
OWNER'S MANUAL

SPARK RESISTANT MANUAL TROLLEY VLPT/VLGT SERIES

For use with the TCE Air Hoist
1/4 Ton through 6 Ton Capacity

Code, Lot and Serial Number

⚠ WARNING

This equipment should not be installed, operated, or maintained by any person who has not read and understood all the contents of this manual. Failure to read and comply with the contents of this manual can result in serious bodily injury or death, and/or property damage.

HARRINGTON
A **KITO** GROUP COMPANY



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1.0 Important Information and Warnings

1.1 Terms and Summary

This manual provides important information for personnel involved with the installation, operation and maintenance of this product. Although you may be familiar with this or similar equipment, it is strongly recommended that you read this manual before installing, operating, or maintaining the product.

Danger, Warning, Caution and Notice - Throughout this manual there are steps and procedures that can present hazardous situations. The following signal words are used to identify the degree or level of hazard seriousness.

⚠ DANGER Danger indicates an imminently hazardous situation which, if not avoided, **will** result in **death or serious injury**, and property damage.

⚠ WARNING Warning indicates an imminently hazardous situation which, if not avoided, **could** result in **death or serious injury**, and property damage.

⚠ CAUTION Caution indicates a potentially hazardous situation which, if not avoided, **may** result **minor or moderate injury** or property damage.

NOTICE Notice is used to notify people of installation, operation, or maintenance information which is important but not directly hazard-related.

⚠ CAUTION

These general instructions deal with the normal installation, operation, and maintenance situations encountered with the equipment described herein. The instructions should not be interpreted to anticipate every possible contingency or to anticipate the final system, crane, or configuration that uses this equipment. For systems using the equipment covered by this manual, the supplier and owner of the system are responsible for the system's compliance with all applicable industry standards, and with all applicable federal, state, and local regulations/codes.

This manual includes instructions and parts information for a variety of trolley and hoist types. Therefore, all instructions and parts information may not apply to any one type or size of specific trolley or hoist. Disregard those portions of the instructions that do not apply.

Record your trolley's Code, Lot and Serial Number on the front cover of this manual for identification and future reference to avoid referring to the wrong manual for information or instructions on installation, operation, inspection, maintenance, or parts.

Use only Harrington authorized replacement parts in the service and maintenance of this trolley.

⚠ WARNING

Equipment described herein is not designed for and **MUST NOT** be used for lifting, supporting, or transporting people, or for lifting or supporting loads over people.

Equipment described herein should not be used in conjunction with other equipment unless necessary and/or required safety devices applicable to the system, crane, or application are installed by the system designer, system manufacturer, crane manufacturer, installer, or user.

Modifications to upgrade, rerate, or otherwise alter this equipment shall be authorized only by the original equipment manufacturer.

Equipment described herein may be used in the design and manufacture of cranes or monorails. Additional equipment or devices may be required for the crane and monorail to comply with applicable crane design and safety standards. The crane designer, crane manufacturer, or user is responsible to furnish these additional items for compliance. Refer to ANSI/ASME B30.17, "Safety Standard for Top-Running Single Girder Cranes"; ANSI/ASME B30.2 "Safety Standard for Top-Running Double-Girder Cranes"; and ANSI/ASME B30.11 "Safety Standard for Underhung Cranes and Monorails".

If a below-the-hook lifting device or sling is used with a hoist, refer to ANSI/ASME B30.9, "Safety Standard for Slings" or ANSI/ASME B30.20, "Safety Standard for Below-the-Hook Lifting Devices".

Hoists, trolleys, and cranes, used to handle hot molten material may require additional equipment or devices. Refer to ANSI Z241.2, "Safety Requirements for Melting and Pouring of Metals in the Metalcasting Industry".

Failure to read and comply with any one of the limitations noted herein can result in serious bodily injury or death, and/or property damage.

 **DANGER**

Confirm the Equipment Group and Explosive Atmosphere designation required for your application. (See section 1.3 Explanation of ATEX) Consider consultation with an authorized ATEX compliance authority if unsure of your hazardous locations requirements.

HAZARDOUS AIR PRESSURE IS PRESENT IN THE AIR HOIST, IN THE SUPPLY OF COMPRESSED AIR TO THE AIR HOIST, AND IN THE CONNECTIONS BETWEEN THESE COMPONENTS.

Before performing ANY maintenance on the equipment, de-energize (disconnect) the supply of compressed air to the equipment; and lock and tag the main switch in the de-energized position. Refer to ANSI Z244.1, "Personnel Protection – Lockout/Tagout of Energy Sources".

Only trained and competent personnel should inspect and repair this equipment.

NOTICE

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate a trolley or hoist in accordance with ANSI/ASME B30.16, "Safety Standard for Overhead Hoists", OSHA Regulations. If the trolley is installed as part of a total lifting system, such as an overhead crane or monorail, it is also the responsibility of the owner/user to comply with the applicable ANSI/ASME B30 volume that addresses that type of equipment.

It is the responsibility of the owner/user to have all personnel that will install, inspect, test, maintain, and operate a hoist read the contents of this manual and applicable portions of ANSI/ASME B30.16, "Safety Standard for Overhead Hoists", OSHA Regulations. If the trolley is installed as part of a total lifting system, such as an overhead crane, the applicable ANSI/ASME B30 volume that addresses that type of equipment must also be read by all personnel.

If the trolley owner/user requires additional information, or if any information in the manual is not clear, contact Harrington or the distributor of the trolley. Do not install, inspect, test, maintain, or operate this trolley unless this information is fully understood.

A regular schedule of inspection of the trolley in accordance with the requirements of ANSI/ASME B30.16 should be established, and records maintained.

1.3 Explanation of ATEX Directive and Markings

Hoists intended for use in potentially explosive atmospheres require measures to reduce the risk of explosions. Requirements for such measures come from the European EC Machinery Directive 2006/42/EC and ATEX Directive 2014/34/EU, commonly referred to as the ATEX Directive (ATEX is from the French ATmospheres EXplosibles), and its supporting standards.

The explosion protection and prevention measures for non-electrical equipment such as air hoists differ from those applied to electrical equipment. Requirements for non-electrical equipment are provided in the ISO 80079 series of standards. Air hoists that meet the appropriate requirements of the ISO 80079 standards satisfy the ATEX Directive and can be used in potentially explosive atmospheres.

Harrington's TCE hoists use the "constructional safety" type of protection in accordance with ISO 80079 *Non-electrical equipment intended for use in potentially explosive atmospheres - Part 5: Protection by constructional safety 'c'*. This standard defines constructional safety as ignition protection in which constructional measures are applied so as to protect against the possibility of ignition from hot surfaces, sparks and adiabatic compression generated by moving parts. Constructional measures that satisfy ISO 80079 include use of materials that reduce or eliminate the risk of sparks produced by impact or friction. This can generally be considered equivalent to the term "spark-resistant features." The ATEX Directive and the ISO 80079 standards require detailed markings to assure the hoists are used correctly. These markings define the applications, the type and duration of the potentially explosive atmospheres, the type of protection, and the maximum surface temperature.

⚠ WARNING Hoist/trolley shall NOT be modified to alter the original Equipment Group and Explosive Atmosphere designation as supplied/specified by manufacturer. All replacement components must remain as supplied/specified by manufacturer in order to maintain the hoist/trolley Equipment Group and Explosive Atmosphere designation as supplied/specified by the manufacturer.

Reference **Table 1-1** for ATEX marking explanation.

Actual Nameplate Markings:

VLPT/GT005-IIB	⊕ II 2G Ex h IIB T4 Gb
Hoist/Trolley	
Combinations:	⊕ II 2D Ex h IIIB T130°C Db

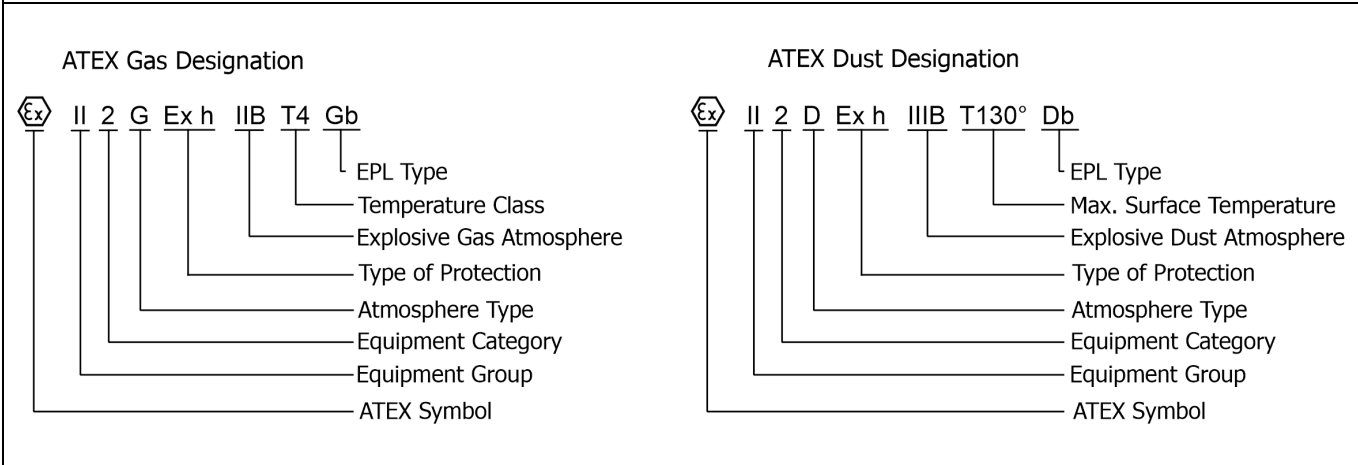
Product's Unique Features

Component(s)	Material
Trolley Frame Components (Side plates, shafts etc.)	Electro-Galvanized Plating (all capacities)
Hardware	Electro-Galvanized Plating (all capacities)
Trolley Wheels	Solid Bronze (all capacities)
Hand Chain Wheel (Geared Trolley Only)	Solid Bronze (1/4 ton and 1/2 ton) Bronze Coated (1 ton, 3 ton and 6 ton)
Hand Chain Guide (Geared Trolley Only)	Stainless Steel (all capacities)
Hand Chain (Geared Trolley Only)	Stainless Steel (all capacities)

⚠ WARNING To maintain spark resistant rating for Atex IIB/IIIB class, hoist must be equipped with manufacturer's nickel-plated load chain and bronze hooks.

⚠ WARNING The ATEX rating for a hoist and trolley "package" is limited by the component with the lowest spark resistance rating.

Table 1-1 ATEX Rating Explanation



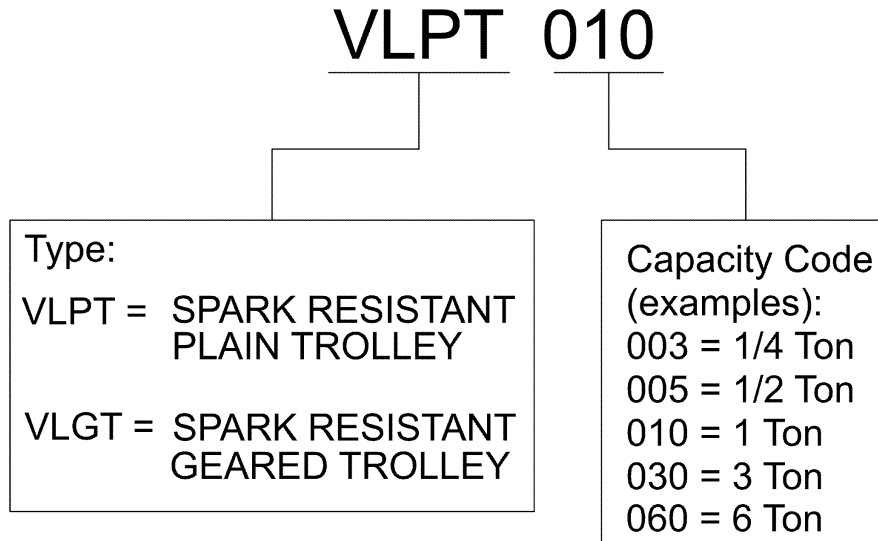
Marking	Definition	TCE "IIB/IIB"
ATEX Symbol	Equipment suitable for potentially explosive atmospheres in accordance with the ATEX Directive.	Ex
Equipment Group	'I' means suitable for use in mines susceptible to firedamp and/or coal dust. 'II' means suitable for non-mine locations that could be endangered by potentially explosive atmospheres.	II
Equipment Category	'1' means for use in areas where an explosive atmosphere is present continuously, for long periods, or frequently. ⚠ WARNING Product not suitable for use in Equipment Category 1. '2' means for use in areas where an explosive atmosphere is likely to occur in normal operation. '3' means for use in areas where an explosive atmosphere is unlikely to occur in normal operation.	2
Atmosphere Type	'G' means suitable for Gas. 'D' means suitable for Dust.	G and D
Type of Protection	This indicates the type of protection method used. "Ex h" represents ignition hazard caused by non-electric equipment in explosive atmospheres.	h
Temperature Class	Designation that indicates the maximum surface temperature the hoist will have during normal operation. There are several designations. T4 = 130°C	T4
Explosive Gas Atmosphere	Designation that indicates the type of gases, vapors and mists the hoist is suitable for. Designations applicable to Equipment Group II: 'IIA' means atmosphere containing methane, propane, or similar gases. 'IIB' means atmosphere containing ethylene or similar gases.	IIB
Maximum Surface Temperature	The maximum surface temperature the hoist will have during normal operation.	T130°C
Equipment Protection Level (EPL Type)	EPL Type of Gb: Equipment for explosive gas atmosphere. Equipment has a 'high' level of protection in normal operation or event of predictable malfunctions. EPL Type of Db: Equipment for combustible dust atmosphere. Equipment has a 'high' level of protection in normal operation or event of predictable malfunctions.	Gb/Db

⚠ WARNING Hoist/trolley shall NOT be modified to alter the original Equipment Group and Explosive Atmosphere designation as supplied/specified by manufacturer. All replacement components must remain as supplied/specified by manufacturer in order to maintain the hoist/trolley Equipment Group and Explosive Atmosphere designation.

