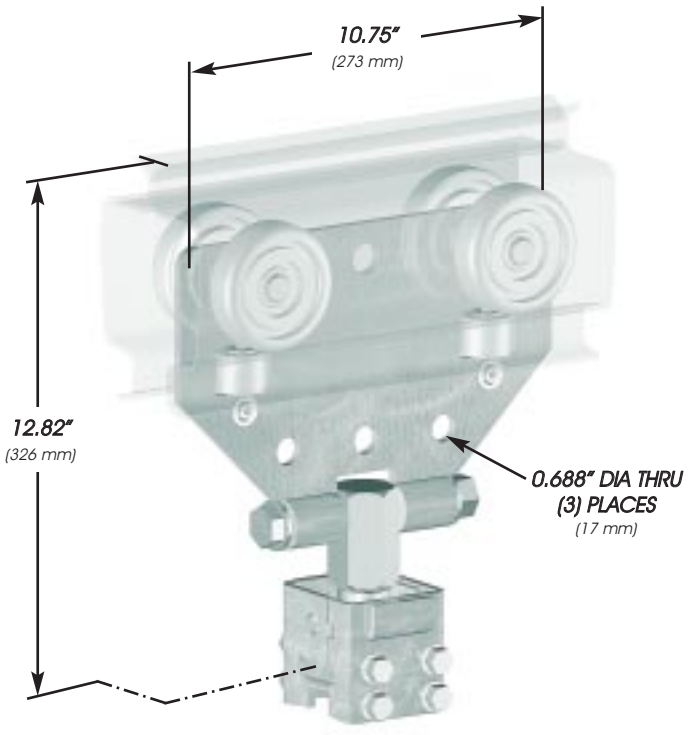
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M10 x 1.5 rev. lock nuts ***(M)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(N)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION

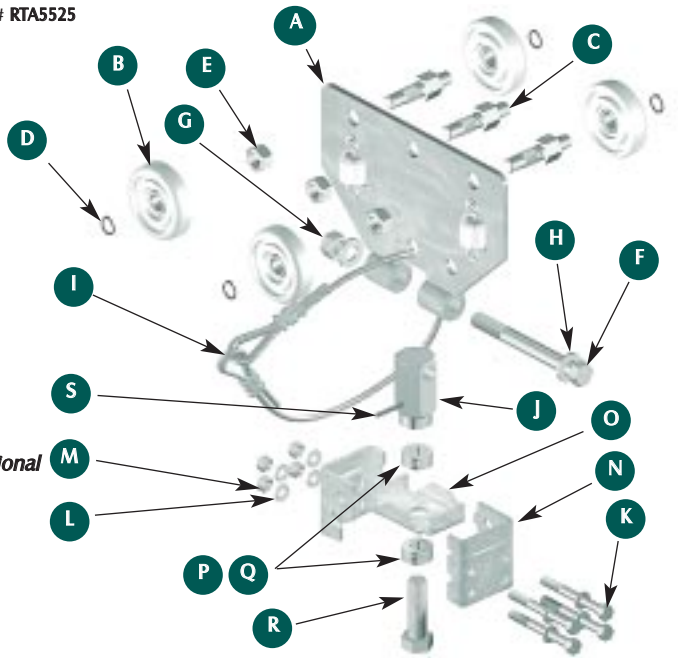


PART WEIGHT: 12.59 LBS. (5.71 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (4) Required - 5500 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5500 series load trolley - Part# **RTD4839**
D) (4) Required - snap ring for 5500 series trolley axle - Part# **SH66PA**
E) (3) Required - 3/4-16 rev. lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
H) (2) Required - FW, M16, N, S, STL., ZP
I) (1) Required - safety cable assembly for load trolleys - Part# **RWA4129**
J) (1) Required - end truck pivot - Part# **RED4168**
K) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
L) (8) Required - FW, 10 mm, N, S, stl., ZP
M) (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
N) (2) Required - mounting bracket - Part# **RHD5172**
O) (1) Required - hanger bracket - Part# **RHD5173**
P) (2) Required - thrust nut - Part# **NTA 1220**
Q) (4) Required - thrust washer - Part# **TRD 1220**
R) (1) Required - 3/4-10 x 2 1/2" HHCS
S) (1) Required - 3/16" x 1 1/2" roll pin

*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***



Recommendations: This end truck is intended for use on dual bridges only. it rolls inside a 5500 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a bearing and hex swivel for durability and long life. It Is used in conjunction with a bridge brace to help square the dual bridge and eliminate kick-up. Standard dual bridge centers are two feet. Dual bridges are assembled at the manufacturer's facility. Dual bridges over 15' should have two bridge braces. (See page 45 for more information on bridge brace installation.)

ASSEMBLY# RES5518

5500 SERIES STEEL RAIL DUAL TROLLEY END TRUCK FOR SINGLE BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(L)***, M10 x 1.5 rev. lock nuts ***(M)*** and 10mm flat washers ***(N)*** from the pair of mounting brackets ***(O)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

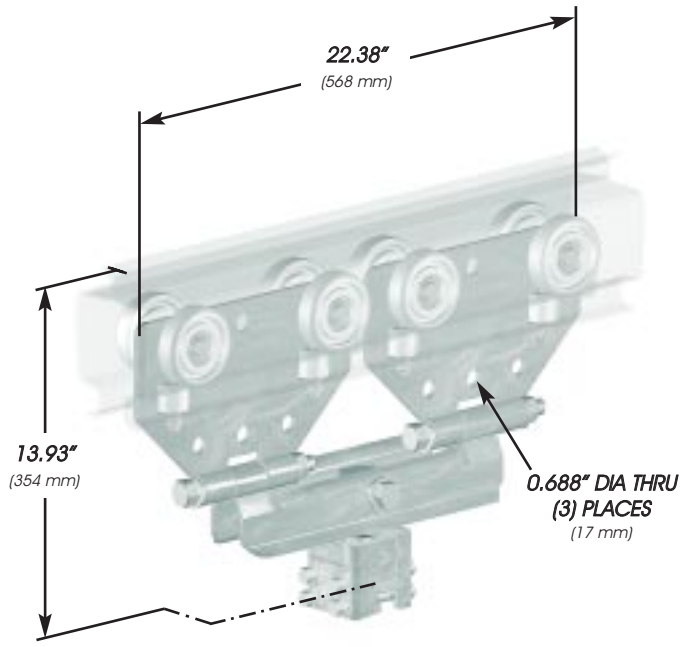
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M10 x 1.5 rev. lock nuts ***(M)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(O)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

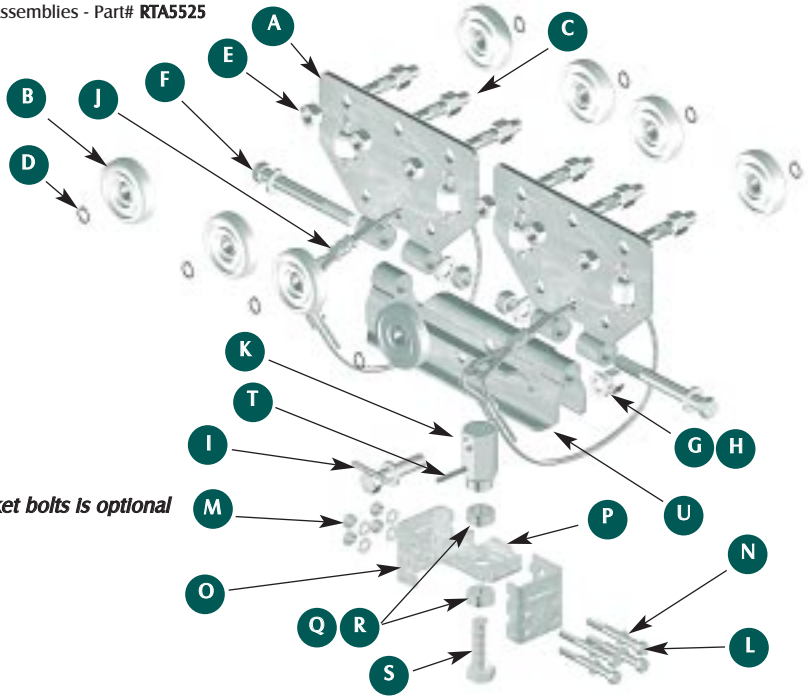
DIMENSIONAL INFORMATION



PART WEIGHT: 26.03 LBS. (11.81 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (2) Required - 5500 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5525**
B) (8) Required - 5500 series load trolley wheel - Part# **RTD5737**
C) (6) Required - axle for 5500 series load trolley - Part# **RTD4839**
D) (8) Required - snap ring for 5500 series trolley axle - Part# **SH66PA**
E) (6) Required - 3/4-16 rev. lock jam nut
F) (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (3) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
H) (6) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - anti-rotate bolt - Part# **RED4313**
J) (2) Required - safety cable assembly for load trolleys - Part# **RWA4129**
K) (1) Required - end truck pivot - Part# **RED4168**
L) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
M) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
N) (8) Required - FW, 10mm, N, S, stl., ZP
O) (2) Required - mounting bracket - Part# **RHD5172**
P) (1) Required - hanger bracket - Part# **RHD5173**
Q) (2) Required - thrust nut - Part# **NTA 1220**
R) (4) Required - thrust washer - Part# **TRD 1220**
S) (1) Required - 3/4-10 x 2 1/2" HHCS
T) (1) Required - 3/16" x 1 1/2" roll pin
U) (1) Required - dual trolley end truck bracket - Part# **REA4164**



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end tuck is intended for use on single or dual bridges. It rolls inside a 5500 series track and will suspend either 5300, 5500 or 5700 series steel rail. The truck features two load trolleys with an all steel trolley connector. On longer bridges, 15' and over, the dual trolley feature distributes the overall load across a wider stance, thus improving bridge travel performance over the single trolley model.

ASSEMBLY# RES5728

5700 SERIES STEEL RAIL SINGLE TROLLEY END TRUCK FOR SINGLE BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(M)***, M10 x 1.5 rev. lock nuts ***(N)*** and 10mm flat washers ***(O)*** from the pair of mounting brackets ***(P)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

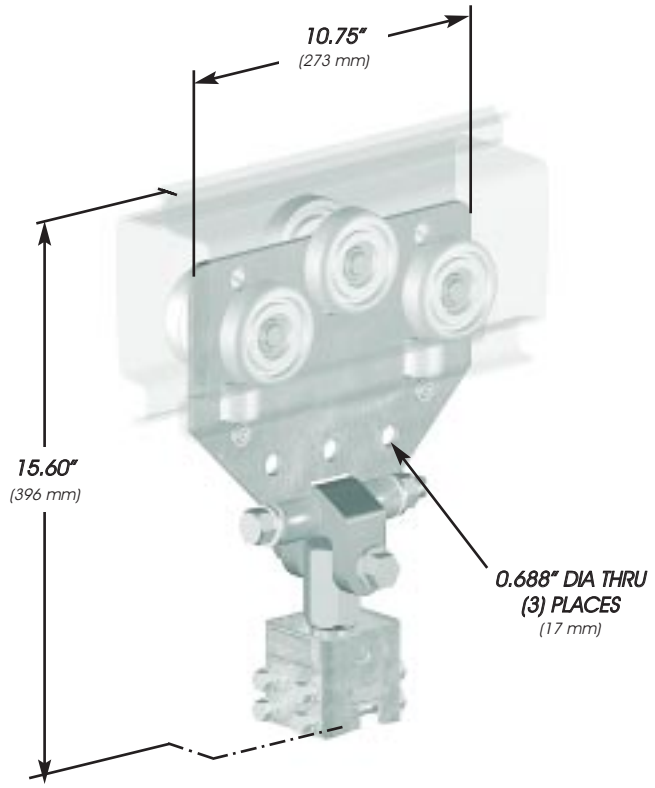
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M10 x 1.5 rev. lock nuts ***(N)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(P)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

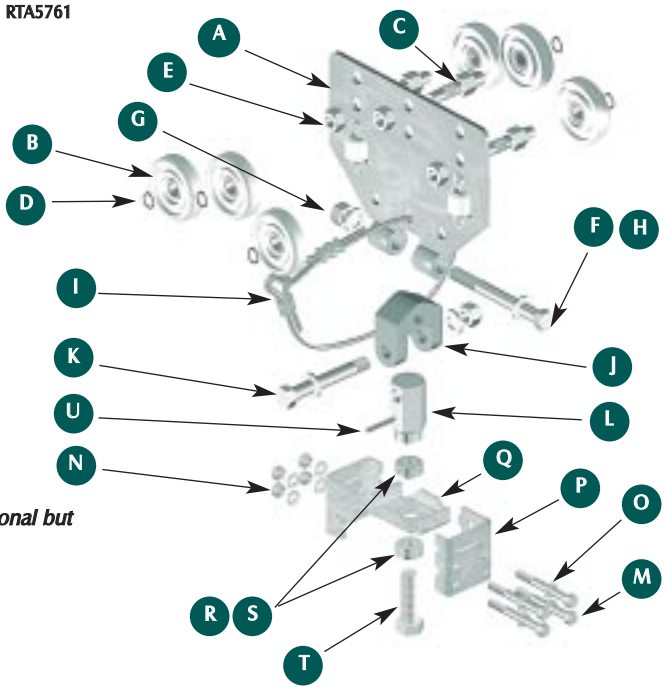
DIMENSIONAL INFORMATION



PART WEIGHT: 16.48 LBS. (7.47 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

- **A)** (1) Required - 5700 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5761**
- **B)** (6) Required - 5700 series load trolley wheel - Part# **RTD5737**
- **C)** (3) Required - axle for 5700 series load trolley - Part# **RTD4839**
- **D)** (6) Required - snap ring for 5700 series trolley axle - Part# **SH66PA**
- **E)** (3) Required - 3/4-16 rev. lock jam nut
- **F)** (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
- **G)** (1) Required - rev. lock nut M16 x 2, sty. 1, cls. 10, ZP
- **H)** (2) Required - FW, 16mm, N, S, stl., ZP
- **I)** (1) Required - safety cable assembly for load trolleys - Part# **RWA4129**
- **J)** (1) Required - bronze yoke - Part# **RTD4169**
- **K)** (1) Required - HHCS, M16 x 2 x 100mm, cls. 8.8, ZP
- **L)** (1) Required - end truck pivot - Part# **RED4168**
- **M)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **N)** (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
- **O)** (8) Required - FW, 10mm, N, S, stl., ZP
- **P)** (2) Required - mounting bracket - Part# **RHD5172**
- **Q)** (1) Required - hanger bracket - Part# **RHD5173**
- **R)** (2) Required - thrust nut - Part# **NTA 1220**
- **S)** (4) Required - thrust washer - Part# **TRD 1220**
- **T)** (1) Required - 3/4-10 x 2 1/2" HHCS
- **U)** (1) Required - 3/16" x 1 1/2" roll pin



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end truck is intended for use on single bridges only. It rolls in a 5700 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a universal connector that prevents binding. It allows a pivotal bridge action which permits easier bridge movement. Single bridges of this type are to be assembled on site by the end user.

ASSEMBLY# RES5717

5700 SERIES STEEL RAIL SINGLE TROLLEY END TRUCK FOR DUAL BRIDGES

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(K)***, M10 x 1.5 rev. lock nuts ***(L)*** and 10mm flat washers ***(M)*** from the pair of mounting brackets ***(N)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

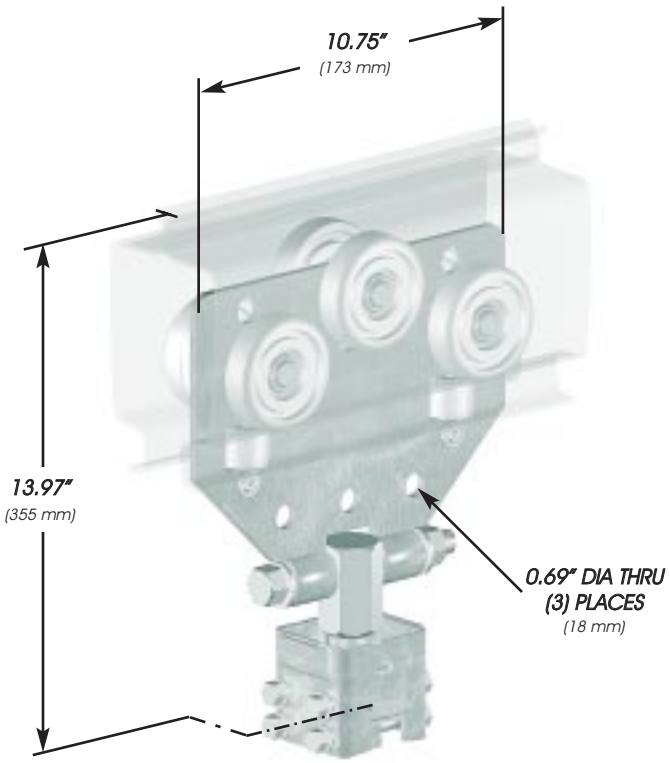
Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction. ***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M10 x 1.5 rev. lock nuts ***(L)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket* ***(N)*** *as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

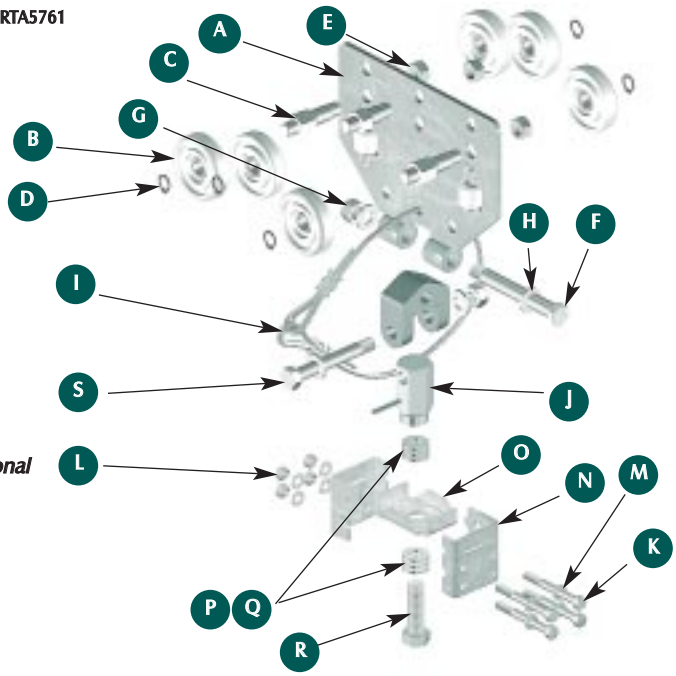
DIMENSIONAL INFORMATION



PART WEIGHT: 13.76 LBS. (6.25 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (1) Required - 5700 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5761**
B) (6) Required - 5700 series load trolley wheel - Part# **RTD5737**
C) (3) Required - axle for 5700 series load trolley - Part# **RTD4839**
D) (6) Required - snap ring for 5700 series trolley axle - Part# **SH66PA**
E) (3) Required - 3/4-16 rev. lock jam nut
F) (1) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (1) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
H) (2) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - safety cable assembly for load trolleys - Part# **RWA4129**
J) (1) Required - end truck pivot - Part# **RED4168**
K) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
L) (4) Required - rev. lock nut, syl 1, M10 x 1.5,cls. 10, ZP
M) (8) Required - FW, 10mm, N, S, stl., ZP
N) (2) Required - mounting bracket - Part# **RHD5172**
O) (1) Required - hanger bracket - Part# **RHD5173**
P) (2) Required - thrust nut - Part# **NTA 1220**
Q) (4) Required - thrust washer - Part# **TRC 1220**
R) (1) Required - 3/4-10 x 2 1/2" HHCS
S) (1) Required - 3/16" x 1 1/2" roll pin



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end truck is intended for use on dual bridges only. It rolls inside a 5700 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a bearing and hex swivel for durability and long life. It is used in conjunction with a bridge brace to help square the dual bridge and eliminate kick-up. Standard dual bridge centers are two feet. Dual bridges are assembled at the manufacturer's facility. Dual bridges over 15' should have two bridge braces. (See page 45 for more information on bridge brace installation.)

ASSEMBLY# RES5718

5700 SERIES STEEL RAIL DUAL TROLLEY END TRUCK

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the M10 x 1.5 x 90 HHCS ***(L)***, M10 x 1.5 rev. lock nuts ***(M)*** and 10mm flat washers ***(N)*** from the pair of mounting brackets ***(O)***. Position the brackets so that the top flange of the rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

Remove the two end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).***

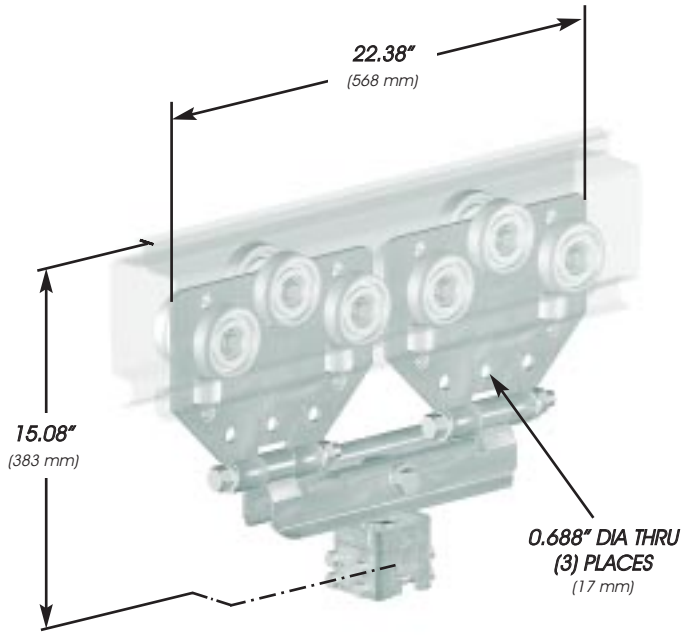
Loosen the M10 x 1.5 rev. lock nuts ***(M)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

OPTIONAL: *Use the end truck mounting bracket **(O)** as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *The no-drill mounting brackets are sufficient to secure the end truck to the rail. However, in situations where extreme yarding is applied or the load is near capacity, the rail should be drilled and the two remaining crossbolts should be installed. Local safety guidelines may require end truck safety bolts be installed.*

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

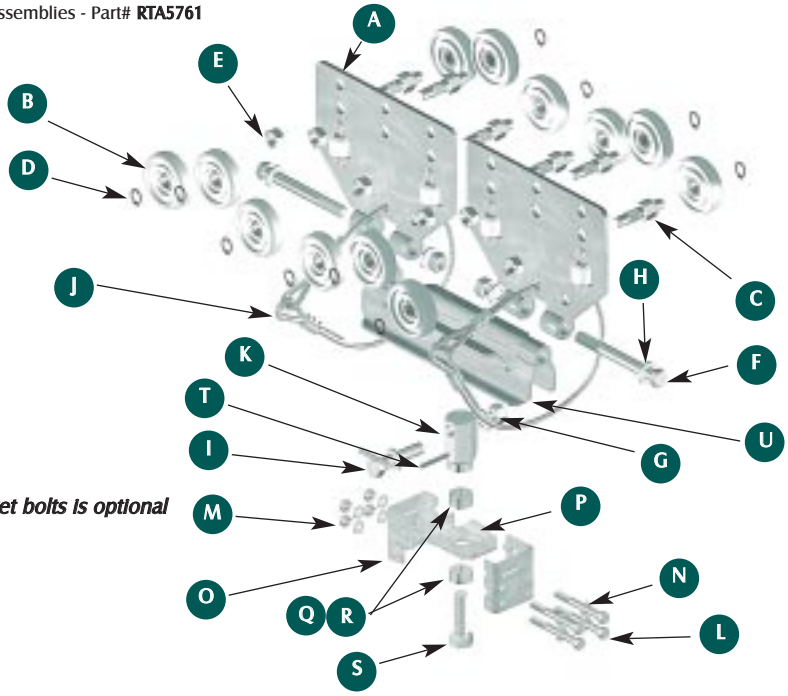
DIMENSIONAL INFORMATION



PART WEIGHT: 28.38 LBS. (12.87 KG)
MAXIMUM LOAD BEARING CAPACITY: 2000 LBS. (908 KG)

BILL OF MATERIALS

A) (2) Required - 5700 series load trolley plate with slugs and guide roller assemblies - Part# **RTA5761**
B) (12) Required - 5700 series load trolley wheel - Part# **RTD5737**
C) (6) Required - axle for 5700 series load trolley - Part# **RTD4839**
D) (12) Required - snap ring for 5700 series trolley axle - Part# **SH66PA**
E) (6) Required - 3/4-16 rev. lock jam nut
F) (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
G) (3) Required - rev. lock nut M16 x 2, sty. 1, cls. 10, ZP
H) (6) Required - FW, 16mm, N, S, stl., ZP
I) (1) Required - anti-rotate bolt - Part# **RED4313**
J) (2) Required - safety cable assembly for load trolleys - Part# **RWA4129**
K) (1) Required - end truck pivot - Part# **RED4168**
L) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
M) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
N) (8) Required - FW, 10mm, N, S, stl., ZP
O) (2) Required - mounting bracket - Part# **RHD5172**
P) (1) Required - hanger bracket - Part# **RHD5173**
Q) (2) Required - thrust nut - Part# **NTA 1220**
R) (4) Required - thrust washer - Part# **TRD 1220**
S) (1) Required - 3/4-10 x 2 1/2" HHCS
T) (1) Required - 3/16" x 1 1/2" roll pin
U) (1) Required - dual trolley end truck bracket - Part# **REA4164**



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries***

Recommendations: This end tuck is intended for use on single or dual bridges. It rolls inside a 5700 series track and will suspend either 5300, 5500 or 5700 series steel rail. The truck features two load trolleys with an all steel trolley connector. On longer bridges, 15' and over, the dual trolley feature distributes the overall load across a wider stance, thus improving bridge travel performance over the single trolley model.

ASSEMBLY# RES6321

5300 SERIES CONVENTIONAL STEEL RAIL SINGLE TROLLEY END TRUCK

INSTALLATION INSTRUCTIONS

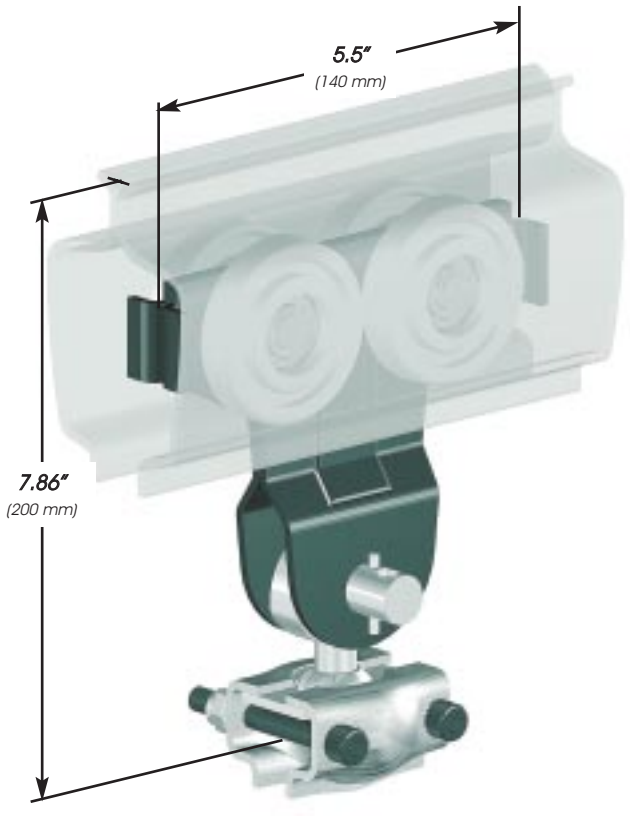
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the two ***(2)*** M6-1 x 40 mm socket head cap screws ***(N)*** & M6-1 nylock nuts ***(O)*** from the hanger brackets ***(I)***. Position the brackets so that the top flange of the rail is between them. Replace the SHHCS and nuts in the two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

Remove the end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.).*** Loosen the M6-1 nylock nuts ***(O)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



PART WEIGHT: 2.9 LBS. (74 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

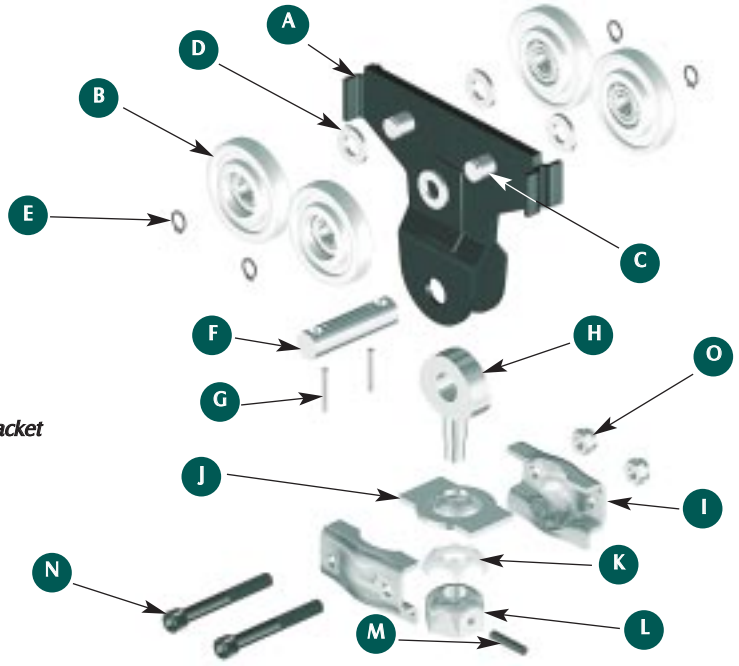
BILL OF MATERIALS

A) (1) Required - trolley plate - Part# **RTD6031**
B) (4) Required - load trolley wheel - Part# **RTD6027**
C) (2) Required - axle - Part# **RTD6032**
D) (4) Required - axle washer - Part# **RTD6035**
E) (4) Required - snap ring - Part# **SH 39 PA**
F) (1) Required - pivot pin - Part# **RTD6033**
G) (2) Required - 3/16 x 1" roll pin

Crane Eye Assembly - Part # REA6010:

H) (1) Required - eye hook - Part# **RED6020**
I) (2) Required - hanger bracket - Part# **RHD6018**
J) (1) Required - coined bracket - Part# **RHD6019**
K) (1) Required - wear plate - Part# **RHD6354**
L) (1) Required - eye nut - Part# **RED6028**
M) (1) Required - 3/16 x 7/8" roll pin
N) (2) Required - SHCS,M6-1 x 40 mm
O) (2) Required - M6-1 nylock nut

*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***



Recommendations: This end truck is intended for use on dual bridges only. It rolls inside a 5700 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a bearing and hex swivel for durability and long life. It is used in conjunction with a bridge brace to help square the dual bridge and eliminate kick-up. Standard dual bridge centers are two feet. Dual bridges are assembled at the manufacturer's facility. Dual bridges over 15' should have two bridge braces. (See page 45 for more information on bridge brace installation.)

