Genie®
A TEREX BRAND

Service Manual

Serial Number Range

Load Lifter

from 3395-100 to 3301-4263
from LL02-4264 to
LL16G-12199

from LLG-12200

Part No. 115415
Rev A1
September 2016

Introduction

Important

Read, understand and obey the safety rules and operating instructions in the appropriate Operator's Manual on your machine before attempting any maintenance procedure.

This manual provides detailed scheduled maintenance information for the machine owner and user. It also provides troubleshooting and repair procedures for qualified service professionals.

Basic mechanical, hydraulic and electrical skills are required to perform most procedures. However, several procedures require specialized skills, tools, lifting equipment and a suitable workshop. In these instances, we strongly recommend that maintenance and repair be performed at an authorized Genie dealer service center.

Technical Publications

Genie has endeavored to deliver the highest degree of accuracy possible. However, continuous improvement of our products is a Genie policy. Therefore, product specifications are subject to change without notice.

Readers are encouraged to notify Genie of errors and send in suggestions for improvement. All communications will be carefully considered for future printings of this and all other manuals.

Contact Us:

Internet: www.genielift.com
E-mail: awp.techpub@terex.com

Serial Number Information

Genie Industries offers the following Service Manuals for this model:

Title	Part No.
Genie Load Lifter Parts Manual, First Edition (from serial number 2584-102 to 2595-11321)	20950
Genie Load Lifter Parts, Service and Operator's Manual, First Edition (before serial number 3395-100)	35523
Genie Load Lifter Parts and Service Manual, Third Edition (from serial number 3395-100 to 3301-4263, and from LL02-4264)	*82300

*Note: Genie Load Lifter Service Manual 115415 and Genie Load Lifter Part's Manual 115416 replaces Genie Load Lifter Parts and Service Manual 82300.

Find a Manual for this Model

Go to http://www.genielift.com

Use the links to locate Service Manuals, Maintenance Manuals, Service and Repair Manuals, Parts Manuals and Operator's Manuals.

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Fourth Edition, First Printing

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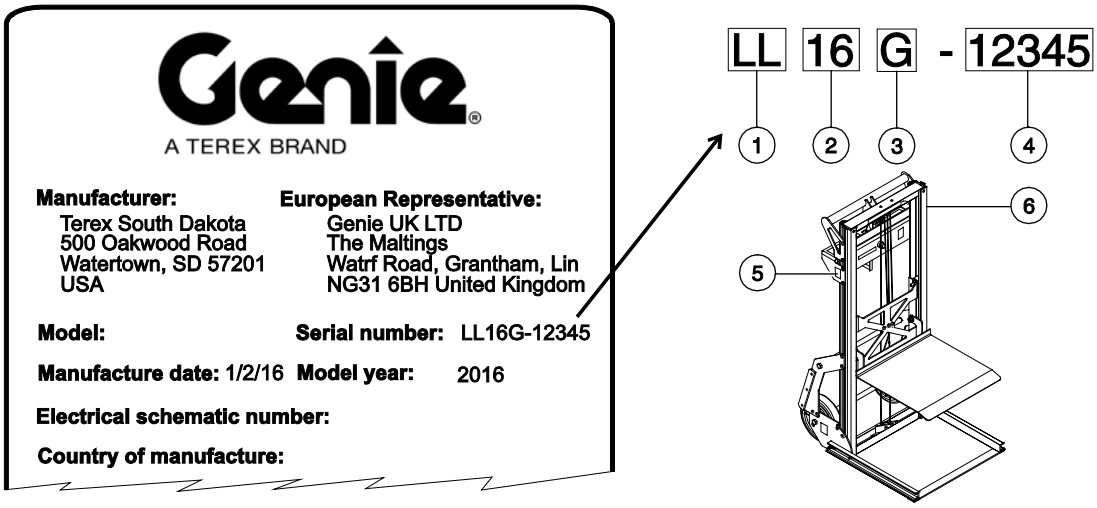
Revision History

Revision	Date	Section	Procedure / Page / Description
A	4/2009		Initial Release
A1	9/2016	Introduction	Serial Number Legend
Reference Examples:			
Section – Maintenance, B-3			**Electronic Version** Click on any content or procedure in the Table of Contents to view the update.
Section – Repair Procedure, 4-2			
Section – Fault Codes, All charts			
Section – Schematics, Legends and schematics			

