POLEA CABLE CON GANCHO 6"

650

UPC # 0783310153245

SKU: 3701530



- Bastidores sólidos de acero soldado
- Gancho de cierre de acero forjado con abertura de 1 in (25,4 mm)
- Polea de aleación de aluminio de 5 in (127 mm) de ancho con rulemanes con autolubricación
- Seleccione una polea con capacidad nominal máxima igual o superior a la fuerza de tracción máxima del traccionador de cables

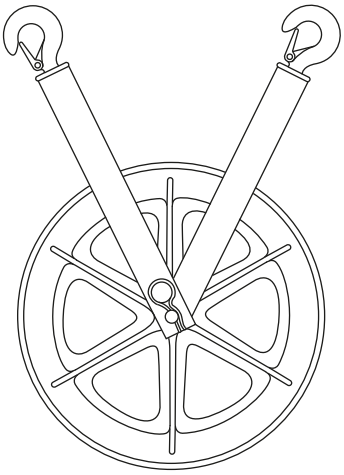
Especificaciones

Diámetro interno	0,76 in
Chaveteros	Ninguno
Diámetro externo	6 in
Diámetro de paso	Entre 6 in y 3 in
Surco	R2,50 in
Material	Polea de aleación de aluminio de 5 in (127 mm) de ancho con rulemanes con autolubricación
Incluye	Clavija de polea 16797 UPC 16797, clip de clavija de polea 50302 UPC 50302 (dos unidades), polea 15362 UPC 15362, buje de polea 16798 UPC 16798 (dos unidades), armazón tipo yugo 16799 UPC
Estándar	6" (152,4 mm) de diámetro Polea de gancho con radio mín. de 1-1/2 in (38,1 mm)
Tipo	Ensamble de polea
Aplicación	Tracción de cables eléctricos
Capacidad	4000 lb (17,8 kN)

*Greenlee® puede introducir mejoras y/o cambios en los datos técnicos de los productos en cualquier momento, a discreción propia y sin obligación o anuncio previo, y además se reserva el derecho a modificar o cancelar modelos.

INSTRUCTION MANUAL

GREENLEE®



Hook Sheaves

639, 650, 651, 652, and 653
8012, 8018, and 8024

Read and **understand** all of the instructions and safety information in this manual before operating or servicing this tool.

Register this product at www.greenlee.com

52056646 REV 3
© 2019 Greenlee Tools, Inc.
9/19

Table of Contents

Description 2
Safety 2
Purpose of this Manual 2
Important Safety Information 3
Hook Load 4–7
Some Hook Loads Illustrated 5
Calculating the Hook Load 6–7
Hoist Hook 8
Hook Latch Kit 9
Illustrations and Parts Lists 10–11
639, 650, 651, 652, and 653 10
8012, 8018, and 8024 11

Description

Greenlee Hook Sheaves are used to change the direction of a rope or cable while installing cable in conduit or raceway.

They may also be used to change the direction of the cable puller tailing rope to allow the operator to stand away from the line of the high tension pulling rope approaching the puller.

Safety

Safety is essential in the use and maintenance of Greenlee tools and equipment. This instruction manual and any markings on the tool provide information for avoiding hazards and unsafe practices related to the use of this tool. Observe all of the safety information provided.

Purpose of this Manual

This manual is intended to familiarize all personnel with the safe operation and maintenance procedures for the following Greenlee tools:

Hook Sheaves:
639, 650, 651, 652, and 653
8012, 8018, and 8024

Keep this manual available to all personnel.

Replacement manuals are available upon request at no charge at www.greenlee.com.

All specifications are nominal and may change as design improvements occur. Greenlee Tools, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.

Tugger is a registered trademark of Tools, Inc.

KEEP THIS MANUAL

IMPORTANT SAFETY INFORMATION

SAFETY ALERT SYMBOL

This symbol is used to call your attention to hazards or unsafe practices which could result in an injury or property damage. The signal word, defined below, indicates the severity of the hazard. The message after the signal word provides information for preventing or avoiding the hazard.

⚠DANGER

Immediate hazards which, if not avoided, WILL result in severe injury or death.

⚠WARNING

Hazards which, if not avoided, COULD result in severe injury or death.

⚠CAUTION

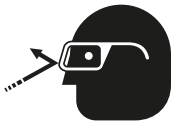
Hazards or unsafe practices which, if not avoided, MAY result in injury or property damage.



⚠WARNING

Read and understand all of the instructions and safety information in this manual as well as the manual supplied with the cable puller before operating or servicing this tool.

Failure to observe this warning could result in severe injury or death.



⚠WARNING

Wear eye protection when operating this tool.

Failure to wear eye protection could result in serious eye injury from flying debris.