ASSEMBLY RES6521

5500 & 5700 SERIES CONVENTIONAL STEEL RAIL SINGLE TROLLEY END TRUCK

INSTALLATION INSTRUCTIONS

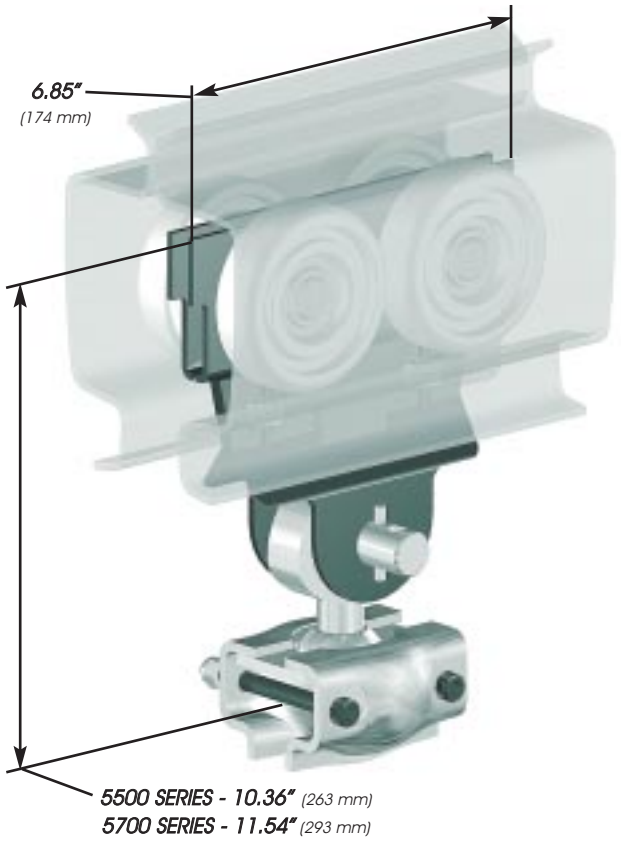
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the two ***(2)*** M8-1.25 x 75 mm socket head cap screws ***(O)*** & M8-1.25 nylock nuts ***(P)*** from the hanger brackets ***(J)***. Position the brackets so that the top flange of the rail is between them. Replace the SHCS and nuts in the two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

Remove the end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M6-1 nylock nuts ***(P)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



PART WEIGHT: 6.5 LBS. (165 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

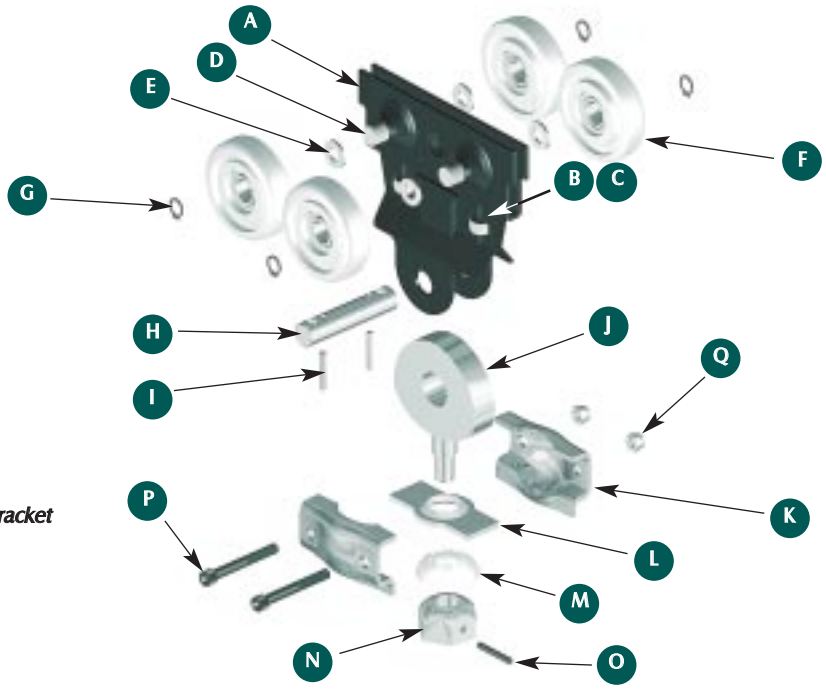
BILL OF MATERIALS

A) (1) Required - trolley plate - Part# **RTD6531**
B) (2) Required - guide roller - Part# **RTD6534**
C) (2) Required - 3/16 x 1 3/8" guide roller roll pin
D) (2) Required - axle - Part# **RTD6532**
E) (4) Required - axle washer - Part# **RTD6535**
F) (4) Required - load trolley wheel - Part# **RTD6737**
G) (4) Required - snap ring - Part# **SH 66 PA**
H) (1) Required - pivot pin - Part# **RTD6533**
I) (2) Required - 3/16 x 1 3/8" roll pin

Crane Eye Assembly - Part # REA6514:

J) (1) Required - eye hook - Part# **RED6527**
K) (2) Required - hanger bracket - Part# **RHD6525**
L) (1) Required - coined bracket - Part# **RHD6526**
M) (1) Required - wear plate - Part# **RHD6554**
N) (1) Required - eye nut - Part# **RED6528**
O) (1) Required - 3/16 x 1 3/16" roll pin
P) (2) Required - SHCS,M8-1.25 x 75mm
Q) (2) Required - M8-1.25 nylock nut

*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***



Recommendations: This end tuck is intended for use on single or dual bridges. It rolls inside a 5700 series track and will suspend either 5300, 5500 or 5700 series steel rail. The truck features two load trolleys with an all steel trolley connector. On longer bridges, 15' and over, the dual trolley feature distributes the overall load across a wider stance, thus improving bridge travel performance over the single trolley model.

ASSEMBLY# RES6322

5300 SERIES CONVENTIONAL STEEL RAIL DUAL TROLLEY END TRUCK

INSTALLATION INSTRUCTIONS

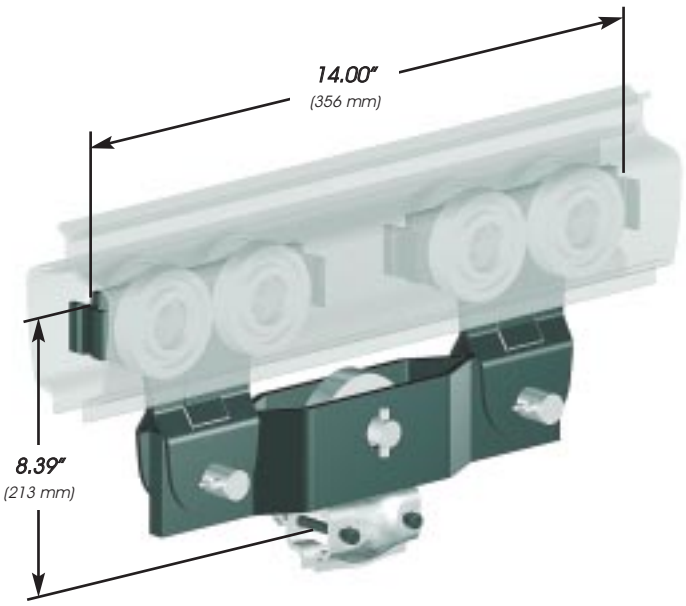
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the two ***(2)*** M6-1 x 40 mm socket head cap screws ***(O)*** & M6-1 nylock nuts ***(P)*** from the hanger brackets ***(J)***. Position the brackets so that the top flange of the rail is between them. Replace the SHHCS and nuts in the two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

Remove the end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 for end cap with shock installation.).*** Loosen the M6-1 nylock nuts ***(P)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



PART WEIGHT: 6.1 LBS. (155 KG)
MAXIMUM LOAD BEARING CAPACITY: 500 LBS. (227 KG)

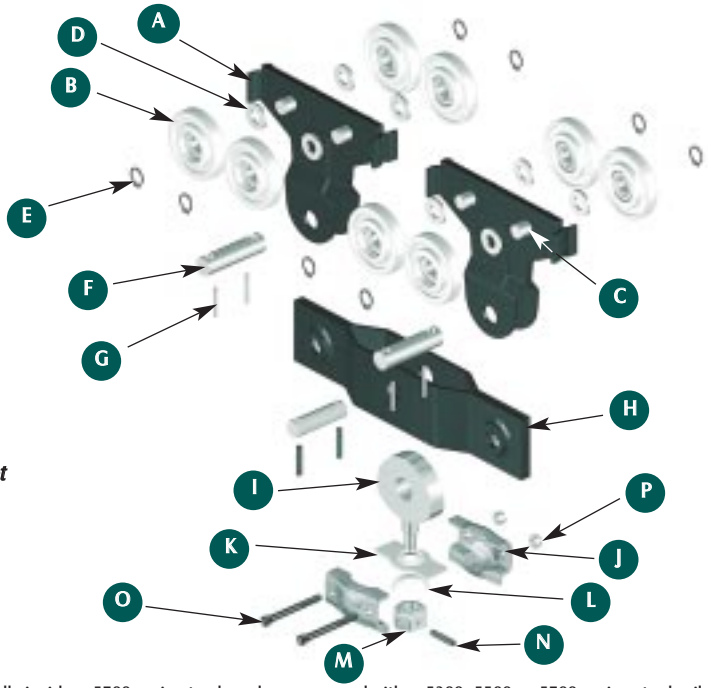
BILL OF MATERIALS

A) (2) Required - trolley plate - Part# **RTD6031**
B) (8) Required - load trolley wheel - Part# **RTD6027**
C) (4) Required - axle - Part# **RTD6032**
D) (8) Required - axle washer - Part# **RTD6035**
E) (8) Required - snap ring - Part# **SH 39 PA**
F) (3) Required - pivot pin - Part# **RTD6033**
G) (6) Required - 3/16 x 1" roll pin
H) (1) Required - dual trolley bracket - Part# **RED6011**

Crane Eye Assembly - Part # REA6010:

I) (1) Required - eye hook - Part# **RED6020**
J) (2) Required - hanger bracket - Part# **RHD6018**
K) (1) Required - coined bracket - Part# **RHD6019**
L) (1) Required - wear plate - Part# **RHD6354**
M) (1) Required - eye nut - Part# **RED6028**
N) (1) Required - 3/16 x 7/8" roll pin
O) (2) Required - SHCS,M6-1 x 40 mm
P) (2) Required - M6-1 nylock nut

*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***



Recommendations: This end truck is intended for use on dual bridges only. It rolls inside a 5700 series track and can suspend either 5300, 5500 or 5700 series steel rail. The truck features a bearing and hex swivel for durability and long life. It is used in conjunction with a bridge brace to help square the dual bridge and eliminate kick-up. Standard dual bridge centers are two feet. Dual bridges are assembled at the manufacturer's facility. Dual bridges over 15' should have two bridge braces. (See page 45 for more information on bridge brace installation.)

ASSEMBLY RES6522

5500 & 5700 SERIES CONVENTIONAL STEEL RAIL DUAL TROLLEY END TRUCK

INSTALLATION INSTRUCTIONS

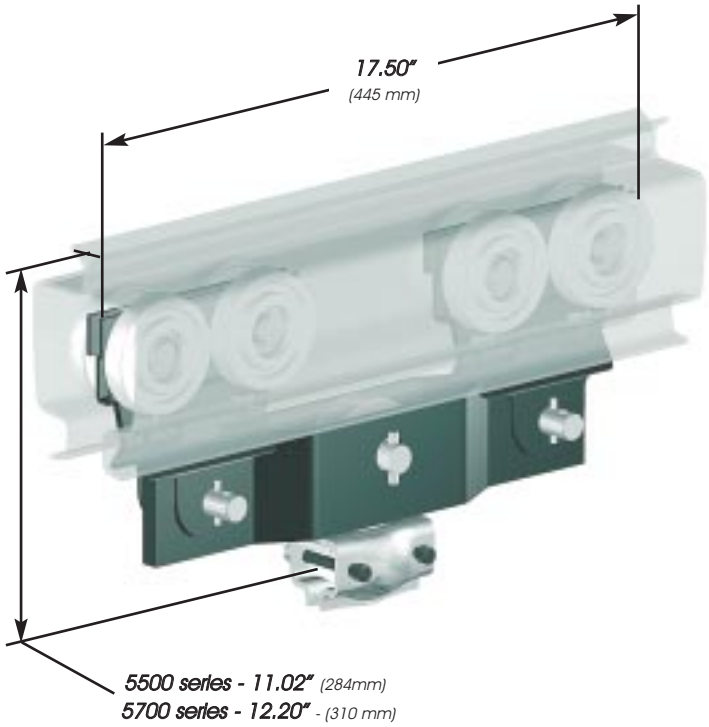
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the two ***(2)*** M8-1.25 x 75 mm socket head cap screws ***(P)*** & M8-1.25 nylock nuts ***(Q)*** from the hanger brackets ***(K)***. Position the brackets so that the top flange of the rail is between them. Replace the SHCS and nuts in the two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

Remove the end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 50 for end cap with shock installation.).*** Loosen the M8-1.25 nylock nuts ***(Q)*** and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



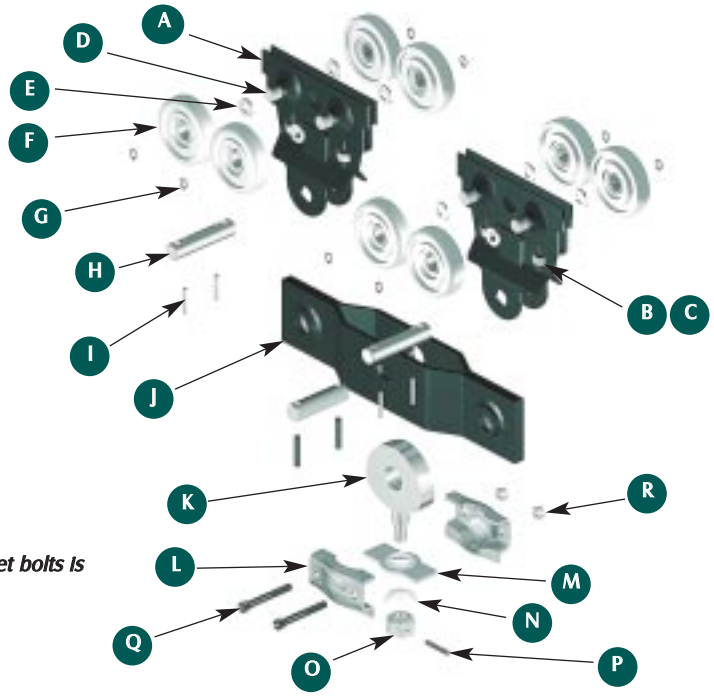
PART WEIGHT: 13.1 LBS. (333 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (2) Required - trolley plate - Part# **RTD6531**
B) (4) Required - guide roller - Part# **RTD6534**
C) (4) Required - 3/16 x 1 3/8" guide roller roll pin
D) (4) Required - axle - Part# **RTD6532**
E) (8) Required - axle washer - Part# **RTD6535**
F) (8) Required - load trolley wheel - Part# **RTD6737**
G) (8) Required - snap ring - Part# **SH 66 PA**
H) (3) Required - pivot pin - Part# **RTD6533**
I) (6) Required - 3/16 x 1 3/8" roll pin
J) (1) Required - dual trolley bracket - Part# **RED6511**

Crane Eye Assembly - Part # REA6514:

K) (1) Required - eye hook - Part# **RED6527**
L) (2) Required - hanger bracket - Part# **RHD6525**
M) (1) Required - coined bracket - Part# **RHD6526**
N) (1) Required - wear plate - Part# **RHD6554**
O) (1) Required - eye nut - Part# **RED6528**
P) (1) Required - 3/16 x 1 3/16" roll pin
Q) (2) Required - SHCS,M8-1.25 x 75mm
R) (2) Required - M8-1.25 nylock nut



*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***

Recommendations: This end tuck is intended for use on single or dual bridges. It rolls inside a 5700 series track and will suspend either 5300, 5500 or 5700 series steel rail. The truck features two load trolleys with an all steel trolley connector. On longer bridges, 15' and over, the dual trolley feature distributes the overall load across a wider stance, thus improving bridge travel performance over the single trolley model.

ASSEMBLY# RES5028

SAME PLANE END TRUCK FOR 5300 SERIES STEEL RAIL (Bridges up to 10 Ft.)

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the four (4) M10 x 1.5 x 90 HHCS ***(Q)***, (4) M10 x 1.5 rev. lock nuts ***(R)*** and the (8) 10mm flat washers ***(S)*** from the three hanger brackets ***(REA5292)***. Position the two halves and same plane tap plate ***(U)*** of each bracket so that the top flange of the rail is between them. Reinstall two top M10 bolts, nuts, and washers and tighten until snug.

Place same plane end truck bracket ***(I)*** over the same plate tap plate studs ***(U)***. Position the hanger bracket assemblies to line up with the same plane end truck bracket through holes. Ensure same plane bracket is flush to the end of the rail. Remove the same plane bracket and tighten the top bolts on the three hanger brackets. Drill six (6) 3/8" clearance holes through the rail using the two lower hanger bracket holes as templates. Secure the brackets to the rail using the remaining M10 bolts,nuts, and washers ***(Q,R,S,)***.

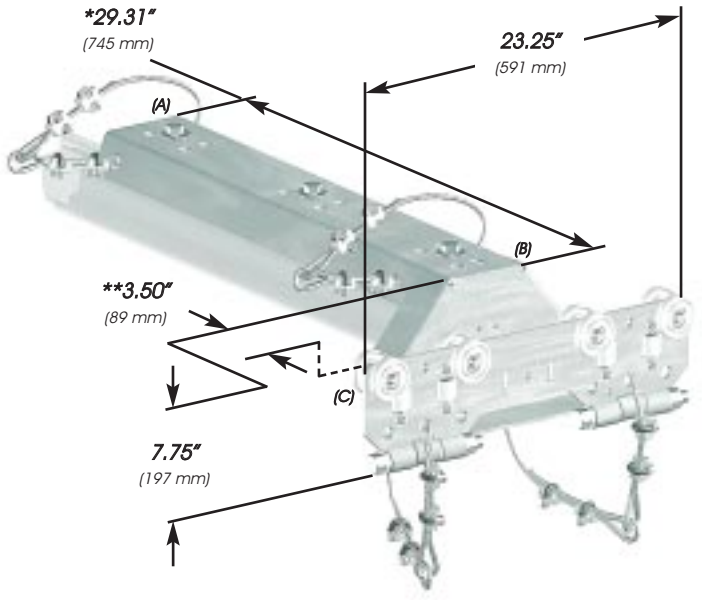
Replace the same plane bracket ***(I)*** into position over the hanger bracket assemblies. Install the three (3) M20 flat washers ***(V)*** and three (3) M20 reverse lock nuts ***(W)*** on the studs and torque to 45 ft./lbs. (61 NM). Install two (2) M8 socket head cap screws ***(N)*** and two (2) M8 flat washers ***(O)*** through the slots on the end of the same plane bracket and into the rail bosses. Secure with two (2) M8 reverse lock nuts ***(P)***.

Safety cable the same plane bracket to the rail using the supplied safety cable kits ***(X)***. The cable should thread through the the newly drilled rail holes that line up with the holes in the side of the same plane bracket.

NOTE: Verify that the trolleys are safety cabled to the same plane bracket ***(Y)***. If they are not install as shown.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



**Measured from end of plate to (A) to inside of plate (end of rail) (B).*
***Measured from inside of plate (end of rail) (B) to center of trolley (C)*

PART WEIGHT: 43.71 LBS. (19.83 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

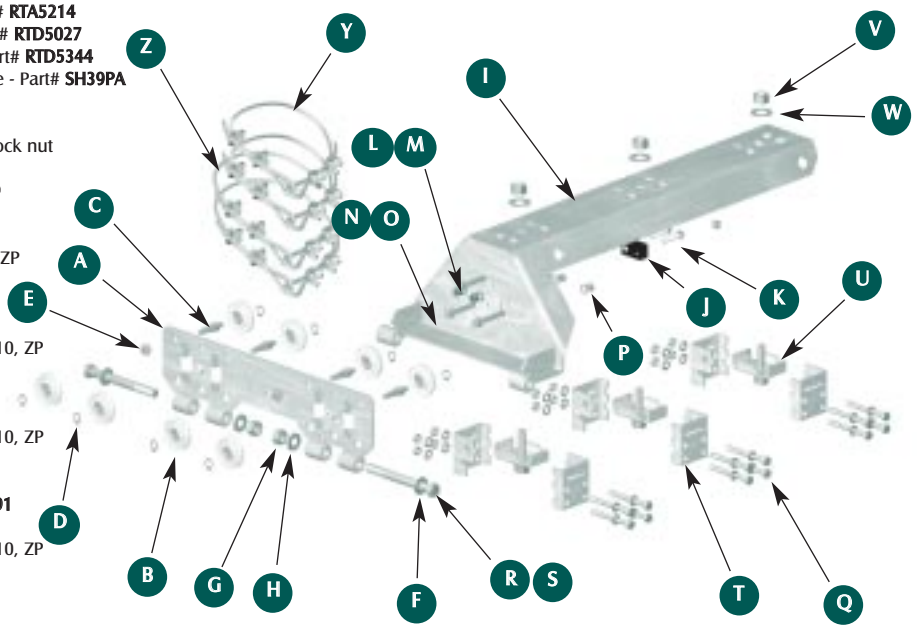
(1) Required - same plane trolley - Part# RTA5394:

- **A)** (1) Required - trolley plate w/rollers & rivets - Part# **RTA5214**
- **B)** (8) Required - 5300 series load trolley wheel - Part# **RTD5027**
- **C)** (4) Required - axle for 5300 series load trolley - Part# **RTD5344**
- **D)** (8) Required - snap ring for 5300 series trolley axle - Part# **SH39PA**
- **E)** (4) Required - 7/16-20 reverse lock jam nut
- **F)** (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
- **G)** (2) Required - M16 x 2, sty. 1, cls. 10, ZP reverse lock nut
- **H)** (4) Required - FW, 16mm, N, S, stl., ZP
- **I)** (1) Required - same plane bracket - Part# **RED5059**
- **J)** (1) Required - stilson bumper - Part# **RB 1175**
- **K)** (2) Required - SHCS, M6 x 1 x 25
- **L)** (2) Required - rev. lock nut, sty. 1, M6 x 1, cls. 10, ZP
- **M)** (2) Required - FW, 6mm, N, S, stl., ZP
- **N)** (2) Required - SHCS, M8 x 1.25 X 50
- **O)** (2) Required - FW, 8mm, N, S, stl., ZP
- **P)** (2) Required - rev. lock nut, sty. 1, M8 x 1.25, cls. 10, ZP

(3) Required - same plane hanger bracket - Part# REA5292:

- **Q)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **R)** (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
- **S)** (8) Required - FW, 10mm, N, S, stl., ZP
- **T)** (2) Required - mounting bracket - Part# **RHD5173**
- **U)** (1) Required - same plane tap plate - Part# **RED5291**
- **V)** (1) Required - FW, M20, N, S, stl., ZP
- **W)** (1) Required - rev. lock nut, sty. 1, M20 x 2.5, cls. 10, ZP

- **X)** (2) Required - endtruck safety cable kit - Part# **RWA4133**
- **Y)** (2) Required - trolley safety cable - Part# **RWA4129**



Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5300 series track and will suspend 5300 series steel rail. The truck features a specialized eight wheel trolley plate to increase stability. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RES5295

SAME PLANE END TRUCK FOR 5300 SERIES STEEL RAIL (Bridges over 10 Ft.)

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the four (4) M10 x 1.5 x 90 HHCS ***(Y)***, (4) M10 x 1.5 rev. lock nuts ***(Z)*** and the (8) M10 flat washers ***(AA)*** from the three hanger brackets ***(REA5292)***. Position the two mounting bracket halves ***(BB)*** and same plane tap plate ***(CC)*** of each bracket so that the top flange of the rail is between them. Reinstall two top M10 bolts, nuts, and washers and tighten until snug.

Place same plane end truck bracket ***(I)*** over the hanger bracket tap plate studs ***(CC)***. Position the hanger bracket assemblies to line up with the same plane end truck bracket through holes. Ensure same plane bracket is flush to the end of the rail. Remove the same plane bracket and tighten the top bolts on the three hanger brackets. Drill six (6) 3/8" clearance holes through the rail using the two lower hanger bracket holes as templates. Secure the brackets to the rail using the remaining M10 bolts,nuts, and washers ***(Q,R,S,).***

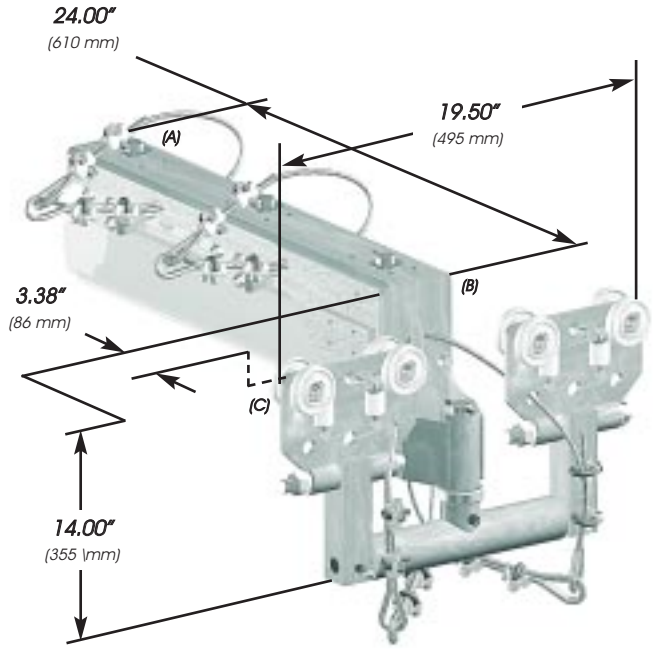
Replace the same plane bracket ***(I)*** into position over the hanger bracket assemblies. Install the three (3) M20 flat washers ***(V)*** and three (3) M20 reverse lock nuts ***(W)*** on the studs and torque to 45 ft./lbs. (61 NM). Install two (2) M8 socket head cap screws ***(N)*** and two (2) M8 flat washers ***(O)*** through the slots on the end of the same plane bracket and into the rail bosses. Secure with two (2) M8 reverse lock nuts ***(P)***.

Safety cable the same plane bracket to the rail using the supplied safety cable kits ***(X).*** The cable should thread through the the newly drilled rail holes that line up with the holes in the side of the same plane bracket.

NOTE: Verify that the trolleys are safety cabled to the same plane bracket ***(Y)***. If they are not install as shown.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



**Measured from end of plate to (A) to inside of plate (end of rail) (B).*
***Measured from inside of plate (end of rail) (B) to center of trolley (C)*

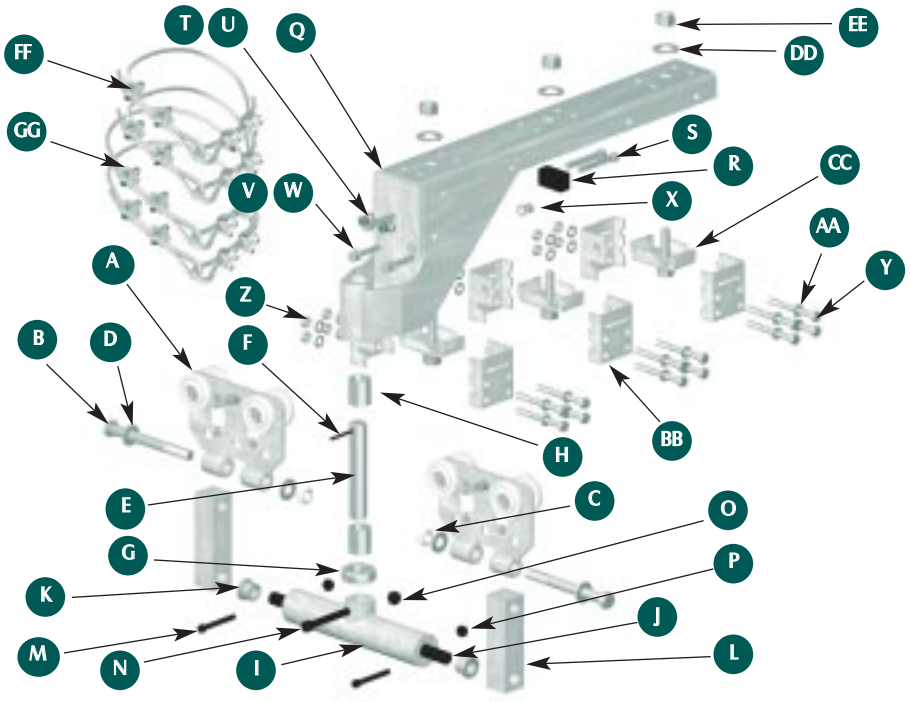
PART WEIGHT: 45.06 LBS. (20.44 KG)
MAXIMUM LOAD BEARING CAPACITY: 1000 LBS. (454 KG)

BILL OF MATERIALS

A) (2) Required - load trolley - Part# **RTA5003**
B) (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
C) (2) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
D) (4) Required - FW, 16mm, N, S, stl., ZP
E) (1) Required - pivot shaft - Part# **RED4539**
F) (1) Required - 3-16 x 2" roll pin
G) (1) Required - INA thrust bearing - Part# **D9**
H) (2) Required - Oilite sleeve bushing - Part# **P102-12**
I) (1) Required - pivot bar - Part# **RED4537**
J) (1) Required - pivot shaft - Part# **RED4540**
K) (2) Required - Oilite flange bushing - Part# **FL77-5**
L) (2) Required - pivot block - Part# **RED4538**
M) (2) Required - SHCS, M6 x 1 x 50
N) (1) Required - SHCS, M8 x 1.25 x 60
O) (1) Required - M8 x 1.25 nylock nut
P) (2) Required - M6 x 1 nylock nut
Q) (1) Required - same plane bracket - Part# **RED5296**
R) (1) Required - Stilson bumper - Part# **RB 1175**
S) (2) Required - SHCS, M6 x 1 x 25
T) (2) Required - rev. lock nut, sty. 1, M6 x 1, cls. 10, ZP
U) (2) Required - FW, 6mm, N, S, stl., ZP
V) (3) Required - SHCS, M8 x 1.25 x 50
W) (3) Required - FW, 8mm, N, S, stl., ZP
X) (3) Required - rev. lock nut, sty. 1, M8 x 1.25, cls. 10, ZP

(3) Required - same plane hanger bracket - Part# REA5292:
Y) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
Z) (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
AA) (8) Required - FW, 10mm, N, S, stl., ZP
BB) (2) Required - mounting bracket - Part# **RHD5173**
CC) (1) Required - same plane tap plate - Part# **RED5291**
DD) (1) Required - FW, M20, N, S, stl., ZP
EE) (1) Required - rev. lock nut, sty. 1, M20 x 2.5, cls. 10, ZP

FF) (2) Required - endtruck safety cable kit - Part# **RWA4133**
GG) (2) Required - trolley safety cable - Part# **RWA4129**



Recommendations: This end tuck is intended for use on single or dual bridges. It rolls inside a 5300 series track and will suspend 5300 series steel rail. This end truck is to be used for bridges over 10' to eliminate binding common to longer bridges. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RES5528

SAME PLANE END TRUCK FOR 5500 SERIES STEEL RAIL (Bridges Up To 10 Ft.)

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the four (4) M10 x 1.5 x 90 HHCS ***(Q)***, (4) M10 x 1.5 rev. lock nuts ***(R)*** and the (8) 10mm flat washers ***(S)*** from the three hanger brackets ***(REA5292)***. Position the two mounting brackets ***(T)*** and same plane tap plate ***(U)*** of each bracket so that the top flange of the rail is between them. Reinstall two top M10 bolts, nuts, and washers and tighten until snug.

Place same plane bracket ***(I)*** over the hanger bracket tap plate studs ***(U)***. Position the hanger bracket assemblies to line up with the same plane end truck bracket through holes. Ensure same plane bracket is flush to the end of the rail. Remove the same plane bracket and tighten the top bolts on the three hanger brackets. Drill six (6) 3/8" clearance holes through the rail using the two lower hanger bracket holes as templates. Secure the brackets to the rail using the remaining M10 bolts,nuts, and washers ***(Q,R,S,)***.