Introduction

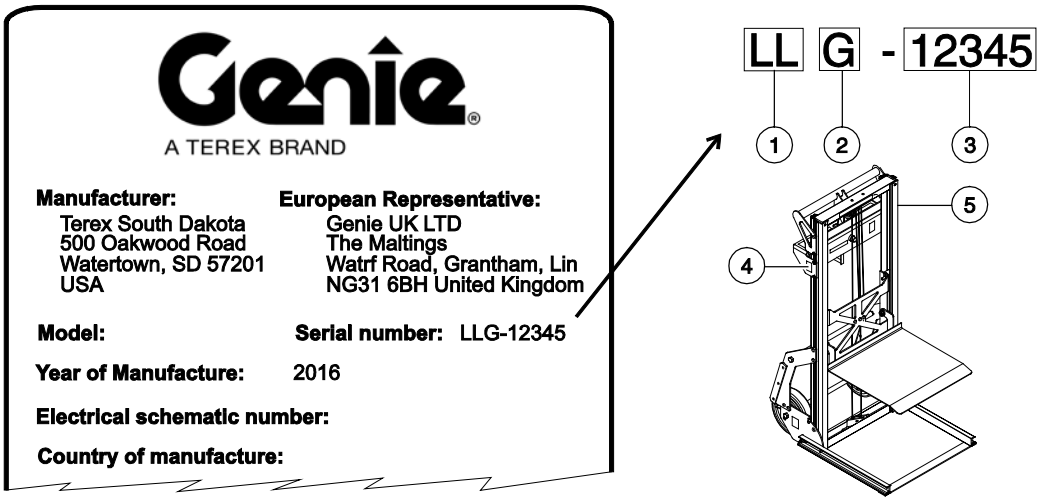
Serial Number Legend

To August 31, 2016



1 Model
2 Model year
3 Facility code
4 Sequence number
5 Serial label
6 Serial number (stamped on winch bracket)

From September 1, 2016



1 Model
2 Facility code
3 Sequence number
4 Serial label
5 Serial number (stamped on winch bracket)

Safety Rules



Danger

Failure to obey the instructions and safety rules in this manual and the appropriate Operator's Manual on your machine will result in death or serious injury.

Many of the hazards identified in the operator's manual are also safety hazards when maintenance and repair procedures are performed.

Do Not Perform Maintenance Unless:

☑ You are trained and qualified to perform maintenance on this machine.

☑ You read, understand and obey:

- manufacturer's instructions and safety rules
- employer's safety rules and worksite regulations
- applicable governmental regulations

☑ You have the appropriate tools, lifting equipment and a suitable workshop.

Safety Rules

Personal Safety

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority.



Read each procedure thoroughly. This manual and the decals on the machine, use signal words to identify the following:



Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

NOTICE Indicates a potentially hazardous situation which, if not avoided, may result in property damage.



Be sure to wear protective eye wear and other protective clothing if the situation warrants it.



Be aware of potential crushing hazards such as moving parts, free swinging or unsecured components when lifting or placing loads. Always wear approved steel-toed shoes.

Workplace Safety

Any person working on or around a machine must be aware of all known safety hazards. Personal safety and the continued safe operation of the machine should be your top priority.



Be sure to keep sparks, flames and lighted tobacco away from flammable and combustible materials like battery gases and engine fuels. Always have an approved fire extinguisher within easy reach.



Be sure that all tools and working areas are properly maintained and ready for use. Keep work surfaces clean and free of debris that could get into machine components and cause damage.



Be sure any forklift, overhead crane or other lifting or supporting device is fully capable of supporting and stabilizing the weight to be lifted. Use only chains or straps that are in good condition and of ample capacity.



Be sure that fasteners intended for one time use (i.e., cotter pins and self-locking nuts) are not reused. These components may fail if they are used a second time.



Be sure to properly dispose of old oil or other fluids. Use an approved container. Please be environmentally safe.



Be sure that your workshop or work area is properly ventilated and well lit.

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Specifications

Machine Specifications

Height, maximum platform	5 ft 7 in 1.70 m
Height - Stowed	3 ft 9 in 1.14 m
Length - Operating	32 in 81.3 cm
Length - Stowed	15 in 52 cm
Width	20.5 in 52 cm
Airborne Noise Emissions by machinery Maximum sound level at normal operating work stations (A-weighted)	78 dB

*Machine weight will vary depending on options and/or country standards.

Performance Specifications

Lift capacity	200 lbs 91 kg
Machine weight	58 lbs 26 kg
Load Platform	
Length	14 in 36 cm
Width	16.8 in 43 cm
Load Height	2 in 5 cm

Continuous improvement of our products is a Genie policy. Product specifications are subject to change without notice.