⚠WARNING

For use in cable pulling only. Do not use for lifting personnel or equipment.

Failure to observe this warning could result in severe injury or death.



⚠WARNING

Inspect all anchorings, structural supports and hook sheaves. Verify that they will safely withstand up to **twice** the cable puller's maximum pulling capacity.

Any component that cannot withstand this much force could break and strike nearby personnel, causing severe injury or death.

⚠WARNING

The maximum force the cable puller will exert on the hook is twice its capacity. Assume that twice the cable puller's capacity will be exerted on every hook sheave and structural support.

Failure to observe this warning could result in severe injury or death.

⚠CAUTION

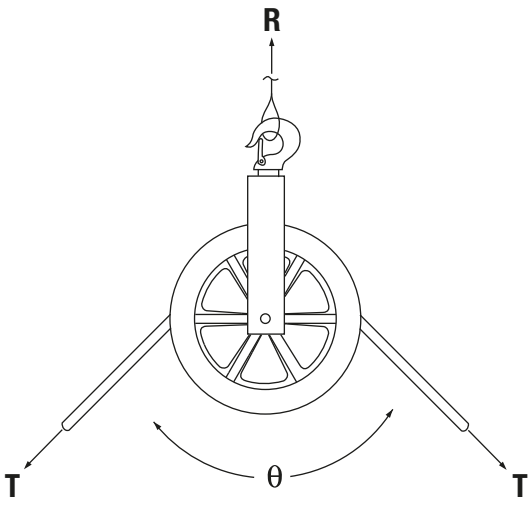
Consult the cable manufacturer's specifications for minimum bending radius and other information. Using sheaves that are too small can damage the cable.

Failure to observe this precaution may result in property damage.

Note: Keep all decals clean and legible, and replace when necessary.

Hook Load

Two variables interact with the sheave to produce a resultant (total) force, or hook load. This load, represented by **R** in the formulas and illustrations, is exerted on the hook, anchoring, and structural support.



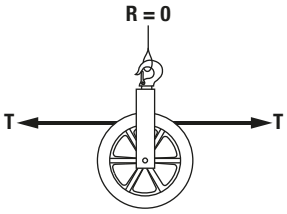
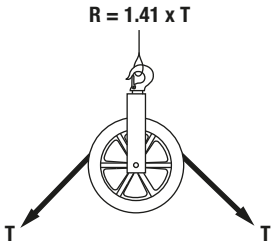
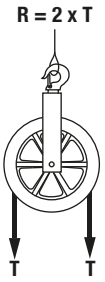
R = the resultant force, or hook load; this force is exerted on the hook, anchoring, and structural support

θ = the angle of change in rope direction

T = the tension exerted on the rope by the cable puller

Sheave Forces

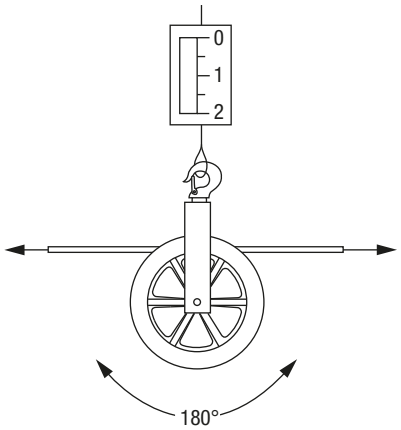
Reference Table

Illustration	θ	R
	180°	0
	150°	0.52 x T
	135°	0.77 x T
	120°	1 x T
	90°	1.41 x T
	60°	1.73 x T
	45°	1.85 x T
	30°	1.93 x T
	0°	2 x T

Hook Load (cont'd)

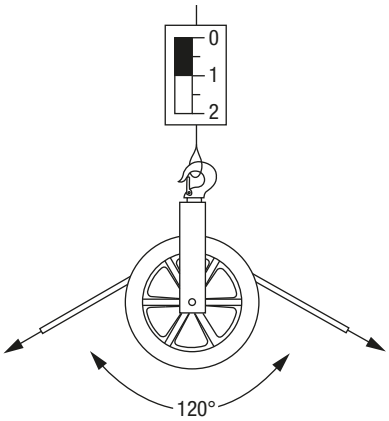
Some Hook Loads Illustrated

Hook Load



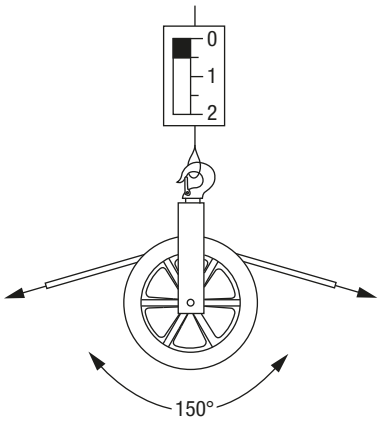
A straight rope exerts no load on the hook and structure.