2.0 Technical Information

2.1 Specifications

2.1.1 Product Code for VLPT / VLGT Trolley:



2.1.2 Operating Conditions and Environment

Temperature Range: 14° to + 140°F (-10° to +60°C)

Humidity: 100% or less

⚠ WARNING Extreme operating conditions and environment (sea water, extreme heat/cold, etc.) can result in increased component wear and decreased service life.

⚠ WARNING When a hoist and trolley are connected the temperature range suitable for operation is that of the component with the lowest maximum temperature range and the higher minimum temperature range.

2.1.3 VLPT Specifications

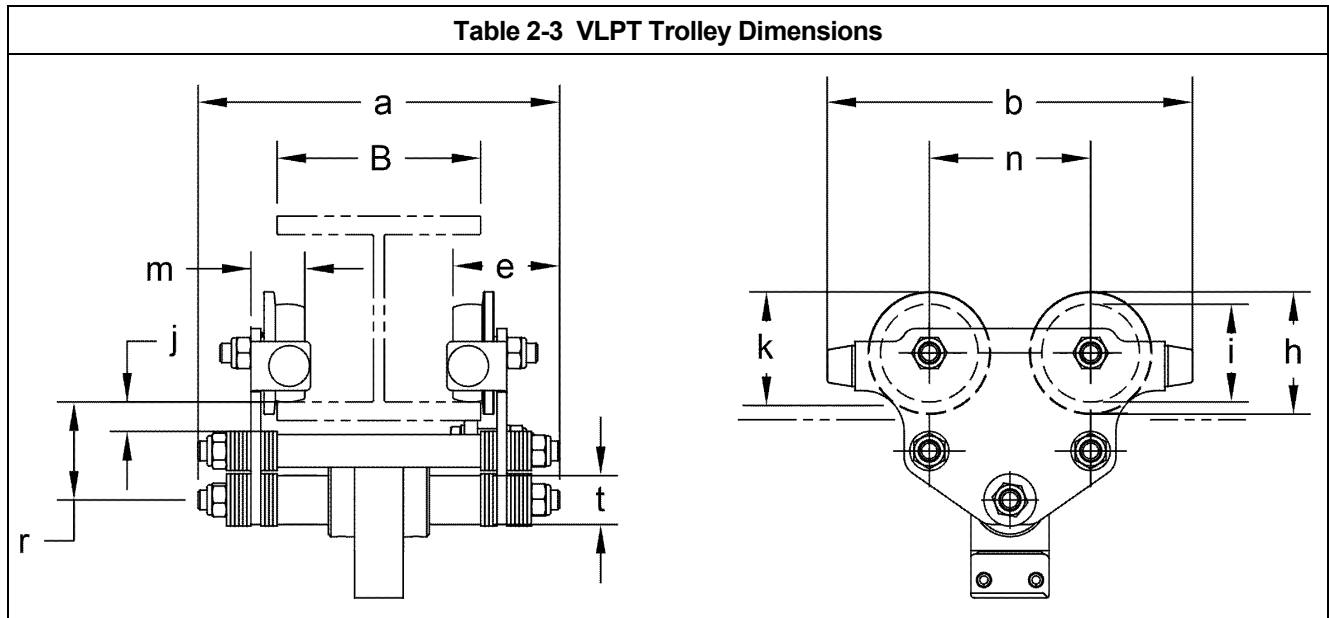
Table 2-1 VLPT Trolley Specifications					
Cap. (Tons)	Product Code	Min. Radius for Curve in. (mm)	Flange Width Adjustability B		Approx. Net Weight lbs. (kg)
			Standard in. (mm)	Option in. (mm)	
1/4	VLPT003	41.3 (1050)	2.17 to 4.13 (55 to 105)	4.14 (106) to 6.10 (155) or 6.11 (156) to 9.84 (205) or 9.85 (206) to 10.04 (255)	15 (7)
1/2	VLPT005	41.3 (1050)	2.17 to 4.13 (55 to 105)	4.14 (106) to 6.10 (155) or 6.11 (156) to 9.84 (205) or 9.85 (206) to 10.04 (255)	15 (7)
1	VLPT010	55.1 (1400)	2.91 to 5.28 (74 to 134)	5.29 (135) to 7.48 (190) or 7.49 (191) to 9.84 (250) or 9.85 (251) to 12.01 (305)	31 (14)
3	VLPT030	86.6 (2200)	4.17 to 6.38 (106 to 162)	6.39 (163) to 8.50 (216) or 8.51 (217) to 10.47 (266) or 10.48 (267) to 12.01 (305)	92 (42)
6	VLPT060	116.1 (2950)	4.17 to 6.38 (106 to 162)	6.39 (163) to 8.50 (216) or 8.51 (217) to 10.47 (266) or 10.48 (267) to 12.01 (305)	198 (90)

2.1.4 VLGT Specifications

Table 2-2 VLGT Trolley Specifications					
Cap. (Tons)	Product Code	Min. Radius for Curve in. (mm)	Flange Width Adjustability B		Approx. Net Weight lbs. (kg)
			Standard in. (mm)	Option in. (mm)	
1/4	VLGT003	41.3 (1050)	2.17 to 4.13 (55 to 105)	4.14 (106) to 6.10 (155) or 6.11 (156) to 9.84 (205) or 9.85 (206) to 10.04 (255)	26 (12)
1/2	VLGT005	41.3 (1050)	2.17 to 4.13 (55 to 105)	4.14 (106) to 6.10 (155) or 6.11 (156) to 9.84 (205) or 9.85 (206) to 10.04 (255)	26 (12)
1	VLGT010	55.1 (1400)	2.91 to 5.28 (74 to 134)	5.29 (135) to 7.48 (190) or 7.49 (191) to 9.84 (250) or 9.85 (251) to 12.01 (305)	42 (19)
3	VLGT030	86.6 (2200)	4.17 to 6.38 (106 to 162)	6.39 (163) to 8.50 (216) or 8.51 (217) to 10.47 (266) or 10.48 (267) to 12.01 (305)	106 (48)
6	VLGT060	116.1 (2950)	4.17 to 6.38 (106 to 162)	6.39 (163) to 8.50 (216) or 8.51 (217) to 10.47 (266) or 10.48 (267) to 12.01 (305)	214 (97)

2.2 Dimensions

2.2.1 VLPT Dimensions

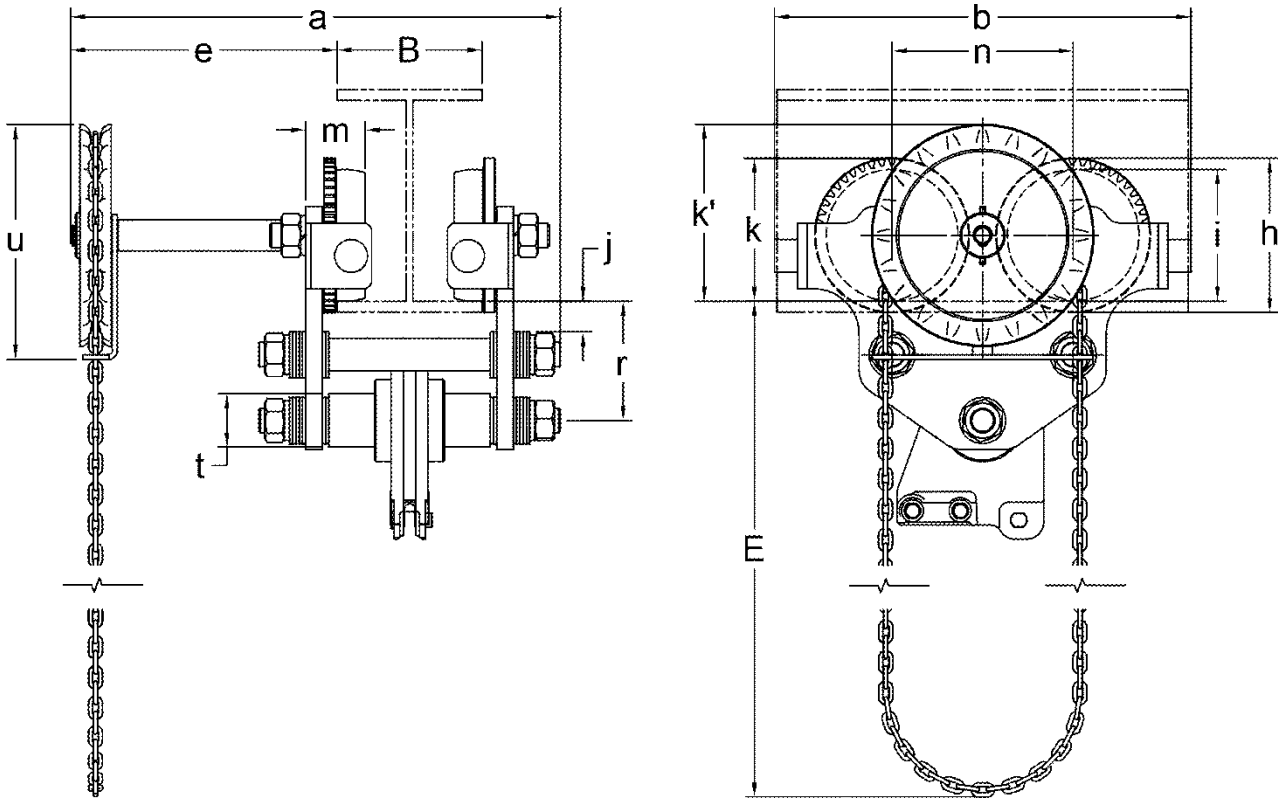


VLPT003 to VLPT060

Cap. (Tons)	Product Code	a	b	e	h	i	j	k	m	n	r	t
		in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
1/4	VLPT003	8.8 (223)	8.8 (223)	2.6 (66)	3.0 (75)	2.4 (60)	0.7 (18)	2.7 (70)	1.3 (33)	3.9 (99)	2.4 (60)	1.2 (30)
1/2	VLPT005	8.8 (223)	8.8 (223)	2.6 (66)	3.0 (75)	2.4 (60)	0.7 (18)	2.7 (70)	1.3 (33)	3.9 (99)	2.4 (60)	1.2 (30)
1	VLPT010	10.6 (270)	11.4 (290)	3.0 (77)	3.9 (99)	3.1 (80)	1.0 (25)	3.5 (90)	1.6 (40)	4.8 (123)	3.0 (75)	1.6 (40)
3	VLPT030	12.8 (326)	16.9 (429)	3.9 (99)	5.9 (150)	4.9 (125)	1.4 (36)	5.4 (137)	2.1 (54)	6.9 (174)	4.6 (118)	2.0 (50)
6	VLPT060	14.5 (368)	19.9 (506)	5.1 (129)	7.4 (188)	6.3 (160)	1.5 (37)	6.9 (174)	2.8 (72)	8.7 (220)	5.7 (145)	2.6 (65)

2.2.2 VLGT Dimensions

Table 2-4 VLGT Trolley Dimensions



VLGT003 to VLGT060

Cap. (Tons)	Product Code	E	a	b	e	h	i	j	k	k'	m	n	r	t	u
		ft. (m)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)	in. (mm)
1/4	VLGT003	8.5 (2.6)	16.3 (414)	8.8 (224)	9.8 (249)	3.0 (76)	2.4 (61)	0.7 (18)	2.7 (69)	3.2 (82)	1.3 (33)	3.9 (99)	2.3 (60)	1.2 (30)	4.5 (114)
1/2	VLGT005	8.5 (2.6)	16.3 (414)	8.8 (224)	9.8 (249)	3.0 (76)	2.4 (61)	0.7 (18)	2.7 (70)	3.2 (82)	1.3 (33)	3.9 (99)	2.3 (60)	1.2 (30)	4.5 (114)
1	VLGT010	8.5 (2.6)	17.4 (443)	11.4 (290)	9.4 (239)	3.9 (99)	3.1 (80)	1 (26)	3.5 (89)	3.5 (89)	1.6 (40)	4.8 (123)	3.0 (75)	1.6 (40)	4.5 (114)
3	VLGT030	8.5 (2.6)	22.6 (573)	16.9 (429)	13 (329)	5.9 (150)	4.9 (125)	1.4 (36)	5.4 (138)	5.4 (138)	2.1 (54)	6.9 (174)	4.6 (118)	2.0 (50)	5.9 (150)
6	VLGT060	8.5 (2.6)	23.2 (589)	19.9 (506)	12.8 (324)	7.4 (188)	6.3 (160)	1.5 (37)	8.5 (215)	8.5 (215)	2.8 (72)	8.7 (220)	5.7 (145)	2.6 (65)	11.3 (286)

Table 2-5 TCE Suspender Dimensions

TCE250/TCE500		TCE1000						
TCE3000		TCE6000						
Trolley Model	Suspender P/N	Cap (Ton)	a in (mm)	b in (mm)	c in (mm)	d in (mm)	e in (mm)	f in (mm)
VLGT/VLPT 003 VLGT/VLPT 005	VL4204601150	¼ & ½	1.9 (48)	3.3 (84)	1.9 (48)	1.2 (30)	0.3 (8)	1.2 (30)
VLGT/VLPT 010	VL4204602250	1	3.3 (84)	3.9 (99)	3.2 (81)	1.6 (41)	0.3 (8)	1.2 (30)
VLGT/VLPT 030	VL4204605250	3	3.9 (99)	6 (152)	3.3 (84)	2 (51)	0.6 (15)	1.8 (45)
VLGT/VLPT 060	VL4204608450	6	7 (178)	8.4 (213)	4.3 (110)	2.6 (66)	0.6 (15)	1.8 (45)

NOTICE

When coupled with a TCE hoist, all VL trolleys must be mounted to the hoist using a lug /suspender only. Use of the top hook to mount to the trolley is prohibited.