Specifications

SAE FASTENER TORQUE CHART

• This chart is to be used as a guide only unless noted elsewhere in this manual •

SIZE	THREAD	Grade 5				Grade 8				A574 High Strength Black Oxide Bolts	
		LUBED		DRY		LUBED		DRY		LUBED	
		in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm
1/4	20	80	9	100	11.3	110	12.4	140	15.8	130	14.7
	28	90	10.1	120	13.5	120	13.5	160	18	140	15.8
		LUBED		DRY		LUBED		DRY		LUBED	
		ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
5/16	18	13	17.6	17	23	18	24	25	33.9	21	28.4
	24	14	19	19	25.7	20	27.1	27	36.6	24	32.5
3/8	16	23	31.2	31	42	33	44.7	44	59.6	38	51.5
	24	26	35.2	35	47.4	37	50.1	49	66.4	43	58.3
7/16	14	37	50.1	49	66.4	50	67.8	70	94.7	61	82.7
	20	41	55.5	55	74.5	60	81.3	80	108.4	68	92.1
1/2	13	57	77.3	75	101.6	80	108.4	110	149	93	126
	20	64	86.7	85	115	90	122	120	162	105	142
9/16	12	80	108.4	110	149	120	162	150	203	130	176
	18	90	122	120	162	130	176	170	230	140	189
5/8	11	110	149	150	203	160	217	210	284	180	244
	18	130	176	170	230	180	244	240	325	200	271
3/4	10	200	271	270	366	280	379	380	515	320	433
	16	220	298	300	406	310	420	420	569	350	474
7/8	9	320	433	430	583	450	610	610	827	510	691
	14	350	474	470	637	500	678	670	908	560	759
1	8	480	650	640	867	680	922	910	1233	770	1044
	12	530	718	710	962	750	1016	990	1342	840	1139
1 1/8	7	590	800	790	1071	970	1315	1290	1749	1090	1477
	12	670	908	890	1206	1080	1464	1440	1952	1220	1654
1 1/4	7	840	1138	1120	1518	1360	1844	1820	2467	1530	2074
	12	930	1260	1240	1681	1510	2047	2010	2725	1700	2304
1 1/2	6	1460	1979	1950	2643	2370	3213	3160	4284	2670	3620
	12	1640	2223	2190	2969	2670	3620	3560	4826	3000	4067

METRIC FASTENER TORQUE CHART

• This chart is to be used as a guide only unless noted elsewhere in this manual •

Size	Class 4.6				Class 8.8				Class 10.9				Class 12.9			
(mm)	LUBED		DRY		LUBED		DRY		LUBED		DRY		LUBED		DRY	
	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm	In-lbs	Nm
5	16	1.8	21	2.4	41	4.63	54	6.18	58	6.63	78	8.84	68	7.75	91	10.3
6	19	3.05	36	4.07	69	7.87	93	10.5	100	11.3	132	15	116	13.2	155	17.6
7	45	5.12	60	6.83	116	13.2	155	17.6	167	18.9	223	25.2	1.95	22.1	260	29.4
	LUBED		DRY		LUBED		DRY		LUBED		DRY		LUBED		DRY	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
8	5.4	7.41	7.2	9.88	14	19.1	18.8	25.5	20.1	27.3	26.9	36.5	23.6	32	31.4	42.6
10	10.8	14.7	14.4	19.6	27.9	37.8	37.2	50.5	39.9	54.1	53.2	72.2	46.7	63.3	62.3	84.4
12	18.9	25.6	25.1	34.1	48.6	66	64.9	88	69.7	94.5	92.2	125	81	110	108	147
14	30.1	40.8	40	54.3	77.4	105	103	140	110	150	147	200	129	175	172	234
16	46.9	63.6	62.5	84.8	125	170	166	226	173	235	230	313	202	274	269	365
18	64.5	87.5	86.2	117	171	233	229	311	238	323	317	430	278	377	371	503
20	91	124	121	165	243	330	325	441	337	458	450	610	394	535	525	713
22	124	169	166	225	331	450	442	600	458	622	612	830	536	727	715	970
24	157	214	210	285	420	570	562	762	583	791	778	1055	682	925	909	1233

Scheduled Maintenance Procedures



Observe and Obey:

☑ Maintenance inspections shall be completed by a person trained and qualified on the maintenance of this machine.

☑ Scheduled maintenance inspections shall be completed daily, quarterly, and annually as specified on the *Maintenance inspection Report*. The frequency and extent of periodic examinations and tests may also depend on national regulations.

⚠WARNING Failure to perform each procedure as presented and scheduled may cause death, serious injury or substantial damage.

☑ Immediately tag and remove from service a damaged or malfunctioning machine.

☑ Repair any machine damage or malfunction before operating the machine.

☑ Use only Genie approved replacement parts.

☑ Machines that have been out of service for a period longer than 3 months must complete the quarterly inspection.

Machine Configuration:

☑ Unless otherwise specified, perform each procedure with the machine in the following configuration:

- Machine parked on a firm, level surface
- Carriage fully lowered
- Legs down and locked
- Load platform down

Scheduled Maintenance Procedures

About This Section

This section contains detailed procedures for each scheduled maintenance inspection.

Each procedure includes a description, safety warnings and step-by-step instructions.

Symbols Legend



Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

NOTICE Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

⊙ Indicates that a specific result is expected after performing a series of steps.

☒ Indicates that an incorrect result has occurred after performing a series of steps.