Hook Load = Total Pulling Force



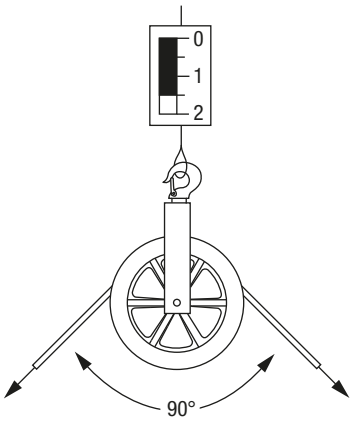
A rope that makes a 120° angle exerts the total pulling force on the hook and structure.

Hook Load = 1/2 of the Pulling Force



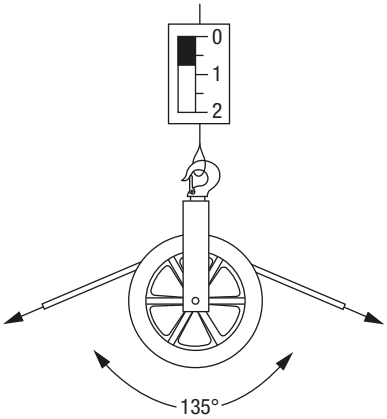
A rope that makes a 150° angle exerts 1/2 of the pulling force on the hook and structure.

Hook Load = 1-1/2 Times the Pulling Force



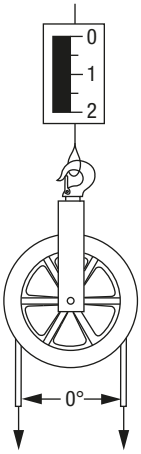
A rope that makes a 90° angle exerts 1-1/2 times the pulling force on the hook and structure.

Hook Load = 3/4 of the Pulling Force



A rope that makes a 135° angle exerts 3/4 of the pulling force on the hook and structure.

Hook Load = 2 Times the Pulling Force



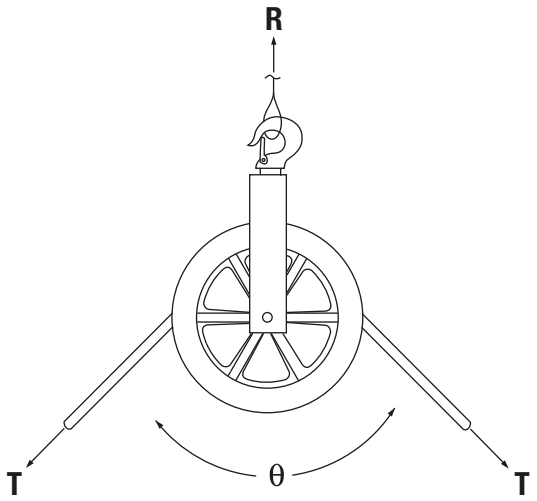
A rope that makes a 0° angle exerts 2 times the pulling force on the hook and structure.

Hook Load (cont'd)

Calculating the Hook Load

One Attachment Point

To calculate the hook load exerted at one attachment point, use the Reference Table and Formula 1.



Sheave with One Attachment Point

Formula 1:

$R = 2 \times T \times \sin[(180 - \theta) / 2]$

- R = the resultant force, or hook load; this force is exerted on the hook, anchoring and structural support
- θ = the angle of change in rope direction
- T = the tension exerted on the rope by the cable puller