3.0 Pre-operational Procedure

3.1 Air Powered Hoist Adjustment/Preparation for Trolley

- 3.1.1 When the VLPT/VLGT trolley is combined with the TCE hoist, follow and complete all pre-operational procedures provided with the hoist as shown in the TCE hoist Owner's Manual.
- 3.1.2 In addition to the information and procedures provided in this section for the VLPT/VLGT trolley, there are specific details for using the TCE hoists with VLPT/VLGT trolleys. Special mounting and air hose considerations must be taken if the trolley is used with a hoist other than a TCE model.
- 3.1.3 Standard configuration for a TCE hoist is lug mounted to the trolley using a TCE to VLPT/VLGT Suspenders. As shown in **Figure 3-1** through **Figure 3-4**.
- 3.1.4 Preparing TCE hoists for use with VLPT/VLGT trolley.

For Single fall hoists (*TCE250C/P, TCE500C/P, TCE3000C/P

Remove the Top Hook Assembly from the hoist and install the ~~suspender~~ as follows:

TCE250C/P and TCE500C/P (Refer to Figure 3-1)

- 1) Carefully remove the two roll pins (spring pins) that secure the yoke and top hook to the hoist main body.
 - ⚠ WARNING** Note: Inspect roll pins (spring pins) for any damage. If damaged, refer to parts list for appropriate part number and replace with new pins from manufacturer.
- 2) Place the suspender assembly on the top of the hoist in the original yoke and top hook position. Line up the holes for the hoist main body and suspender. Carefully reinsert the two roll pins (spring pins).

TCE3000C/P (Refer to Figure 3-3)

- 1) Remove the two solid pins that secure the yoke and top hook to the hoists main body by removing the M12 nuts and M12 washers and sliding the pins out of the hoist main body.
- 2) Place the suspender assembly on the top of the hoist in the original yoke and top hook position. Line up the holes for the hoist main body and suspender. Reinsert the two solid pins and install the M12 washer and M12 nuts. Torque to 76 Nm / 56 (lbf-ft).

For Double fall hoists (TCE1000C2/P2, TCE6000C2/P2)

Remove the Top Hook Assembly and Load Chain from the hoist and install the suspender as follows:

TCE1000C2/P2 (Refer to Figure 3-2)

- 1) Loosen and remove the bolt attaching the load chain to the top hook yoke.
- 2) Remove the load chain from the top hook yoke.
- 3) Carefully remove the two roll pins (spring pins) that secure the yoke and top hook to the hoist main body.

⚠ WARNING

Note: Inspect roll pins (spring pins) for any damage. If damaged, refer to parts list for appropriate part number and replace with new pins from manufacturer.

- 3) Place the suspender assembly on the top of the hoist in the original yoke and top hook position. Line up the holes for the hoist main body and suspender. Carefully reinsert the two roll pins (spring pins).
- 4) Reassemble the remaining hoist components in reverse order of disassembly.
- 5) Reattach the no load side of the load chain to the load chain mounting hole in the suspender.
- 6) Reinsert chain pin and split pin.
- 7) After inserting the split pin, bend both branches to secure split pin in place.

TCE6000C2/P2 (Refer to Figure 3-4)

- 1) Loosen and remove the bolt attaching the load chain to the top hook yoke.
- 2) Remove the load chain from the top hook yoke.
- 3) Remove the two solid pins that secure the yoke and top hook to the hoists main body by removing the M12 washers and M12 nuts and sliding the pins out of the hoist main body.
- 4) Place the suspender assembly on the top of the hoist in the original yoke and top hook position. Line up the holes for the hoist main body and suspender. Reinsert the two solid pins and install the M12 washers and M12 nuts. Torque to 76 Nm / 56 (lbf-ft).
- 5) Reassemble the remaining hoist components in reverse order of disassembly.
- 6) Reattach the no load side of the load chain to the load chain mounting hole in the suspender.
- 7) Reinsert chain pin and split pin.
- 8) After inserting the split pin, bend both branches to secure split pin in place.

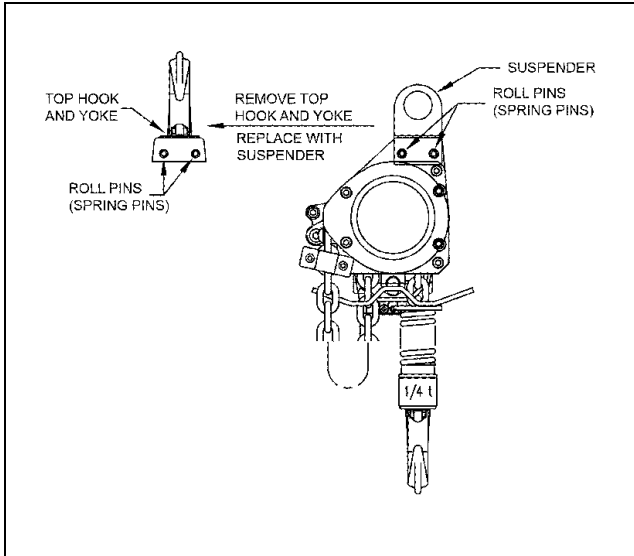


Figure 3-1 TCE250 / TCE500

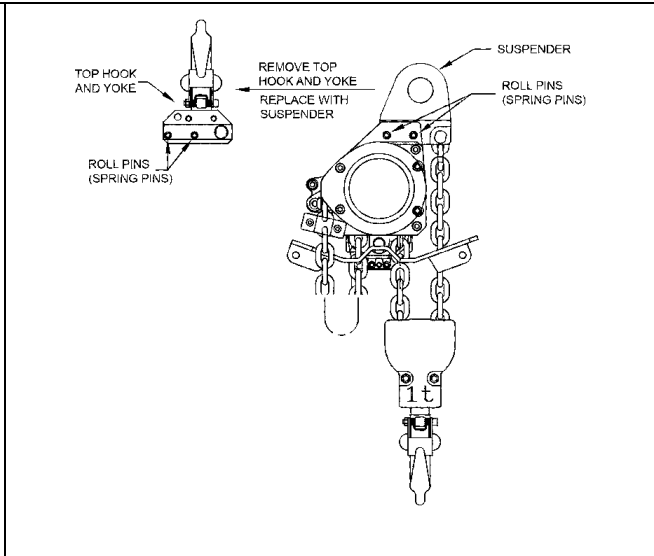


Figure 3-2 TCE1000

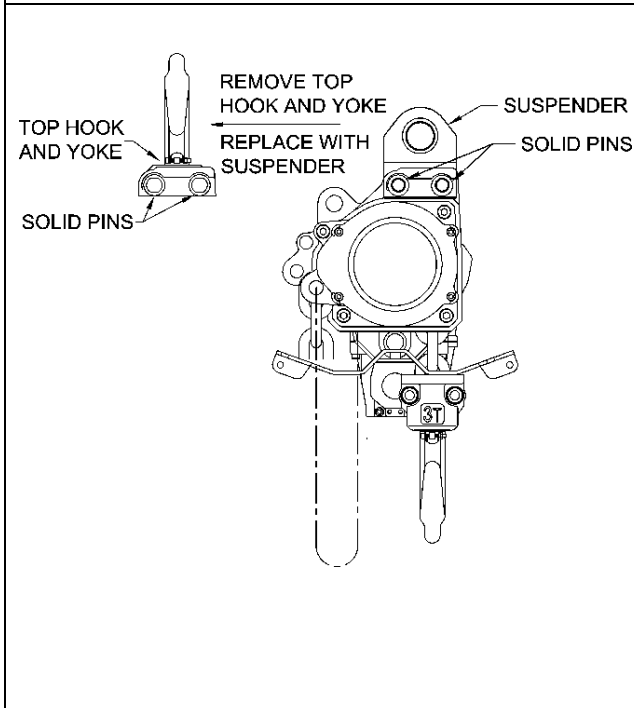


Figure 3-3 TCE3000

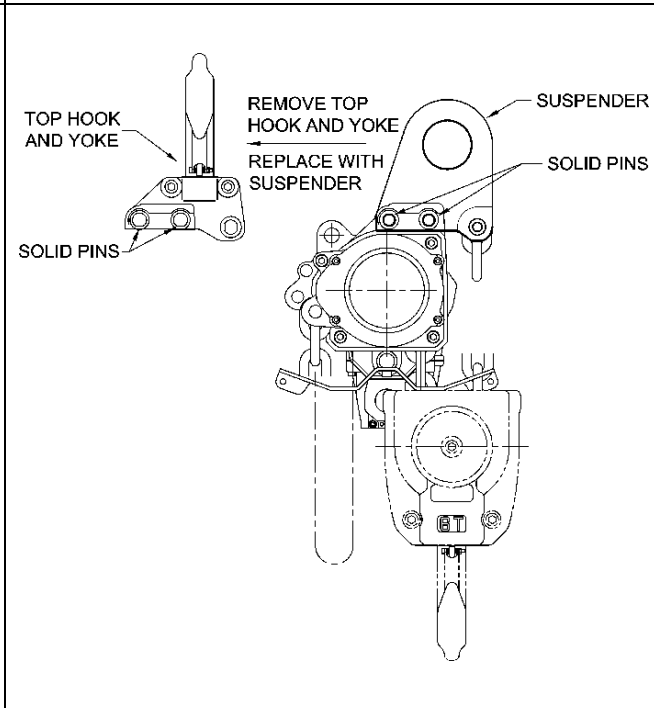


Figure 3-4 TCE6000

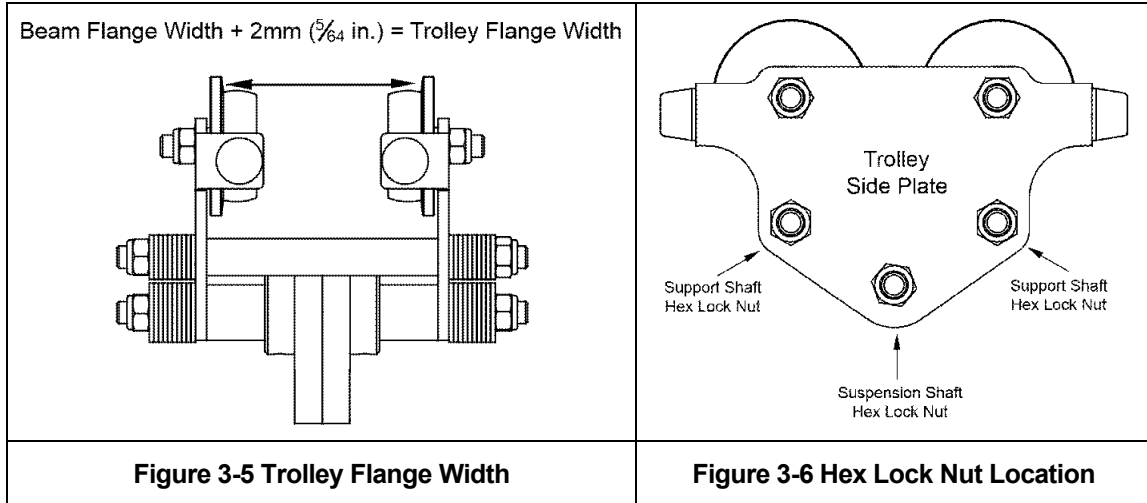
3.1.5 When using an optional steel chain container, refer to the assembly drawing and instructions provided with the container for correct assembly and attachment.

3.2 Trolley Preparation and Flange Adjustment

The VLPT / VLG Trolley comes equipped with adjustment washers located on the Support Shafts and Suspension Shaft. The washers allow the trolley to fit various flange widths within the trolley's respective flange range. Refer to **Table 2-1** and **Table 2-2** for flange width adjustability range.

- 1) Measure the width of the beam flange where the trolley will be installed. The trolley shall be set to the width of the beam flange plus 2mm (5/64 in.) (See **Figure 3-5**)

⚠ WARNING Trolley wheel to beam flange clearance is critical. Too little clearance will cause binding resulting in premature trolley component wear. Binding can also cause erratic trolley motion leading to load swing. Too great of a clearance can result in the trolley falling off the beam.