Maintenance Symbols Legend

Note: The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols appear at the beginning of a maintenance procedure, it conveys the meaning below.



Indicates that tools will be required to perform this procedure.



Indicates that new parts will be required to perform this procedure.



Indicates that dealer service will be required to perform this procedure.

Scheduled Maintenance Procedures

Pre-delivery Preparation Report

The pre-delivery preparation report contains checklists for each type of scheduled inspection.

Make copies for each inspection. Store completed forms as required.

Maintenance Schedule

The *Scheduled Maintenance Procedures* section and the *Maintenance Inspection Report* have been divided into subsections. Use the following chart to determine which group(s) of procedures are required to perform a scheduled inspection.

Inspection	Checklist
Daily or every 8 hours	A
Quarterly or every 250 hours	A + B
Annually or every 1000 hours	A + B + C

Maintenance Inspection Report

The maintenance inspection report contains checklists for each type of scheduled inspection.

Make copies of the *Maintenance Inspection Repor*t to use for each inspection. Maintain completed forms for a minimum of 4 years or in compliance with your employer, jobsite and governmental regulations and requirements.

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Pre-Delivery Preparation Report

Fundamentals

It is the responsibility of the owner or dealer to perform the Pre-delivery Preparation.

The Pre-delivery Preparation is performed prior to each delivery. The inspection is designed to discover if anything is apparently wrong with a machine before it is put into service.

A damaged or modified machine must never be used. If damage or any variation from factory delivered condition is discovered, the machine must be tagged and removed from service.

Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications.

Scheduled maintenance inspections shall be performed by qualified service technicians, according to the manufacturer's specifications and the requirements listed in the responsibilities manual.

Instructions

Use the operator's manual on your machine.

The Pre-delivery Preparation consists of completing the Pre-operation Inspection, the Maintenance items and the Function Tests.

Use this form to record the results. Place a check in the appropriate box after each part is completed. Follow the instructions in the operator's manual.

If any inspection receives an N, remove the machine from service, repair and re-inspect it. After repair, place a check in the R box.

Legend

Y = yes, acceptable
N = no, remove from service
R = repaired

Comments

Pre-delivery Preparation	Y	N	R
Pre-operation inspection completed			
Maintenance items completed			
Function tests completed			

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(44) 1476-584333

Model

Serial number

Date

Machine owner

Inspected by (print)

Inspector signature

Inspector title

Inspector company

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Maintenance Inspection Report

Model

Serial number

Date

Hour meter

Machine owner

Inspected by (print)

Inspector signature

Inspector title

Inspector company

Checklist A- Rev A		Y	N	R
A-1	Inspect the manuals and decals			
A-2	Pre-operation inspection			
A-3	Function tests			
A-4	Tires and wheels			
A-5	Brake operation (if equipped)			

Comments

Checklist B		Y	N	R
B-1	Inspect welds			
B-2	Clean channels			
B-3	Inspect and lubricate winch			

Checklist C- Rev A		Y	N	R
C-1	Friction disks and winch shaft			

Comments

Instructions

- Make copies of this report to use for each inspection.
- Select the appropriate checklist(s) for the type of inspection(s) to perform.

☐	**Daily or every 8 hours**	**A**
☐	**Quarterly or every 250 hours**	**A + B**
☐	**Annually or every 1000 hours**	**A + B + C**

- Place a check in the appropriate box after each inspection procedure is completed.
- Use the step-by-step procedures in this section to learn how to perform these inspections.
- If any inspection receives an "N," tag and remove the machine from service, repair and re-inspect it. After repair, place a check in the "R" box.

Legend

Y = yes, acceptable
N = no, remove from service
R = repaired

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Checklist A Procedures

A-1
Inspect the Manuals and Decals

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Maintaining the operator’s and safety manuals in good condition is essential to safe machine operation. Manuals are included with each machine and should be stored in the container provided in the platform. An illegible or missing manual will not provide safety and operational information necessary for a safe operating condition.

In addition, maintaining all of the safety and instructional decals in good condition is mandatory for safe machine operation. Decals alert operators and personnel to the many possible hazards associated with using this machine. They also provide users with operation and maintenance information. An illegible decal will fail to alert personnel of a procedure or hazard and could result in unsafe operating conditions.

1 Check to make sure that the operator's, safety and responsibilities manuals are present and complete in the storage container on the platform.

2 Examine the pages of each manual to be sure that they are legible and in good condition.

⊙ Result: The operator's manual is appropriate for the machine and all manuals are legible and in good condition.

☒ Result: The operator's manual is not appropriate for the machine or all manuals are not in good condition or is illegible. Remove the machine from service until the manual is replaced.

3 Open the operator's manual to the decals inspection section. Carefully and thoroughly inspect all decals on the machine for legibility and damage.

⊙ Result: The machine is equipped with all required decals, and all decals are legible and in good condition.