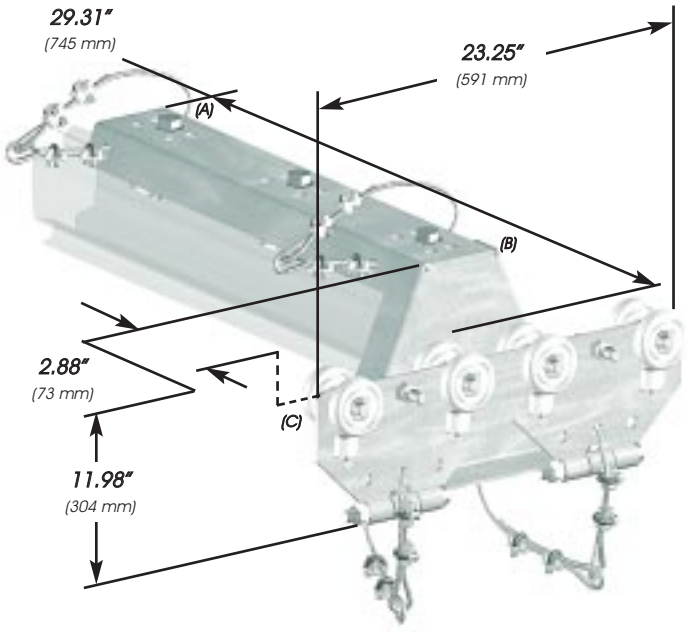
Move the same plane bracket ***(I)*** into position over the hanger bracket assemblies. Install the three (3) M20 flat washers ***(W)*** and three (3) M20 reverse lock nuts ***(X)*** on the studs and torque to 45 ft./lbs. (61 NM). Install three (3) M10 socket head cap screws ***(N)*** and three (3) M10 flat washers ***(O)*** through the slots on the end of the same plane bracket and into the rail bosses. Secure with two (2) M10 reverse lock nuts ***(P)***.

Safety cable the same plane bracket to the rail using the supplied safety cable kits ***(X)***. The cable should thread through the the newly drilled rail holes that line up with the holes in the side of the same plane bracket.

NOTE: Verify that the trolleys are safety cabled to the same plane bracket ***(Y)***. If they are not install as shown.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



**Measured from end of plate to (A) to inside of plate (end of rail) (B).*
***Measured from inside of plate (end of rail) (B) to center of trolley (C)*

PART WEIGHT: 47.23 LBS. (21.42 KG)
MAXIMUM LOAD BEARING CAPACITY: 2000 LBS. (907 KG)

BILL OF MATERIALS

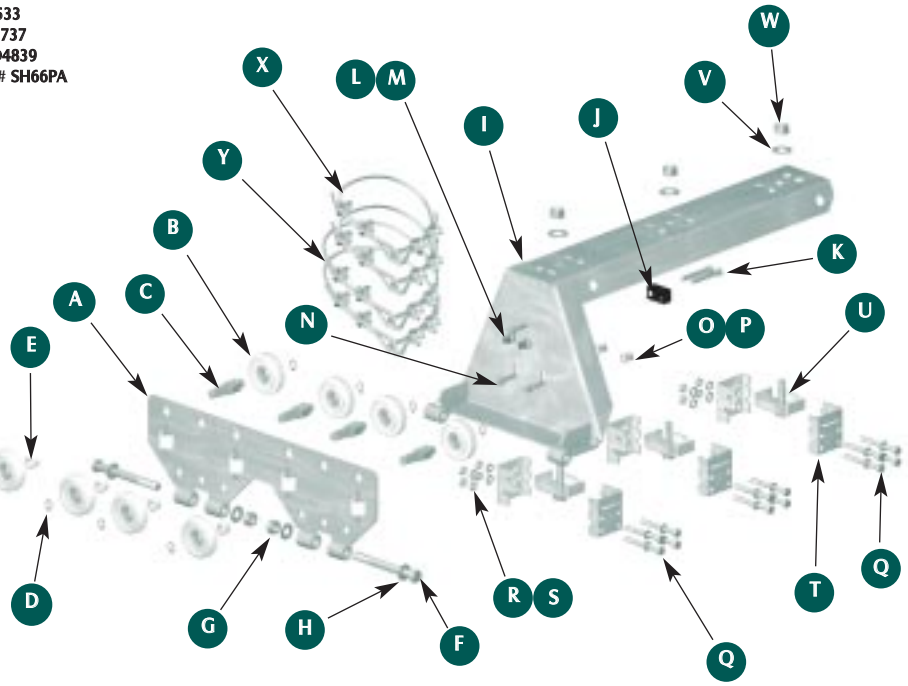
(1) Required - same plane trolley - Part# RTA5534:

- **A)** (1) Required - trolley plate w/rollers & rivets - Part# **RTA5533**
- **B)** (8) Required - 5500 series load trolley wheel - Part# **RTD5737**
- **C)** (4) Required - axle for 5500 series load trolley - Part# **RTD4839**
- **D)** (8) Required - snap ring for 5500 series trolley axle - Part# **SH66PA**
- **E)** (4) Required - 3/4-16 rev. lock jam nut
- **F)** (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
- **G)** (2) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
- **H)** (4) Required - FW, 16mm, N, S, stl., ZP
- **I)** (1) Required - same plane bracket - Part# **RED5059**
- **J)** (1) Required - stilson bumper - Part# **RB 1175**
- **K)** (2) Required - SHCS, M6 x 1 x 25
- **L)** (2) Required - rev. lock nut, sty. 1, M6 x 1, cls. 10, ZP
- **M)** (2) Required - FW, 6mm, N, S, stl., ZP
- **N)** (3) Required - SHCS, M10 x 1.5 X 80
- **O)** (3) Required - FW, 10mm, N, S, stl., ZP
- **P)** (3) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP

(3) Required - same plane hanger bracket - Part# REA5292:

- **Q)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **R)** (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
- **S)** (8) Required - FW, 10mm, N, S, stl., ZP
- **T)** (2) Required - mounting bracket - Part# **RHD5173**
- **U)** (1) Required - same plane tap plate - Part# **RED5291**
- **V)** (1) Required - FW, M20, N, S, stl., ZP
- **W)** (1) Required - rev. lock nut, sty. 1, M20 x 2.5, cls. 10, ZP

X) (2) Required - endtruck safety cable kit - Part# **RWA4133**
Y) (2) Required - trolley safety cable - Part# **RWA4129**



Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5500 series track and will suspend 5500 series steel rail. The truck features a specialized eight wheel trolley plate to increase stability. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RES5535

SAME PLANE END TRUCK FOR 5500 SERIES STEEL RAIL (Bridges over 10 Ft.)

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the four (4) M10 x 1.5 x 90 HHCS ***(Y)***, (4) M10 x 1.5 rev. lock nuts ***(Z)*** and the (8) M10 flat washers ***(AA)*** from the three hanger brackets ***(REA5292)***. Position the two mounting bracket halves ***(BB)*** and same plane tap plate ***(CC)*** of each bracket so that the top flange of the rail is between them. Reinstall two top M10 bolts, nuts, and washers and tighten until snug.

Place same plane end truck bracket ***(Q)*** over the hanger bracket tap plate studs ***(CC)***. Position the hanger bracket assemblies to line up with the same plane end truck bracket through holes. Ensure same plane bracket is flush to the end of the rail. Remove the same plane bracket and tighten the top bolts on the three hanger brackets. Drill six (6) 3/8" clearance holes through the rail using the two lower hanger bracket holes as templates. Secure the brackets to the rail using the remaining M10 bolts,nuts, and washers ***(Y,Z,AA)***.

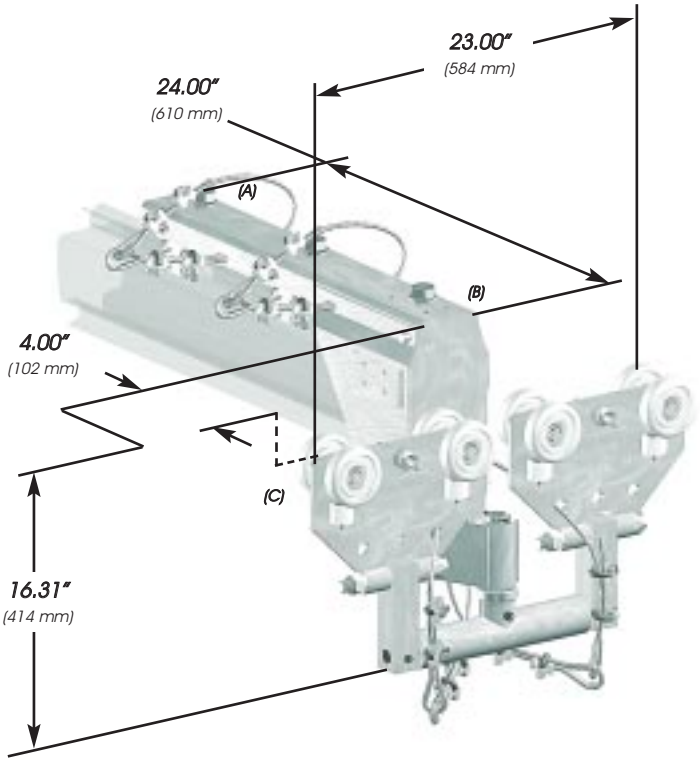
Move the same plane bracket ***(Q)*** into position over the hanger bracket assemblies. Install the three (3) M20 flat washers ***(DD)*** and three (3) M20 reverse lock nuts ***(EE)*** on the studs and torque to 45 ft./lbs. (61 NM). Install three (3) M12 socket head cap screws ***(V)*** and three (3) M12 flat washers ***(W)*** through the slots on the end of the same plane bracket and into the rail bosses. Secure with three (3) M12 reverse lock nuts ***(X)***.

Safety cable the same plane bracket to the rail using the supplied safety cable kits ***(X)***. The cable should thread through the the newly drilled rail holes that line up with the holes in the side of the same plane bracket.

NOTE: Verify that the trolleys are safety cabled to the same plane bracket ***(Q)***. If they are not install as shown.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



**Measured from end of plate to (A) to inside of plate (end of rail) (B).*
***Measured from inside of plate (end of rail) (B) to center of trolley (C)*

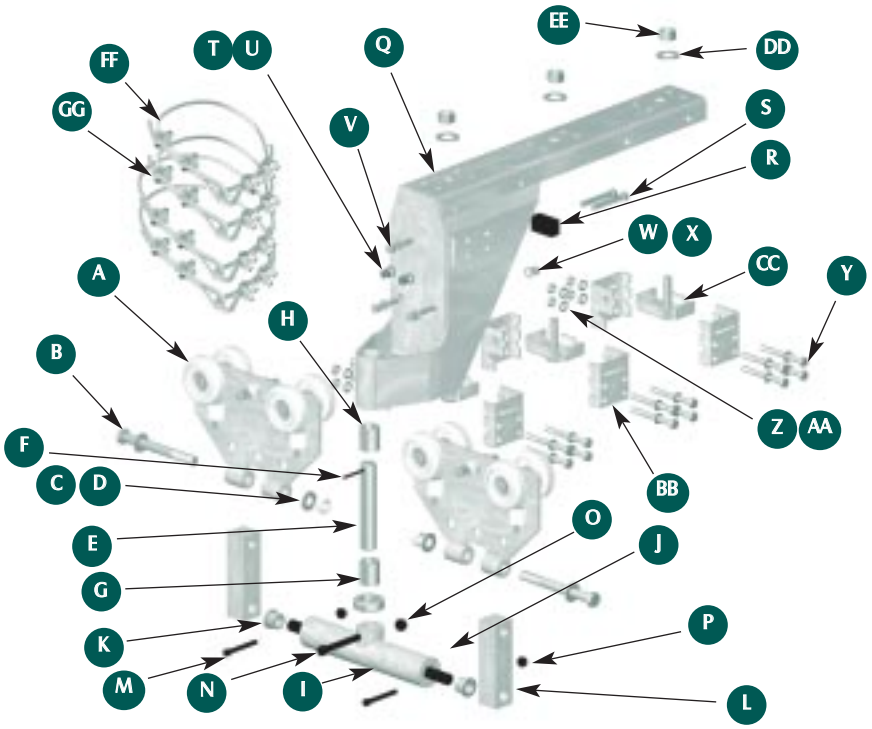
PART WEIGHT: 62.21 LBS. (28.22 KG)
MAXIMUM LOAD BEARING CAPACITY: 2000 LBS. (907 KG)

BILL OF MATERIALS

A) (2) Required - load trolley - Part# **RTA5502**
B) (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
C) (2) Required - rev. lock nut M16 x 2, sty. 1, cls. 10, ZP
D) (4) Required - FW, 16mm, N, S, stl. ZP
E) (1) Required - pivot shaft - Part# **RED4539**
F) (1) Required - 3-16 x 2" roll pin
G) (1) Required - INA thrust bearing - Part# **D9**
H) (2) Required - Oilite sleeve bushing - Part# **P102-12**
I) (1) Required - pivot bar - Part# **RED4537**
J) (1) Required - pivot shaft - Part# **RED4540**
K) (2) Required - Oilite flange bushing - Part# **FL77-5**
L) (2) Required - pivot block - Part# **RED4538**
M) (2) Required - SHCS, M6 x 1 x 50
N) (1) Required - SHCS, M8 x 1.25 x 60
O) (1) Required - M8 x 1.25 nylock nut
P) (2) Required - M6 x 1 nylock nut
Q) (1) Required - same plane bracket - Part# **RED5296**
R) (1) Required - Stilson bumper - Part# **RB 1175**
S) (2) Required - SHCS, M6 x 1 x 25
T) (2) Required - rev. lock nut, sty. 1, M6 x 1, cls. 10, ZP
U) (2) Required - FW, 6 mm, N, S, stl., ZP
V) (3) Required - SHCS, M12 x 1.75 x 80
W) (3) Required - FW, 12mm, N, S, stl., ZP
X) (3) Required - rev. lock nut, sty. 1, M12 x 1.75, cls. 10, ZP

(3) Required - same plane hanger bracket - Part# REA5292:
- **Y)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **Z)** (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
- **AA)** (8) Required - FW, 10mm, N, S, stl., ZP
- **BB)** (2) Required - mounting bracket - Part# **RHD5173**
- **CC)** (1) Required - same plane tap plate - Part# **RED5291**
- **DD)** (1) Required - FW, M20, N, S, stl., ZP
- **EE)** (1) Required - rev. lock nut, sty. 1, M20 x 2.5, cls. 10, ZP

FF) (2) Required - endtruck safety cable kit - Part# **RWA4133**
GG) (2) Required - trolley safety cable - Part# **RWA4129**



Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5500 series track and will suspend 5500 series steel rail. This end truck is to be used for bridges over 10' to eliminate binding common to longer bridges. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RES5710

SAME PLANE END TRUCK FOR 5700 SERIES STEEL RAIL (Bridges up to 10 Ft.)

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the four (4) M10 x 1.5 x 90 HHCS ***(Q)***, (4) M10 x 1.5 rev. lock nuts ***(R)*** and the (8) 10mm flat washers ***(S)*** from the three hanger brackets ***(REA5292)***. Position the two halves ***(T)*** and the same plane tap plate ***(U)*** of each bracket so that the top flange of the rail is between them. Reinstall two top M10 bolts, nuts, and washers ***(Q,R,S)*** and tighten until snug.

Place same plane end truck bracket ***(I)*** over the hanger bracket tap plate studs ***(U)***. Position the hanger bracket assemblies to line up with the same plane end truck bracket through holes. Ensure same plane bracket is flush to the end of the rail. Remove the same plane bracket and tighten the top bolts on the three hanger brackets. Drill six (6) 3/8" clearance holes through the rail using the two lower hanger bracket holes as templates. Secure the brackets to the rail using the remaining M10 bolts,nuts, and washers ***(Q,R,S,)***.

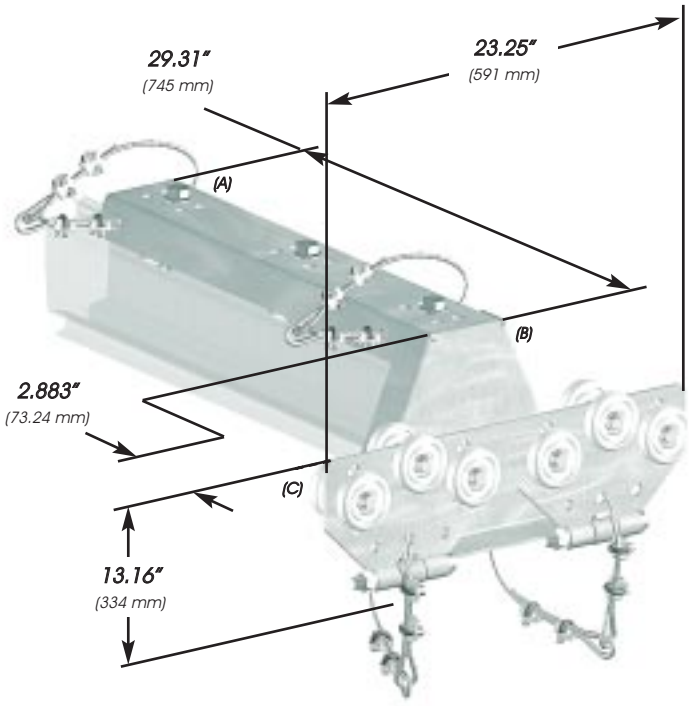
Replace the same plane bracket ***(I)*** into position over the hanger bracket assemblies. Install the three (3) M20 flat washers ***(V)*** and three (3) M20 reverse lock nuts ***(W)*** on the studs and torque to 45 ft./lbs. (61 NM). Install three (2) M12 socket head cap screws ***(N)*** and M12 flat washers ***(O)*** through the slots on the end of the same plane bracket and into the rail bosses. Secure with three (3) M12 reverse lock nuts ***(P)***.

Safety cable the same plane bracket to the rail using the supplied safety cable kits ***(X)***. The cable should thread through the the newly drilled rail holes that line up with the holes in the side of the same plane bracket.

NOTE: Verify that the trolleys are safety cabled to the same plane bracket ***(I)***. If they are not install as shown.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



**Measured from end of plate to (A) to inside of plate (end of rail) (B).*
***Measured from inside of plate (end of rail) (B) to center of trolley (C)*

PART WEIGHT: 43.12 LBS. (19.56 KG)
MAXIMUM LOAD BEARING CAPACITY: 2000 LBS. (907 KG)

BILL OF MATERIALS

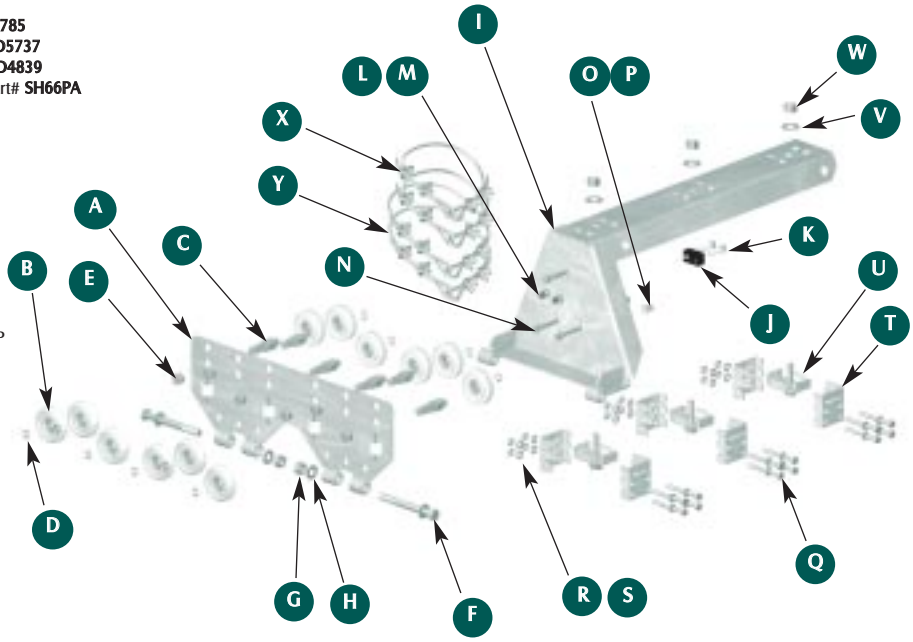
(1) Required - same plane trolley - Part# RTA5784:

- **A)** (1) Required - trolley plate w/rollers & rivets - Part# **RTA5785**
- **B)** (12) Required - 5700 series load trolley wheel - Part# **RTD5737**
- **C)** (6) Required - axle for 5700 series load trolley - Part# **RTD4839**
- **D)** (12) Required - snap ring for 5700 series trolley axle - Part# **SH66PA**
- **E)** (6) Required - 3/4-16 reverse lock jam nut
- **F)** (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
- **G)** (2) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
- **H)** (4) Required - FW, 16mm, N, S, stl., ZP
- **I)** (1) Required - same plane bracket - Part# **RED5059**
- **J)** (1) Required - stilson bumper - Part# **RB 1175**
- **K)** (2) Required - SHCS, M6 x 1 x 25
- **L)** (2) Required - rev. lock nut, sty. 1, M6 x 1, cls. 10, ZP
- **M)** (2) Required - FW, 6mm, N, S, stl., ZP
- **N)** (3) Required - SHCS, M12 x 1.75 X 80
- **O)** (3) Required - FW, 12mm, N, S, stl., ZP
- **P)** (3) Required - rev. lock nut, sty. 1, M12 x 1.75, cls. 10, ZP

(3) Required - same plane hanger bracket - Part# REA5292:

- **Q)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **R)** (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
- **S)** (8) Required - FW, 10mm, N, S, stl., ZP
- **T)** (2) Required - mounting bracket - Part# **RHD5173**
- **U)** (1) Required - same plane tap plate - Part# **RED5291**
- **V)** (1) Required - FW, M20, N, S, stl., ZP
- **W)** (1) Required - rev. lock nut, sty. 1, M20 x 2.5, cls. 10, ZP

- **X)** (2) Required - endtruck safety cable kit - Part# **RWA4133**
- **Y)** (2) Required - trolley safety cable - Part# **RWA4129**



Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5700 series track and will suspend 5700 series steel rail. The truck features a specialized eight wheel trolley plate to increase stability. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RES5775A

SAME PLANE END TRUCK FOR 5700 SERIES STEEL RAIL (Bridges over 10 Ft.)

INSTALLATION INSTRUCTIONS

Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

Remove the four (4) M10 x 1.5 x 90 HHCS ***(Y)***, (4) M10 x 1.5 rev. lock nuts ***(Z)*** and the (8) M10 flat washers ***(AA)*** from the three hanger brackets ***(REA5292)***. Position the two mounting bracket halves ***(BB)*** and same plane tap plate ***(CC)*** of each bracket so that the top flange of the rail is between them. Reinstall two top M10 bolts, nuts, and washers and tighten until snug.

Place same plane end truck bracket ***(Q)*** over the hanger bracket tap plate studs ***(CC)***. Position the hanger bracket assemblies to line up with the same plane end truck bracket through holes. Ensure same plane bracket is flush to the end of the rail. Remove the same plane bracket and tighten the top bolts on the three hanger brackets. Drill six (6) 3/8" clearance holes through the rail using the two lower hanger bracket holes as templates. Secure the brackets to the rail using the remaining Mbolts,nuts, and washers ***(Y,Z,AA).***

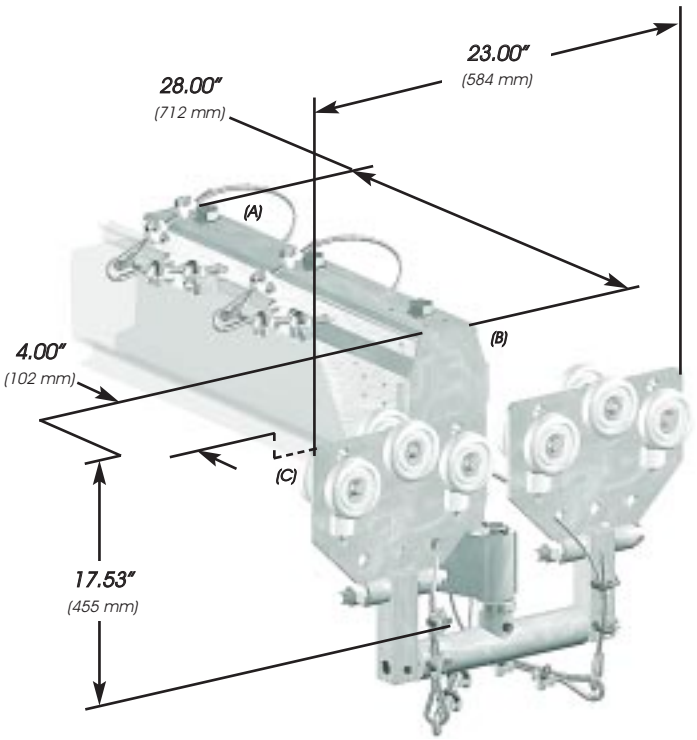
Move the same plane bracket ***(Q)*** into position over the hanger bracket assemblies. Install the three (3) M20 flat washers ***(DD)*** and three (3) M20 reverse lock nuts ***(EE)*** on the studs and torque to 45 ft./lbs. (61 NM). Install three (3) M12 socket head cap screws ***(V)*** and three (3) M12 flat washers ***(W)*** through the slots on the end of the same plane bracket and into the rail bosses. Secure with three (3) M12 reverse lock nuts ***(X)***.

Safety cable the same plane bracket to the rail using the supplied safety cable kits ***(X).*** The cable should thread through the the newly drilled rail holes that line up with the holes in the side of the same plane bracket.

NOTE: Verify that the trolleys are safety cabled to the same plane bracket ***(Q)***. If they are not install as shown.

WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



**Measured from end of plate to (A) to inside of plate (end of rail) (B).*
***Measured from inside of plate (end of rail) (B) to center of trolley (C)*

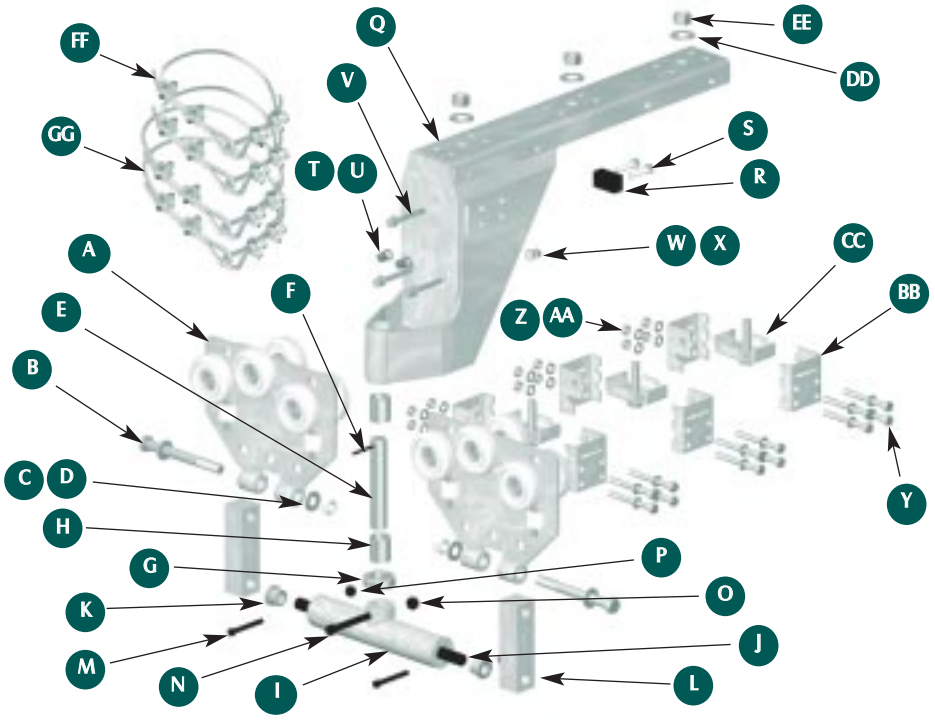
PART WEIGHT: 65.37 LBS. (29.65 KG)
MAXIMUM LOAD BEARING CAPACITY: 2000 LBS. (907 KG)

BILL OF MATERIALS

A) (2) Required - load trolley - Part# **RTA5702**
B) (2) Required - HHCS, M16 x 2 x 150, cls. 8.8, ZP
C) (2) Required - rev. lock nut, M16 x 2, sty. 1, cls. 10, ZP
D) (4) Required - fw, 16mm, N, S, stl., ZP
E) (1) Required - pivot shaft - Part# **RED4539**
F) (1) Required - 3-16 x 2" roll pin
G) (1) Required - INA thrust bearing - Part# **D9**
H) (2) Required - Oilite sleeve bushing - Part# **P102-12**
I) (1) Required - pivot bar - Part# **RED4537**
J) (1) Required - pivot shaft - Part# **RED4540**
K) (2) Required - Oilite flange bushing - Part# **FL77-5**
L) (2) Required - pivot block - Part# **RED4538**
M) (2) Required - SHCS, M6 x 1 X 50
N) (1) Required - SHCS, M8 x 1.25 X 60
O) (1) Required - M8 x 1.25 nylock nut
P) (2) Required - M6 x 1 nylock nut
Q) (1) Required - same plane bracket - Part# **RED5296**
R) (1) Required - Stilson bumper - Part# **RB 1175**
S) (2) Required - SHCS, M6 x 1 x 25
T) (2) Required - rev. lock nut, sty. 1, M6 x 1, cls. 10, ZP
U) (2) Required - FW, 6mm, N, S, stl., ZP
V) (3) Required - SHCS, M12 x 1.75 x 80
W) (3) Required - FW, 12mm, N, S, stl., ZP
X) (3) Required - rev. lock nut, sty. 1, M12 x 1.75, cls. 10, ZP

(3) Required - same plane hanger bracket - Part# REA5292:
Y) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
Z) (4) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
AA) (8) Required - FW, 10mm, N, S, stl., ZP
BB) (2) Required - mounting bracket - Part# **RHD5173**
CC) (1) Required - same plane tap plate - Part# **RED5291**
DD) (1) Required - FW, M20, N, S, stl., ZP
EE) (1) Required - rev. lock nut, sty. 1, M20 x 2.5, cls. 10, ZP

FF) (2) Required - endtruck safety cable kit - Part# **RWA4133**
GG) (2) Required - trolley safety cable - Part# **RWA4129**



Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5700 series track and will suspend 5700 series steel rail. This end truck is to be used for bridges over 10' to eliminate binding common to longer bridges. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RES5226 (5300), RES5524 (5500), RES5735 (5700)

RIDGED ENDTRUCK

INSTALLATION INSTRUCTIONS

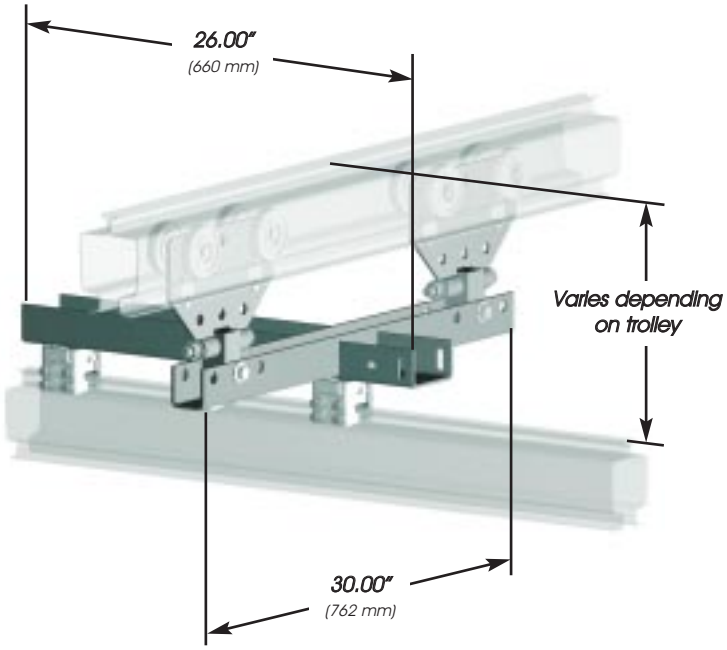
Verify parts from the bill of materials below. Inspect for breakage or loose parts, as damage may occur during shipping. Wheel surfaces should be smooth and without dents. Visually check for cracks in the nylon at the bearing and along the face of the wheel. If any cracking or damage is noted, do not use the trolley. Physically check snap rings for security.

If the bridge is not pre-assembled, assemble according to plan layout. ***(See the "Accessories" section in this book for more information on caps, stops, shocks and bridge braces).*** Position the end truck on the bridge according to system layout. Remove the two ***(2)*** M8-1.25 x 75 mm socket head cap screws and M8-1.25 nylock nuts from the hanger brackets ***(G)***. Position the brackets so that the top flange of the rail is between them. Replace the SHCS and nuts in the two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves.