- 2) Remove Hex Lock nuts located on both ends of the Trolley Support and Suspension Shafts, to gain access to the washers. (See **Figure 3-6**)

⚠ CAUTION Be careful not to damage the threaded ends of the Support and Suspension shafts. Any damage to the threads could prevent the lock nuts from fitting properly.

- 3) To increase the trolley flange width, remove washers from the outer side of the trolley frame and relocate the washers to the inner side of the trolley frame. To decrease the trolley flange, remove washers from the inner side of the trolley frame and relocate the washers to the outer side of the trolley frame. (See **Figure 3-7**)
- 4) Continue increasing or decreasing the amount of washers until the desired flange width is achieved. It is ideal that an equal amount of washers are on all sides of the support shafts and suspension shaft.
- 5) Do not fully torque the hex locking nuts until you have installed the hoist with the suspender or only the suspender dependent on your method of installation in Section 3.4 Installation of Trolley on Beam.

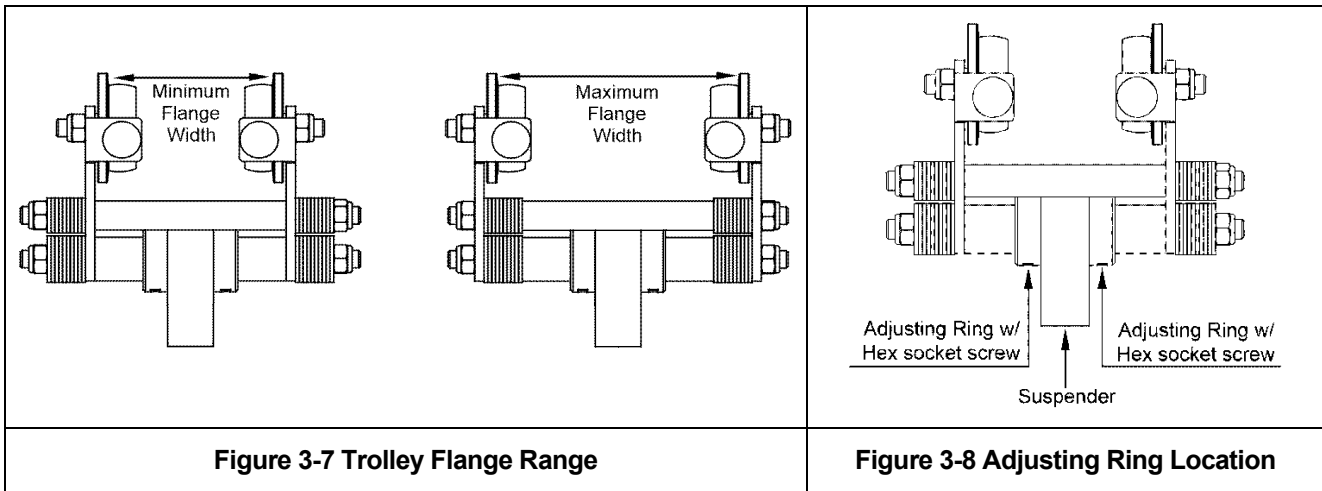
NOTICE If the desired flange width cannot be set with an equal amount of washers, then a difference of 1 washer maximum is allowed.

3.3 Hoist to Trolley Connection

- 1) Remove hex locking nuts from one side of Trolley Frame. Carefully slide Trolley Side Plate off the Trolley Suspension Shaft and the Trolley Support Shafts. (See Figure 3-6)

NOTICE Take note of the flat washer arrangement used to determine the correct flange width as described in Section 3.2. This arrangement will need to be reinstalled.

- 2) With the Side Plate removed, loosen the set screw on the exposed Adjusting Ring and slide Adjusting Ring off Suspension Shaft (See Figure 3-8).
- 3) Slide Suspension Shaft through the hoist's Suspender and reinstall Adjusting Rings. Ensure hoist suspender is centered on trolley suspension shaft. (See Figure 3-8).
- 4) Slide both adjusting rings in, toward the suspender. Ensure the suspender can move freely and does not bind on the adjusting rings. Roughly 1mm (.04 in) of clearance between each adjustment ring and the suspender is acceptable. Confirm Suspender is centered on Suspension shaft before proceeding.
- 5) Tighten the hex socket screw on both Adjusting Rings and torque according to Table 2-5.



3.4 Mounting Location

3.4.1 **⚠ WARNING** Prior to mounting the trolley (and hoist) ensure that the trolley beam and its supporting structure are adequate to support the trolley, hoist and its loads. If necessary consult a professional that is qualified to evaluate the adequacy of the suspension location and its supporting structure.

3.4.2 **NOTICE** See **Section 6.3** for outdoor installation considerations.

3.5 Installation of Trolley onto Beam

3.5.1 Assemble and adjust the trolley before attempting to install the trolley on the beam.

3.5.2 Preferred Method – Sliding the trolley connected with a hoist onto the traversing beam from the beam end is the most convenient and recommended method. If the trolley can be mounted from the end of the beam, then remove the trolley end-stop from the beam and slide the trolley on the beam. Securely re-install the trolley end stop on the beam.

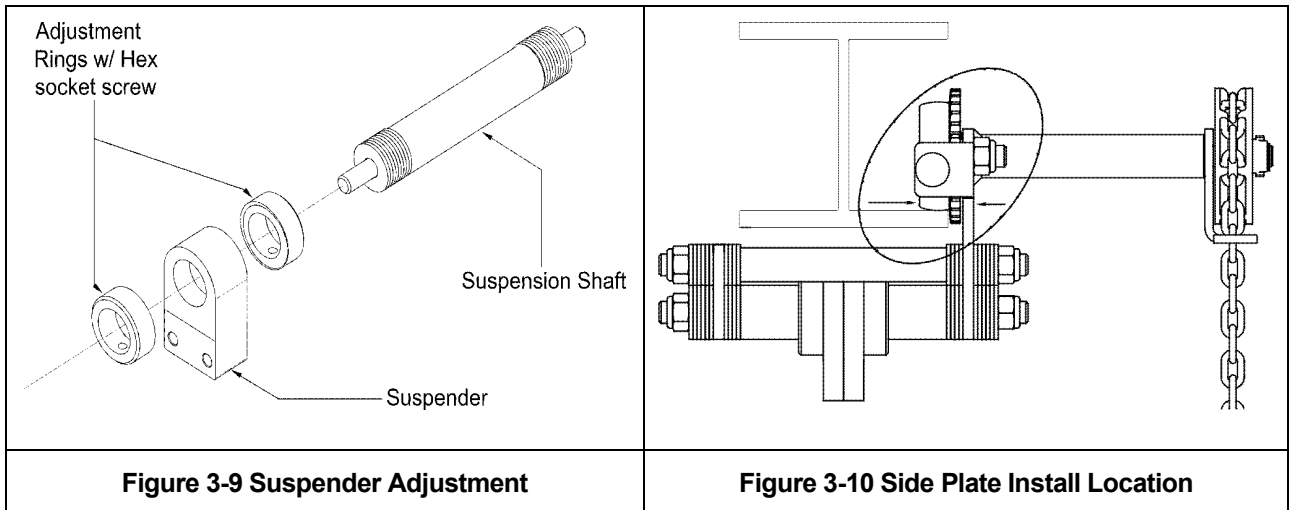
3.5.3 Optional Method for Trolleys up to 6 Ton – If the trolley cannot be mounted from the end of the beam, complete the installation as follows:

- 1) Refer to **Figure 8-1** and **8-2** VLPT / VLGT Trolley parts breakdown.
- 2) Loosen and remove the (6) hex lock nuts that secure the side plates to the suspension / supporting shafts. (See **Figure 3-6**)
- 3) If a suspender is not installed or it requires adjustments. Remove one of the adjusting rings that secure it by loosening the hex socket screw and sliding the adjusting ring off the suspension shaft. It may be necessary to relocate the adjusting rings to center the suspender properly. (See **Figure 3-8 and 3-9.**)
- 4) Place the suspender on the suspension shaft and confirm the suspender is centered above the hoist. Once the suspender is properly centered between both adjusting rings, tighten the hex socket screws down until they make contact firmly against the suspension shaft.
- 5) Lastly properly torque the hex socket screw in accordance with **Table 3-5** below.

Table 3-5 Torque Values - Adjusting Ring Hex socket set screw		
Capacity	Hex socket screw	Torque (Nm)
003 & 005	M8x10	10
010	M10x16	20
3	M10x16	20
6	M10x20	20

- 6) Lift one half of the trolley on to the beam using a double sling chain of sufficient capacity. When installing a geared trolley, place the side plate with geared wheels and hand wheel on first. Make sure the geared trolley wheels of side plate rests completely on the beam flange. (See **Figure 3-10**).

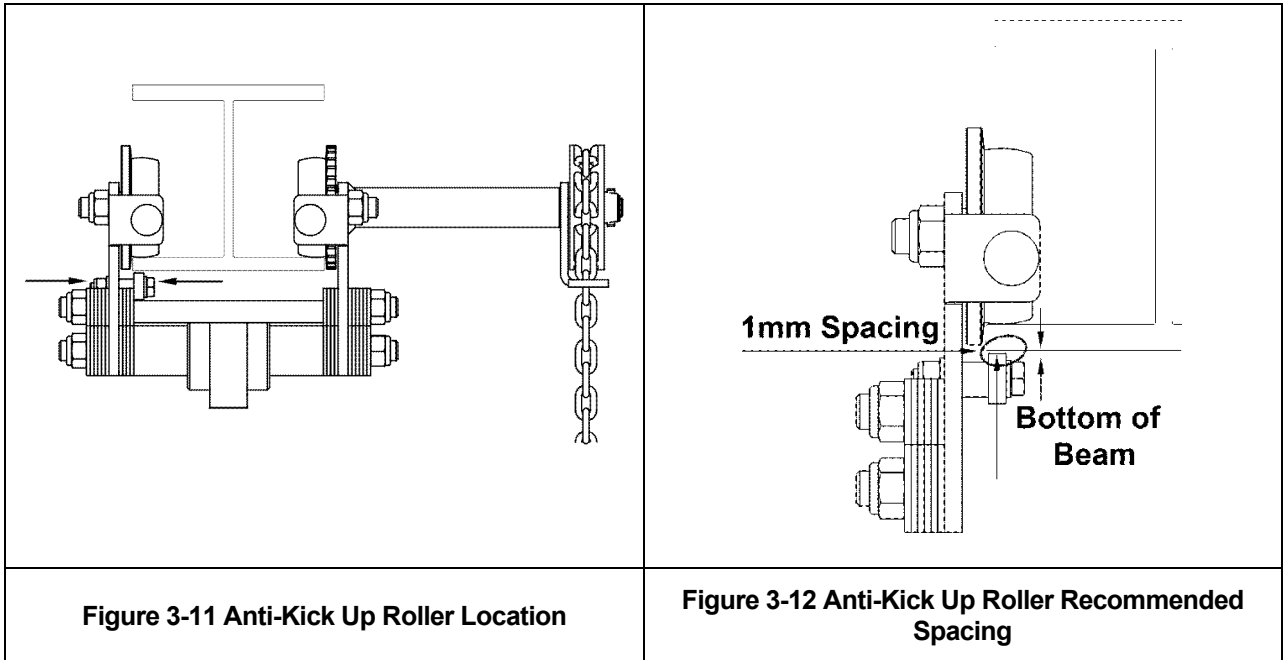
⚠ CAUTION Ensure all parts of the trolley are supported during assembly.



- 7) With the geared side plate mounted and supported, add the correct number of washers on the inside of the suspension and support shafts to achieve the desired flange width.
- 8) Install the push / non-geared side plate by placing it over the Suspension shaft and Support shafts.
- 9) On both sides of the support and suspension shafts shall be an equal number of washers. If with an equal number of washers, the desired width cannot be set, then a difference of 1 washer maximum is allowed.
- 10) Finally tighten all the Hex lock nuts. (Refer to **Table 3-6** for torque values)
- 11) Once assembly has been completed, it must be verified that the trolley is properly mounted, and all bolts have been completely torqued. (Refer to **Table 3-5** and **Table 3-6**)

3.5.4 **NOTICE** Installation and adjustment of the anti-kick up roller, required on VLGT003, VLGT005, and VLGT010 only. The purpose of the anti-kick up roller is to limit the trolley's ability to tilt when unloaded due to the weight of the hand wheel/hand chain. Refer to **Figure 3-11**.

- 1) The anti-kick up roller shall be adjusted to the bottom of the bottom beam flange after installation of the trolley onto the beam. A 1mm (.0393 in.) space is recommended between the anti-kick up roller bearing and the bottom of the beam. (Refer to **Figure 3-12**)



- 2) To ensure the anti-kick up roller remains in place during use, tighten to the corresponding torque value as shown in the manual. (Refer to **Table 3-6**)
- 3) Considering tolerances regarding the flatness of the beam flange it is advised to do so with 1mm (.0393 in.) play as opposed to the thickest part of the beam flange.
- 4) After the anti-kick up roller is installed, it is advised to check for binding during operation. With the trolley unloaded, operate it along the beam in both directions. If binding occurs, readjust so that it can no longer occur.