☒ Result: The machine is not equipped with all required decals, or one or more decals are illegible or in poor condition. Remove the machine from service until the decals are replaced.

4 Always return the manuals to the storage container after use.

Note: Contact your authorized Genie distributor or Genie if replacement manuals or decals are needed.

Checklist A Procedures

A-2
Perform Pre-operation Inspection

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Completing a Pre-operation Inspection is essential to safe machine operation. The Pre-operation Inspection is a visual inspection performed by the operator prior to each work shift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests. The Pre-operation Inspection also serves to determine if routine maintenance procedures are required.

Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

A-3
Perform Function Tests

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Completing the function tests is essential to safe machine operation. Function tests are designed to discover any malfunctions before the machine is put into service. A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service.

Complete information to perform this procedure is available in the appropriate operator's manual. Refer to the Operator's Manual on your machine.

Checklist A Procedures

A-3
Perform Function Tests

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Maintaining the tires and wheels in good condition is essential to safe operation and good performance. Tire and/or wheel failure could result in a machine tip-over. Component damage may also result if problems are not discovered and repaired in a timely fashion.

1 Visually inspect each tire and wheel for cuts, cracks or unusual wear.

2 Move the machine on a flat, level surface and check that the wheels roll smoothly, free of hesitation and binding.

3 Check the tire pressure with an air pressure gauge and add air as needed.

Air pressure	50 psi 3.4 bar

A-5
Check the Brake Operation (if equipped)

Genie specifications require that this procedure be performed every 8 hours or daily, whichever comes first.

Detection of damage to the brake system is essential to safe machine operation. An unsafe working condition exists if the system is damaged and does not operate properly.

1 Press down on the foot pedal to lock the brake.

2 Push the machine.

⊙ Result: The wheels should not move.

3 Pull up on the foot pedal to release the brake.

4 Push the machine.

⊙ Result: The wheels should move.

Note: If the brake does not operate correctly, refer to Repair procedure, *How to Adjust the Brake*.

Checklist B Procedures

B-1
Inspect All Welds

Genie specifications require that this procedure be performed every 250 hours or quarterly, whichever comes first.

Weld inspections are essential to safe machine operation and good machine performance. Failure to locate and repair damage may result in an unsafe operating condition.

1 Visually inspect the welds in the following locations:

- Handle
- Inner frame
- Load platform

B-2
Clean the Channels

Genie requires that this procedure be performed every 250 hours or quarterly, whichever comes first.

Clean inner and outer frame channels are essential to good machine performance and safe operation. Extremely dirty conditions may require that the channels be cleaned more often.

1 Raise the load platform to the maximum height.

2 Visually inspect the inner and outer frame channels for debris or foreign material. If necessary, use a mild cleaning solvent to clean the channels.

Note: Apply Boelube (Genie part number 90337) to the inside surfaces of the inner and outer frames. Do not use oil or grease on these surfaces.

B-3
Inspect and Lubricate the Winch

Genie specifications require that this procedure be performed every 250 hours or quarterly, whichever comes first.

Maintaining the winch is essential to good machine performance and safe operation. An unsafe working condition exists if the winch has excessive wear and/or does not operate smoothly, free of hesitation and binding.

1 Carefully lubricate the pivot point on the ratchet pawl with 30W oil.

NOTICE Component damage hazard. Do not allow oil onto the brake disk.

2 Inspect the brake disks for excessive wear. Replace if the pad is less than1/16 inch / 1.5 mm thick. Refer to Repair procedure, *How to Disassemble the Winch,* if necessary.

3 Inspect the pinion shaft bushings for excessive wear. Replace if the wall thickness of the bushing is less than 1/8 inch / 3.1 mm. Refer to Repair procedure, *How to Disassemble the Winch*, if necessary.

Checklist C Procedures

C-1
Replace the Winch Brake Disks and Lubricate the Winch Shaft

Genie specifications require that this procedure be performed every 1000 hours or annually, whichever comes first.

Maintaining the winch is essential to good machine performance and safe operation. An unsafe working condition exists if the winch has excessive wear and/or does not operate smoothly, free of hesitation and binding.

1 Replace the winch brake disks and lubricate the winch shaft. Refer to Repair procedure, *How to Disassemble the Winch.*

Repair Procedures



Observe and Obey:

☑ Repair procedures shall be completed by a person trained and qualified on the repair of this machine.

☑ Immediately tag and remove from service a damaged or malfunctioning machine.

☑ Repair any machine damage or malfunction before operating the machine.

Before Repairs Start:

☑ Read, understand and obey the safety rules and operating instructions in the appropriate operator's manual on your machine.

☑ Be sure that all necessary tools and parts are available and ready for use.

☑ Use only Genie approved replacement parts.

☑ Read each procedure completely and adhere to the instructions. Attempting shortcuts may produce hazardous conditions.