Remove the end cap and stop assemblies from the end of the runway. Hoist the bridge and roll the trucks into the runway. Reinstall the end cap and stop assemblies according to manufacturer instruction.***(See page 47 for end cap installation, page 48 for stop assembly installation and page 49 & 50 for end cap with shock installation.).*** Loosen the M8-1.25 nylock nuts on the hanger bracket assemblies and adjust the end trucks so that the distance center to center matches the distance center to center between runway rail sections. Re-tighten the nuts and check the bridge travel along the complete length of the runway to be sure travel is smooth. If it is not, repeat the end truck squaring process and test until the bridge travels the entire runway smoothly with no binding.

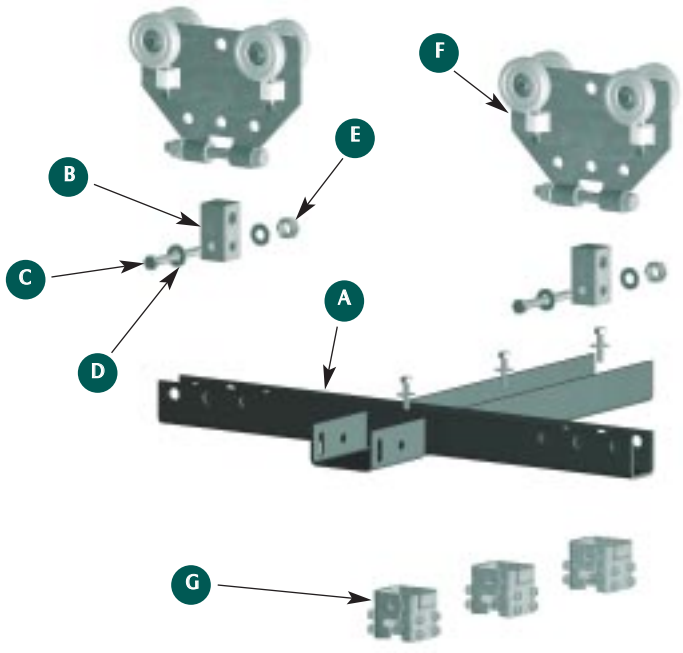
WARNING: *Use only the bolts and nuts provided by Knight. Do not use a system if end caps or stop assemblies are removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



BILL OF MATERIALS

A) (1) Required - ridged endtruck bracket - Part# **RED4265**
B) (2) Required - ridged endtruck trolley block - Part# **RWD4179**
C) (2) Required - HHCS,M12 x 1.5 x 80 mm,cls 8.8, zp
D) (4) Required - FW,M12 ,n,s,stl,zp
E) (2) Required - rev. lock nut,M12 x 1.75,cls 10,zp
F) (2) Required - boss trolley - ***as job requires***
G) (3) Required - hanger bracket assembly - Part# **REA5292**



Recommendations: This end truck is intended for use on single or dual bridges. It rolls inside a 5700 series track and will suspend 5700 series steel rail. This end truck is to be used for bridges over 10' to eliminate binding common to longer bridges. This truck is used for low clearance environments and allows the bridge to travel in the same horizontal plane as the runway.

ASSEMBLY# RHS5035

BOLT ON C-CHANNEL HANGER

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occur during shipping.

Use the system layouts to determine where to locate the hangers on the structure. If hanger locations are not known, use a default position of every eight feet on the system. Using the bolt on C-channel bracket ***(A)*** as a template, transfer the hole patterns to the structure. The bolt hole patterns must all lie in the same horizontal plane. If the hole patterns are properly marked, a straight line drawn from the first hole pattern to the last would cross all hole patterns directly through the center and be parallel to the ground.

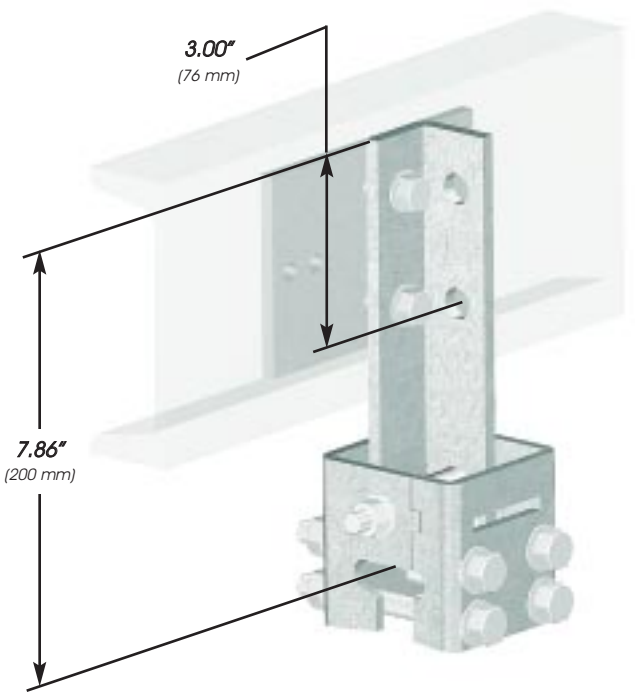
Drill at the transfer marks with a 17/32 drill. ***Do not use any other means to open holes in structure***. Repeat at each hanger location in the system.

Remove all the M10 x 1.5 x 90 HHCS ***(I)***, M10 x 1.5 rev. lock nuts ***(J)*** and M10 flat washers ***(K)*** from the mounting bracket halves ***(H)***. Loosen the hanger pivot bolt ***(E)***. Position the brackets so that the top flange of the runway rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves. Retighten the hanger pivot bolt untill snug allowing pivot action ***(Do not overtighten (E) as binding may occur.)*** Use a lift assist to raise the hangers and rail into position. Align the drilled holes with the bolt on C-channel bracket holes. Torque the nuts to 25 ft/lbs. (34 NM).

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components*

DIMENSIONAL INFORMATION

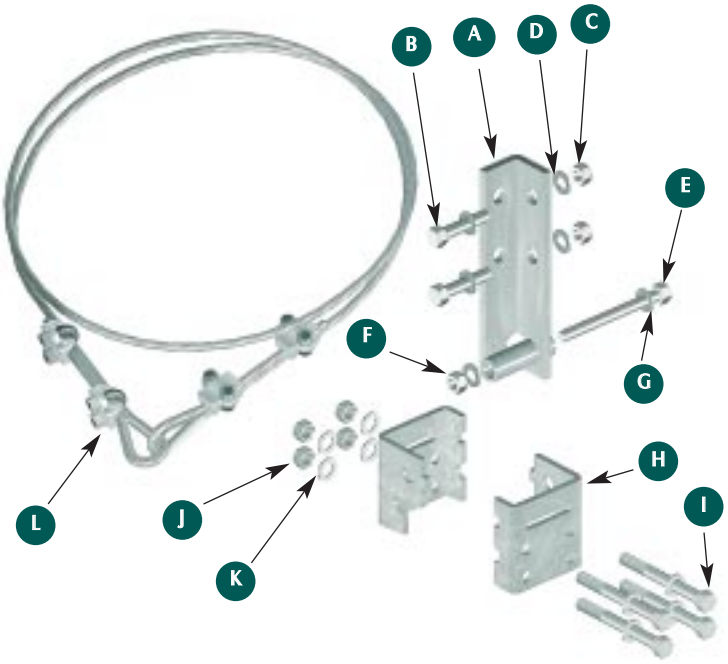


PART WEIGHT: 3.93 LBS. (1.78 KG)
LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

BILL OF MATERIALS

- **A)** (1) Required - bolt on C-channel bracket - Part# **RHD4041**
- **B)** (2) Required - HHCS, M12 x 1.75 x 45, cls. 8.8, ZP
- **C)** (2) Required - rev. lock nut, sty. 1, M12 x 1.75, cls. 10, ZP
- **D)** (4) Required - FW, 12mm, N, S, Stl., ZP
- **E)** (1) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **F)** (1) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
- **G)** (2) Required - FW, 10mm, N, S, Stl., ZP
- **H)** (2) Required - mounting bracket - Part# **RHD5173**
- **I)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **J)** (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
- **K)** (8) Required - FW, 10mm, N, S, stl., ZP
- **L)** (1) Required - safety cable kit - Part# **RWA4133**

*****(Installation of the supplied mounting bracket safety bolts [not shown here] is optional, but is recommended by Knight Industries.)***



Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The bolt on C-channel bracket can be attached to any flat structural surface. The structural supports can be perpendicular or parallel to the rail. This hanger is for direct or offset loads. This hanger is not height adjustable.

ASSEMBLY# RHS5036, RHS5037, RHS5043, RHS5045

SHORT STACK ROD & BALL SWIVEL I-BEAM HANGER

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for loose or missing parts then inspect all components carefully, as damage may have occurred during shipping.

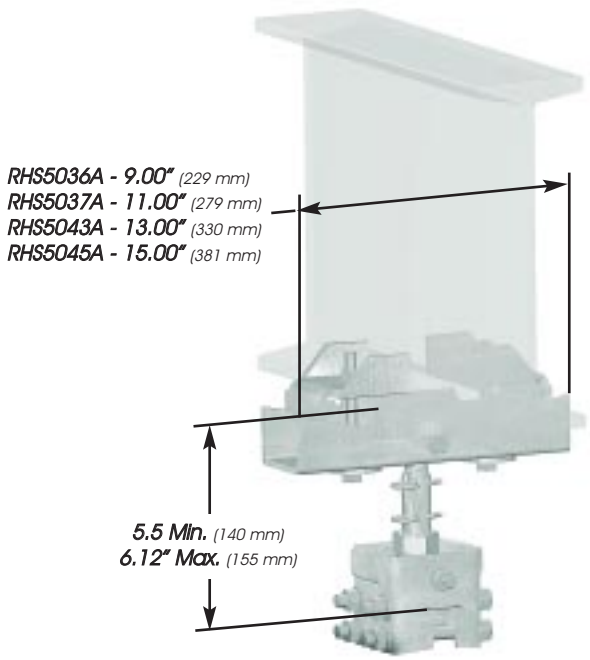
If the bridge is not pre-assembled, space hangers per system layout or use a default position of one every eight feet. Remove the M10 x 1.5 x 90 HHCS ***(M)***, M10 x 1.5 rev. lock nuts ***(N)*** and 10mm flat washers ***(O)*** from the pair of mounting brackets ***(L)***. Position the brackets so that the top flange of the runway rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves. Use a lift assist to raise the hangers and rail into position. The I-beam bracket ***(A)*** is centered on the lower I-beam flange. Place the wedges ***(B)*** on the top of the lower flange. Slide the wedges in toward the web of the beam until the grips on the two (2) M12 x 1.75 x 100 mm hex head screws ***(C)*** contact the I-beam flange sides. Tighten the bolts, alternating between sides, until the I-beam bracket is tight, flush and centered across the bottom of the I-beam. The wedge legs will rest on the top sides of the I-beam bracket and will be at least 1/8" from the end of the bracket. If the wedge legs do not touch the top sides of the bracket or are closer than 1/8" from the edge of the bracket, a wider I-beam bracket must be used. (Consult Customer Service for replacement parts.). Torque the nuts to 25 ft/lbs. (34 NM). The female swivel ***(H)*** has a thread check hole in the center of the swivel body. The threads of the male swivel ***(I)*** must be visible in the thread check hole. Use the wrench flats on the swivels for leveling the rail. Level the rails according to system layout heights, ± 1/8". Verify that threads are still visible in all female swivel check holes after leveling the system.

Tighten the M10 hex nut ***(G)*** to the female swivel. The connector should be perpendicular to the rail. Position the rail bracket to hang directly below the I-beam clamp. Tighten the rail bracket to the rail. The holes near the ball portion of the female/male swivels are for safety wire ***(R)***. Using the double twist method, safety wire the swivels together, as shown, around the swivel bodies. Install safety cable. ***(See note)***

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *The lock wire and hex nut are redundant safety features on this style hanger. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components*

DIMENSIONAL INFORMATION



PART WEIGHT: ***RHS5036 - 8.36 LBS. (3.80 KG)***
RHS5037 - 8.96 LBS. (4.07 KG)
RHS5043 - 9.56 LBS. (4.37 KG)
RHS5045 - 10.16 LBS. (4.61 KG)

LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

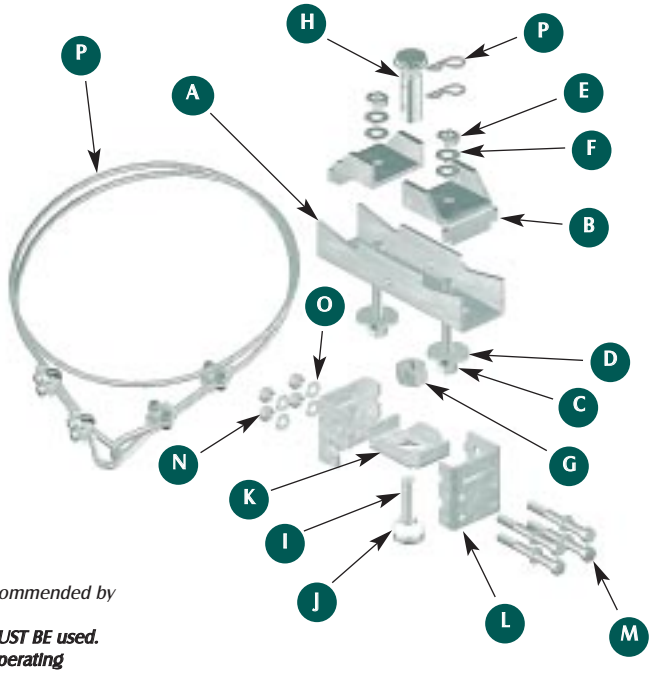
BILL OF MATERIALS

A) (1) Required -
For hanger # RHS5036 - I-beam bracket for 2" to 5" flange hangers - Part# **RHD4090**
For hanger # RHS5037 - I-beam bracket for 5" to 7" flange hangers - Part# **RHD4091**
For hanger # RHS5043 - I-beam bracket for 7" to 9" flange hangers - Part# **RHD4092**
For hanger # RHS5045 - I-beam bracket for 9" to 11" flange hangers - Part# **RHD4094**
B) (2) Required - wedge - Part# **RHD4093**
C) (2) Required - HHCS, M12 x 1.75 x 100, cls. 8.8, ZP
D) (2) Required - washer - Part# **RHD4088**
E) (2) Required - rev. lock nut, sty. 1, M12 x 1.75,cls. 10, ZP
F) (4) Required - FW, 12 mm, N, S, Stl., ZP
G) (1) Required - hex nut,M10 x 1.5, cls. 10, ZP
H) (1) Required - female swivel - Part# **RHD4104**
I) (1) Required - male swivel - Part# **RHD4105**
J) (2) Required - wear plate - Part# **RHD4154**

(1) Required - hanger bracket - Part# RHA5005:

K) (1) Required - hanger bracket - Part# **RHD5199**
L) (2) Required - mounting bracket - Part# **RHD5173**
M) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
N) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
O) (8) Required - FW, 10 mm, N, S, stl., ZP

P) (2) Required - safety pin - Part# **RHD6503**
Q) (1) Required - safety cable kit assembly - Part# **RWA4133A**



Installation of the supplied mounting bracket safety bolts [not shown here] is optional, but is recommended by Knight Industries

WARNING! Safety pins may be replaced with optional safety wire, but one of the two methods MUST BE used. Failure to secure a hanger of this type with wire or pins will result in a potentially unsafe operating condition. See Appendix A in the back of this manual for safety wire installation instructions.

Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The I-beam bracket will fit structural steel from 2" to 11" See "Bill of Materials" above for corresponding size and part numbers. The structural supports can be perpendicular or parallel to the rail. This hanger is for direct loads only.

ASSEMBLY# RHS5038, RHS5039

ADJUSTABLE HEIGHT I-BEAM CLAMP SYSTEMS

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. Refer to the system layout for hanger positions. The hanger bracket ***(RHA5005)*** and C-channel bracket ***(D)*** of this hanger can be turned ninety degrees to accommodate a perpendicular beam layout. Make sure the hangers are correctly oriented to the system layout.

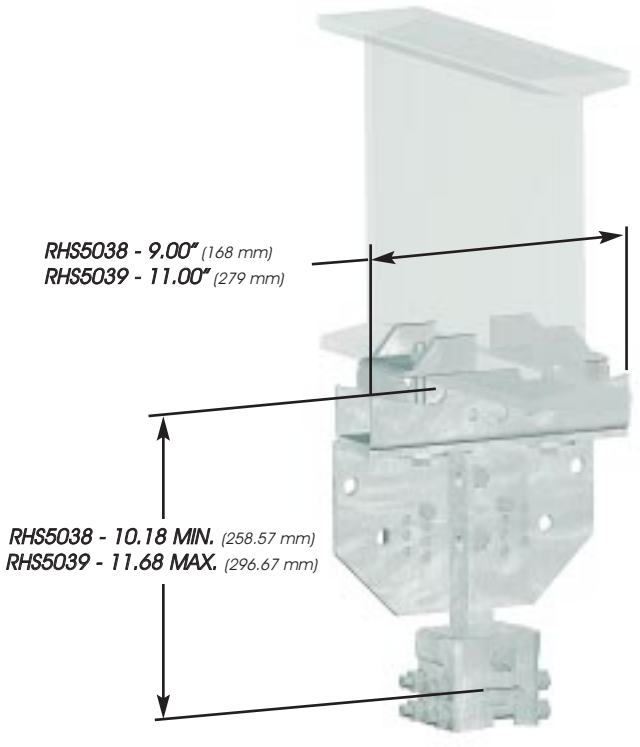
Slide the mounting bracket ***(RHA5005)*** onto the top flange of the rail and position per system layout or use a default position of one every eight feet. Use a lift assist to raise the hangers and rail into position. The I-beam bracket ***(A)*** is centered on the lower I-beam flange. Place the wedges ***(E)*** on the top of the lower flange. Slide the wedges in toward the web of the beam until the grips on the two (2) M12 x 1.75 x 100mm hex head cap screws ***(G)*** contact the I-beam flange sides. Tighten the bolts, alternating between sides, until the I-beam bracket is tight, flush and centered across the bottom of the I-beam. The wedge legs will rest on the top sides of the I-beam bracket and will be at least 1/8" from the end of the bracket. If the wedge legs do not touch the top sides of the bracket or are closer than 1/8" from the edge of the bracket, a wider I-beam bracket must be used. (Consult Customer Service for replacement parts.) Torque the nuts to 25 ft/lbs. (34 NM).

Level the rail ± 1/8" along its length. The rail height can be adjusted in 1/8" increments at each hanger. Total adjustment per hanger is 1 1/2". Remove the two (2) M8 x 1.25 x 30 hex head cap screws ***(M)*** and loosen the two (2) M12 x 1.75 x 45 mm hex head cap screws ***(J)***. Set the desired height and line up the closest matching set of 5/16" clearance holes and reinstall the M8 bolts, nuts and washers. Torque the nuts to 11 ft/lbs. (15NM). Tighten the M12 hex head cap screws and nuts. Torque the nuts to 20 ft/lbs. (27 NM). Install safety cable ***(P).*** *(See note)*

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components*

DIMENSIONAL INFORMATION



PART WEIGHT: RHS5038 - 14.27 LBS. (6.47 KG)
RHS5039 - 16.17 LBS. (7.34 KG)

LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

BILL OF MATERIALS

A) (1) Required -
for hanger # RHS5038 - I-beam bracket for 2" to 5" flange hangers - Part# **RHD4078**
for hanger # RHS5039 - I-beam bracket for 5" to 7" flange hangers - Part# **RHD4079**

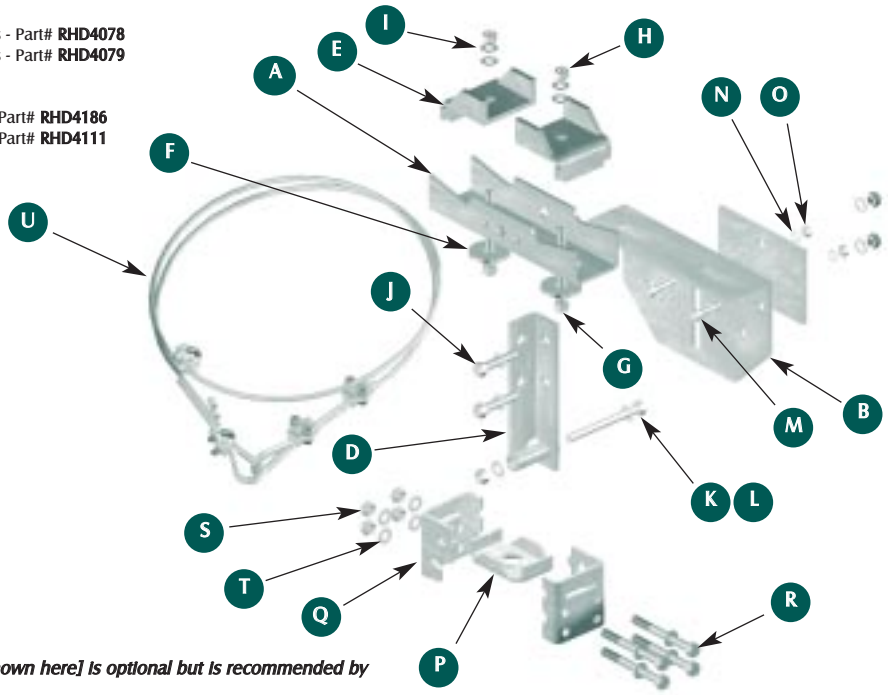
B) (1) Required -
for hanger # RHS5038 - I-beam plate for 2" to 5" flange hangers - Part# **RHD4186**
for hanger # RHS5039 - I-beam plate for 5" to 7" flange hangers - Part# **RHD4111**

C) (1) Required - I-beam back plate - Part# **RHD4187**
D) (1) Required - C-channel bracket - Part# **RHD4041**
E) (2) Required - wedge - Part# **RHD4093**
F) (2) Required - washer - Part# **RHD4088**
G) (2) Required - HHCS, M12 x 1.75 x 100, cls. 8.8, ZP
H) (4) Required - rev. lock nut, sty. 1, M12 x 1.75, cls. 10, ZP
I) (8) Required - FW, 12mm, N, S, stl., ZP
J) (2) Required - HHCS, M12 x 1.75 x 45, cls. 8.8, ZP
K) (1) Required - rev. lock nut, sty. 1, M10 x 1.5, cls. 10, ZP
L) (2) Required - FW, 10mm, N, S, stl., ZP
M) (2) Required - HHCS, M8 x 1.25 x 30, cls. 8.8, ZP
N) (4) Required - FW, M8, N, S, stl., ZP
O) (2) Required - rev. lock nut, sty. 1, M8 x 1.25, cls. 10, ZP

(1) Required - hanger bracket - Part# RHA5005:

P) (1) Required - hanger bracket - Part# **RHD5199**
Q) (2) Required - mounting bracket - Part# **RHD5173**
R) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
S) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
T) (8) Required - FW, 10mm, N, S, stl., ZP

U) (1) Required - safety cable kit assembly - Part# **RWA4133**



*****(Installation of the supplied mounting bracket safety bolts [not shown here] is optional but is recommended by Knight Industries.)***

Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The I-beam bracket will fit structural steel from 2" to 7" See "Bill of Materials" above for corresponding size and part numbers. The structural supports can be perpendicular or parallel to the rail. This hanger is for direct or offset loads. This hanger should not be used in low clearance applications. This hanger is height adjustable.

ASSEMBLY# RHS5047, RHS5049, RHS5051, RHS5053

EXTENDED STACK ROD & BALL SWIVEL I-BEAM HANGER

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for loose or missing parts and then inspect all components carefully, as damage may have occurred during shipping.

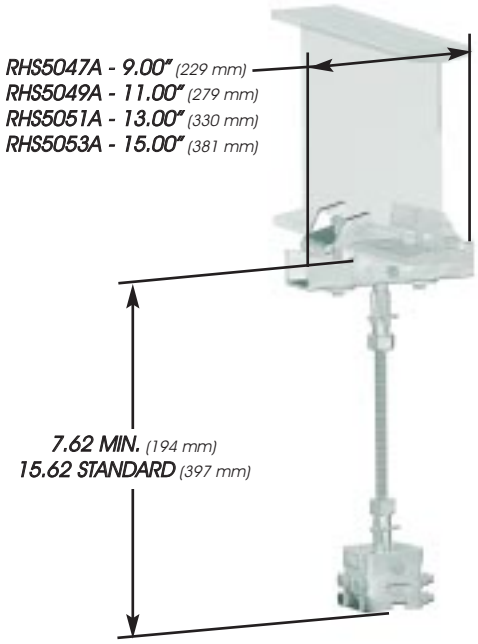
Slide the hanger bracket ***(M)*** and mounting brackets ***(N)*** into the top channel of the rail and position per system layout or use a default position of one every eight feet. Use a lift assist to raise the hangers and rail into position. The I-beam bracket ***(A)*** is centered on the lower I-beam flange. Place the wedges ***(B)*** on the top of the lower flange. Slide the wedges in toward the web of the beam until the grips on the two (2) M12 x 1.75 x 100 hex head screws ***(E)*** contact the I-beam flange sides. Tighten the bolts, alternating between sides, until the I-beam bracket is tight, flush and centered across the bottom of the I-beam. The wedge legs will rest on the top sides of the I-beam bracket and will be at least 1/8" from the end of the bracket. If the wedge legs do not touch the top sides of the bracket or are closer than 1/8" from the edge of the bracket, a wider I-beam bracket must be used. (Consult Customer Service for replacement parts.) Torque the nuts to 25 ft/lbs. (34 NM). The female swivels ***(C)*** have thread check holes in the center of the swivel bodies. The threaded rod ***(K)*** must be visible in the thread check holes. Use the wrench flats on the swivels for leveling the rail. Level the rails according to system layout heights, ± 1/8". Verify that threads are still visible in all female swivel check holes after leveling the system.

Tighten the M16 hex nuts ***(L)*** to the female swivel. The connector should be perpendicular to the rail. Position the rail bracket to hang directly below the I-beam clamp. Tighten the four (4) M10 hex head cap screws ***(O)*** to lock the rail bracket to the rail. The holes near the ball portion of the female swivels are for safety wire. Using the double twist method, safety wire the swivels together around the rod and swivel bodies, as shown. Install safety cable. ***(See note)***

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *The lock wire and hex nuts are redundant safety features on this style hanger. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components*

DIMENSIONAL INFORMATION



PART WEIGHT: ***RHS5047 - 8.39 LBS. (3.81 KG)***
RHS5049 - 9.00 LBS. (4.09 KG)
RHS5051 - 9.58 LBS. (4.35 KG)
RHS5053 - 10.18 LBS. (4.62 KG)
+1.04 Lb. (.47 KG)/ft. of threaded rod

LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

BILL OF MATERIALS

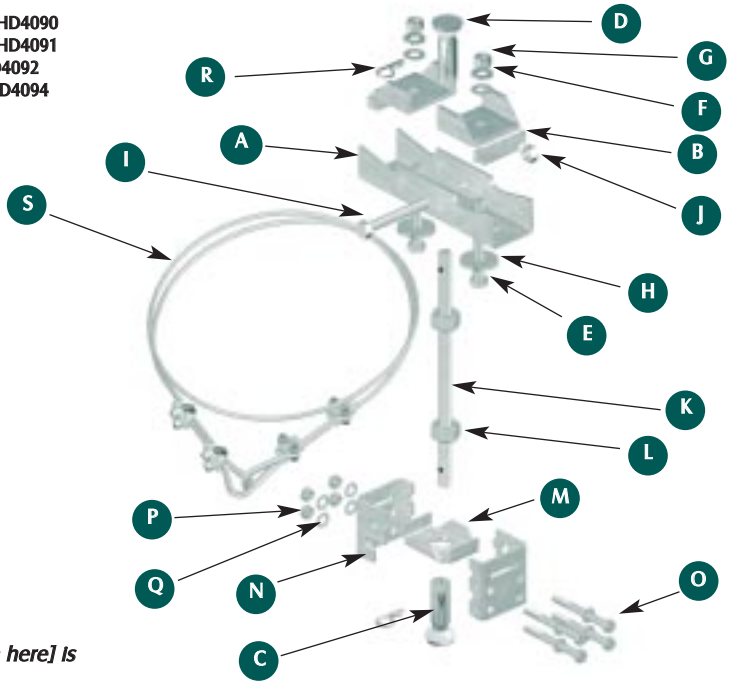
A) (1) Required -
For hanger # RHS5047 - I-beam bracket for 2" to 5" flange hangers - **Part# RHD4090**
For hanger # RHS5049 - I-beam bracket for 5" to 7" flange hangers - **Part# RHD4091**
For hanger # RHS5051 - I-Beam plate for 7" to 9" flange hangers - **Part# RHD4092**
For hanger # RHS5053 - I-Beam plate for 9" to 11" flange hangers - **Part# RHD4094**

B) (2) Required - wedge - **Part# RHD4093**
C) (2) Required - female swivel - **Part# RHD4104**
D) (2) Required - rod & ball swivel wear plate - **Part# RHD4154**
E) (2) Required - HHCS, M12 x 1.75 x 100, cls.,8.8, ZP
F) (4) Required - flat washer, M12,n,s,stl, ZP
G) (2) Required - rev. lock nut, sty. 1, M12 x 1.75,cls. 10, ZP
H) (2) Required - washer - **Part#RHD4088**
I) **(1)** Required - HHCS, M10 x 1.5 x 80, cls. 8.8, ZP
J) **(1)** Required - rev. lock nut, sty. 1, M10 x 1.5,cls. 10, ZP
K) (1) Required - threaded rod - **Part# RHD4106**
L) (2) Required - hex nut, sty. 1, M16 x 2,cls. 10, ZP

(1) Required - hanger bracket - Part# RHA5005:

M) (1) Required - hanger bracket - Part# **RHD5199**
N) (2) Required - mounting bracket - Part# **RHD5173**
O) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
P) (4) Required - rev. lock nut, syl 1, M10 x 1.5,cls. 10, ZP
Q) (8) Required - FW, 10 mm,N,S,STL.ZP

R) (2) Required - safety pin - Part# **RHD6503**
S) (1) Required - safety cable kit assembly - Part# **RWA4133A**



*****(Installation of the supplied mounting bracket safety bolts [not shown here] is optional, but is recommended by Knight Industries.)***

Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The I-beam bracket will fit structural steel from 2" to 11" See "Bill of Materials" above for corresponding size and part numbers. The structural supports can be perpendicular or parallel to the rail. This hanger is for direct loads only. For rod lengths over 24" sway bracing shall be used ***(see page 39 for more information on sway bracing)***.

ASSEMBLY# RHS5034

ROD & BALL SWIVEL C-CHANNEL HANGER

INSTALLATION INSTRUCTIONS

Verify parts from parts list at the bottom of this page. Inspect for breakage or loose parts, as damage may occur during shipping.

In order to use this hanger for an offset load, the threaded rod length must equal the channel size (4" rod for 4" channel and 6' rod for 6' channel, etc.) and the structural steel must be perpendicular to the runway. If both of these conditions are not met, this hanger will not work for offset loads.

If the bridge is not pre-assembled, space hangers per system layout or use a default position of one every eight feet. Remove the M10 x 1.5 x 90 HHCS ***(N)***, M10 x 1.5 rev. lock nuts ***(O)*** and 10mm flat washers ***(P)*** from the pair of mounting brackets ***(M)***. Position the brackets so that the top flange of the runway rail is between them. Replace the HHCS, washers and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves. Elevate the assembled rail and hangers using a lift assist. Place the C-channel bracket ***(A)*** on top of the structural steel. Clamp the wedge to the structural steel by tightening the M12 x 1.75 reverse lock nut ***(J)*** on the M12 x 1.75 x 35 hex head cap screw ***(I)***. Two (2) 12mm flat washers ***(H)*** should be used between the wedge and hex nut. Be sure the C-channel bracket is tight to the face and top flange of the structural steel. If the wedge leg is less than 1/8' from the edge of the bracket, then a different C-channel bracket body must be used. Torque the nut to 25 ft/lbs (34 NM). Do not over tighten the wedge nut.