Table 3-6 Hardware Torque Values		
Capacity	Bolt Size – (Location)	Torque – Nm (lbf-ft)
VLPT/MLGT 003 & 005	M6 – (Bumper)	13.2 (9.7)
	M10 – (Anti Kick up roller)	26 (19.2)
	M12 – (Wheel shafts, Suspension shaft, Support shafts)	45 (33.2)
VLPT/MLGT 010	M6 – (Bumper)	13.2 (9.7)
	M10 – (Anti Kick Up roller)	26 (19.2)
	M12 – (Wheel shafts, Suspension shaft, Support shafts)	45 (33.2)
VLPT/MLGT 030	M8 – (Bumper)	13 (9.6)
	M12 – (Suspender Bolts)	76 (56)
	M24 – (Wheel shafts, Suspension shafts, Support shafts)	365 (269.2)
VLPT/MLGT 060	M8 – (Bumper)	13 (9.6)
	M12 – (Hanger Bolts at trolley/hoist connection)	76 (56)
	M30 – (Wheel shafts, Suspension shafts, Support shafts)	725 (534.7)

3.6 Air Connections

- 3.6.1 This instruction applies to a Harrington Powered hoist attached to a Push or Geared Trolley. Refer to the appropriate hoist's owner's manual for the Air connections.
- 3.6.2 **⚠ DANGER** Before proceeding, ensure that the air supply for the hoist has been de-energized (disconnected). Lock out and tag out in accordance with ANSI Z244.1 "Personnel Protection -Lockout/Tagout of Energy Sources".

Air Supply – Installation

Cable must be installed along the beam that the trolley runs on. For curved beams a special cable suspension system will be needed, and this instruction does not apply. For straight beams install the air supply cable as follows:

- Install a guide wire system parallel to the beam. (See **Figure 3-13**)
- The guide wire should be positioned slightly outside the hoist's Cable Support Arm.
- Use the Cable Trolleys supplied with the hoist to suspend the Air Supply Hose from the guide wire. Space the Cable Trolleys every 5 feet.
- Make sure the Guide Wire is properly tensioned and the Air Supply Hose is not twisted or kinked.
- Guide wire should not make any contact with any component of hoist or trolley.

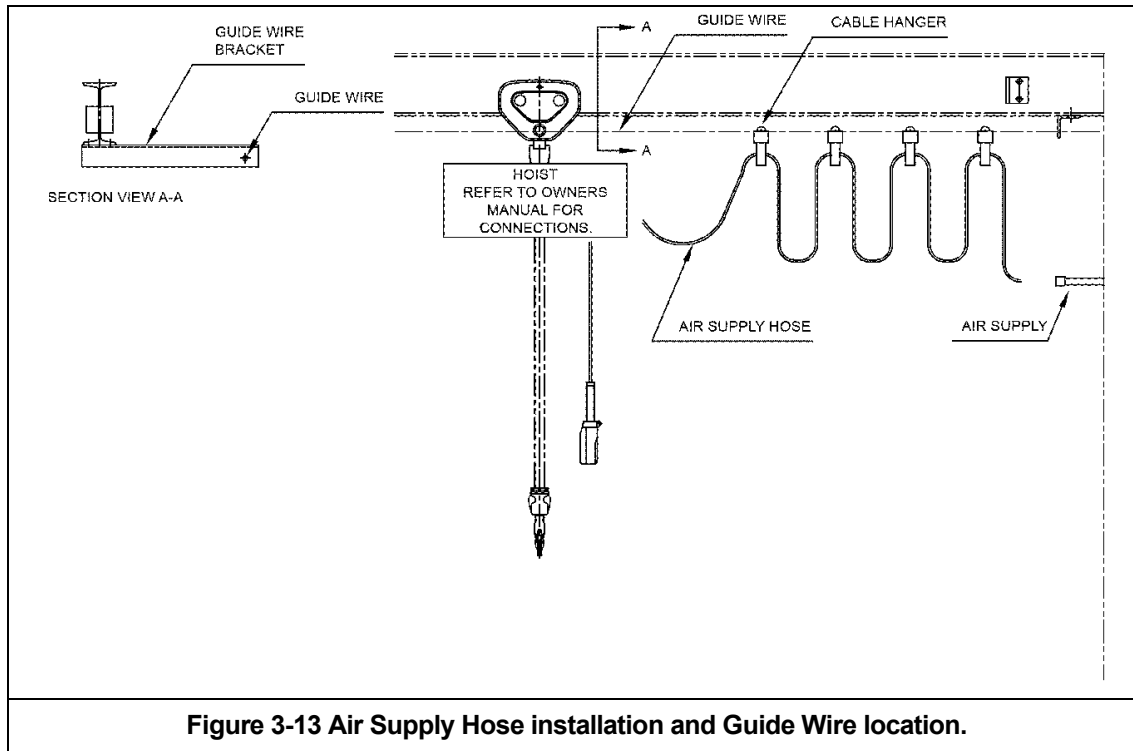


Figure 3-13 Air Supply Hose installation and Guide Wire location.

3.7 Pre-operational Checks and Trial Operation

- 3.7.1 Refer to the trolley's Nameplate and record the Code, Lot and Serial Number in the space provided on the cover of this manual.
- 3.7.2 Refer to the hoist's owner's manual and perform all pre-operational checks for the hoist.
- 3.7.3 Perform pre-operational checks for the trolley:
 - **⚠ WARNING** Confirm the adequacy of the rated capacity for all slings, chains, wire ropes and all other lifting attachments before use. Inspect all load suspension members for damage prior to use and replace or repair all damaged parts.
 - Ensure that trolley is properly installed on the beam, and stops for the trolley are correctly positioned and securely installed on the beam.
 - Ensure that all nuts, bolts, spring pins, and split pins (cotter pins) are sufficiently fastened.
- 3.7.4 Confirm proper operation.
 - Before operating read and become familiar with Section 4 - Operation.
 - Before operating ensure that the hoist (and trolley) meets the Inspection, Testing and Maintenance requirements of ANSI/ASME B30.16.
 - Before operating ensure that nothing will interfere with the full range of the trolley's (and hoist's) operation.
- 3.7.5 Proceed with trial operation to confirm proper operation.
 - Operate the trolley through its full range of motion. Make sure the trolley runs smoothly and does not bind. If applicable check the air supply and festoon system for proper operation
 - Perform inspections per Section 5.3, "Frequent Inspections".

4.0 Operation

4.1 Introduction

DANGER

DO **NOT** WALK UNDER A SUSPENDED LOAD

WARNING

HOIST OPERATORS SHALL BE REQUIRED TO READ THE OPERATION SECTION OF THIS MANUAL, THE WARNINGS CONTAINED IN THIS MANUAL, INSTRUCTION AND WARNING LABELS ON THE HOIST OR LIFTING SYSTEM, AND THE OPERATION SECTIONS OF ANSI/ASME B30.16 and ANSI/ASME B30.10. THE OPERATOR SHALL ALSO BE REQUIRED TO BE FAMILIAR WITH THE HOIST AND HOIST CONTROLS BEFORE BEING AUTHORIZED TO OPERATE THE HOIST OR LIFTING SYSTEM.

HOIST OPERATORS SHOULD BE TRAINED IN PROPER RIGGING PROCEDURES FOR THE ATTACHMENT OF LOADS TO THE HOIST HOOK.

HOIST OPERATORS SHOULD BE TRAINED TO BE AWARE OF POTENTIAL MALFUNCTIONS OF THE EQUIPMENT THAT REQUIRE ADJUSTMENT OR REPAIR, AND TO BE INSTRUCTED TO STOP OPERATION IF SUCH MALFUNCTIONS OCCUR, AND TO IMMEDIATELY ADVISE THEIR SUPERVISOR SO CORRECTIVE ACTION CAN BE TAKEN.

HOIST OPERATORS SHOULD HAVE NORMAL DEPTH PERCEPTION, FIELD OF VISION, REACTION TIME, MANUAL DEXTERITY, AND COORDINATION.

HOIST OPERATORS SHOULD **NOT** HAVE A HISTORY OF OR BE PRONE TO SEIZURES, LOSS OF PHYSICAL CONTROL, PHYSICAL DEFECTS, OR EMOTIONAL INSTABILITY THAT COULD RESULT IN ACTIONS OF THE OPERATOR BEING A HAZARD TO THE OPERATOR OR TO OTHERS.

HOIST OPERATORS SHOULD **NOT** OPERATE A HOIST OR LIFTING SYSTEM WHEN UNDER THE INFLUENCE OF ALCOHOL, DRUGS, OR MEDICATION.

OVERHEAD HOISTS ARE INTENDED ONLY FOR VERTICAL LIFTING SERVICE OF FREELY SUSPENDED UNGUIDED LOADS. DO **NOT** USE HOIST FOR LOADS THAT ARE NOT LIFTED VERTICALLY, LOADS THAT ARE NOT FREELY SUSPENDED, OR LOADS THAT ARE GUIDED.

NOTICE

- Read ANSI/ASME B30.16 and ANSI/ASME B30.10.
- Read the hoist manufacturer's Operating and Maintenance Instructions.
- Read all labels attached to equipment.

The operation of an overhead hoist involves more than activating the hoist's controls. Per the ANSI/ASME B30 standards, the use of an overhead hoist is subject to certain hazards that cannot be mitigated by engineered features, but only by the exercise of intelligence, care, common sense, and experience in anticipating the effects and results of activating the hoist's controls. Use this guidance in conjunction with other warnings, cautions, and notices in this manual to govern the operation and use of your overhead hoist.

4.2 Shall's and Shall Not's for Operation

⚠ WARNING

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in death or serious injury, and substantial property damage. To avoid such a potentially hazardous situation **THE OPERATOR SHALL:**


- **NOT** modify/alter trolley, hoist or its components.
- **NOT** lift more than rated load for the hoist and trolley.
- **NOT** operate unless load is centered under hoist.
- **NOT** use damaged hoist or hoist that is not working properly.
- **NOT** use hoist with twisted, kinked, damaged, or worn chain.
- **NOT** use hoist if the bottom hook is capsized (double fall hoists).
- **NOT** use the hoist to lift, support, or transport people.
- **NOT** lift loads over people.
- **NOT** apply load unless load chain is properly seated in the load sheave (and idle sheave for hoist with two chain falls).
- **NOT** use the hoist in such a way that could result in shock or impact loads being applied to the hoist.
- **NOT** attempt to lengthen the load chain or repair damaged load chain.
- **NOT** operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
- **NOT** use load chain as a sling or wrap load chain around load.
- **NOT** apply the load to the tip of the hook or to the hook latch.
- **NOT** apply load if binding prevents equal loading on all load-supporting chains.
- **NOT** operate beyond the limits of the load chain travel.
- **NOT** operate hoist with missing/damaged chain springs, cushion rubbers, stoppers or striker plates.
- **NOT** leave load supported by the hoist unattended unless specific precautions have been taken.
- **NOT** allow the chain, or hook to be used as an electrical or welding ground.
- **NOT** allow the chain, or hook to be touched by a live welding electrode.
- **NOT** remove or obscure the warnings on the hoist.
- **NOT** operate a hoist on which the safety placards or decals are missing or illegible.
- Be familiar with operating controls, procedures, and warnings.
- Make sure the unit is securely attached to a suitable support before applying load.
- Make sure load slings or other approved single attachments are properly sized, rigged, and seated in the hook saddle.
- Take up slack carefully - make sure load is balanced and load-holding action is secure before continuing.
- Make sure all persons stay clear of the supported load.
- Protect the hoist's load chain from weld splatter or other damaging contaminants.
- Report Malfunctions or unusual performances (including unusual noises) of the hoist and remove the hoist from service until the malfunction or unusual performance is resolved.
- Make sure hoist limit switches function properly.
- Warn personnel before lifting or moving a load.
- Warn personnel of an approaching load.

CAUTION

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage. To avoid such a potentially hazardous situation THE OPERATOR SHALL:

- Maintain a firm footing or be otherwise secured when operating the hoist.
- Check brake function by tensioning the hoist prior to each lift operation.
- Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
- Make sure the hook latches are closed and not supporting any parts of the load.
- Make sure the load is free to move and will clear all obstructions.
- Avoid swinging the load or hook.
- Make sure hook travel is in the same direction as shown on controls.
- Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
- Use the hoist manufacturer's recommended parts when repairing the unit.
- Lubricate load chain per hoist manufacturer's recommendations.
- Make sure trolley hand-chain is clear of all objects and machinery.
- **NOT** use the hoist load limiting or warning device to measure load.
- **NOT** use limit switches as routine operating stops. They are emergency devices only.
- **NOT** allow your attention to be diverted from operating the hoist.
- **NOT** allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
- **NOT** adjust or repair the hoist unless qualified to perform such adjustments or repairs.
- **NOT** apply strong force to hand chain.
- **NOT** slam trolley into track end stop.

4.3 Trolley Controls

- 4.3.1 For Plain Trolley, movement is controlled by pushing/pulling on the load or the hook of the attached hoist.
- 4.3.2 For Geared Trolley, when facing Trolley Hand Wheel:
 - Pull down on the right side of Hand Chain (Clockwise Rotation) to move the Trolley left.
 - Pull down on the left side of Hand Chain (Counterclockwise Rotation) to move the Trolley right.
- 4.3.3  **CAUTION** Avoid collisions with the end stops or other Trolleys, as damage may result.

5.0 Inspection

5.1 General

- 5.1.1 The inspection procedure herein is based on ANSI/ASME B30.16. The following definitions are from ANSI/ASME B30.16 and pertain to the inspection procedure below.

Designated Person - a person selected or assigned as being competent to perform the specific duties to which he/she is assigned.