Machine Configuration:

☑ Unless otherwise specified, perform each repair procedure with the machine in the following configuration:

- Machine parked on a firm, level surface
- Carriage fully lowered
- Legs down and locked
- Load platform down

Repair Procedures

About This Section

Most of the procedures in this section should only be performed by trained service professional in a suitably equipped workshop. Select the appropriate repair procedure after troubleshooting the problem.

Perform disassembly procedures to the point where repairs can be completed. Then to re-assemble, perform the disassembly steps in reverse order.

Symbols Legend



Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠DANGER Indicates a imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION Indicates a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

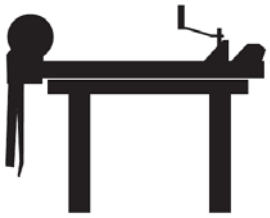
NOTICE Indicates a potentially hazardous situation which, if not avoided, may result in property damage.

⊙ Indicates that a specific result is expected after performing a series of steps.

☒ Indicates that an incorrect result has occurred after performing a series of steps.

1-1
How to Disassemble the Machine

1 Using proper lifting techniques, lay the machine on a table or other suitable work surface.



Note: Before disassembling, note the location of the shims between the base plates and the leg.

2 Remove the leg mounting fasteners and remove the legs from the machine.

Note: Before disassembling, note the location of the shims between the base plates and the wheel.

3 Remove the rear wheel mounting fasteners. Remove the rear wheels and axle.

4 Remove the stair glide assembly mounting fasteners from the base plates.

5 Remove the stair glide support hardware and remove the stair glide support tube.

6 Remove the base plate mounting fasteners from the outer frame channels. Remove the base plates from the outer frame channels.

7 Remove the stair glide assembly mounting fasteners from the outer frame channels and remove the stair glides from the outer frame channels.

8 Remove the cable retaining fastener from the winch drum and remove the cable from the drum.

⚠ CAUTION Bodily injury hazard. Cables can fray. Always wear adequate hand protection when handling cable.

9 Remove the inner frame stop angle mounting fasteners from the outer frame channels and remove the inner frame stop angle from the outer frame channels.

10 Remove the winch plate mounting fasteners from the outer frame channels and remove the winch plate from the outer frame channels.

11 Pull the cable through the pulley located in the handle.

12 Remove the handle mounting fasteners from the outer frame channels and remove the handle from the outer frame channels. Slide the outer frame channels off of the inner frame assembly.

⚠ CAUTION Bodily injury hazard. After the handle has been removed from the outer frame channels, the outer frame channels are not attached.

13 Remove the cable mounting fastener from the top of the inner frame and remove the cable from the machine.

Note: Before disassembling, note the location of the shims, as they are removed from the roller wheels.

14 Loosen the carriage roller wheel mounting fasteners. Slide the roller wheels out of the slots on the carriage. Remove the carriage from the machine.

15 Remove the load platform mounting fasteners from the carriage. Remove the platform from the carriage.

Note: When assembling the machine, use Loctite® removable thread sealant on the base plate mounting fasteners.

Base Assembly

1-2
How to Disassemble the Winch

1 Fully lower the carriage.

2 Remove the cable retaining fastener from the winch drum. Unwind the cable from the winch drum.

⚠ CAUTION Bodily injury hazard. Cables can fray. Always wear adequate hand protection when handling cable.

3 Remove the winch handle from the winch.

4 Remove the two jam nuts from the pinion shaft.

5 From the platform side of the machine, rotate the pinion shaft counterclockwise until the shaft is removed. Be sure to hold the winch components in place while removing the pinion shaft.

Note: Before disassembling, note the quantity and location of the shims, between the winch drum and bushing.

6 Remove the pinion shaft bushings. Use a soft metal drift equal to the outside diameter of the bushing and tap with a rubber mallet.

How to Assemble the Winch

1 Clean and inspect the winch components before installing.

Note: Refer to the illustration, *Winch Assembly*, for an exploded view.

2 Install the pinion shaft bushings. Use a soft metal drift equal to the outside diameter of the bushing and tap with a rubber mallet until fully seated.