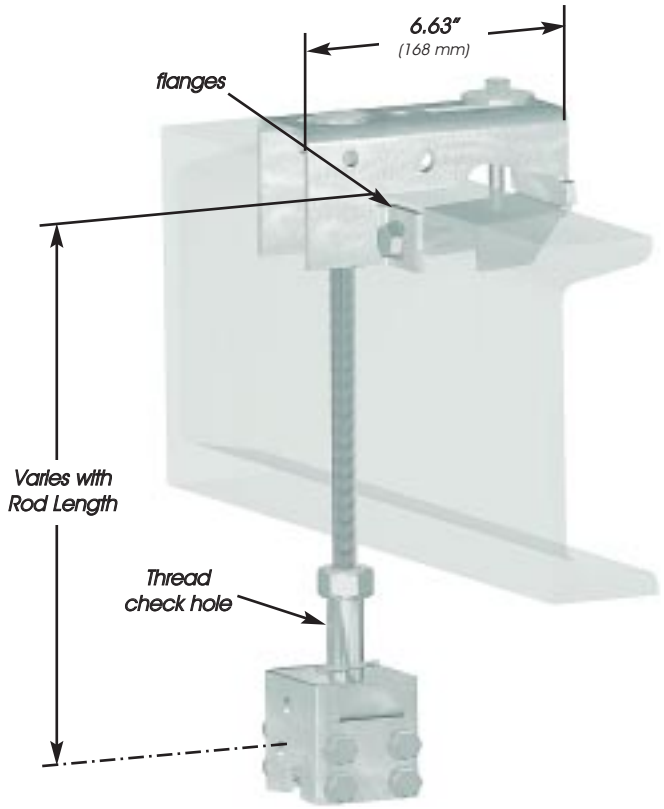
The female swivels ***(D)*** have thread check slots. Threads must be visible in the thread check slots. Use the wrench flats on the swivels for leveling. Tighten the M16 hex nuts ***(K)*** to the swivels ***(D)***. Install safety pins ***(Q)*** through thread check slots. The holes near the ends of the female swivel are for optional safety wire. ***(See "Appendix A" in the back of this book for more information on safety wiring your hanger.)*** Adjust the mounting bracket so that the threaded rod is perpendicular to the rail. Install safety cable ***(R) (see note).*** Using the C-channel bracket flanges as a template, drill through the structural steel. Install two (2) M12 hex head cap screws ***(I)***, four (4) M12 flat washers ***(H)*** and two (2) M12 reverse lock nuts ***(J)***

OPTIONAL: *Use the end truck mounting bracket* ***(M)*** *as a template. Mark the rail and drill two (2) holes per end truck. Using the bolts washers and nuts removed from the bottom of the mounting bracket, secure the end trucks to the rail through the newly drilled holes.*

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *The lock wire and jam nuts are redundant safety features on this style hanger. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components.*

DIMENSIONAL INFORMATION



PART WEIGHT: 7.04 LBS. (3.20 KG)
+1.04 LB. (0.47KG)/FT. THREADED ROD
LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

BILL OF MATERIALS

A) (1) Required - C-channel bracket - Part# **RHD4096**
B) (1) Required - wedge - Part# **RHD4093**
C) (2) Required - wear plate - Part# **RHD4154**
D) (2) Required - female swivel - Part# **RHD4104**
E) (1) Required - threaded rod - Part# **RHD4106**
F) (1) Required - washer - Part# **RHD4088**
G) (1) Required - HHCS, M12 x 1.75 x 100, cls. 8.8, ZP
H) (6) Required - FW, 12mm, N, S, Stl., ZP
I) (2) Required - HHCS, M12 x 1.75 x 35, cls. 8.8, ZP
J) (3) Required - rev. lock nut, sty. 1, M12 x 1.75, cls. 10, ZP
K) (2) Required - hex nut, sty. 1, M16 x 2, cls. 10, ZP

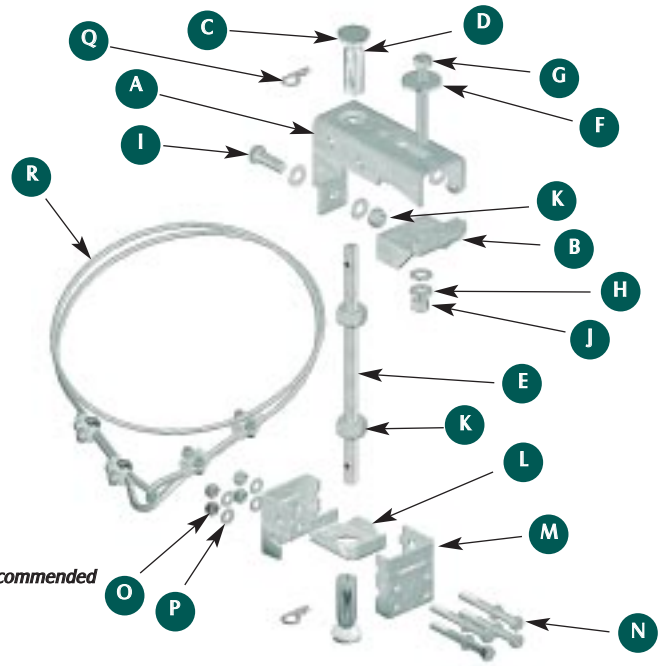
(1) Required - hanger bracket - Part# RHA5005:

L) (1) Required - hanger bracket - Part# **RHD5199**
M) (2) Required - mounting bracket - Part# **RHD5173**
N) (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
O) (4) Required - rev. lock nut, sty 1, M10 x 1.5, cls. 10, ZP
P) (8) Required - FW, 10mm, N, S, stl., ZP

Q) (2) Required - safety pin - Part# **RHD6503**
R) (1) Required - safety cable kit assembly - **Part# RWA4133A**

Note: Optional safety wire replaces safety pins

*****(Drilling the rail and installation of the bottom two mounting bracket bolts is optional but is recommended by Knight Industries.)***



Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The C-channel bracket will fit structural steel having a maximum flange size of 2 1/2 inches. In order to use this hanger for an offset load, the threaded rod length must equal the channel size (4" rod for 4" channel and 6" rod for 6" channel, etc.) and the structural steel must be perpendicular to the runway. If both of these conditions are not met, this hanger will not work for offset loads.

ASSEMBLY# RWS4016, RWS4142, RWS4143, RWS4152

STEEL RAIL SWAY BRACING

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping.

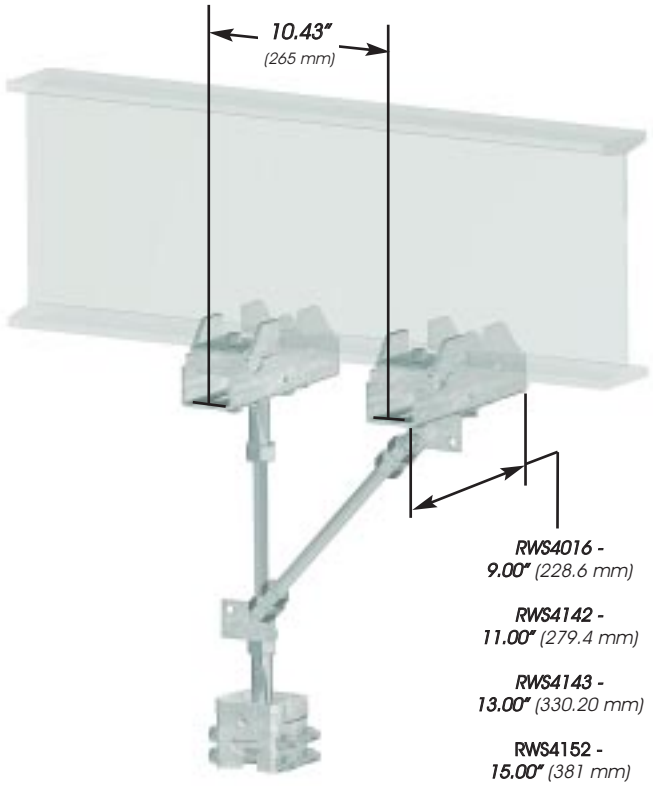
To install sway rod mounting bracket ***(M)***, remove the hanger bracket assembly by unscrewing the female swivel from the threaded rod. Insert the end of the threaded rod into the sway rod bracket. Secure the bracket to the rod by installing another M16 hex nut ***(J)***. Reassemble and safety wire the hanger bracket assembly. ***(See page 36 for additional information on assembling extended stack hangers.)***

Install sway rod bracket ***(L)*** on sway rod mounting bracket ***(M)***. Clamp the I-beam bracket ***(A)*** with sway rod mounting bracket assembly to the I-beam adjacent to the hanger to be braced. For lateral bracing additional structural steel may have to be installed by the end user. Position the sway rod bracket on the I-beam bracket assembly, so that the exposed rod hole is aligned with the sway rod bracket on the hanger to be braced. Measure the distance between the sway rod brackets and cut the threaded rod that measurement + two (2) inches. Start two (2) M16 hex nuts ***(J)*** on the threaded rod and insert rod ends into two sway rod brackets. Secure with the remaining two M16 hex nuts ***(J)***.

NOTE: *With this kit, the customer should specify how many feet of 5/8-18 threaded rod that are needed for each sway point. Additional structural steel may be needed for the attachment of brackets perpendicular to the runway. Re-attach safety devices if removed.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *Sway bracing is not intended for use as a main structural hanger. Its intent is to dampen sway only. Sway bracing is a supplement and must* ***NOT*** *be used as a substitute for conventional hangers. Use only the bolts and nuts supplied by the manufacturer. Failure to comply may cause injury or death to personal.*

DIMENSIONAL INFORMATION

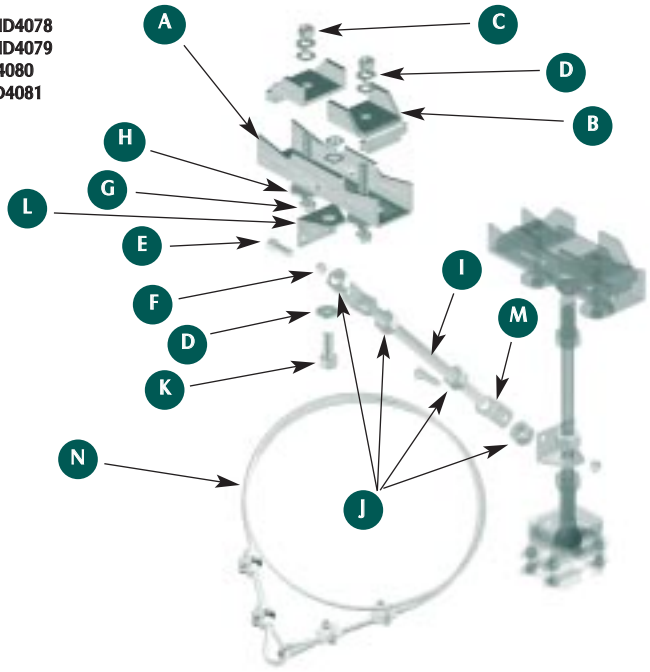


PART WEIGHT: 6.38 lbs. (2.89 kg) + 1 lb. (.45 kg)/ft. of threaded rod

BILL OF MATERIALS

A) (1) Required -
For Sway Brace RWS4016 - I-beam bracket for 2" to 5" flange hangers - **Part# RHD4078**
For Sway Brace RWS4142 - I-beam bracket for 5" to 7" flange hangers - **Part# RHD4079**
For Sway Brace RWS4143 - I-beam plate for 7" to 9" flange hangers - **Part# RHD4080**
For Sway Brace RWS4152 - I-beam plate for 9" to 11" flange hangers - **Part# RHD4081**

B) (2) Required - wedge - **Part# RHD4093**
C) (3) Required - rev. lock nut, sty. 1, M12 x 1.75,cls. 10, ZP
D) (6) Required - flat washer, M12,n,s,stl, ZP
E) (2) Required - HHCS, M10 x 1.5 x 20, cls. 8.8, ZP
F) (2) Required - rev. lock nut, sty. 1, M10 x 1.5,cls. 10, ZP
G) (2) Required - HHCS, M12 x 1.75 x 100, cls. 8.8, ZP
H) (2) Required - washer - **Part# RHD4088**
I) (1) Required - threaded rod - **Part# RHD4107**
J) (5) Required - rev. lock nut, sty. 1, M16 x 2,cls. 10, ZP
K) (1) Required - HHCS, M12 x 1.75 x 40, cls. 8.8, ZP
L) (2) Required - sway rod bracket - **Part# RWD4176**
M) (2) Required - sway rod mounting bracket - **Part# RWD4177**
N) (1) Required - safety cable kit - Part# RWA4133



Recommendations: Sway bracing is required for installations where the hanger rod is longer than 24". Brace kits are used on extended stack rod and ball swivel hangers ***(See page 36).*** Two (2) sway brace kits are needed for the end of each runway rail section. For runways longer than 30 feet additional bracing is required.

ASSEMBLY# RHS6338,6339,6340,6341,6342,6343,6538,6539,6540,6541,6542,6543

CONVENTIONAL EXTENDED STACK ROD & BALL SWIVEL HANGER FOR 5300, 5500 & 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for loose or missing parts then inspect all components carefully, as damage may have occurred during shipping.

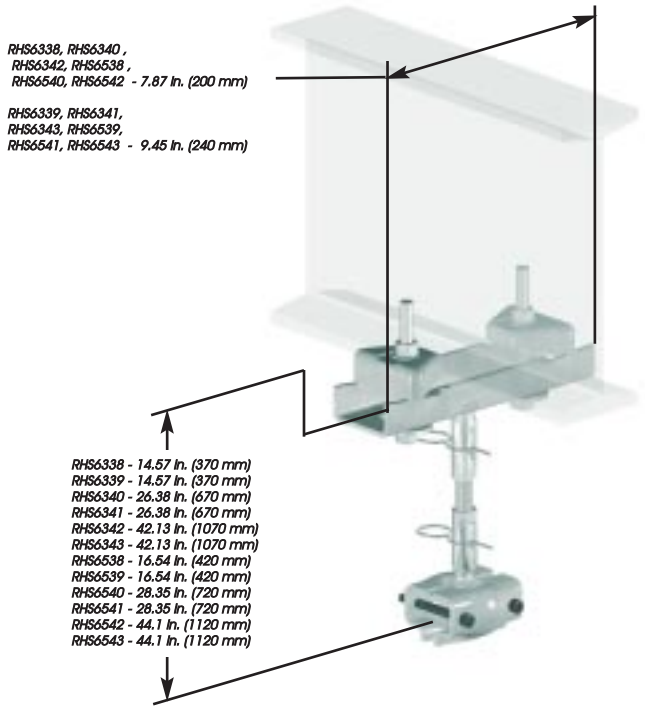
If the bridge is not pre-assembled, space hangers per system layout or use a default position of one every eight feet. Remove the two ***(2)*** socket head cap screws ***(J)*** & nylock nuts ***(K)*** from the mounting brackets ***(H)***. Position the brackets so that the top flange of the runway rail is between them. Replace the SHCS and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves. Use a lift assist to raise the hangers and rail into position. The I-beam bracket ***(A)*** is centered on the lower I-beam flange. Place the wedges ***(B)*** on the top of the lower flange. Slide the wedges in toward the web of the beam until the grips on the two (2) hex head screws ***(D)*** contact the I-beam flange sides. Tighten the bolts, alternating between sides, until the I-beam bracket is tight, flush and centered across the bottom of the I-beam. The wedge legs will rest on the top sides of the I-beam bracket and will be at least 1/8" from the end of the bracket. If the wedge legs do not touch the top sides of the bracket or are closer than 1/8" from the edge of the bracket, a wider I-beam bracket must be used. (Consult Customer Service for replacement parts.). Torque the nuts to 25 ft/lbs. (34 NM). The female swivels ***(C)*** has a thread check hole in the center of the swivel body. Use the wrench flats on the swivels for leveling the rail. Level the rails according to system layout heights, ± 1/8". Verify that threads are still visible in all female swivel check holes after leveling the system.

Position the rail bracket to hang directly below the I-beam clamp. Tighten the rail bracket to the rail. Secure the swivels with the two (2) safety pins ***(M)***. Install safety cable. ***(See note)***

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *The lock wire and hex nut are redundant safety features on this style hanger. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components*

DIMENSIONAL INFORMATION



PART WEIGHT:

RHS6338,6340,6342,6538,6540,6542 : 4.5 lbs. (2.04 kg)

RHS6339,6341,6343,6539,6541,6543 : 4.77 lbs. (2.16 kg)

+1.04 Lb. (.47 KG)/ft. of threaded rod

LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

BILL OF MATERIALS

A) (1) Required - **For hanger # RHS6338,RHS6340,RHS6342** - (5300 series) - I-beam bracket for 2" to 5" flange hangers - **Part# RHD6001**
For hanger # RHS6339,RHS6341,RHS6343 - (5300 series) - I-beam bracket for 5" to 12" flange hangers - **Part# RHD6009**
For hanger # RHS6538,RHS6540,RHS6542 - (5500,5700 series) I-beam bracket for 2" to 5" flange hangers - **Part# RHD6501**
For hanger # RHS6539,RHS6541,RHS6543 - (5500,5700 series) I-beam bracket for 5" to 12" flange hangers - **Part# RHD6509**

B) (2) Required - wedge for **RHS6338,RHS6339,RHS6340,RHS6341,RHS6342,RHS6343** (5300 series) - **Part# RHD6000**
for **RHS6538,RHS6539,RHS6540,RHS6541,RHS6542,RHS6543** (5500,5700 series) - **Part# RHD6515**

C) (2) Required - female swivel for **RHS6338,RHS6339,RHS6340,RHS6341,RHS6342,RHS6343** (5300 series) - **Part# RHD6002**
for **RHS6538,RHS6539,RHS6540,RHS6541,RHS6542,RHS6543** - (5500,5700 series) **Part# RHD6502**

D) (2) Required - for **RHS6338,RHS6339,RHS6340,RHS6341,RHS6342,RHS6343** (5300 series) - HHCS, M10 -1.5 x 75, cls.,8.8, ZP
for **RHS6538,RHS6539,RHS6540,RHS6541,RHS6542,RHS6543** - (5500,5700 series) - HHCS, M16-20 x 75, cls.,8.8, ZP

E) (2) Required - for **RHS6338,RHS6339,RHS6340,RHS6341,RHS6342,RHS6343** (5300 series) -rev. lock nut, sty. 1, M10-1.5,cls.10, ZP
for **RHS6538,RHS6539,RHS6540,RHS6541,RHS6542,RHS6543** - (5500,5700 series) - rev. lock nut, sty. 1, M16-20,cls.10, ZP

F) (2) Required - wedge plate for **RHS6338,RHS6339,RHS6340,RHS6341,RHS6342,RHS6343** (5300 series) - **Part# RHD6388**
for **RHS6538,RHS6539,RHS6540,RHS6541,RHS6542,RHS6543** (5500,5700 series) - **Part# RHD6888**

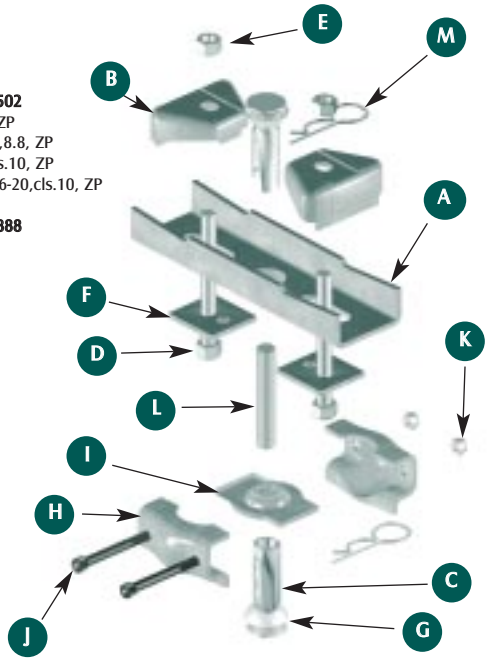
G) (2) Required - wear plate **- Part# RHD6354** (5300) -or- **RHD6554** (5500,5700)

Hanger bracket assembly - for **RHS6338,RHS6339,RHS6340,RHS6341,RHS6342,RHS6343** (5300 series) - **Part# RHD6005 :**
H) (2) Required - hanger bracket - **Part# RHD6018**
I) (1) Required - coined bracket **- Part# RHD6019A**
J) (2) Required - SHCS,M6-1 x 40 mm
K) (2) Required - M6-1 nylock nuts

for **RHS6538,RHS6539,RHS6540,RHS6541,RHS6542,RHS6543** (5500,5700 series) - **Part# RHD6505 :**
H) (2) Required - hanger bracket - **Part# RHD6525**
I) (1) Required - coined bracket **- Part# RHD6526**
J) (2) Required - SHCS,M8-1.25 x 80 mm
K) (2) Required - M8-1.25 nylock nut

L) (1) Required - threaded rod - M10 (5300) : **Part# RHD6006** (300 mm),**RHD6007** (600 mm),**RHD6008** (1000 mm)
M16 (5500,5700) : **Part# RHD6506** (300 mm),**RHD6507** (600 mm),**RHD6508** (1000 mm)

M) (2) Required - safety pin - **Part# RHD6003** (5300 series) -or- **RHD6503** (5500,5700 series)



Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The I-beam bracket will fit structural steel from 2" to 11" See "Bill of Materials" above for corresponding size and part numbers. The structural supports can be perpendicular or parallel to the rail. This hanger is for direct loads only. For rod lengths over 24" sway bracing shall be used ***(see page 39 for more information on sway bracing)***.

ASSEMBLY#RHS6336,RHS6337A,RHS6536A,RHS6537A

CONVENTIONAL SHORT STACK ROD & BALL SWIVEL I-BEAM HANGER FOR 5300,5500 & 5700 RAIL

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for loose or missing parts then inspect all components carefully, as damage may have occurred during shipping.

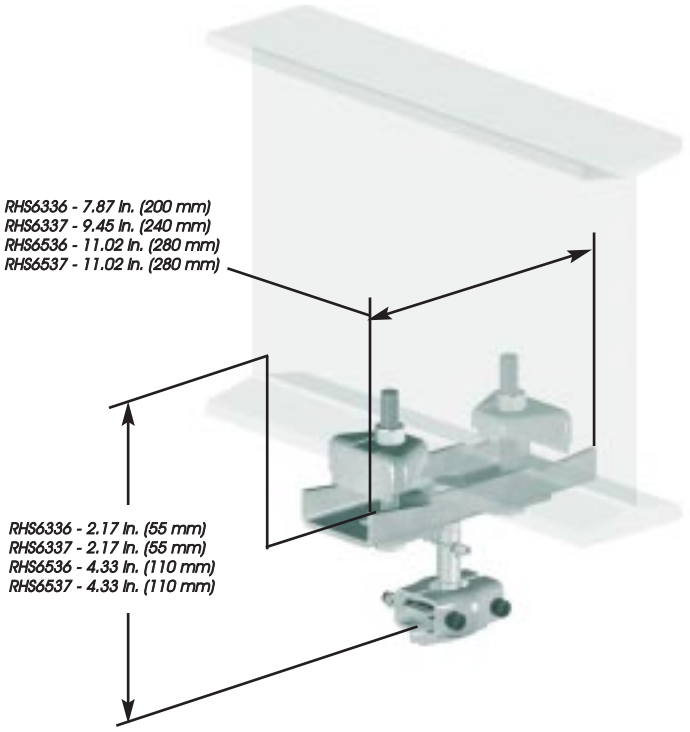
If the bridge is not pre-assembled, space hangers per system layout or use a default position of one every eight feet. Remove the two ***(2)*** socket head cap screws ***(K)*** & nylock nuts ***(L)*** from the mounting brackets ***(H)***. Position the brackets so that the top flange of the runway rail is between them. Replace the SHCS and nuts in the top two holes of the bracket pair and tighten until the rail flange is clamped securely between the two halves. Use a lift assist to raise the hangers and rail into position until the I-beam bracket ***(A)*** is centered on the lower I-beam flange. Place the wedges ***(B)*** on the top of the lower flange. Slide the wedges in toward the web of the beam until the grips on the two (2) hex head screws ***(D)*** contact the I-beam flange sides. Tighten the bolts, alternating between sides, until the I-beam bracket is tight, flush and centered across the bottom of the I-beam. The wedge legs will rest on the top sides of the I-beam bracket and will be at least 1/8" from the end of the bracket. If the wedge legs do not touch the top sides of the bracket or are closer than 1/8" from the edge of the bracket, a wider I-beam bracket must be used. (Consult Customer Service for replacement parts.). Torque the nuts to 25 ft/lbs. (34 NM). The female swivel ***(I)*** has a thread check hole in the center of the swivel body. The threads of the male swivel ***(C)*** must be visible in the thread check hole. Use the wrench flats on the swivels for leveling the rail. Level the rails according to system layout heights, ± 1/8". Verify that threads are still visible in all female swivel check holes after leveling the system.

Position the rail bracket to hang directly below the I-beam clamp. Tighten the rail bracket to the rail. The holes near the ball portion of the female/male swivels are for safety pins ***(M)***. Install safety cable. ***(See note)***

NOTE: *All hangers must be installed per manufacturer's instruction. Install safety cable at each hanger location. When splices are used to join rail sections, safety cable the splice joints.* ***(See "Appendix A" in the back of this book for more information on safety cabling your system.)***

WARNING: *The lock wire and hex nut are redundant safety features on this style hanger. All components must be installed according to manufacturer's instructions. All overhead attach points must have safety cable installed according to manufacturer's instruction. Failure to comply may cause injury or death to personnel. Contact Knight Industries' Customer Service before using in conjunction with other brands of ergonomic rail and components*

DIMENSIONAL INFORMATION



PART WEIGHT: ***RHS6336 - 4.3 LBS. (1.95 KG)***
RHS6337- 4.57 LBS. (2.07 KG)
RHS6536 - 4.3 LBS. (1.95 KG)
RHS6573 - 4.57 LBS. (2.07 KG)

LOAD BEARING CAPACITY IS DETERMINED BY DISTANCE BETWEEN HANGERS

BILL OF MATERIALS

A) (1) Required - **For hanger # RHS6336** - I-beam bracket for 2" to 5" flange hangers - **Part# RHD6001**
For hanger # RHS6337 - I-beam bracket for 5" to 7" flange hangers - **Part# RHD6009**
For hanger # RHS6536 - I-beam bracket for 2" to 5" flange hangers - **Part# RHD6501**
For hanger # RHS6537 - I-beam bracket for 5" to 7" flange hangers - **Part# RHD6509**

B) (2) Required - wedge for **RHS6336** & **RHS6337** (5300) - **Part# RHD6000**
for **RHS6536** & **RHS6537** (5500,5700) **- Part# RHD6515**

C) (1) Required - male swivel for **RHS6336** & **RHS6337** (5300) - **Part# RHD6004**
for **RHS6536** & **RHS6537** (5500,5700) **- Part# RHD6504**

D) (2) Required - for **RHS6336** & **RHS6337** (5300) - HHCS, M10 x 1.5 x 80, cls.,8.8, ZP
for **RHS6536** & **RHS6537** (5500,5700) - HHCS, M16-20 x 110 mm, cls.,8.8, ZP

E) (2) Required - for **RHS6336** & **RHS6337** (5300) - rev. lock nut, sty. 1, M10 x 1.5,cls. 10, ZP
for **RHS6536** & **RHS6537** (5500,5700) **-** rev. lock nut, sty. 1, M16-20,cls. 10, ZP

F) (2) Required - wedge plate for **RHS6336** & **RHS6337** (5300) - **Part# RHD6388**
for **RHS6536** & **RHS6537** (5500,5700) **- Part# RHD6588**

G) (2) Required - wear plate for **RHS6336** & **RHS6337** (5300) **- Part# RHD6354**
for **RHS6536** & **RHS6537** (5500,5700) - **Part# RHD6554**

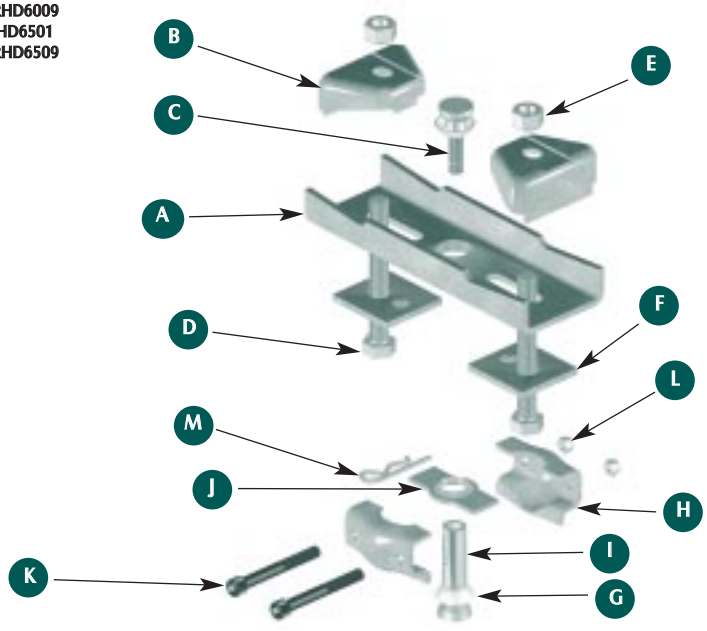
Hanger bracket assembly - for **RHS6336** & **RHS6337** - **Part# RHA6005:**

H) (2) Required - hanger bracket - for **RHS6336** & **RHS6337** - **Part# RHD6018**
I) (1) Required - female swivel - for **RHS6336** & **RHS6337** - **Part# RHD6002**
J) (1) Required - coined bracket **-** for **RHS6336** & **RHS6337** - **Part# RHD6002**
K) (2) Required - SHCS,M6-1 x 40 mm
L) (2) Required - M6-1 nylock nuts

Hanger bracket assembly - for **RHS6536** & **RHS6537 - Part# RHA6505** :

H) (2) Required - hanger bracket - for **RHS6536** & **RHS6537 - Part# RHD6525**
I) (1) Required - female swivel - for **RHS6536** & **RHS6537 - Part# RHD6525**
J) (1) Required - coined bracket **-** for **RHS6536** & **RHS6537 - Part# RHD6502**
K) (2) Required - SHCS,M8-1.25 x 80 mm
L) (2) Required - M8-1.25 nylock nut

M) (1) Required - safety pin - **Part# RHD6003** (5300 series) -or- **RHD6503** (5500,5700 series)



Recommendations: This hanger will suspend 5300, 5500 or 5700 series steel rail. The I-beam bracket will fit structural steel from 2" to 11" See "Bill of Materials" above for corresponding size and part numbers. The structural supports can be perpendicular or parallel to the rail. This hanger is for direct loads only. For rod lengths over 24" sway bracing shall be used ***(see page 39 for more information on sway bracing)***.

ASSEMBLY# RSA6016,6516,6716

END CAP FOR 5300,5500 AND 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

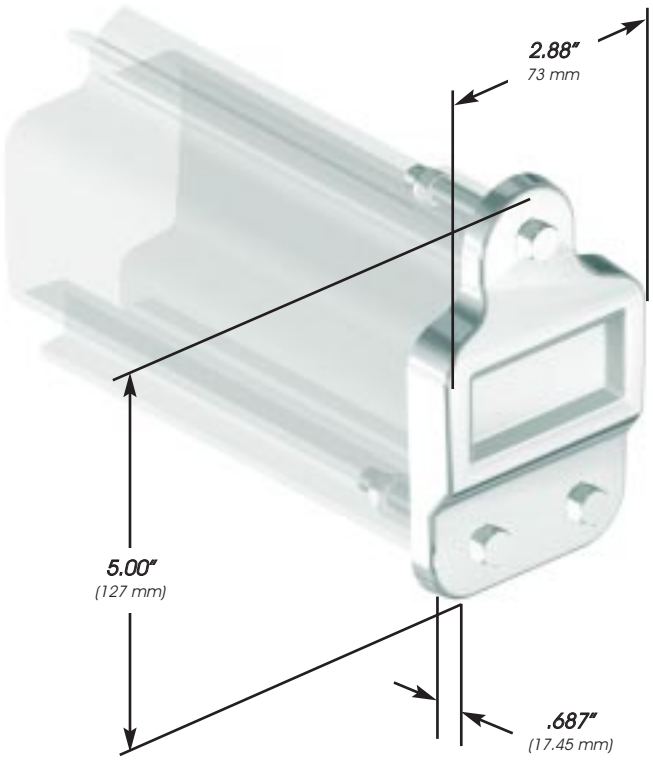
Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. Determine the end of the rail to be capped.