Qualified Person - a person who, by possession of a recognized degree or certificate of professional standing, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

Normal Service - that distributed service which involves operation with randomly distributed loads within the rated load limit, or uniform loads less than 65% of rated load for not more than 25% of the time.

Heavy Service - that service which involves operation within the rated load limit which exceeds normal service.

Severe Service - that service which involves normal or heavy service with abnormal operating conditions.

⚠ WARNING The Hoist and Trolley uses coated components to meet the applicable Equipment Group and Explosive designation. Inspection of all surfaces is critical to ensure coatings are not worn resulting in uncoated metal to metal contact which can compromise the product's ability to perform as intended in its respective Equipment Group and Explosive designation. All replacement components must remain as supplied/specified by manufacturer in order to maintain the hoist/trolley Equipment Group and Explosive Atmosphere designation.

5.2 Inspection Classification

- 5.2.1 Initial Inspection - prior to initial use, all new, re-installed, altered, or modified trolleys shall be inspected by a designated person to ensure compliance with the applicable provisions of this manual.
- 5.2.2 Inspection Classification - the inspection procedure for trolleys in regular service is divided into two general classifications based upon the intervals at which inspection should be performed. The intervals in turn are dependent upon the nature of the critical components of the trolley and the degree of their exposure to wear, deterioration, or malfunction. The two general classifications are herein designated as FREQUENT and PERIODIC, with respective intervals between inspections as defined below.
- 5.2.3 FREQUENT Inspection - visual examinations by the operator or other designated personnel with intervals per the following criteria:

Normal service - monthly

Heavy service - weekly to monthly

Severe service - daily to weekly

Special or infrequent service - as recommended by a qualified person before and after each occurrence.

- 5.2.4 PERIODIC Inspection - visual inspection by a designated person with intervals per the following criteria:

Normal service - yearly

Heavy service - semiannually

Severe service - quarterly

Special or infrequent service - as recommended by a qualified person before the first such occurrence and as directed by the qualified person for any subsequent occurrences.

5.3 Frequent Inspection

- 5.3.1 Inspections should be made on a FREQUENT basis in accordance with **Table 5-1**, “Frequent Inspection.” Included in these FREQUENT Inspections are observations made during operation for any defects or damage that might appear between Periodic Inspections. Evaluation and resolution of the results of FREQUENT Inspections shall be made by a designated person such that the trolley is maintained in safe working condition.

Table 5-1 Frequent Inspection
All functional operating mechanisms for proper operation, proper adjustment, and unusual sounds.
Connection points between Hoist and Trolley in accordance with ANSI/ASME B30.16
Hook(s) and hook latches in accordance with ANSI/ASME B30.10
Hoist(s) attached to Trolley in accordance with ANSI/ASME B30.16

5.4 Periodic Inspection

- 5.4.1 Inspections should be made on a PERIODIC basis in accordance with **Table 5-2**, “Periodic Inspection.” Evaluation and resolution of the results of PERIODIC Inspections shall be made by a designated person such that the trolley is maintained in safe working condition.
- 5.4.2 For inspections where load suspension parts of the trolley are disassembled, a load test per ANSI/ASME B30.16 must be performed on the trolley after it is re-assembled and prior to its return to service.

Table 5-2 Periodic Inspection
Requirements of frequent inspection.
Loose or missing bolts, nuts, pins or rivets.
Worn, cracked, or distorted parts such as pins, bearings, wheels, shafts, gears, rollers, yokes, and bumpers.
Function, instruction and warning labels for legibility and placement.

5.5 Occasionally Used Trolleys

- 5.5.1 Trolleys that are used infrequently shall be inspected as follows prior to placing in service:

Trolley Idle More Than 1 Month, Less Than 1 Year: Inspect per FREQUENT Inspection criteria in **Section 5.3**.

Trolley Idle More Than 1 Year: Inspect per PERIODIC Inspection criteria in **Section 5.4**.

5.6 Inspection Records

- 5.6.1 Dated inspection reports and records should be maintained at time intervals corresponding to those that apply for the hoist’s PERIODIC interval per **Section 5.2.4**. These records should be stored where they are available to personnel involved with the inspection, maintenance, or operation of the trolley.

5.7 Inspection Methods and Criteria

- 5.7.1 This section covers the inspection of specific items. The list of items in this section is based on those listed in ANSI/ASME B30.16 for Frequent and Periodic Inspection. In accordance with ANSI/ASME B30.16, these inspections are not intended to involve disassembly of the trolley. Rather, disassembly for further inspection would be required if frequent or periodic inspection results so indicate. Such disassembly and further inspection should only be performed by a qualified person trained in the disassembly and re-assembly of the trolley.

Item	Method	Criteria	Action
Metal to metal contact surfaces. Hooks, suspenders, shafts, wheels, chains.	Visual	In addition to specific wear criteria shown in section 5, component coatings shall not show signs of being compromised where the substrate material is showing. Evidence of compromised coatings can be detected by component inconsistencies in color, sheen, and texture on the contact surfaces.	Replace
Functional operating mechanisms.	Visual, Auditory	Mechanisms should be properly adjusted and should not produce unusual sounds when operated.	Repair or replace as required.
Housing and Mechanical Components	Visual, Auditory, Vibration, Function	Trolley components including, suspension shafts, support shafts, wheels, wheel shafts, anti-kick up roller, connection yokes, suspension bolts, gears, bearings, pins, rollers, and bumpers should be free of cracks, distortion, significant wear and corrosion. Evidence of same can be detected visually or via detection of unusual sounds or vibration during operation.	Replace.
Side Plates	Visual, Measure	Must be free of significant deformation. The difference of dimension "A" and "B" should not exceed .0787 in. (2mm). See Figure 5-1.	Replace.
Bolts, Hex Nuts, Snap Rings, and Split Pins	Visual, Check with Proper Tool	Bolts, nuts, snap rings and split pins should not be loose.	Tighten or replace as required.
Wheel – Tread	Visual, Measure	Diameter of the inside and outside tread surface should not be less than the discard value shown in Table 5-4.	Replace.
Wheel - Gear	Visual	Teeth should not be cracked, damaged, or excessively worn.	Replace.
Suspension Shaft	Visual, Measure	Suspension shaft should not be bent more than 2mm. Diameter should not be worn by 5% or more. See Figure 5-2.	Replace.
Suspender	Visual, Measure	Never use the suspender if its dimension of D2 – D1 exceed the limits of Table 5-5.	Replace.
Cable Hangers	Visual	Cable Hangers should not be damaged or significantly worn. Movement should be smooth and should not cause the Air Supply Cable to twist or kink.	Repair or replace as necessary.
Pendant - Labels	Visual	Labels denoting functions should be legible.	Replace.
Warning Labels	Visual	Warning Labels should be affixed to the pendant cord (see Section 1.2) and they should be legible.	Replace.

Table 5-3 Trolley Inspection Methods and Criteria			
Item	Method	Criteria	Action
Trolley Capacity Label	Visual	The label that indicates the capacity of the trolley should be legible and securely attached to the trolley.	Replace.

⚠ WARNING The Hoist and Trolley uses coated components to meet the applicable Equipment Group and Explosive designation. Inspection of all surfaces is critical to ensure coatings are not worn resulting in uncoated metal to metal contact which can compromise the product's ability to perform as intended in it's respective Equipment Group and Explosive designation. All replacement components must remain as supplied/specified by manufacturer in order to maintain the hoist/trolley Equipment Group and Explosive Atmosphere designation.

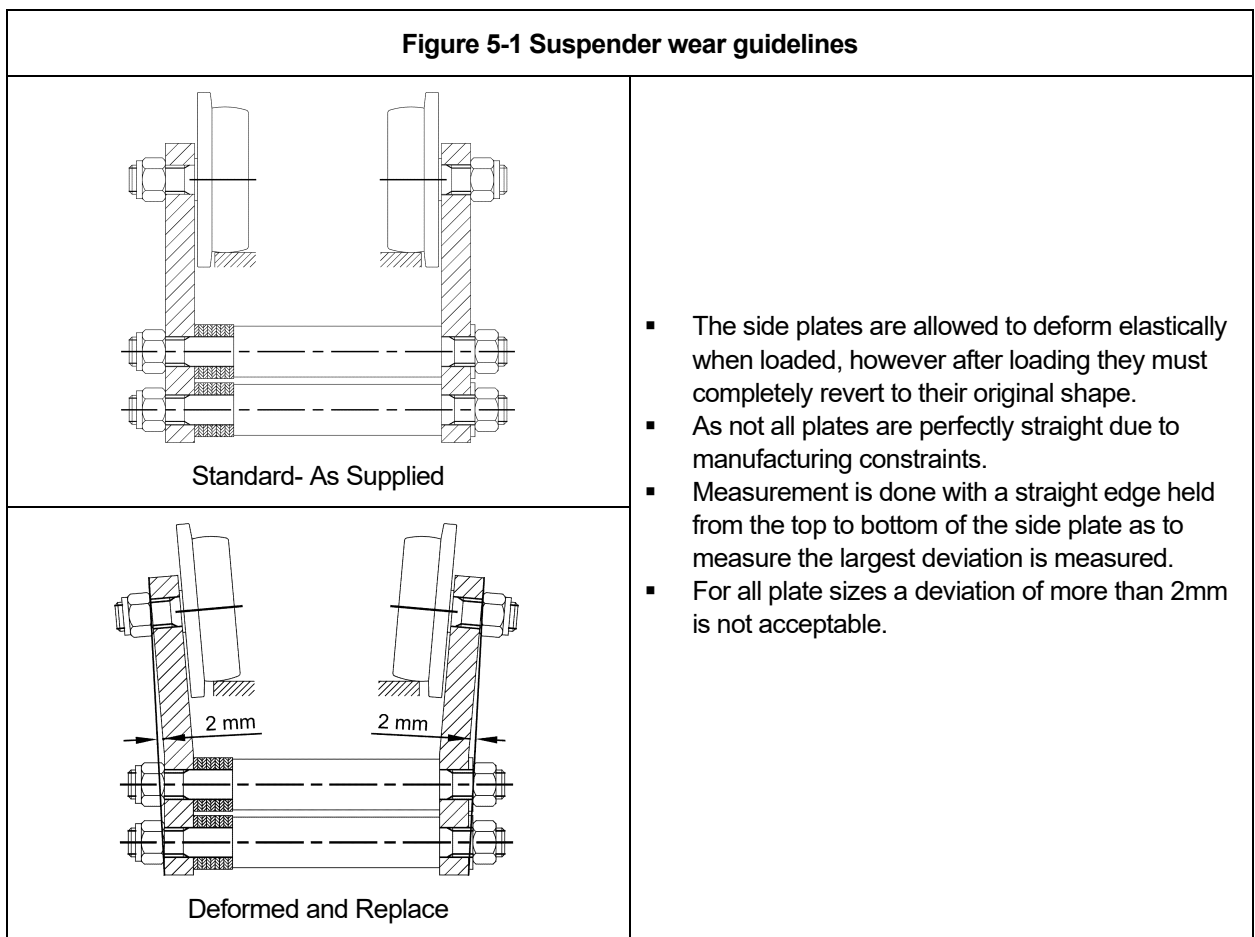


Figure 5-2 Suspension bolt wear/discard guidelines

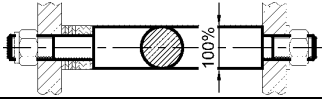
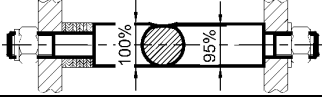
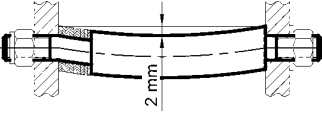
<p style="text-align: center;">New</p> 	<ul style="list-style-type: none"> ▪ Suspension bolt wear is acceptable to the point where only 95% of the original diameter is left. ▪ Measurement must be done in the same direction in comparison with an area right next to the worn area. ▪ Always measure in the same direction and right next to the worn location. ▪ The suspension shaft must be rejected when bent more than 2mm.
<p style="text-align: center;">Worn – to the point of replacement</p> 	
<p style="text-align: center;">Bent – to the point of replacement</p> 	

Table 5-4 Wheel Wear/Discard guidelines

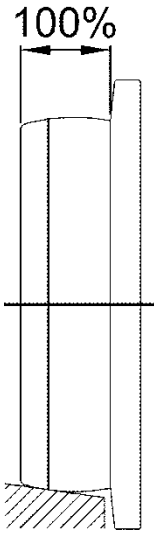
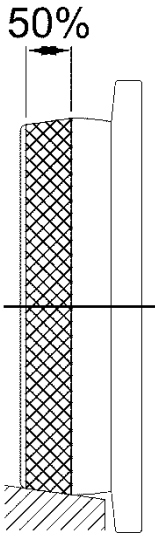
<p style="text-align: center;">Standard Wheel on “S” beam New</p> <p style="text-align: center;">100%</p> 	<p style="text-align: center;">Standard Wheel on “S” beam Worn – Discard/Replace</p> <p style="text-align: center;">50%</p> 	<ul style="list-style-type: none"> ▪ Wear is normal up to the point where the worn area covers about 50% of the running surface width of the wheel, at this point it must be replaced. ▪ When the running surface wear reaches the radius at the nose of the wheel it must be discarded and replaced. ▪ When the worn surface is not smooth (burred, cracked, craters forming) the wheel must be discarded and replaced. ▪ When there is excessive damage to the beam, the operation must be halted. ▪ Wheels must always be replaced in pairs, so the trolley divides its load properly.
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Table 5-4 Wheel Wear/Discard guidelines (Continued)