3 Apply a small amount of lithium grease to the large threaded section of the pinion shaft.

4 Insert the pinion shaft through the pinion shaft spacer and the winch drum.

5 Install the brake disk, ratchet gear and UHMW brake disk in respective order onto the pinion shaft.

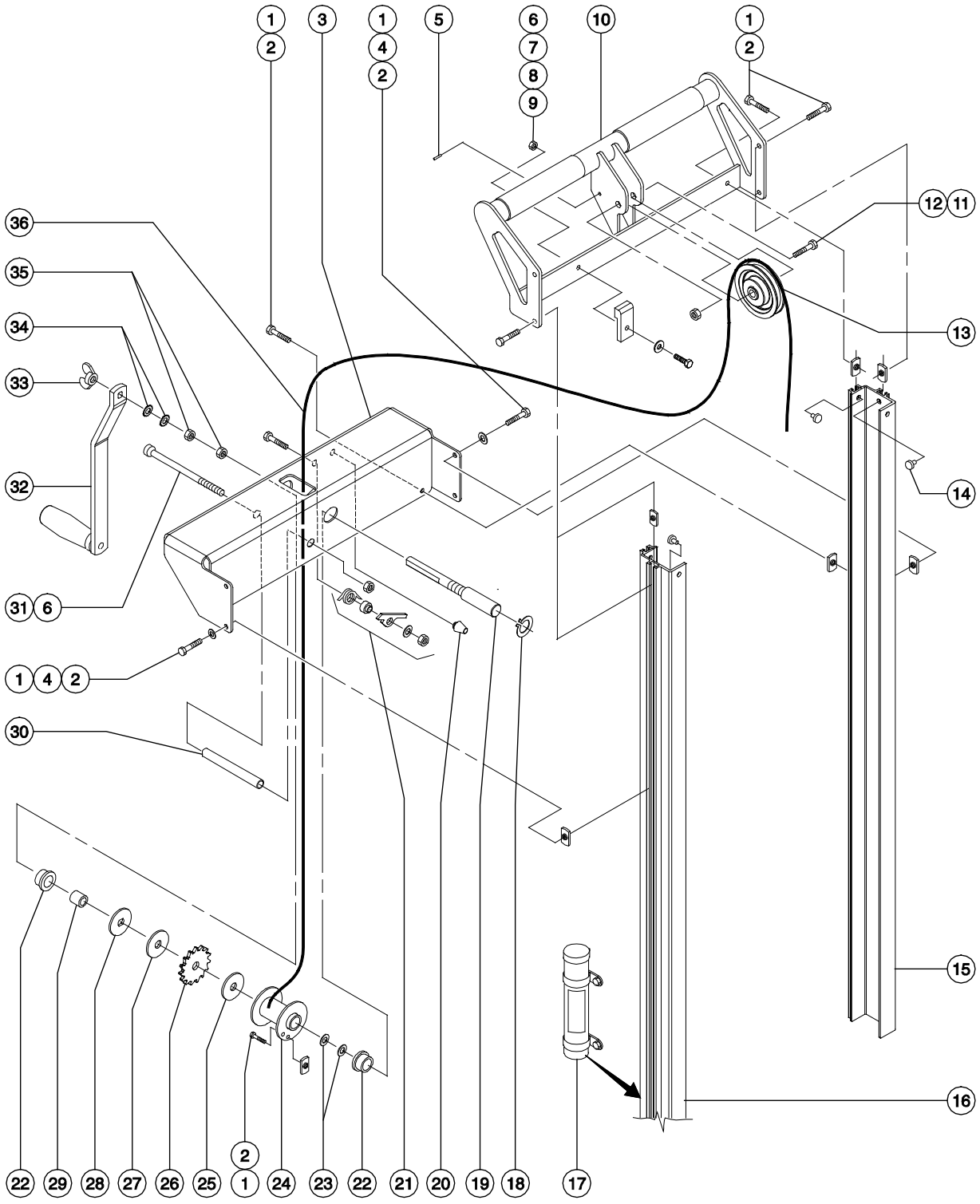
NOTICE Component damage hazard. Be sure the pinion shaft is threaded all the way into the winch drum before tightening the two jam nuts.

NOTICE Component damage hazard. Do not allow grease or oil onto the brake disks or the ratchet gear.

6 Install the two jam nuts and the handle onto the winch shaft.

7 Route the cable around the winch and install the cable retaining fastener. Be sure the end of the cable does not extend past the edge of the winch drum.

Winch Assembly



Repair Procedures

Winch Assembly

Index No.	Description
1	Screw,
2	Weld Nut
3	Winch Mounting Bracket
4	Lock Washer
5	Roll Pin
6	Handle Assembly
7	Screw,
8	Nylock nut,
9	Outer Frame Pulley
10	Glide Button
11	Outer Frame Channel - Left Side
12	Outer Frame Channel - Right Side
13	Retainer Ring
14	Direct Drive Pinion Shaft
15	Rubber Bumper
16	Ratchet Kit
17	Bushing
18	Flat washer,
19	Winch Drum
20	Brake Disk
21	Ratchet Gear
22	Brake Disk
23	Pinion Plate
24	Pinion Shaft Spacer
25	Winch Mounting Bracket Spacer
26	Screw,
27	Nylock nut,
28	Winch Handle
29	Wing nut
30	Star Washer
31	Jam nut,
32	Cable Assembly

1-3 How to Replace the Pulley

1 Fully lower the carriage.

2 Unwind the cable from the winch drum. Do not remove the cable.

⚠ CAUTION Bodily injury hazard. Cables can fray. Always wear adequate hand protection when handling cable.