Place the end cap onto the end of the rail. Install the three (3) hex head cap screws ***(B)***, nylock nuts ***(C)***, and flat washers ***(D)*** then tighten till flush ***(Do not over tighten)***.

NOTE: *Do not over tighten nuts as this may cause the trolley to bind at the end of the track.*

WARNING: *This end cap is designed as a secondary stop and dust cover only. It is not to be used as an impact absorbing primary stop. Use only the bolts and nuts provided by the manufacturer. Do not use a system if end caps or stop assemblies have been removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel.*

DIMENSIONAL INFORMATION



PART WEIGHT: 1.44 LBS. (.65 KG)

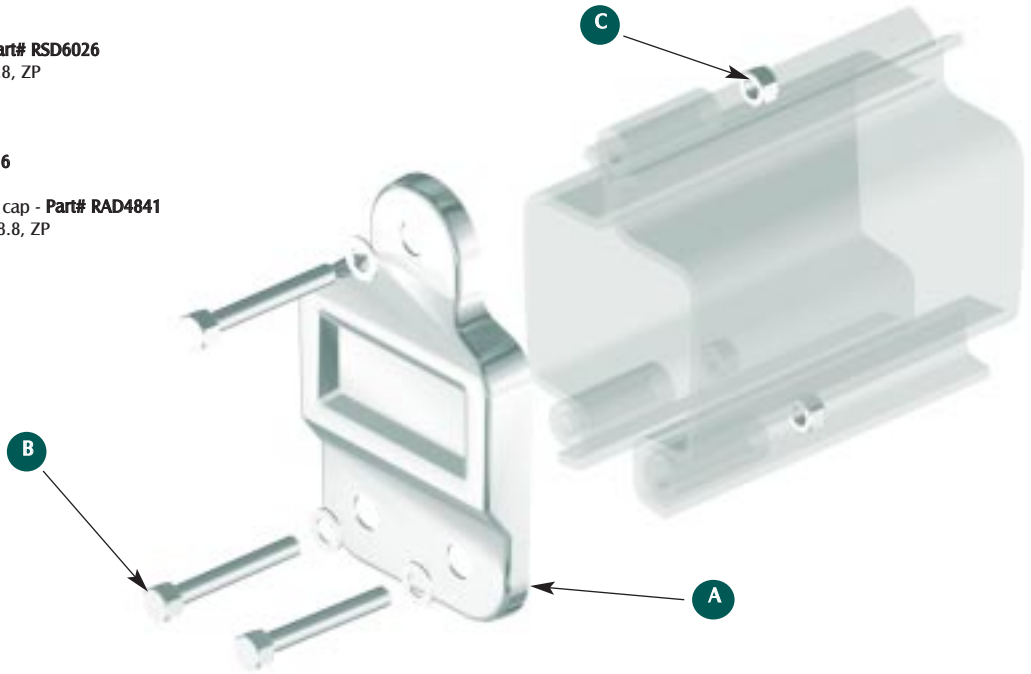
BILL OF MATERIALS

5300 series end cap - RSA6016

A) (1) Required - 5300 series rail end cap - **Part# RSD6026**
B) (3) Required - HHCS, M8 x 1.25 x 45,cls. 8.8, ZP
C) (3) Required - Nylock nut, M8 X 1.25

5500 & 5700 series end cap - RSA6516 & RSA6716

A) (1) Required - 5500 & 5700 series rail end cap - **Part# RAD4841**
B) (3) Required - HHCS, M12 x 1.75 x 75,cls. 8.8, ZP
C) (3) Required - Nylock nut, M12 x 1.75



Recommendations: This cap is used as a dust cover and secondary stop for 5300,5500 and 5700 series steel rail. Knight Industries recommends that this product be used in conjunction with a primary mid-rail stop, **Part# RSA5070A** for 5300 series rail & **Part# RSA5811A** for 5500 and 5700 series steel rail.

ASSEMBLY# RSA5070, RSA5811

MID RAIL STOP FOR 5300, 5500 AND 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping.

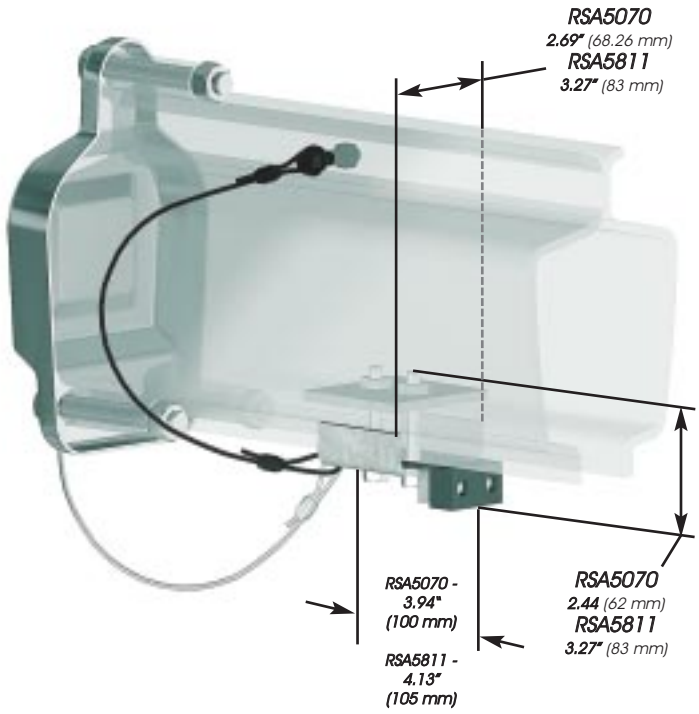
Determine where the stop is going to be installed. The mid rail stop tap ***(A)*** is installed with the nut face up, away from the head of the bolt. Insert the mid rail stop tab through the trolley opening in the track. The rubber bumper must face the load. Install the two (2) hex head cap screws ***(D)*** until the mid rail stop bracket ***(B)*** is tight to the rail.

Attach the safety lanyard to the end cap bolt. Remove the nut and washer from one end cap bolt. Slip the free loop of the cable over the exposed threads and reinstall the washer and nut. *If not used in conjunction with an end cap, drill the top rail flange and secure the lanyard with (1) M10 hex head cap screw, (1) M10 reverse lock nuts & (2) M10 flat washers.*

NOTE: *Over tightening may cause part deformation or part failure. Do not over tighten hardware.*

WARNING: *Use only the bolts and nuts supplied by the manufacturer. All components must be cabled to some part of the system to prevent injury to personnel. Failure to comply may cause injury or death to personnel.*

DIMENSIONAL INFORMATION



PART WEIGHT: ***RSA5070: 2.40 LBS. (1.08 KG)***
RSA5811: 2.43 LBS. (1.10 KG)

BILL OF MATERIALS

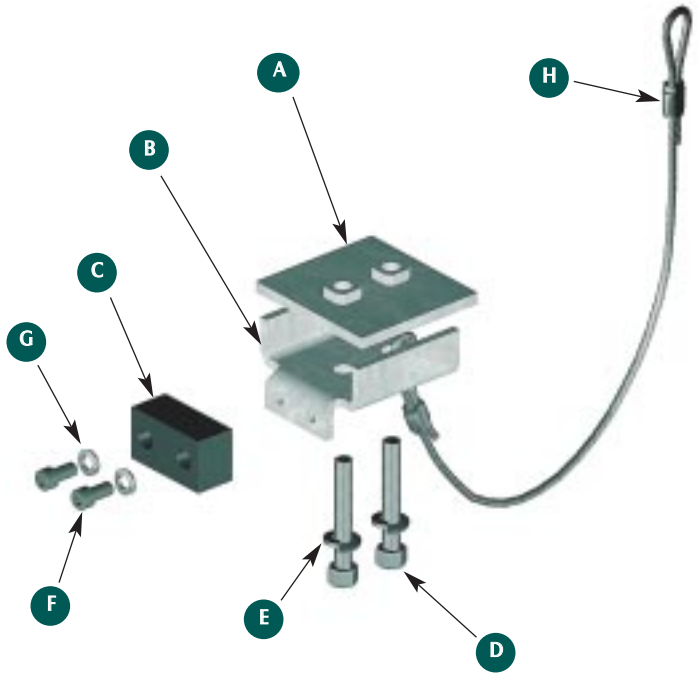
5300 series mid rail stop - RSA5070

A) (1) Required - mid rail stop tap - **Part# RSD5118**
B) (1) Required - mid rail stop bracket - **Part# RSD5119**
C) (1) Required - Stilson bumper - **Part# ERB 1175**
D) (2) Required - HHCS, M10 x 1.5 x 45,cls. 8.8, ZP
E) (2) Required - Split lock washer,type B, M10, S,stl, ZP
F) (2) Required - SHCS, M6-1 x 20
G) (2) Required - M6 Split lock high collar washer
H) (1) Required - 1/8" steel lanyard - **Part# RWA4319**

5500 & 5700 series mid rail stop - RSA5811

A) (1) Required - mid rail stop tap - **Part# RSD5843**
B) (1) Required - mid rail stop bracket - **Part# RSD5842**
C) (1) Required - Stilson bumper - **Part# ERB 1175**
D) (2) Required - HHCS, M10 x 1.5 x 65,cls. 8.8, ZP
E) (2) Required - Split lock washer,type B, M10, S,stl, ZP
F) (2) Required - SHCS, M6-1 x 20
G) (2) Required - M6 Split lock high collar washer
H) (1) Required - 1/8" steel lanyard - **Part# RWA4319**

NOTE: *(1) 3/8-16 X 3/4" hex head cap screw, (1) 3/8 reverse lock nut & (2) 3/8 SAE flat washers required to mount cable directly to rail flange (See installation instructions).*



Recommendations: If placed in conjunction with an end cap, the looped end of the safety lanyard must be attached to a bolt on that end cap. These stops can also be used to limit travel of bridges or hoists installed on the same runway system and need not be cabled to the end cap. They should be cabled to a rail bracket or to the rail itself.

ASSEMBLY# RSA5058

END CAP WITH SHOCK ABSORBER FOR 5300 SERIES RAIL

INSTALLATION INSTRUCTIONS

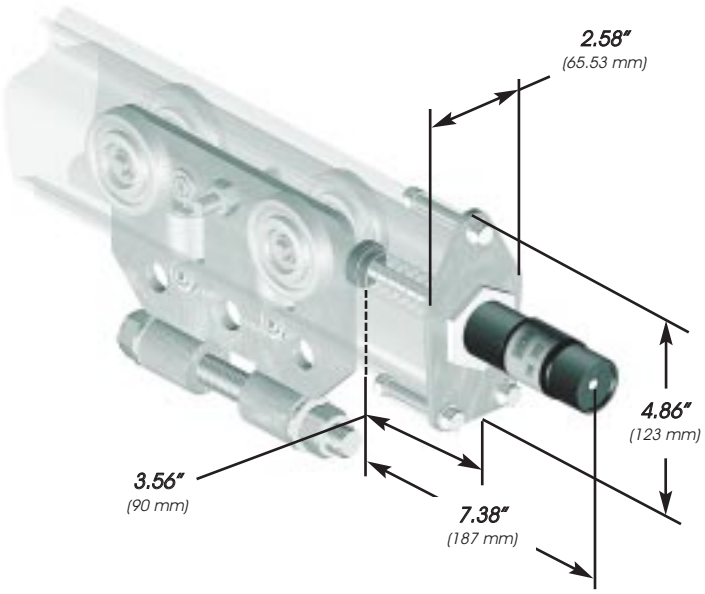
Verify parts from parts list below. Inspect for breakage of loose parts, as damage may occur during shipping. Determine the end of the rail at which the stop will be installed. If there are no bosses welded on the rail, the shocked end cap cannot be used. Call Knight Customer Service to order steel bosses, Part#**RSD5124**.

Retract and extend the shock ***(A)*** plunger to check operation. Inspect rod seal area for leakage. Replace the part if any leakage or binding is evident. Install the shock to the end cap bracket ***(F)*** using the two (2) shock nuts ***(B)***.

Place the end cap shock bracket and shock in the end of the rail and secure to the rail slugs with the three (3) M8 x 50 mm hex head cap screws ***(C)***, (3) M8 flat washers ***(D)*** and (3) M8 nylock nuts ***(E)***. Tighten until flush to rail.

WARNING: *Use only the bolts and nuts provided by the manufacturer. Bosses must be welded to the rail end or this stop cannot be used. Never use a system if the end caps or stop assemblies have been removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel.*

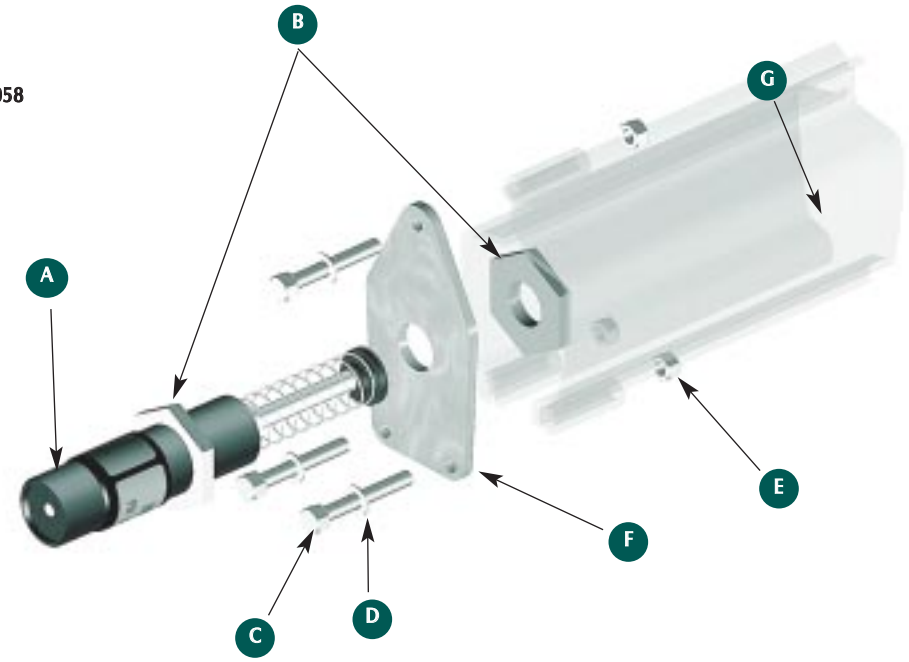
DIMENSIONAL INFORMATION



PART WEIGHT: 2.26 lbs. (1.03 kg)

BILL OF MATERIALS

A) (1) Required - ACE control shock - **Part# PM 220 IF 1**
B) (2) Required - shock nut - **Part# PM 220 IF 1**
C) (3) Required - HHCS, M8 x 1.25 x 50, cls. 8.8, ZP
D) (1) Required - flat washer, M8,n,s,stl, ZP
E) (3) Required - M8 nylock nut
F) (1) Required - end cap shock bracket - **Part# RSA5058**



Recommendations: The 5300 series steel rail end stop with shock is used as a positive, dampening end stop. This part is effective in absorbing the forces of impact caused by the load striking the end stop.

ASSEMBLY# RSA5809

END CAP FOR SHOCK ABSORBER FOR 5500 & 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

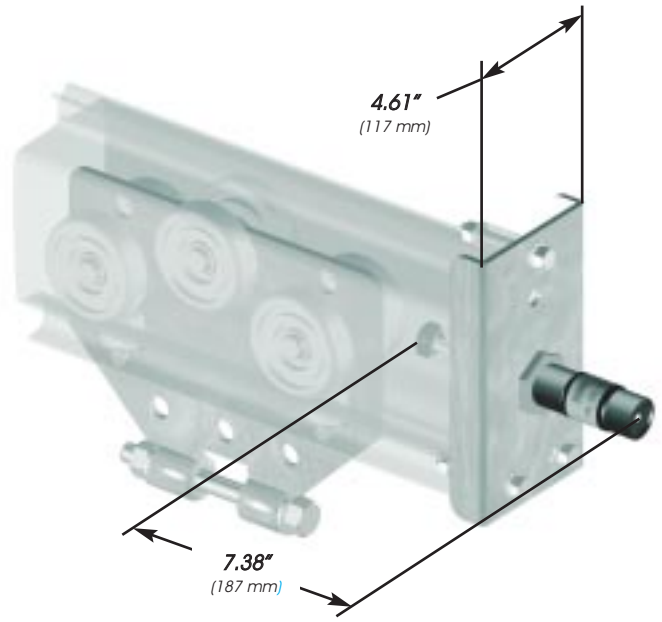
Verify parts from parts list below. Inspect for breakage of loose parts, as damage may occur during shipping. Determine the end of the rail at which the stop will be installed. If there are no bosses welded on the rail, the shocked end cap cannot be used. Call Knight Customer Service to order steel bosses,Part#**RSD5748**.

Retract and extend the shock ***(A)*** plunger to check operation. Inspect rod seal area for leakage. Replace the part if any leakage or binding is evident. Install the shock to the end cap bracket ***(G)*** using the two (2) shock nuts ***(B)***. Tighten the shock jam nuts.

Place the end cap shock bracket and shock in the end of the rail and secure to the rail slugs with the three (3) M10 x 80 mm hex head cap screws ***(C)***, (1) M10 flat washer ***(E)***, (2) large washers ***(D)*** and (3) M10 nylock nuts ***(F)***. Tighten until flush.

WARNING: *Use only the bolts and nuts provided by the manufacturer. Bosses must be welded to the rail end or this stop cannot be used. Never use a system if the end caps or stop assemblies have been removed or damaged. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel.*

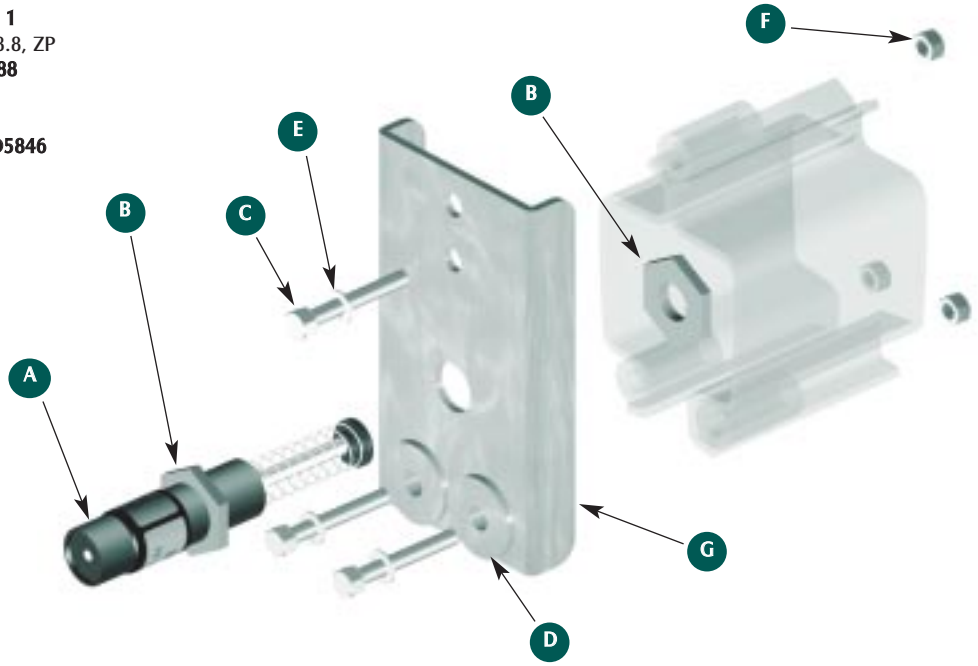
DIMENSIONAL INFORMATION



PART WEIGHT: 4.98 LBS. (2.26 KG)

BILL OF MATERIALS

A) (1) Required - ACE control shock - **Part# PM 220 IF 1**
B) (2) Required - shock nut - **Part# PM 220 IF 1**
C) (3) Required - HHCS, M10 x 1.5 x 80, cls. 8.8, ZP
D) (2) Required - large washer - **Part# RHS4088**
E) (1) Required - flat washer, M10,n,s,stl, ZP
F) (3) Required - M10 nylock nut
G) (1) Required - end cap bracket - **Part# RSD5846**



Recommendations: The 5500/5700 series steel rail end stop with shock is used as a positive, dampening end stop. This part is effective in absorbing the forces of impact caused by the load striking the end stop. This cap shall be used on any gear drive chain hoist applications.

ASSEMBLY# RSA6014, RSA6518

SPLICE IT FOR 5300, 5500 & 5700 SERIES RAIL

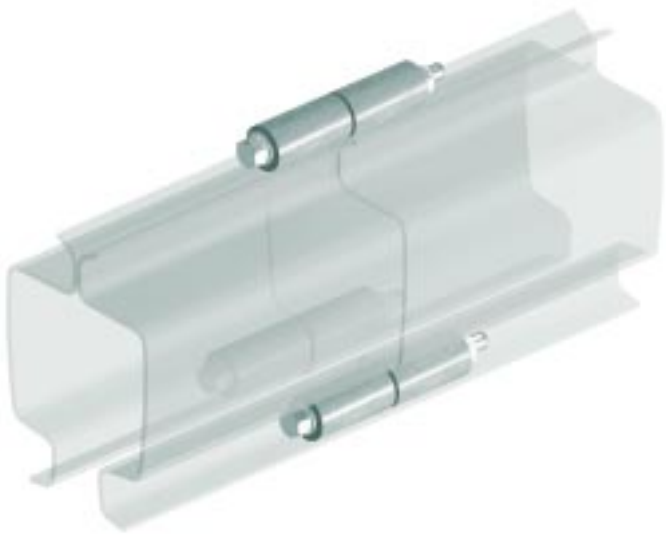
INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. Verify that the steel rail bosses ***(C)*** are welded at all flanges of the rail sections. Inspect the end of the rail sections to be joined for burrs or defects from handling. File any burrs or defects flush. Butt the rails to be spliced, end to end. The rail should be square and align with no gap. After checking alignment install the three (3) socket head cap screws ***(A)*** through the slugs. Tighten the three (3) rev. lock nuts nuts ***(B)*** on the bolts until flush, making sure there are no gaps. ***Do not over tighten***.

NOTE: *A structural hanger can be installed and function as splice bracket. If this is not possible due to steel configuration, the splice area must have a structural hanger installed within 305 mm [twelve (12) inches] of the splice bracket. Consult Knight Customer Service for permanent splices when bridge rail lengths are greater than 6.1m [twenty (20) feet].*

WARNING: *Use only the bolts and nuts provided by the manufacturer. Do not over tighten nuts. This kit is not intended for unsupported continuous rail lengths. This splice **CAN NOT** be used on bridges. All components must be installed according to manufacturer's instructions. Failure to comply may cause injury or death to personnel.*

DIMENSIONAL INFORMATION



PART WEIGHT: 2.7 LBS. (1.2 KG)

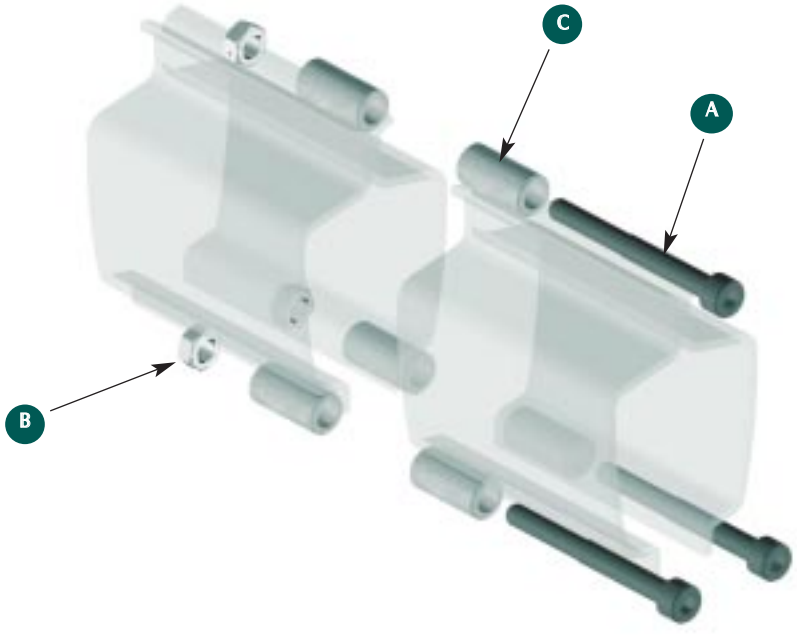
BILL OF MATERIALS

5300 series splice kit - RHS5067 :

A) (3) Required - SHCS, M8-1.25 x 75
B) (3) Required - rev. lock nut, sty. 1, M8 x 1.25,cls. 10, ZP
C) (6) Required - rail bosses - Part# RSD5124

5500 & 5700 series splice kit - RHS5803 :

A) (3) Required - SHCS, M12-1.75 x 130
B) (3) Required - rev. lock nut, sty. 1, M12 x 1.75,cls. 10, ZP
C) (6) Required - rail bosses - Part# RSD5748



Recommendations: This kit is for use on runway or monorail sections only. The splice must be at or within 12 inches of a rail hanger support. Do not use this splice kit for bridges. See Knight Customer Service for information on permanent splices for bridges. Splices should be staggered when possible to enhance smooth operation.

ASSEMBLY# RSA5064, RSA5205, RSA5285

STEEL RAIL BRIDGE BRACE

INSTALLATION INSTRUCTIONS

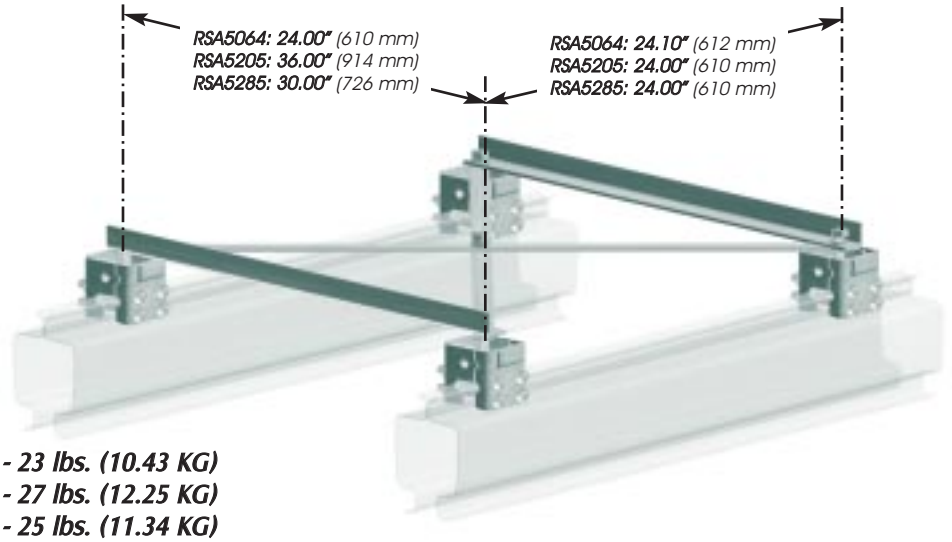
Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. The bridge brace brackets are secured in the top cavity of the rail. Find the center of the bridge span and mark it. If the span is over 15', two bridge braces will be used. If longer than 15', divide the bridge span into thirds and mark the bridge at the 1/3 and 2/3 point. For example, an eighteen foot span between runways will have a brace centered at six (6) feet and the other at twelve (12) feet.

End caps and end truck trolley brackets need not be removed when installing the bridge brace. Install the four (4) drop-in brackets ***(RSA5042)*** on the rail. Place the X -brackets ***(B)*** on top of the drop-in brackets, crossing each other. Then place the L-brackets ***(A)*** on top of the X-brackets perpendicular to the rail. Secure all four pieces to the drop-in brackets with the four (4) M12 hex head caps screws ***(J)*** and four (4) M12 split lock washers ***(I)*** into the tap plates ***(C)***. Install (1) M12 hex head cap screw ***(K)***, (2) M12 split lock washers ***(M)***, and (1) M12 rev. lock nut ***(L)*** where the two x-brackets ***(B)*** cross each other.

NOTE: *This bridge brace assembly is intended for horizontal stability only. It is not designed for or intended to be used as a load support of any kind.*

WARNING: *Use only the bolts and nuts provided by the manufacturer. All components must be installed per manufacturer's instructions. Failure to comply may cause injury or death to personnel.*

DIMENSIONAL INFORMATION



PART WEIGHT: ***RSA5064 - 23 lbs. (10.43 KG)***
RSA5205 - 27 lbs. (12.25 KG)
RSA5285 - 25 lbs. (11.34 KG)

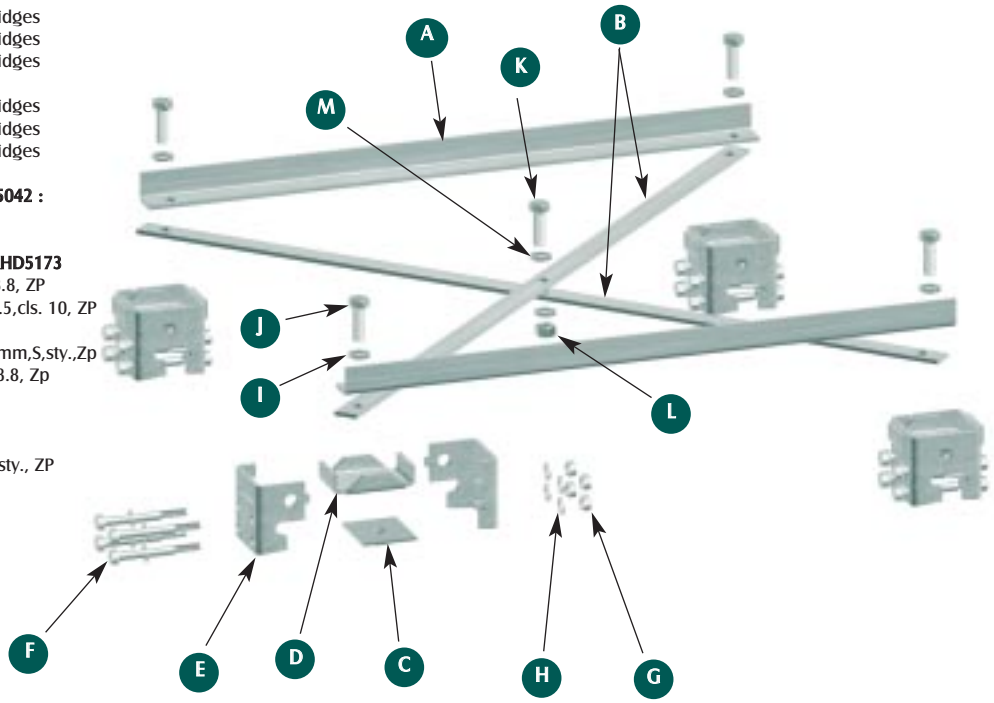
BILL OF MATERIALS

A) (2) Required - L bracket
- **Part# RAD4165** for 24" center to center bridges
- **Part# RAD4327** for 30" center to center bridges
- **Part# RAD4207** for 36" center to center bridges

B) (2) Required - X bracket
- **Part# RAD4166** for 24" center to center bridges
- **Part# RAD4328** for 30" center to center bridges
- **Part# RAD4206** for 36" center to center bridges

(4) **Required - drop in bracket assembly - Part# RSA5042 :**
- **C)** (1) Required - tap plate - **Part# RWD4089**
- **D)** (1) Required - bracket - **Part# RHD5172**
- **E)** (2) Required - mounting brackets - **Part# RHD5173**
- **F)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **G)** (4) Required - rev. lock nut, syl 1, M10 x 1.5,cls. 10, ZP
- **H)** (8) Required - FW, 10 mm,N,S,STL.ZP
- **I)** (1) Required - split lock washer,type B,12 mm,S,sty.,Zp
- **J)** (1) Required - HHCS, M12 x 1.75 x 65,cls. 8.8, Zp

K) (1) Required - HHCS, M12 x 1.75 x 35mm
L) (1) Required - rev. lock nut, M12 x 1.75
M) (2) Required - split lock washer,type b,12 mm,S,sty., ZP



Recommendations: This bridge brace is used for dual bridge applications. Bridge brace assembly# RSA5064A is for 24" center to center bridges and bridge brace assembly #RSA5205A is for 36" center to center bridges. If the bridge span is over 15', more than one bridge brace will be used. See Knight Customer Service for recommendations.