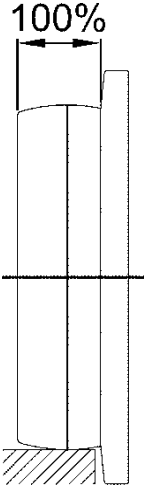
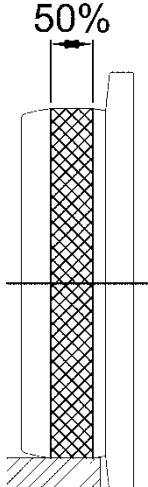
<p>Standard Wheel on "W" beam</p> <p>New</p> <p>100%</p> 	<p>Standard Wheel on "W" beam</p> <p>Worn – Discard/Replace</p> <p>50%</p> 	<ul style="list-style-type: none"> ▪ Wear is normal up to the point where the worn area covers about 50% of the running surface width of the wheel, at this point it must be replaced. ▪ When the running surface wear reaches the radius at the nose of the wheel it must be discarded and replaced. ▪ When the worn surface is not smooth ex: (burred, cracked, craters forming) the wheel must be discarded and replaced. ▪ When there is excessive damage to the beam, the operation must be halted. ▪ Wheels must always be replaced in pairs, so the trolley divides its load properly.
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Table 5-4 Wheel Wear/Discard guidelines (Continued)

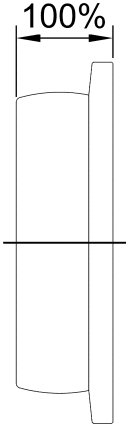
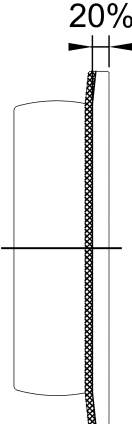
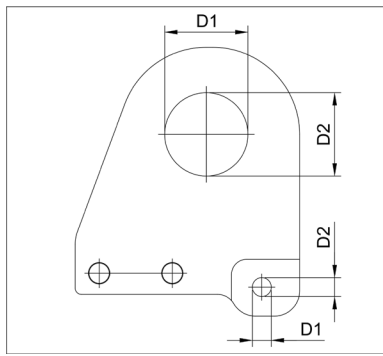
<p>Standard Wheel on "S" or "W" beam</p> <p>New</p> <p>100%</p> 	<p>Standard Wheel on "S" or "W" beam</p> <p>Worn – Discard/Replace</p> <p>20%</p> 	<ul style="list-style-type: none"> ▪ Flange wear is acceptable up until the point that the remaining flange thickness is 20% or less of the total wheel width. ▪ When the running surface wear reaches the rim of the wheel flange it must be discarded and replaced immediately. ▪ When the running surface wear extends over the end of the beam flange or a rim becomes visible on the running surface of the wheel caused by the end of the beam flange, the wheel must be discarded and replaced. ▪ When the worn surface is not smooth (burred, cracked, craters forming) the wheel must be immediately discarded and replaced.
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Table 5-5 Suspender Wear/Discard guidelines



- The suspender eye hole roundness of all holes regardless of size must stay within 0.5mm.
- Therefore, the difference between dimensions D1 and D2 must stay within 0.5mm.
- Measurements should be taken with a vernier caliper.

6.0 Maintenance & Handling

6.1 Lubrication

- 6.1.1 Lubricate the following trolley components with NLGI (National Lubricating Grease Institute) #2 or equivalent grease.
- 6.1.2 Track Wheel Gear – Clean and re-grease the Track Wheel gears and Hand Wheel output pinion every three months (more frequently for heavier usage or severe conditions). Do not use an excessive amount of grease and avoid getting any grease on the running surfaces of the Track Wheels or the beam.
- 6.1.3 Trolley Wheel Bearings do not need to be lubricated and must be replaced if worn or damaged.
- 6.1.4 Suspension Pins, Bolts and Shafts – Grease at least twice per year for normal usage (more frequently for heavier usage or severe conditions).

6.2 Storage

- 6.2.1 The storage location should be clean and dry.

6.3 Outdoor Installation

- 6.3.1 For trolley and hoist installations that are outdoors, the trolley and hoist **MUST** be covered and protected from the weather when not in use.
- 6.3.2 Possibility of corrosion on components of the trolley increases for installations where salt air and high humidity are present. The trolley may require more frequent lubrication. Make frequent and regular inspections of the unit's condition and operation.

7.0 Warranty

All products sold by Harrington Hoists, Inc. are warranted to be free from defects in material and workmanship from date of shipment by Harrington for the following periods:

- 1 year – Electric and Air Powered Hoists (excluding (N)ER2 Hoists and EQ/SEQ Hoists), Powered Trolleys, Powered Tiger Track Jibs and Gantries, Crane Components, Below the Hook Devices, Spare / Replacement Parts**
- 2 years – Manual Hoists & Trolleys, Beam Clamps**
- 3 years – (N)ER2 Hoists, EQ/SEQ Hoists, (T)EM/(T)SEM hoists, and RY Hoists**
- 5 years – Manual Tiger Track Jibs and Gantries, Hoist Motor Brakes for TNER, EQ/SEQ, (T)EM/(T)SEM, and RY**
- 10 years – (N)ER2 Brake, Tiger Track Workstation Cranes, and Monorails**

The product must be used in accordance with manufacturer's recommendations and must not have been subject to abuse, lack of maintenance, misuse, negligence, or unauthorized repairs or alterations.

Should any defect in material or workmanship occur during the above time period in any product, as determined by Harrington Hoist's inspection of the product, Harrington Hoists, Inc. agrees, at its discretion, either to replace (not including installation) or repair the part or product free of charge and deliver said item F.O.B. Harrington Hoists, Inc. place of business to customer.

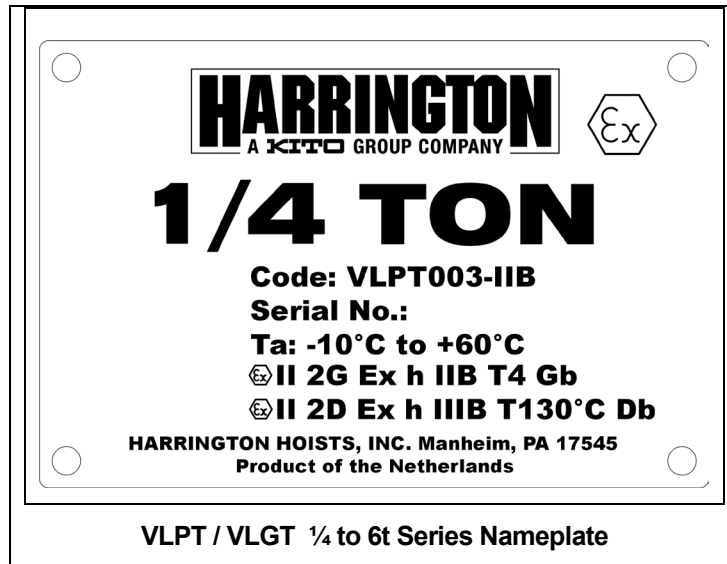
Customer must obtain a Return Goods Authorization as directed by Harrington or Harrington's published repair center prior to shipping product for warranty evaluation. An explanation of the complaint must accompany the product. Product must be returned freight prepaid. Upon repair, the product will be covered for the remainder of the original warranty period. Replacement parts installed after the original warranty period will only be eligible for replacement (not including installation) for a period of one year from the installation date. If it is determined there is no defect, or that the defect resulted from causes not within the scope of Harrington's warranty, the customer will be responsible for the costs of returning the product.

Harrington Hoists, Inc. disclaims any and all other warranties of any kind expressed or implied as to the product's merchantability or fitness for a particular application. Harrington will not be liable for death, injuries to persons or property or for incidental, contingent, special or consequential damages, loss or expense arising in connection with the use or inability whatever, regardless of whether damage, loss or expense results from any act or failure to act by Harrington, whether negligent or willful, or from any other reason.

8.0 1/4 to 6 Ton Parts List

When ordering Parts, please provide the Hoist code number, lot number and serial number located on the Hoist nameplate (see fig. below).

Reminder: Per sections 1.1 and 3.5.1 to aid in ordering Parts and Product Support, record the Hoist code number, lot number and serial number in the space provided on the cover of this manual.



The parts list is arranged into the following sections:

Section 1/4 to 6 Ton

	Page
8.1 VLPT Push Trolley Parts	38
8.2 VLGT Geared Trolley Parts	40

In the column "Parts Per Trolley" a designator is used for parts that apply only to a particular model or option.

Refer to Section 2 for VLPT / VLGT Trolley model numbers and additional descriptions.

The designators are:

- Push = VLPT model only
- Geared = VLGT model only

8.1 VL Push Trolley Parts – 1/4 to 6 Ton

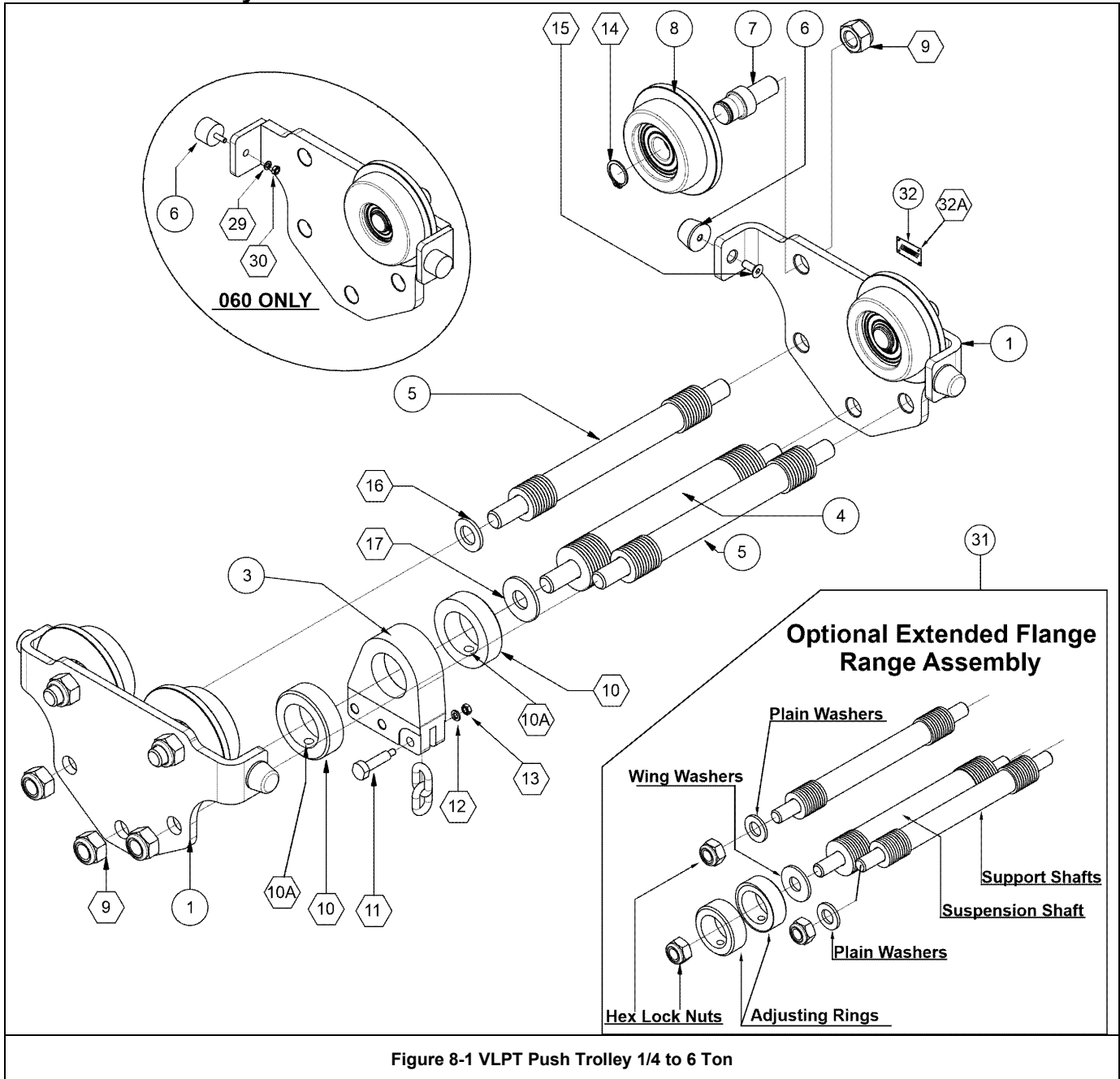


Figure 8-1 VLPT Push Trolley 1/4 to 6 Ton

8.1 VLPT Push Trolley Parts – 1/4 to 6 Ton

Figure No.	Part Name	Parts Per Trolley	003	005	010	030	060	
1	Side plate "S" Assembly	2	VL4201001101	VL4201001101	VL4201002201	VL4201005201	VL4201008406	
3	Suspender	1	VL4204601150	VL4204601150	VL4204602250	VL4204605250	VL4204608450	
4	Suspension Shaft	1						
5	Support Shaft	2						
6	Bumper	4	VL6231102517	VL6231102517	VL6231102517	VL6231103025	VL6231204028	
7	Wheel Shaft	4	VL8541001103	VL8541001103	VL8541002203	VL8541005203	VL8541010403	
8	Push Wheel Assembly	4	VL8542001111	VL8542001111	VL8542002211	VL8542005211	VL8542010411	
9	Hex Lock Nut	10	VL69036812	VL69036812	VL69036816	VL69036824	VL69036830	
10	Adjusting Ring	2	VL69042566030	VL69042566030	VL69042566040	VL69042566050	VL69042566065	
10A	Hex Socket Screw	2	VL6902540810	VL6902540810	VL6902541016	VL6902541016	VL6902541020	
11	Chain Pin	1			TCR426244580		TCK425810580	
12	Chain Pin Washer	1			9012511		TCK131301012	
13	Chain Pin Nut	1			9098504		E2D853125	
14	Snap Ring	4	VL69043815	VL69043815	VL69043820	VL69043835	VL69043835	
15	Hex. Socket Head Screw	4	VL690087616	VL690087616	VL690087616	VL690087820		
16	Plain Washer (Quantity required)	(X)	VL69040712 (40)	VL69040712 (40)	VL69040716 (40)	VL69040724 (28)	VL69040730 (28)	
17	Wing Washer (Quantity required)	(X)	VL69461412 (20)	VL69461412 (20)	VL69461416 (20)	VL69461424 (14)	VL69461430 (14)	
29	Spring Lock Washer – M8	4					VL6904418	
30	Hexagon Nut – M8	4					VL6903178	
31*	Standard Flange Suspension Set (Flange Range in./mm)	1	VL4203501107 (2.17 - 4.13 in.) (55 - 105mm)	VL4203501107 (2.17 - 4.13 in.) (55 - 105mm)	VL4203502207 (2.91 – 5.28 in.) (74 - 134mm)	VL4203505207 (4.17 – 6.38 in.) (106 – 162mm)	VL4203508407 (4.17 – 6.38 in.) (106-162mm)	
	Extended Flange Suspension Set Range #1 (Flange Range in./mm)	1	VL4203501108 (4.14 – 6.10 in.) (105 - 155mm)	VL4203501108 (4.14 – 6.10 in.) (105 - 155mm)	VL4203502208 (5.29 – 7.48 in.) (130 -190mm)	VL4203505208 (6.39 – 8.50 in.) (160 – 216mm)	VL4203508408 (6.39 – 8.50 in.) (160 - 216mm)	
	Extended Flange Suspension Set Range #2 (Flange Range in./mm)	1	VL4203501109 (6.11 – 8.07 in.) (155 - 205mm)	VL4203501109 (6.11 – 8.07 in.) (155 - 205mm)	VL4203502209 (7.49 – 9.84 in.) (190-250mm)	VL4203505209 (9.85 – 12.01 in.) (255 – 305mm)	VL4203508409 (8.51 – 10.47 in.) (210 - 266mm)	
	Extended Flange Suspension Set Range #3 (Flange Range in./mm)	1	VL4203501110 (8.07 – 10.04 in.) (205 - 255mm)	VL4203501110 (8.07 – 10.04 in.) (205 - 255mm)	VL4203502210 (9.85 – 12.01 in.) (245 - 305mm)	VL4203505210 (10.48 – 12.01 in.) (255 – 305mm)	VL4203508410 (10.48 – 12.01 in.) (255 - 305mm)	
32	Nameplate – IIB Model Only	1	VL4350000320	VL4350000321	VL4350000322	VL4350000323	VL4350000324	
32A	Rivet	4	9900807					

Note: *Part #31 - Set includes the following parts ONLY: Suspension Shaft (1), Support Shafts (2), Adjusting Rings (2), Plain Washers (Varies by capacity), Wing Washers (Varies by capacity), Hex Lock Nuts (6).

8.2 VLGT Geared Trolley Parts – 1/4 to 6 Ton

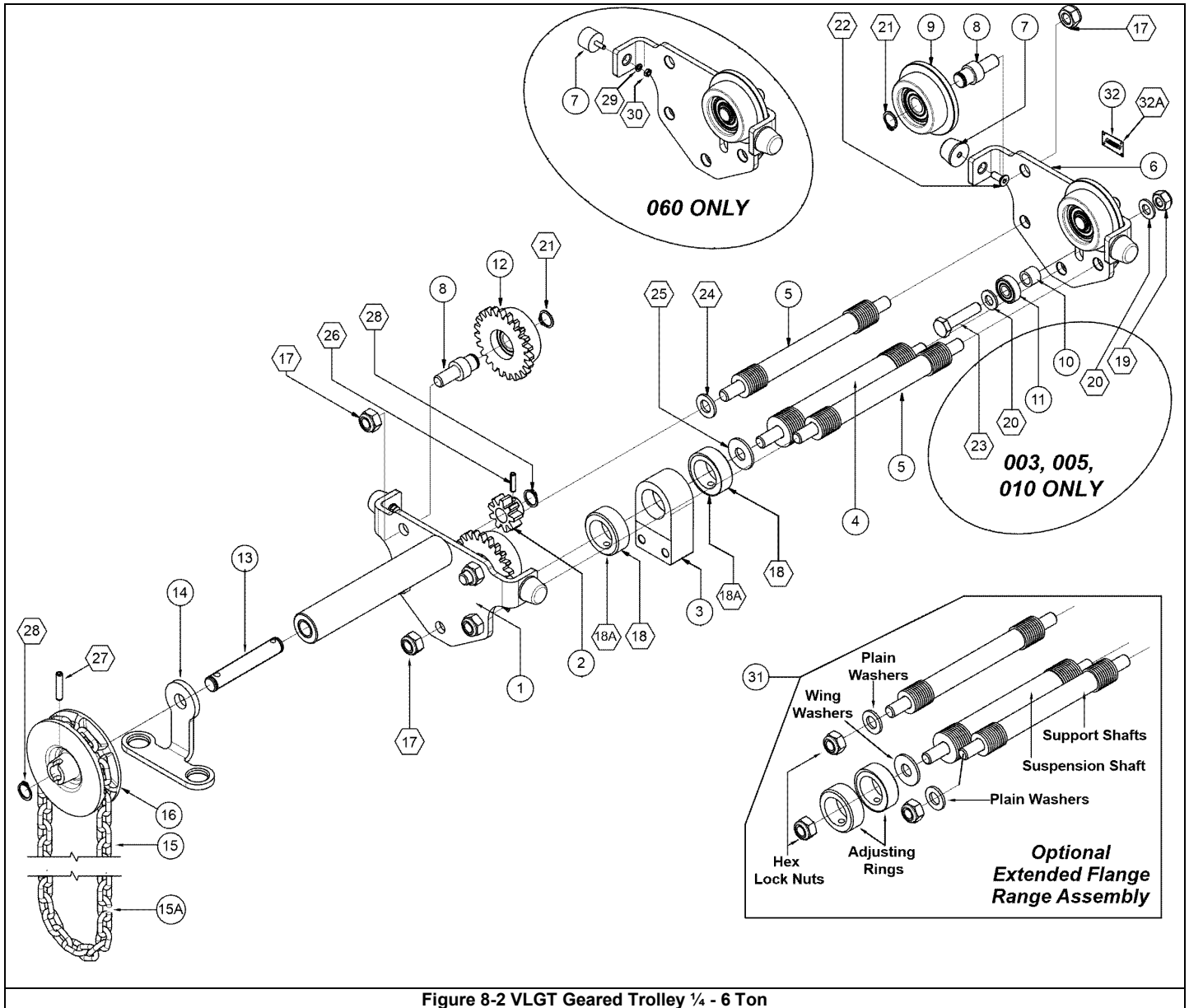


Figure 8-2 VLGT Geared Trolley 1/4 - 6 Ton

8.2 TF2 Geared Trolley Parts – 1/8 to 5 Ton

Figure No.	Part Name	Parts Per Trolley	003	005	010	030	060	
1	Side Plate "G" Geared Assembly	1	VL4201401106	VL4201401106	VL4201402206	VL4201405206	VL4201408406	
2	Pinion	1	VL4300309150	VL4300309150	VL4300309150	VL4300309150	VL4300409200	
3	Suspender	1	VL4204601150	VL4204601150	VL4204602250	VL4204605250	VL4204608450	
4	Suspension Shaft*	1						
5	Support Shaft*	2						
6	Side Plate "S" Assembly	1	VL4201001106	VL4201001106	VL4201002206	VL4201005201	VL4201008406	
7	Bumper	4	VL6231102517	VL6231102517	VL6231102517	VL6231103025	VL6231204028	
8	Wheel Shaft	4	VL8541001103	VL8541001103	VL8541002203	VL8541005203	VL8541010403	
9	Push Wheel Assembly	2	VL8542001111	VL8542001111	VL8542002211	VL8542005211	VL8542010411	
10	Distance Bushing*	1	VL4253001119	VL4253001119	VL4253001119			
11	Radial Ball Bearing*	1	VL6201126000	VL6201126000	VL6201126000			
12	Geared Wheel Assembly	2	VL8542001112	VL8542001112	VL8542002212	VL8542005212	VL8542010412	
13	Pinion Shaft	1	VL4303015264	VL4303015264	VL4303015253	VL4303015341	VL4303020343	
14	Hand Chain Guide	1	VL4306100153	VL4306100153	VL4306100153	VL4306135153	VL4306270203	
15	Hand Chain	1@ ft.	VL8920020000					
15A	Hand Chain Master link	1	VL8920020000ML					
16	Chain Wheel	1	VL4305100154	VL4305100154	VL4305100154	VL4305135154	VL4305270204	
17	Hex Lock Nut	10	VL69036812	VL69036812	VL69036816	VL69036824	VL69036830	
18	Adjusting Ring	2	VL69042566030	VL69042566030	VL69042566040	VL69042566050	VL69042566065	
18A	Hex Socket screw	2	VL6902540810	VL6902540810	VL6902541016	VL6902541016	VL6902541020	
19	Hex Lock Nut	1	VL69036810	VL69036810	VL69036816			
20	Plain Washer	2	VL69040710	VL69040710	VL69040710			
21	Snap Ring	4	VL69043815	VL69043815	VL69043820	VL69043835	VL69043835	
22	Hex Socket Countersunk head screw	4	VL690087616	VL690087616	VL690087616	VL690087820		
23	Hex Head Bolt	1	VL6900531045	VL6900531045	VL6900531045			
24	Plain Washer – (Quantity Required)	(X)	VL69040712 (40)	VL69040712 (40)	VL69040716 (40)	VL69040724 (28)	VL69040730 (28)	
25	Wing Washer – (Quantity Required)	(X)	VL69461412 (20)	VL69461412 (20)	VL69461416 (20)	VL69461424 (14)	VL69461430 (14)	
26	Spring Type Straight Pin	1	VL690475050209	VL690475050209	VL690475050209	VL690475050209	VL690475060309	
27	Spring Type Straight Pin	1	VL690475060309	VL690475060309	VL690475060309	VL690475060509	VL690475060709	
28	Retaining rings for pinion shaft	2	VL69043815	VL69043815	VL69043815	VL69043815	VL69043820	
29	Spring Lock Washer – M8	4					VL6904418	
30	Hexagon – M8	4					VL6903178	
31*	Standard Flange Suspension Set Standard Flange Range	1	VL4203501107 (2.17 - 4.13 in.) (55 - 105mm)	VL4203501107 (2.17 - 4.13 in.) (55 - 105mm)	VL4203502207 (2.91 – 5.28 in.) (74 - 134mm)	VL4203505207 (4.17 – 6.38 in.) (106 – 162mm)	VL4203508407 (4.17 – 6.38 in.) (106 – 162mm)	
	Extended Flange Range #1 Suspension Set (Flange Range in./mm)	1	VL4203501108 (4.14 – 6.10 in.) (105 - 155mm)	VL4203501108 (4.14 – 6.10 in.) (105 - 155mm)	VL4203502208 (5.29 – 7.48 in.) (130 - 190mm)	VL4203505208 (6.39 – 8.50 in.) (160 – 216mm)	VL4203508408 (6.39 – 8.50 in.) (160– 216mm)	
	Extended Flange Range #2 Suspension Set (Flange Range in./mm)	1	VL4203501109 (6.11 – 8.07 in.) (155 - 205mm)	VL4203501109 (6.11 – 8.07 in.) (155 - 205mm)	VL4203502209 (7.49 – 9.84 in.) (190 - 250mm)	VL4203505209 (8.51 – 10.47 in.) (210 – 266mm)	VL4203508409 (8.51 – 10.47 in.) (210 – 266mm)	
	Extended Flange Range #3 Suspension Set (Flange Range in./mm)	1	VL4203501110 (8.07 – 10.04 in.) (205 - 255mm)	VL4203501110 (8.07 – 10.04 in.) (205 - 255mm)	VL4203502210 (9.85 – 12.01 in.) (245 - 305mm)	VL4203505210 (10.48 – 12.01 in.) (255 – 305mm)	VL4203508410 (10.48 – 12.01 in.) (255– 305mm)	
32	Nameplate – IIB Model Only	1	VL4350000325	VL4350000326	VL4350000327	VL4350000328	VL4350000329	

32A	Rivet	4	9900807
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Note: *Part #31 - Set includes the following parts ONLY: Suspension Shaft (1), Support Shafts (2), Adjusting Rings (2), Plain Washers (Varies by capacity), Wing Washers (Varies by capacity), Hex Lock Nuts (6).

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