Handle Pulley:

3 Remove the pulley mounting fastener. Then remove the pulley.

4 Wrap the cable around the new pulley and re-install the pulley into the handle.

Note: Be sure not to twist the cable when installing the new pulley.

Inner Frame Pulleys:

5 Remove the pulley bracket mounting fasteners.

6 Remove the pulley mounting fastener from the pulley bracket. Then remove the pulley.

7 Apply a small amount of lithium grease to the pulley bushing and pulley sides.

8 Wrap the cable around the new pulley and re-install the pulley into the pulley bracket.

Note: Be sure not to compress the pulley mounting bracket when installing the new pulley.

9 Install the pulley bracket into the inner frame.

Note: Be sure not to twist the cable when installing the new pulley and pulley bracket.

Carriage Pulley:

10 Remove the pulley mounting fastener and remove the pulley.

11 Wrap the cable around the new pulley and re-install the pulley into the handle.

Note: Be sure not to twist the cable when installing the new pulley.

1-4 How to Replace the Lifting Cable

⚠ CAUTION Bodily injury hazard. Cables can fray. Always wear adequate hand protection when handling cable.

1 Fully lower the carriage.

2 Remove the cable retaining fastener from the winch drum. Unwind the cable from the winch drum.

3 Remove the cable mounting fastener from the top of the inner frame. Pull all the cable out of the machine.

4 Attach the new cable to the top of the inner frame.

5 Facing the winch side of the machine, thread the cable through the carriage pulley from the left side to the right side. Pull all the cable through the pulley.

6 Facing the platform side of the machine, thread the cable through the top inner frame pulley, from front to back. Pull all the cable through the pulley.

7 Thread the cable through the bottom inner frame pulley, from front to back. Pull all the cable through the pulley.

8 Thread the cable through the handle pulley, from front to back. Pull all the cable through the pulley.

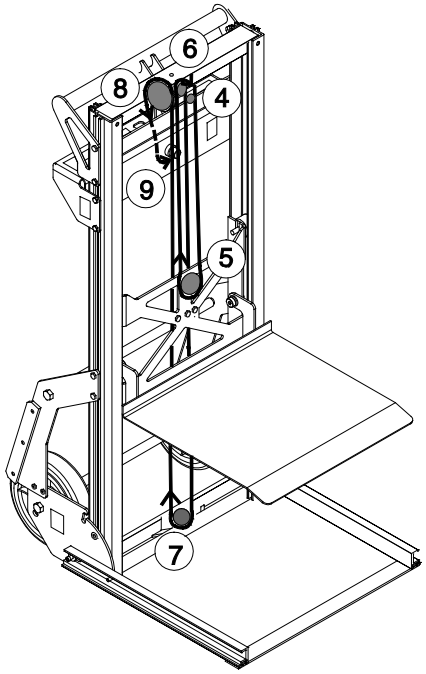
Winch Assembly

9 Facing the winch side of the machine, thread the cable through the winch mounting plate. Pull all the cable through the plate.

10 Wrap the cable clockwise around the winch drum. Attach the cable to the drum. Be sure the end of the cable does not extend past the edge of the winch drum.

11 While holding the cable tightly on the drum, rotate the winch until all the cable is spooled onto the drum. Be sure there are at least 4 wraps of cable on the winch drum.

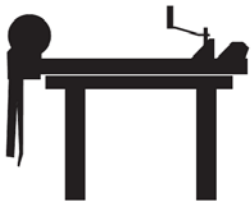
Cable Routing



Note: The numbers on the illustration correspond to the steps in procedure 1-4. Platform is raised for illustrative purposes only.

1-5
How to Adjust the Glide Buttons

1 Using proper lifting techniques, lay the machine on a table or other suitable work station.



2 Remove the inner frame stop angle mounting fasteners. Remove the inner frame stop angle.

3 Slide the inner frame out the bottom of the outer frame approximately 6 inches / 15.2 cm.

4 Use a soft metal drift to remove the glide button.

5 Press the new glide button into place until it is fully seated.

6 Slide the inner frame into the outer frame and install the inner frame stop angle.

1-6
How to Adjust the Brake

1 Rotate the brake pedal to the up position (brake unlocked).

2 Loosen the clamping bolts from all three of the brake cams.

3 Rotate both of the wheel-brake cams until they contact the tires. Tighten the brake cam clamping bolts.

4 With the pedal up, rotate the brake cam rod until there is approximately 1/4 inch / 63 mm of gap between the wheel and the wheel-brake cam. Tighten the center brake cam clamping bolt.

5 Check the brake for proper activation.

Note: The brake should lock easily in place. Avoid using too much force on the brake pedal.

California Proposition 65

WARNING

Operating, servicing and maintaining this equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. These chemicals can be emitted from or contained in other various parts and systems, fluids and some component wear by-products. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your equipment and vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your equipment or vehicle and after operation. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.

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