ASSEMBLY# RMA4180, RMA4181

CABLE SADDLE FOR 5300, 5500 & 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. This assembly is used for festooning electrical cable.

The air hose can be festooned with the cable bundles or it can be supplied separately on a coiled hose system *(see coiled hose management kit, page 50).*

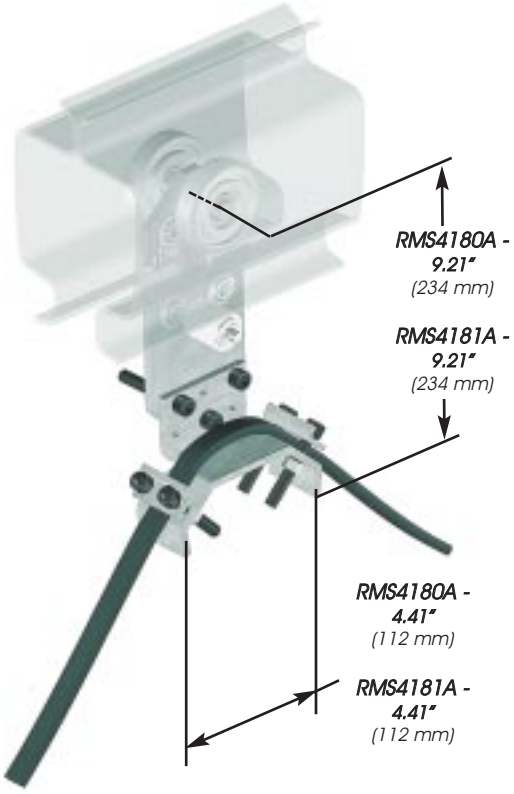
Select a hose trolley and electrical clamp assembly. Pass the electrical cable between the cable saddle plate ***(A)*** and cable saddle clamp***(B)***. Tighten the M6 socket head cap screws ***(C)*** & M6 nylock nuts ***(D)*** until the cable is secure. Do not over tighten cable saddle clamp.

Repeat at approximately 8' intervals along the cable length. One hose trolley and cable clamp assembly should be used for every 5' of rail. Repeat the above instructions for each hose trolley location. If longer loops are necessary to prevent cable binding, adjust the length between clamps.

NOTE: *Standard cable clamp sizes are listed below. Consult Knight Customer Service for different types of cable festooning not listed.*

WARNING: *These clamps are not insulators. Electrical conductors must be insulated and protected from contact with metal surfaces. Only insulated cable should be used with these clamps. Do not over-tighten clamps, as over-tightening may cause damage to protective insulation or cause a short in the conductor. Failure to comply may cause injury or death to personnel.*

DIMENSIONAL INFORMATION



PART WEIGHT: 2.7 LBS. (1.2 KG)

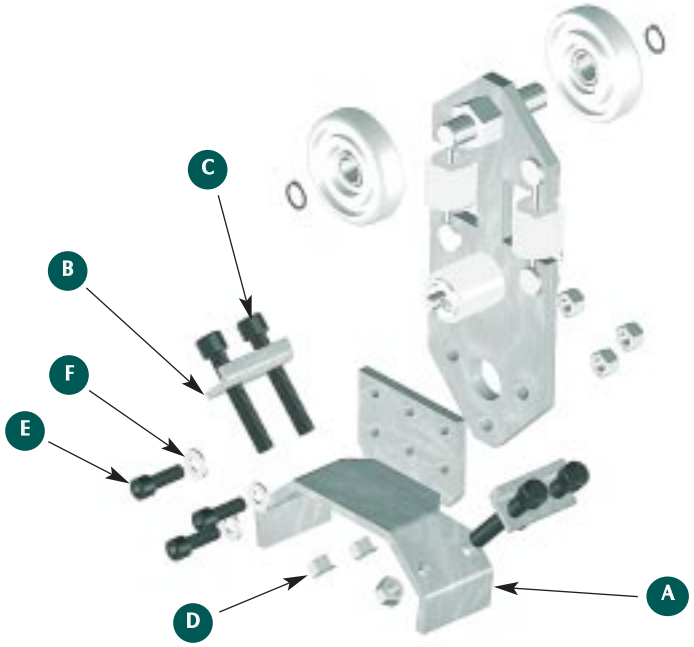
BILL OF MATERIALS

Cable saddle for 3/4 Dia. cable - RMS4180A:

A) (1) Required - cable saddle plate - **Part# RMD4182A**
B) (2) Required - cable saddle clamp - **Part# RMD4184A**
C) (4) Required - M6-1 x 35 mm socket head cap screw
D) (7) Required - M6-1 nylock nut
E) (3) Required - M6-1 x 20 mm socket head cap screw
F) (3) Required - M6,n,s,stl,zp flat washer

Cable saddle For 1 1 /2 Dia. cable - RMS4181A:

A) (1) Required - cable saddle plate - **Part# RMD4183A**
B) (2) Required - cable saddle clamp - **Part# RMD4185A**
C) (4) Required - M6-1 x 35 mm socket head cap screw
D) (7) Required - M6-1 nylock nut
E) (3) Required - M6-1 x 20 mm socket head cap screw
F) (3) Required - M6,n,s,stl,zp flat washer



Recommendations: Order one (1) trolley per 5' of rail. Specify the size of the bracket required when ordering.

ASSEMBLY# RMS5019, RMS5814

HOSE TROLLEY FOR 5300, 5500 & 5700 SERIES STEEL RAIL

INSTALLATION INSTRUCTIONS

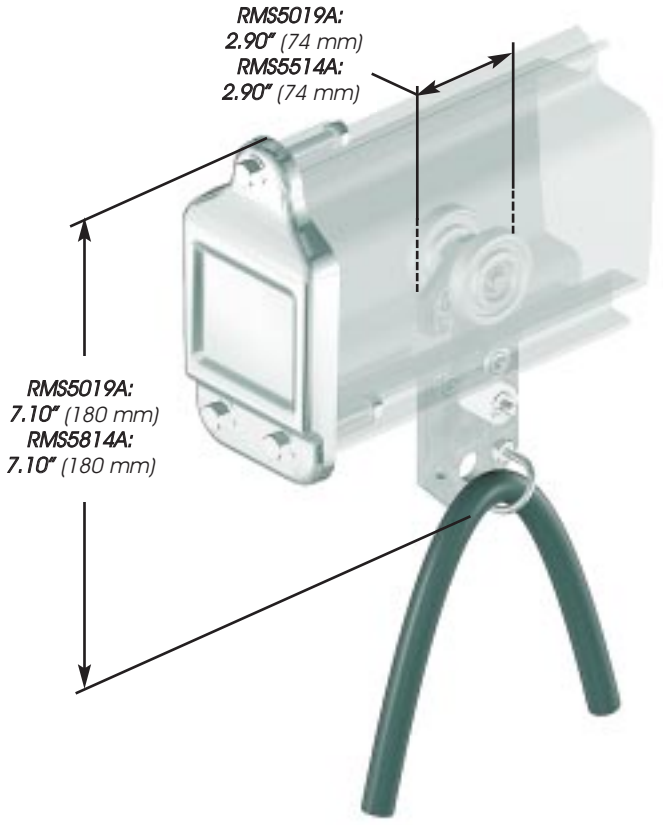
Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. This trolley is used primarily as a hose festoon trolley for 5300 series rail.

Remove the end cap and stop assemblies from the end of the rail. Roll the trolleys into the open end of the rail. Reinstall the end cap and stop assemblies according to instruction. ***(See page 40 for end cap installation, page 42 for stop assembly installation and page 43 for end cap with shock installation.)***

NOTE: *Hose trolleys are ordered separately from hose management kits. See page 49 for detailed information on how to integrate hose trolleys into your hose management kit.*

WARNING: *Use only the bolts and nuts provided by the manufacturer. All components must be installed per manufacturer's instructions. Failure to comply may cause injury or death to personnel.*

DIMENSIONAL INFORMATION



PART WEIGHT: ***RMS5019A : 1.7 lbs. (0.8 kg)***
RMS5814A : 1.7 lbs. (0.8 kg)

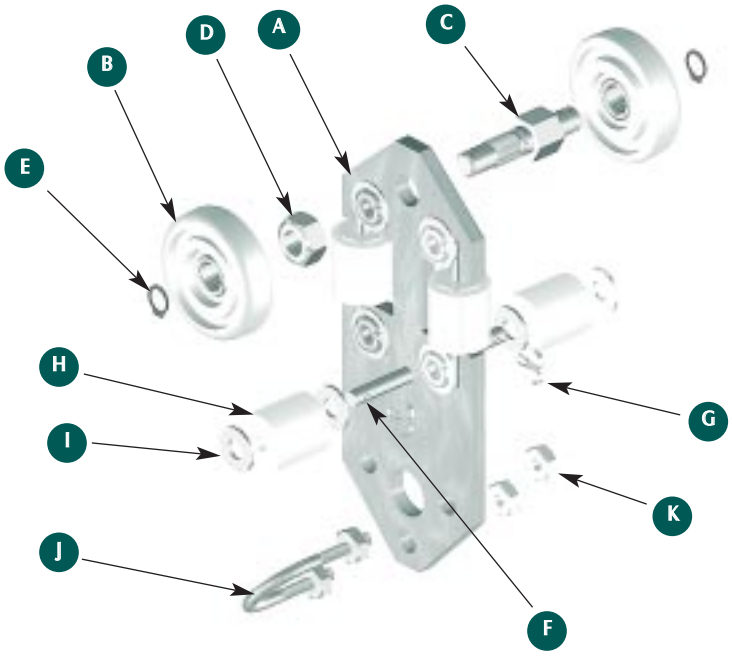
BILL OF MATERIALS

5300 series hose trolley RMS5019:

A) (1) Required - hose trolley plate w/rollers & rivets - **Part# RMA5137C**
B) (2) Required - load trolley wheel - **Part# RTD5027**
C) (1) Required - load trolley axle - **Part# RTD5344**
D) (1) Required - 7/16" rev. lock jam nut
E) (2) Required - snap ring - **Part# SH39PA**
F) (1) Required - hose trolley anti kick up axle - **Part# RMD4146**
G) (2) Required - 3/32 x 1/2" cotter pin - **Part# PFCP7350**
H) (2) Required - kick up guide roller - **Part# RTD4134**
I) (4) Required - 1/4" USS flat washer
J) (1) Required - U-bolt - **Part# PFUB8100**
K) (4) Required - M6 x 1,cls 10,zp

5500 & 5700 series hose trolley RMS5814:

A) (1) Required - hose trolley plate w/rollers & rivets - **Part# RMA5863**
B) (2) Required - load trolley wheel - **Part# RTD5027**
C) (1) Required - load trolley axle - **Part# RTD5344**
D) (1) Required - 7/16" rev. lock jam nut
E) (2) Required - snap ring - **Part# SH39PA**
F) (1) Required - hose trolley anti kick up axle - **Part# RMD414**
G) (2) Required - 3/32 x 1/2" cotter pin - **Part# PFCP7350**
H) (2) Required - kick up guide roller - **Part# RTD4134**
I) (4) Required - 1/4" USS flat washer
J) (1) Required - U-bolt - **Part# PFUB8100**
K) (4) Required - M6 x 1,cls 10,zp



Recommendations: Order one (1) hose trolley per 5' of rail. The hose should be wire tied to the "U" bolt to keep the hose in place. This trolley is primarily used as an air hose festooning trolley. It can also be used for suspension of filter/regulator/lubricator (FRL) equipment. A hinged connector should be placed on the trolley mounts when suspending a load (call Customer Service for details.)

ASSEMBLY# RSS5399, RSS5397, RSS5599, RSS5597, RSS5799, RSS5797
ENCLOSED TRACK TRANSFER SWITCH

INSTALLATION INSTRUCTIONS

Verify parts from parts list below. Inspect for breakage or loose parts, as damage may have occurred during shipping. Install the bridge rail, ridged endtruck ***(RES5226, RES5524, RES5735)*** and latch ***(1)*** from the runway and adjust and level to job specifications. Hang the switch track hangers ***(RHS4255)*** from the overhead structure. Hang the counterlatch from the hangers and position inline with the latch. Lock the latch and counterlatch together. The 'V' shaped slots on the sliding latch brackets ***(G,H)*** should fit together ***(see fig. 1)***. If not, loosen the hanger bracket bolts to the counterlatch and make neccasary horizontal adjustments. There are also vertical adjustments on the hangers via the switch track hanger bracket ***(11)***. Tighten all hanger bolts. Open and close the latch assembly several times to ensure proper locking operation. Run trolley through the latch assembly to ensure proper running surface. If not, check for proper alignment and readjust horizontlly/vertically as needed.

BILL OF MATERIALS

1) (1) Required - latch - Part# **RSS5399** (5300), **RSS5599** (5500), **RSS5799** (5700)
2) (1) Required - counter-latch - Part# **RSS5397** (5300), **RSS5597** (5500), **RSS5797** (5700)

note: see opposite page for latch & counter-latch parts list

Ridged endtruck - Part# RES5226 (5300), **RES5524** (5500), **RES5735** (5700)

3) (1) Required - ridged endtruck bracket - Part# **RED4265**
4) (2) Required - ridged endtruck trolley block - Part# **RWD4179**
5) (2) Required - HHCS,M12 x 1.5 x 80 mm,cls 8.8, zp
6) (4) Required - FW,M12 ,n,s,stl,zp
7) (2) Required - rev. lock nut,M12 x 1.75,cls 10,zp
8) (2) Required - boss trolley - ***as job requires***
9) (3) Required - hanger bracket assembly - Part# **REA5292**

Switch track hanger - Part# RHS4255

note: same as aluminum hanger # RHS4038 & RHS4039 except the following parts:

10) (1) Required - extension bracket - Part# **RHD4231**
11) (1) Required - hanger bracket - Part# **RHD4315A**
12) (2) Required - HHCS,M12 x 1.75 x 45 mm,cls8.8,zp
13) (2) Required - FW,M12,n,s,stl,zp
14) (4) Required - rev. lock nut,M12 x 1.75, cls 10,zp

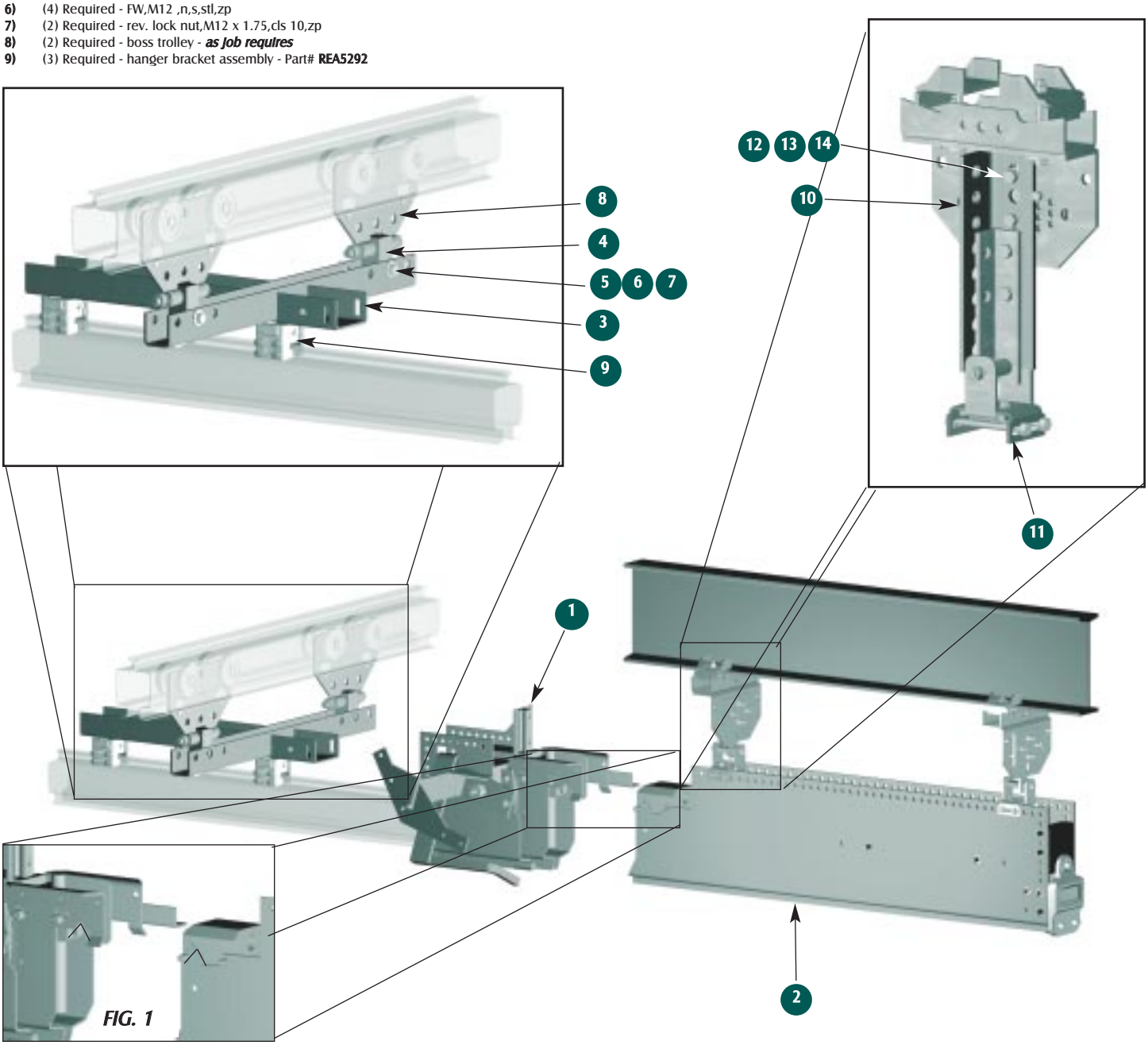


FIG. 1

Recommendations: **Do not use the latch mechanism to maneuver the bridge on the runway, use the Fixture instead. Using the latch for this purpose may bend or cause damage the the latching mechanism.**

ASSEMBLY# RSS5399, RSS5397, RSS5599, RSS5597, RSS5799, RSS5797
ENCLOSED TRACK TRANSFER SWITCH

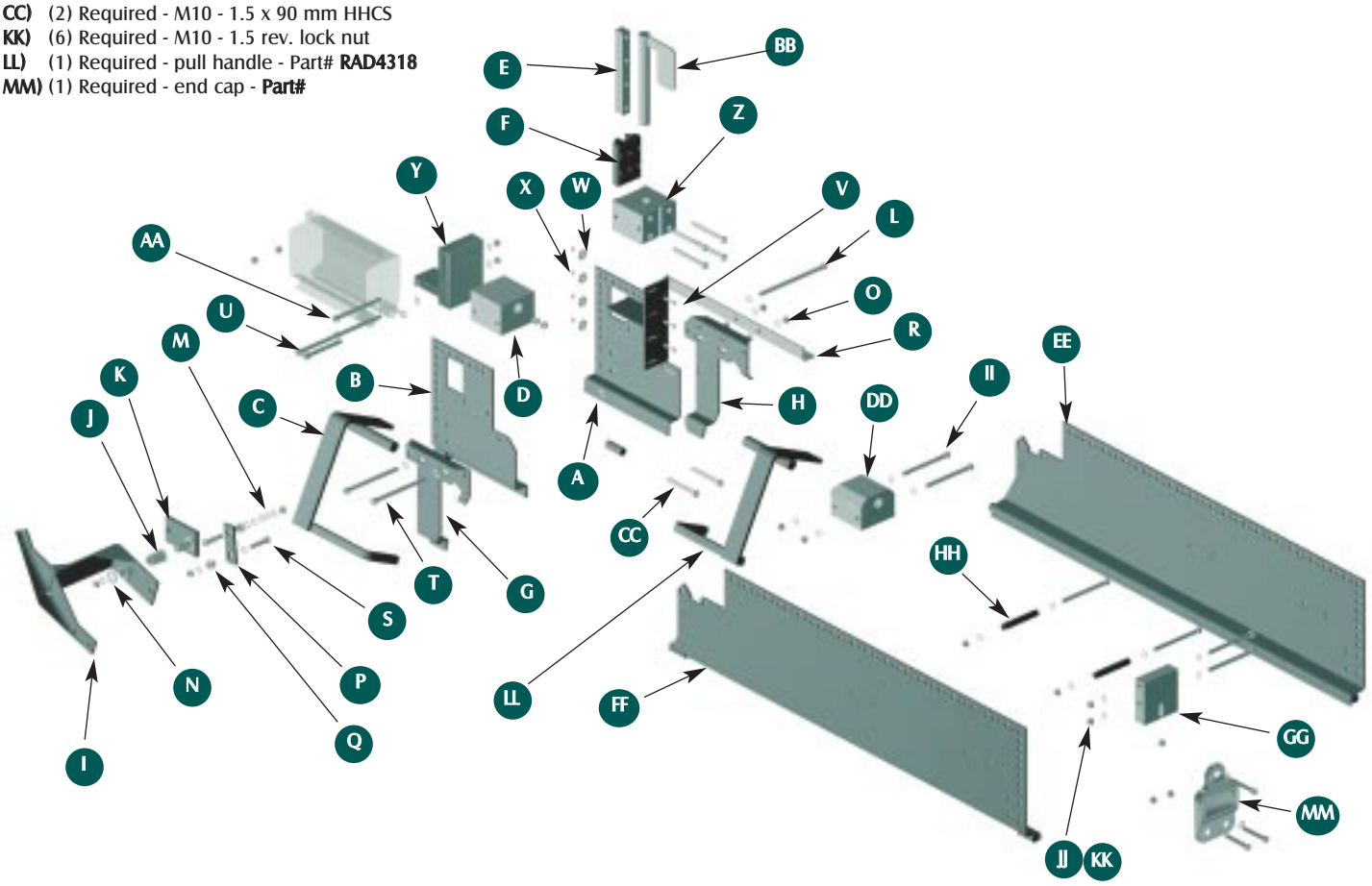
BILL OF MATERIAIS

Switch track latch - Part# RAS5399

A) (1) Required - RH latch bracket - Part# **RSD5548**
B) (1) Required - LH latch bracket - Part# **RSD5547**
C) (1) Required - trolley arm stop - Part# **RAD4196**
D) (1) Required - spacer block - Part# **RSD5242**
E) (1) Required - THK precision rail - Part# **RG25NL210**
F) (1) Required - THK precision rail trolley - Part# **CG25AAAN**
G) (1) Required - LH sliding latch brakcet - Part# **RSD5545**
H) (1) Required - RH sliding latch bracket - Part# **RSD5546**
I) (1) Required - pull handle - Part# **RAD4238**
J) (1) Required - Oilite flange bushing - Part# **FL77-12**
K) (1) Required - handle bracket - Part# **RAD4316**
L) (1) Required - M10-1.5 x 200 mm SHCS
M) (24) Required - M10 flat washer
N) (1) Required - .625 SAE washer
O) (13) Required - M10 - 1.5 rev. lock nut
P) (1) Required - handle linkage - Part# **RAD4253**
Q) (2) Required - drill bushing - Part# **SF40-6**
R) (1) Required - lock bar - Part# **RAD4252**
S) (2) Required - M10-1.5 x 45 mm SHCS
T) (2) Required - M10 -1.5 x 150 mm SHCS
U) (6) Required - M10 - 1.5 x 100 mm SHCS
V) (4) Required - M6-1 x 30 mm SHCS
W) (4) Required - FW, M6
X) (4) Required - M6 - 1 rev. lock nut
Y) (1) Required - support block - Part# **RSD5241**
Z) 1) Required - notched block - Part# **RSD5243**
AA) (2) Required - M10 - 1.5 x 130 mm SHCS
BB) (1) Required - flag stop - Part# **RAD4254**
CC) (2) Required - M10 - 1.5 x 90 mm HHCS
KK) (6) Required - M10 - 1.5 rev. lock nut
LL) (1) Required - pull handle - Part# **RAD4318**
MM) (1) Required - end cap - **Part#**

Switch track counter-latch - Part# RAS5397

DD) (1) Required - spacer block - Part# **RSD5244**
EE) (1) Required - RH spur track - Part# **RSD5235A**
FF) (1) Required - LH spur track - Part# **RSD5249A**
GG) (1) Required - end block - Part# **RSD5241**
HH) (2) Required - spacer - Part# **RAD4878**
II) (6) Required - M10 - 1.5 x 130 mm SHCS
JJ) (12) Required - M10 flat washer
KK) (6) Required - M10 - 1.5 rev. lock nut
LL) (1) Required - pull handle - Part# **RAD4318**
MM) (1) Required - end cap - **Part#**



Recommendations: Do not use the latch mechanism to maneuver the bridge on the runway, use the Fixture instead. Using the latch for this purpose may bend or cause damage the the latching mechanism.

ASSEMBLY# RMS4065, RMS4201

FESTOONED HOSE MANAGEMENT KIT FOR 5300, 5500 & 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

Verify parts from parts list on the right. Inspect for breakage or loose parts, as damage may occur during shipping. Locate the air supply or determine the end of the runway from which the air will enter the system. All Knight products, balancers, cylinders, arms, etc. shall have clean,dry air only, unless specified. Install the drop-in bracket assembly ***(RSA5042)*** at the end of the rail and install the filter/regulator bracket assembly ***(RSA5042)*** in the runway nearest the end with the plant air supply. Secure the SMC filter regulator ***(E)*** in the bracket ***(B)*** with the filter/regulator jam nut ***(F)*** and install the gauge. The "in" port should face toward the plant air supply.

WARNING: ***Make sure that the air pressure is depleted in plant supply lines before removing plugs or valves.***

Attach the plant air supply to the "in" port on the filter/regulator with customer supplied hose and fittings. Remove the end cap at the filter/regulator end of the runway. Install one hose trolley per each five (5) foot increment of runway rail. ***(See page 47 for information on installing hose trolleys.)*** If the system has a bridge installed, remove the end cap and install one hose trolley per five (5) foot increment of bridge rail.

WARNING: *Reinstall end caps completely before continuing.*

Use pipe dope on all pipe threaded fittings, do not tape or dope flared fittings. Install the male connector ***(R)*** into the "out" port of the filter regulator. Install the female barb connector ***(V)*** with the Oetiker clamp ***(Q)*** into nylon reinforced hose. Install the hose with fitting to the filter/regulator ***(E)***. Remove the "U" bolts from the festoon trolleys. Reinstall the "U" bolts with hose, alternating from inside to outside, as shown. Alternating hose trolleys will prevent hose pinching when the bridge, fixture or hoist is rolled to the air supply end of the system. The loops should hang down from the trolley approximately three (3) feet. Install the male swivel push-on fitting with the Oetiker clamp into the 3/8" I.D. nylon reinforced hose. Attach the flared & NPT fitting to the hoist or fixture. Clear contaminant's from the hose before attaching to the fixture by charging hose with air from the plant supply line. Attach the hose to the flared fitting on the hoist or fixture. Zip-tie the hose to the "U" bolts after verifying sufficient travel with no hose binding. Pressurize and check for leaks.

If the system has a bridge, bolt the directional hose bracket ***(L)*** to the side of the bridge trolley on the supply side end truck using the two (2) M12 x 40 mm HHCS ***(M),*** *(4)* M12 flat washers ***(O)*** and (2) M12 reverse lock nuts ***(N)***. Install the close nipple ***(T)*** into the merchant coupling ***(S)***. Put the nipple through the hole in the directional bracket and install the elbow ***(U)*** on the nipple, trapping the fittings in the bracket. Attach the runway hose to the coupler side of the bracket. Install the fittings on the bridge hose and connect one end to the elbow side of the directional bracket. Clear contaminant's from the hose before attaching to fixture by charging hose with air from the plant supply line. Install female connector ***(V)*** and Oetiker clamp ***(Q)*** to hose end. Festoon to trolleys as described and attach the opposite end to the hoist or fixture and secure with zip-ties. Pressurize and check for leaks.

BILL OF MATERIALS

(1) Required - filter regulator assembly - **Part# RMS5149**

- **A)** (1) Required - cage nut tap plate - Part# **RWD4089**
- **B)** (1) Required - filter regulator bracket - Part# **RMD4151**
- **C)** (1) Required - HHCS,M12 x 1.75 x 50 mm,cls 8.8,zp
- **D)** (1) Required - M12,type B,,s,stl,zp split lock washer
- **E)** (1) Required - SMC filter regulator - Part# **NAW 3000**
- **F)** (1) Required - filter regulator jam nut

(4) Required - drop in bracket assembly **- Part# RSA5042:**

- **G)** (1) Required - bracket - **Part# RHD5172**
- **H)** (2) Required - mounting brackets - **Part# RHD5173**
- **I)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **J)** (4) Required - rev. lock nut, syl 1, M10 x 1.5,cls. 10, ZP
- **K)** (8) Required - FW, 10 mm,N,S,STL.ZP

(1) Required - directional hose bracket assembly - **Part# RMS5021**

- **L)** (1) Required - directional hose bracket - **Part# RMD4167**
- **M)** (2) Required - HHCS,M12 x 1.75 x 40 mm,cls 8.8,zp
- **N)** (2) Required - rev. lock nut, syl 1, M12 x 17.5,cls. 8, ZP
- **O)** (4) Required - FW, M12,N,S,STL.ZP

(1) Required -

For 3/8" Hose - fitting package - **Part# RMS5138**

- **P)** (1) Required - gauge - **Part# K-10**
- **Q)** (4) Required - Oetiker camp - **Part# 0811**
- **R)** (4) Required - 3/8 male connector - **Part# 1107-6-6**
- **S)** (1) Required - 3/8 merchant coupling - **Part# 1512-6-6**
- **T)** (1) Required - 3/8 close nipple - **Part# B06XCL**
- **U)** (1) Required - 3/8 NPT elbow - **Part# 1530-6-6**
- **V)** (4) Required - 3/8 female hose barb - **Part# 940-6-6**

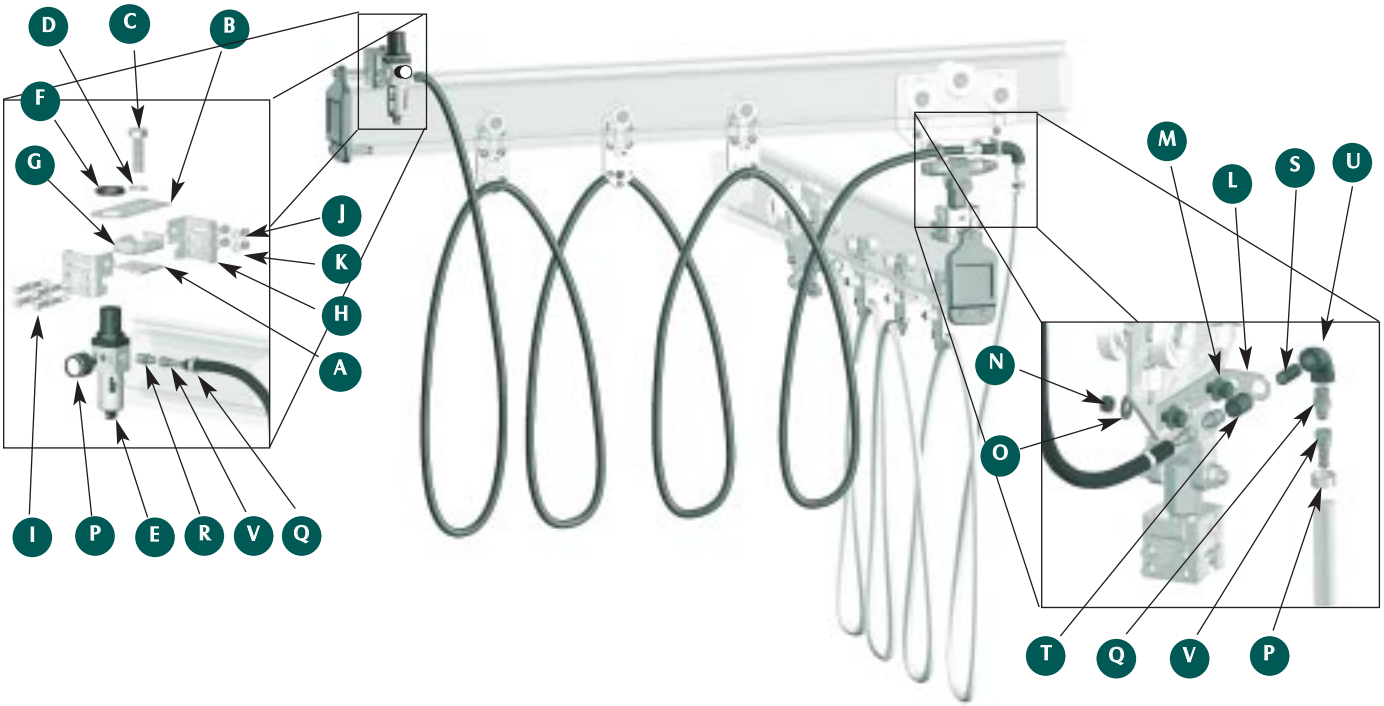
For 1/2" Hose - fitting package - **Part# RMS5139**

- **P)** (1) Required - gauge - **Part# K-10**
- **Q)** (4) Required - Oetiker clamp - **Part# 1113**
- **R)** (4) Required - 1/2 male connector - **Part# 1107-6-6**
- **S)** (1) Required - 1/2 merchant coupling - **Part# 1512-6-6**
- **T)** (1) Required - 1/2 close nipple - **Part# B08XCL**
- **U)** (1) Required - 1/2 NPT elbow - **Part# 1530-8-8**
- **V)** (4) Required - 1/2 female hose barb - **Part# 940-8-8**

(HOSE SOLD SEPARATELY. SEE CUSTOMER SERVICE FOR MORE INFORMATION)

PART WEIGHT: 17.40 lbs. (7.89 kg)

CONFIGURATION



Recommendations: This festooning package contains brackets and fittings to festoon one runway and one bridge with 3/8" all-purpose hose.
This kit does not contain the hose or the hose trolleys. The hose and hose trolleys can be purchased separately. Contact Customer Service for ordering information.

ASSEMBLY# RMS4066, RMS4202

COILED HOSE MANAGEMENT KIT FOR 5300, 5500 & 5700 SERIES RAIL

INSTALLATION INSTRUCTIONS

Verify parts from parts list on the right. Inspect for breakage or loose parts, as damage may occur during shipping. Locate the air supply or determine the end of the runway from which the air will enter the system. All Knight products, balancers, cylinders, arms, etc. shall have clean,dry air only, unless specified. Install the drop-in bracket assembly ***(RSA5042)*** at the end of the rail and install the filter/regulator bracket assembly ***(RSA5042)*** in the runway nearest the end with the plant air supply. Secure the SMC filter regulator ***(E)*** in the bracket ***(B)*** with the filter/regulator jam nut ***(F)*** and install the gauge. The "in" port should face toward the plant air supply.

WARNING: ***Make sure that the air pressure is depleted in plant supply lines before removing plugs or valves.***

Attach the plant air supply to the "in" port on the filter/regulator with customer supplied hose and fittings. Install two (2) turnbuckle bracket assemblies ***(RMS5020)*** at opposite ends of the runway rail. The cable attach arms should overhang the rail on the same side as the filter\regulator. The coiled hose may run on the inside or outside of the runways, depending on obstructions.

Loop one cable end through the cable and attach bracket next to the filter\regulator. Fasten with two (2) cable clips, provided. Make sure the cable clip saddles are on the "live' cable and the "U" bolt on the 'dead' cable. Loop the other end of the cable through the eye on the turnbuckle. Adjust the turnbuckle so that it is extended. Hook the turnbuckle on the opposite cable bracket on the runway. Pull the cable taut and install two cable clips with the clip saddles on the "live" cable and tighten (cut off excess cable.).

Determine length of coiled tube needed. The actual length of coiled tube must be double the working length. For example a 25' runway will required a 50' coiled tube. Slide the hose clamps on the coil, insert the push-on fittings into the coiled hose and crimp the clamps. Install the male connector ***(AA)*** into the "out" port of the filter regulator. Install the female connector barb ***(EE)*** with the Oetiker clamp ***(Z)*** into nylon reinforced hose. Install the hose with fitting to the filter/regulator. Use tape or pipe dope on all pipe threaded fittings. Do not use tape or dope on flared fittings. Install the female connector ***(EE)*** push-on fitting with the Oetiker clamp ***(Z)*** into the nylon reinforced hose. Clear contaminant's from the hose before attaching to the fixture by charging hose with air from the plant supply line. Attach the hose to the flared fitting on the hoist or fixture.Unhook the turnbuckle, feed the cable through the hose, and reattach the turnbuckle. Adjust turnbuckle to tighten the cable. Attach the coiled tube to the flare fitting in the "Out" port. (Do not over-tighten flare fittings.) Fasten the other end to the hoist or fixture leader hose.

If the system has a bridge, install the cable brackets on the rail (For single bridges, the cable faces runway coil. For double bridges the cable runs between the rails.) Install the directional bracket ***(RMS5021)*** to the end truck trolley . Attach the runway coiled tube to the coupler on the directional bracket. Install fittings on the bridge coil *(see page 49 for fitting installation).* Feed the cable through the hose. Tighten the turnbuckle until the cable is taut. Connect bridge coil swivel fittings. A leader may be needed at the end of the coil to supply the fixture or a few coils may be unwrapped to extend the reach of the hose Pressurize and leak check.

BILL OF MATERIALS

(1) Required - filter regulator assembly - **Part# RMS5149**

- **A)** (1) Required - cage nut tap plate - Part# **RWD4089**
- **B)** (1) Required - filter regulator bracket - Part# **RMD4151**
- **C)** (1) Required - M12 x 1.75 x 50 mm,cls 8.8,zp
- **D)** (1) Required - M12,type B,,s,stl,zp split lock washer
- **E)** (1) Required - SMC filter regulator - Part# **NAW 3000**
- **F)** (1) Required - filter regulator jam nut

(4) Required - drop in bracket assembly **- Part# RSA5042:**

- **G)** (1) Required - bracket - **Part# RHD5172**
- **H)** (2) Required - mounting brackets - **Part# RHD5173**
- **I)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **J)** (4) Required - rev. lock nut, syl 1, M10 x 1.5,cls. 10, ZP
- **K)** (8) Required - FW, 10 mm,N,S,STL.ZP

(4) Required - turnbuckle bracket assembly - **Part# RMS5020**:

- **L)** (1) Required - turnbuckle bracket - **Part# RMD4101**
- **M)** (1) Required - cage nut - **Part# RWD4089**
- **N)** (1) Required - M12 split lock washer
- **O)** (1) Required - M12 x 1.75 x 50 mm,cls 8.8,zp hex head cap screw

(4) Required - drop in bracket assembly **- Part# RSA5042:**

- **P)** (1) Required - bracket - **Part# RHD5172**
- **Q)** (2) Required - mounting brackets - **Part# RHD5173**
- **R)** (4) Required - HHCS, M10 x 1.5 x 90, cls. 8.8, ZP
- **S)** (4) Required - rev. lock nut, syl 1, M10 x 1.5,cls. 10, ZP
- **T)** (8) Required - FW, 10 mm,N,S,STL.ZP

(2) Required - directional hose bracket assembly - **Part# RMS5021**:

- **U)** (1) Required - directional hose bracket - **Part# RMD4167A**
- **V)** (2) Required - 1/2-13 x 1 1/2 HHCS
- **W)** (2) Required - 1/2-13 reverse lock nut
- **X)** (4) Required - 1/2 SAE flat washer

(1) Required - **For 3/8" Hose** - fitting package - **Part# RMS5140**

- **Y)** (1) Required - gauge - Part# **K-10**
- **Z)** (4) Required - Oetiker clamp - Part# **0811**
- **AA)** (4) Required - 3/8 male connector - Part# **1107-6-6**
- **BB)** (1) Required - 3/8 merchant coupling - Part# **1512-6-6**
- **CC)** (1) Required - 3/8 close nipple - Part# **B06XCL**
- **DD)** (1) Required - 3/8 NPT elbow - Part# **1530-6-6**
- **EE)** (4) Required - 3/8 female hose barb - Part# **940-6-6**
- **FF)** (4) Required - 3/8 hose mender - Part# **922-6-6**

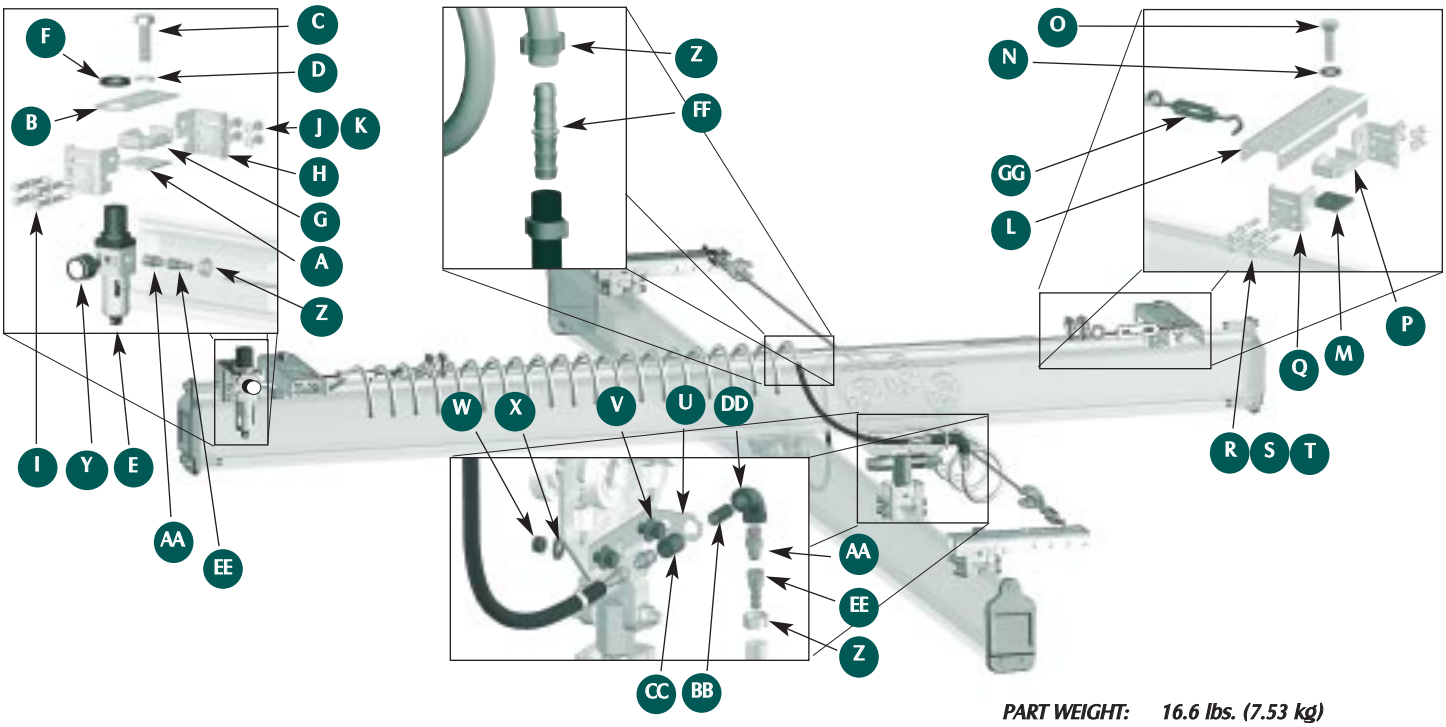
(1) Required - **1/2" Hose** - fitting Package - **Part# RMS5141**

- **Y)** (1) Required - gauge - Part# **K-10**
- **Z)** (4) Required - Oetiker clamp - Part# **1113**
- **AA)** (4) Required - 1/2 male connector - Part# **1107-6-6**
- **BB)** (1) Required - 1/2 merchant coupling - Part# **1512-6-6**
- **CC)** (1) Required - 1/2 close nipple - Part# **B08XCL**
- **DD)** (1) Required - 1/2 NPT elbow - Part# **1530-8-8**
- **EE)** (4) Required - 1/2 female hose barb - Part# **940-8-8**
- **FF)** (4) Required - 3/8 hose mender - Part# **922-6-6**

GG) (4) Required - turnbuckle & cable - Part# **PHTB100A**

(HOSE SOLD SEPARATELY. SEE CUSTOMER SERVICE FOR MORE INFORMATION)

BILL OF MATERIALS



PART WEIGHT: 16.6 lbs. (7.53 kg)

Recommendations: This coiled hose kit contains brackets and fittings to supply air along a messenger cable for one runway and one bridge

SEIZING AND SADDLING WIRE ROPE

WIRE ROPE INFORMATION

STORAGE

Ropes should be stored in coils or on reels in a clean, dry place indoors. If outdoor storage is necessary, then their surfaces must be covered to prevent the entry of moisture or matter that could damage the rope. If lengthy storage is required, it is good practice to periodically examine the ropes and lubricate them, as necessary.

The rope must be kept away from heat and steam and must never be allowed to rest for lengthy periods of time on concrete or ash floors. The lime sulfur and ash can cause corrosion pits that eventually lead to broken wires, sometimes even before the rope is put into service.

SEIZING AND CUTTING

It is most important that tight seizing of annealed wire or strand is maintained on the ends of all ropes. If this is not done the wires and strands are apt to become slack causing a breakdown in the uniformity of tensions in the rope. This results in overloading of some strands, insufficient loading of others, "Bird Caging" and breakage. Use a soft annealed seizing wire and place one end in the valley between two strands. The long end of the wire should then be turned at a right angle to the rope and wound closely and tightly back over the end of the wire and around the rope several times. Finally, after winding the seizing wire on the rope, the two ends should be twisted together at approximately the center of the seizing by alternately twisting and pulling until the seizing is tight.

CABLE CLIPS

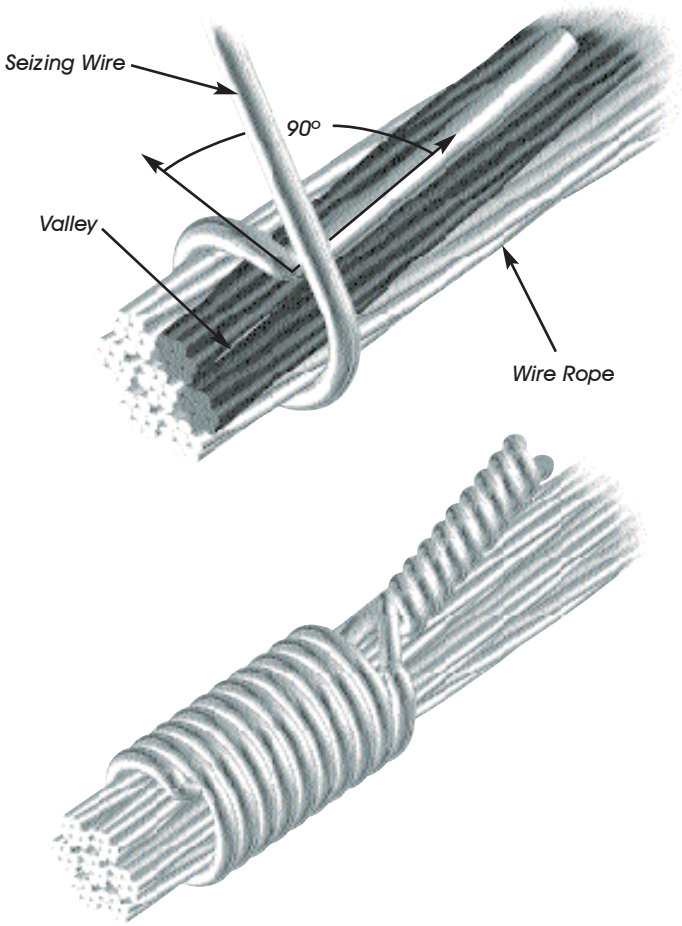
The Knight Industries recommended method for making an eye uses U-bolt and saddle-type Crosby clips, thimbles (for loads exceeding 200 lbs. [91 kg.]) and 1/4 inch galvanized aircraft cable (Federal spec. #RR-W-410D, meeting military spec. #MIL-W-83420D for dimensional tolerancing and strength). These terminators have the advantage of allowing thorough examination and ease of field installation. When applied with proper care, thimbles, and clipped eye terminations will develop approximately 80% of the rope strength. All clips must be of drop-forged steel. Malleable iron clips must never be used.

U-bolt clips must have the U-bolt section on the "dead" or short end of the rope and the saddle on the "live" or long end of the rope. The wrong application (U-bolt on the live instead of dead end) of even one clip can reduce the efficiency of the connection to 40%.

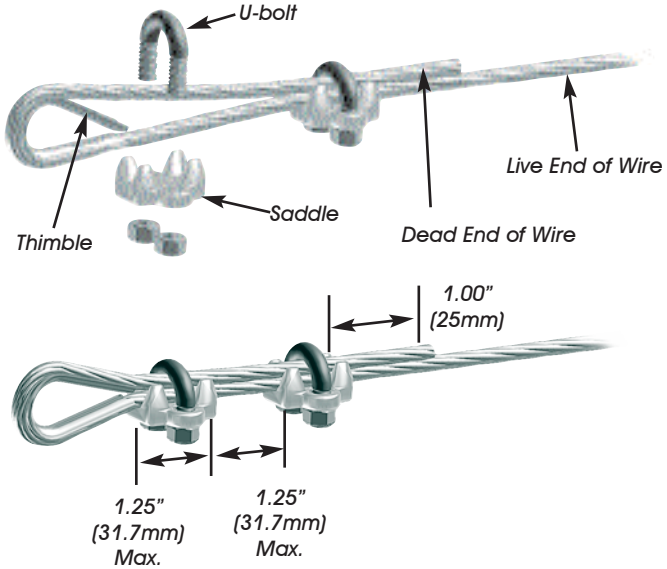
APPLICATION

Turn back 4 3/4" (121 mm) of rope on a thimble or loop. Apply first clip 1.00" (25 mm) from "dead" end of rope. Apply U-bolt over "dead" end of wire rope - "live" end rests in saddle. Tighten nuts evenly, alternating from one nut to the other until reaching 15 ft/lbs. of torque. Apply the second clip as near the loop or thimble as possible, leaving at least one base width between bolts. Tighten nuts evenly, alternating until reaching 15 ft./lbs. of torque.

Apply first load to test the assembly. This load should be of equal or greater weight than loads are expected to be during use. Next, check and retighten nuts to 15 ft./lbs. of torque. In accordance with good rigging and maintenance practices, the wire rope and termination should be inspected periodically for wear, abuse and general adequacy.



Properly Seized Wire Rope



Properly Saddled Wire Rope

CABLING YOUR SYSTEM

SAFETY CABLE FOR HANGERS

Each hanger is required to have safety cable installed. A rail splice area adjacent to a hanger must also be drilled and cabled. The cable must pass over the structural steel on which the rail hanger is attached. The cable should be 1/4 inch in diameter.

Drill a 3/8" hole within 3" of either side of the hanger clamp for heavy duty hangers, both sides for conventional hangers. Pass one end of the cable through the hole and secure to the other end with cable saddles as shown.

Use forged saddle clips only. Cable thimbles should be used on loads over 200 lbs. (90.8 kg). The finished cable assembly should allow as little load drop as possible. Over lapping the cable ends is not an acceptable method to join cable ends.

Safety Cabling Heavy Duty Hangers

Safety Cabling Conventional Hangers

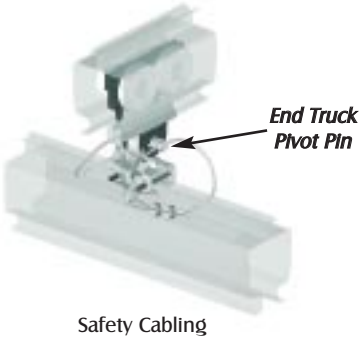
SAFETY CABLE FOR END TRUCKS

Drill a 3/8" hole within 3" of either side of the hanger clamp for heavy duty hangers, both sides for conventional hangers. Pass one end of the cable through the newly drilled hole and the centerbolt hole on the endtruck. Secure to the other end with cable saddles as shown.

For conventional hangers, follow the same procedure for drilling the rail as used for heavy duty hangers, one hole on each side of the endtruck. Thread the cable through the 1/4" clearance holes at one end of the end truck pivot pin and through the newly drilled holes in the rail. Secure to the other end with cable saddles as shown and repeat for other side.

Use forged saddle clips only. Cable thimbles should be used on loads over 200 lbs. (90.8 kg). The finished cable assembly should allow as little load drop as possible. Over lapping the cable ends is not an acceptable method to join cable ends.

Safety Cabling Heavy Duty End Trucks



Safety Cabling Conventional End Trucks

SAFETY CABLE FOR TROLLEYS

Trolleys attached to a carriage frame will be cabled. Nycopress swedges are used with cable thimbles to connect trolleys to arm carriages for Knight supplied equipment. The cable assemblies are pre-swedged and should not be removed.

If an assembly is attached to a trolley, the frame or body of the assembly shall be cabled to the trolley. Knight provides holes through the body of the trolley for cable passage. Cable as shown with the cable terminated at eyelets.

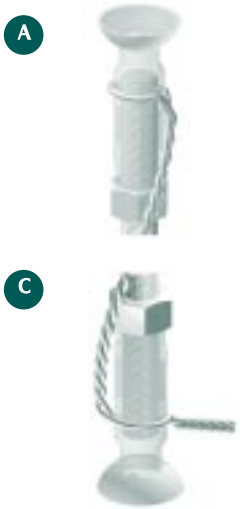
Use forged saddle clips only. Cable thimbles should be used on loads over two hundred pounds. The finished cable assembly should not allow more than one inch of load drop in case of part failure. Over lapping the cable ends is not an accepted method to join cable ends.

Safety Cabling Heavy Duty Trolleys

Safety Cabling Conventional Trolleys

SAFETY WIRE FOR EXTENDED STACK HANGERS

The length of the safety wire should be double distance from the top to the bottom of the hanger. Thread half the length of the wire through the top hole of the upper hanger swivel. Wrap the left end of the wire in a half turn around the base of the swivel ***(A)***. By hand, twist the two wires together, clockwise, so that the left side of the wire crosses over the right. Next pull the two ends of the safety wire straight down. Clamp your safety wire pliers to the two ends of the wire at the spot where wire would thread the bottom hole of the lower swivel. Use the pliers to twist the wire in a clockwise direction until tight. Remove the pliers and spiral the twisted pair of wires, clockwise, around the threaded rod of the hanger until tight. Thread the right hand wire through the bottom hole of the lower swivel. Wrap the left end of the wire in a half turn around the base of the swivel ***(B).*** By hand, twist the two wires together, clockwise, so that the left side of the wire crosses over the right ***(C)***. Clamp the safety wire pliers on the wire 1" from the swivel. Use the pliers to twist the wire in a clockwise direction until tight. Cut off excess wire, and fold remaining wire in half ***(D)***.



Knight Industries Rail Trouble Shooting Tree Performance Issues

Getting Started

System performance can be affected by many different factors. If a system is not performing as well as expected, then follow the flow chart to diagnose the problem. Start by pulling the load with a tension meter (fish scale) to determine the pounds of force required for starting and maintaining movement of the load. The maximum should be around 15 pounds to start and 12 pounds to maintain movement for heavier offset loads. For lighter loads or direct loads, minimums can be as low as 2 to 5 pounds of force. Direct loads are loads that are directly below the trolleys or trolley carriage framework, such as hoists or vertical lift assemblies. Offset loads are loads that are cantilevered beyond the support frame or trolleys, such as an arm or horizontal telescoping system.

PROBLEMS

PROBLEM	CONDITIONS THAT SHOULD BE CHECKED (CENTER PANEL)
Fixture, hoist, arm or bridge will not roll well along the entire length of the runway.	A - B - C - D - E - F - G - H - I - J - K
Fixture, hoist, arm or bridge rolls well in certain sections of the runway but rolls with difficulty in other sections of the same runway.	A - B - C - D - F
Fixture, hoist, arm or bridge will not glide after initial push.	A - B - D - E - F - G - H - I - K
Fixture, hoist, arm or bridge binds at runway splice, hanger or end cap.	F
Fixture, hoist, arm or bridge skews or rotates on the horizontal axis (changes from a rectangle to a parallelogram) and binds up or is difficult to push or pull.	B - C - D - E - G - I - K
Fixture, hoist, arm or bridge bumps or jerks while being pushed or pulled.	A - D - F - I - K
Fixture or hoist on an offset bridge, a telescoping bridge or an offset loaded arm teeters on the loaded runway and causes the opposite runway to "kick up" or the part and/or fixture will not remain up right and square to assembly. The opposing hangers kick-up or twist sideways and bind the trolleys on the fixture or bridge.	L
Fixture, arm or hoist settles in the center span of a bridge or runway and will not remain parked at intervals along the bridge length.	B - D
Fixture, arm, hoist or bridge "runs away" or will not stay parked at intervals along the runway length.	B - D
Fixture, arm, hoist or bridge trolleys are very "loose" in the runway, the load skews or yaws easily and is difficult to push or pull and binds intermittently.	J - I
Fixture, arm, hoist or bridge binds at one area of the rail where no hangers, end caps, stops or splices are present.	J
Fixture, hoist, arm or bridge trolleys continually wear out and/or break or fracture.	C - E - F - K - I

CONDITIONS

A. Is the trolley running surface in the runways clean and free of oil, grease and dirt?
Yes - Check next condition
No - See solution I

B. Are the runways parallel and level to within ±1/8" along their length and across their width?
Yes - Check next condition
No - See solution II

C. Are both runways free to pivot along their longitudinal axis (roll) at the hanger attaching points?
Yes - Check next condition
No - See solution III

D. Is the fixture frame or bridge assemblies free of attached equipment such as hoses, coiled tubes, electrical cables, drive systems or tracking devices?
Yes - Check next condition
No - See solution IV

E. Are the trolleys on the fixture or bridge equipped with a ***functional*** pivot attachment bracket or yoke and/or swiveling bracket or yoke on the horizontal axis (yaw) and on the longitudinal axis (roll) between the frame and the trolley?
Yes - Check next condition
No - See solution V

F. Are the spliced sections straight and level? Are the inside running surfaces at the splice flush and aligned? Are the end cap bolts loose enough to turn by hand?
Yes - Check next condition
No - See solution VI

G. Do the load trolleys or bridge trolleys run smoothly and quietly?
Yes - Check next condition
No - See solution VII

H. Are the visible surfaces of the trolley wheel smooth and unblemished?
Yes - Check next condition
No - See solution VIII

I. Are the trolleys on the carriage or fixture, in the same track, directly in line with each other and the rail?
Yes - Check next condition
No - See solution IX

J. Does the center to center measurement of the runway match the centers of the bridge or fixture that is installed on the runways? Are the trolleys on the carriage or fixture directly in line with each other and the rail?
Yes - Check next condition
No - See solution X

K. Are the trolleys running in the rails without wobbling and are the wheels running true on the axles?
Yes - Check next condition
No - See solution XI

L. Have the right hangers been used for the job (Rigid hangers for offset or cantilevered loads and rod type hangers on all other applications)?
Yes - Check next condition
No - See solution XII

M. Is the rail in good condition; free from damage?
Yes - Check next condition
No - See solution XIII

SOLUTIONS

I. Clean inside surfaces of the rail. Dirty or greased runways will adversely affect rolling performance. Grease or oil will temporarily relieve binding but only masks the true problem and will eventually cause even greater resistance by attracting dirt and debris to the rolling surface and to the trolley wheels. Also, grease and oil or any petroleum-based product applied to the track will drip on personnel and product.

II. Level and align the system. When a system is installed level and parallel using the proper components, the rolling performance can be as good as six pounds to start the load and four pounds of force to maintain the movement, even for heavier loads. The best to be expected is one to five pounds for loads directly under the trolley or load frame and four to seven for offset or cantilevered loads.

III. Install hangers that pivot between the structure and the runway track. Rod type for direct loads and rigid pivot types for offset loads. Rigidly mounted runway hangers will cause binding and friction that can greatly effect "roll-ability". The hanger should pivot or swivel between the structural attachment and the rail hanger bracket. The runway should be able to rock back and forth on the hanger pivot.

IV. Free up resistance from attached components. Attachments such as pneumatic coiled tubing or electrical cables, tracking systems, control panels, electrical boxes, powered drive systems, assembly trays or fastening systems can all effect performance. Any three or four trolley frames should allow pivot at the trolley attach bracket using a yoke, hinge or bearing. Load trolleys should not be linked together with solid connectors or tow bars.

V. Install trolleys or brackets on the trolleys that allow pivot between the trolley and hoist or carriage frame. Fixture or bridges that have the load trolleys attached rigidly to the carriage framework will cause binding, side loading and friction between the trolley wheel and trolley running surface. If the trolley can pivot at the load and the track can pivot at the hanger, the trolley wheels will stay square to the running surface, the trolley bearings will be equally loaded and the trolley wheel tread will be flat on the track running surface. The load will glide farther and run smoother, and the wheel bearings and side rollers will last much longer.

VI. Loosen over tightened bolts for binding at end caps, hangers, or splices. Trolley guide rollers will stick at the end of track sections if the cap cross bolts are too tight. Trolleys can bind at hangers or splices if cross bolts are too tight. Trolleys can bind at splices if the sections are not aligned and the draw bolts are too tight.

VII. Clean the side rollers. Squeaking from trolleys is caused by dirt caught between the side guide roller and the dowel pin axle it turns on. The side roller squeaking can be fixed by cleaning and lubricating the dowel and side roller on the trolley. Clean with contact cleaner and lube sparingly with lithium based grease only

VIII. Remove trolleys from the track and inspect for damage, imbedded objects cracks or bearing wear. If chips or cracks are evident replace the bearing and wheel assembly. The wheel should not wobble on the bearing more than 1/16th of an inch. It should spin freely and smoothly with no binding.

IX. Loosen nuts on yoke mounting bolts or open cross holes in yoke attachments. If the trolleys are on yokes that restrict yoke slop in the vertical plane (yaw), the trolleys will dog track (they will not roll in the same line). This condition will create friction between the track to the trolley wheel.

X. The center distance between runway rails should be equal to the center distance between the endtrucks, with a tolerance of $\pm$ 1/16. The bridge should be perpendicular to the runway and the trolleys should be directly in line with each other.

XI. Make sure the correct trolley size is installed in the corresponding rail size. The small load trolleys will fit in the larger profile track sections. This is dangerous and can lead to load failure. The load trolley should fill the profile width of the track in which it is installed.

XII. Ensure that anti-kick up rail and hangers have been used on a cantilevered load system. If rod type hangers are used on a system that has an offset or cantilevered load installed on it, then kick up binding is possible. Hangers on runways that support offset loads should not be rod type hangers. Rigid mounted pivot hangers are most effective on offset loads.

XIII. Replace rail.

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