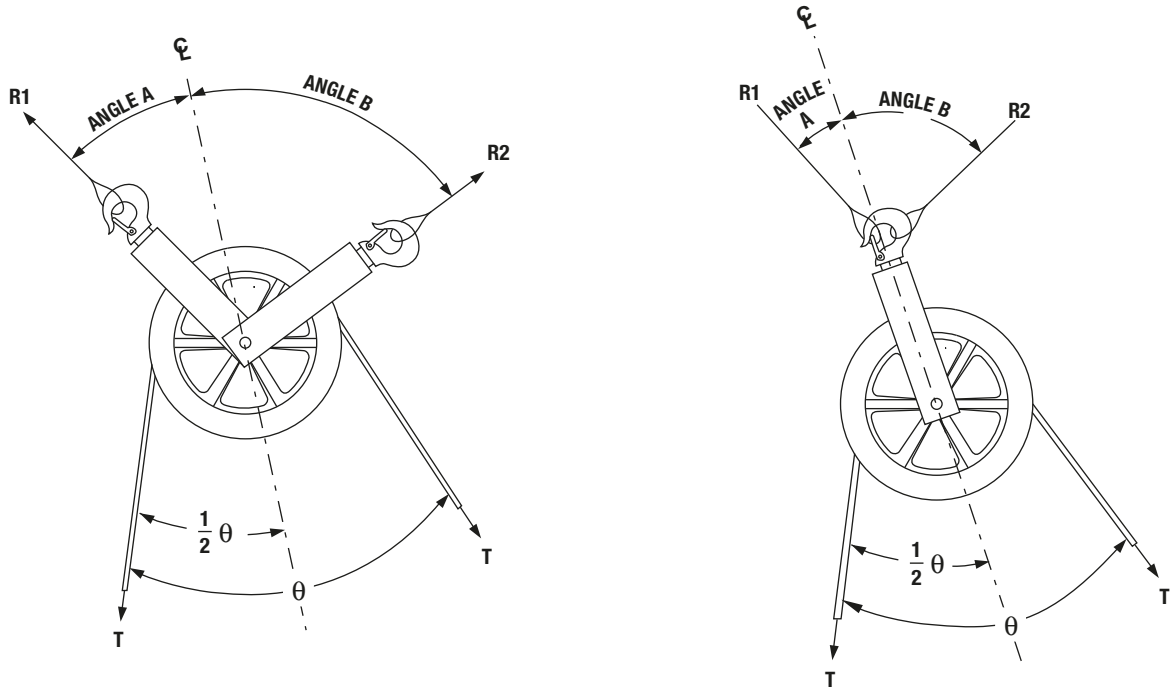
Note: The total load on the support structure = R + the weight of the sheave.

Hook Load (cont'd)

Calculating the Hook Load (cont'd)

Two Attachment Points

To calculate the hook loads exerted at two attachment points, use the Reference Table and Formulas 1, 2, and 3.



Sheave with Two Attachment Points

Formula 2:

$$R_1 = \frac{R}{\text{COS A + SIN A / TAN B}}$$

Formula 3:

$$R_2 = \frac{R}{\text{COS B + SIN B / TAN A}}$$

- R_1 = resultant force on left hook, anchoring and support structure
- R_2 = resultant force on right hook, anchoring and support structure
- A = angle between the left mounting and the centerline of the two legs of the rope
- B = angle between the right mounting and the centerline of the two legs of the rope
- R = the resultant force, or hook load; this force is exerted on the hook, anchoring and structural support
- θ = the angle of change in rope direction
- T = the tension exerted on the rope by the cable puller

Notes: The total load on the left support structure = R_1 + the weight of the sheave.
The total load on the right support structure = R_2 + the weight of the sheave.

Hoist Hook

Warnings and Application Instructions

- Trained personnel should perform a visual periodic inspection for deformation, wear, gouges, cracks, and nicks as part of a documented safety inspection program in compliance with the ANSI B30.10 schedule. (See ANSI/ASME B30.10 “Hooks” for additional information.)
- A hook with a gouge, crack, or nick shall be removed from service and shall be repaired by trained personnel by grinding lengthwise, following the contour of the hook, provided that the reduced dimension is within the limits shown in Figure 1. Never use a hook worn beyond the limits of Figure 1.
- Never use a hook whose tip has been distorted or bent more than 10 degrees out of plane from the hook body or whose throat opening has been increased. **(A bent or worn tip will prevent the hook latch from latching properly.)**
- Never rework, reshape, repair, or alter a hook by welding, bending, heating, or burning.
- Never tip load, side load, or back load a hook. (See Figure 2.)
- The latch must never support the load, only the hook may support the load. (See Figure 3.) Regulations and/or safety codes (OSHA, MSHA, ANSI, ASME, Insurance, etc.) may require the use of a latch be mandatory.
- When using two (2) sling legs in a hook, never exceed 45 degrees from the vertical to either sling leg **and** the angle between the legs shall not exceed 90 degrees.
- If using more than two (2) slings **or** for angles greater than 90 degrees, a bolt type anchor shackle or master link shall be used to attach the sling legs to the hook.

⚠WARNING

- Loads may disengage from hook if proper procedures are not followed.
- A falling load may cause serious injury or death.
- Hook must always support the load. The load must never be supported by the latch.
- Read and understand these instructions before using hook.

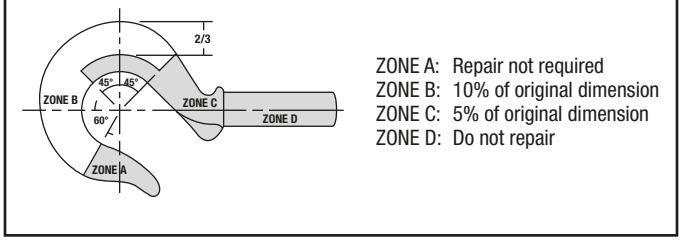


Figure 1

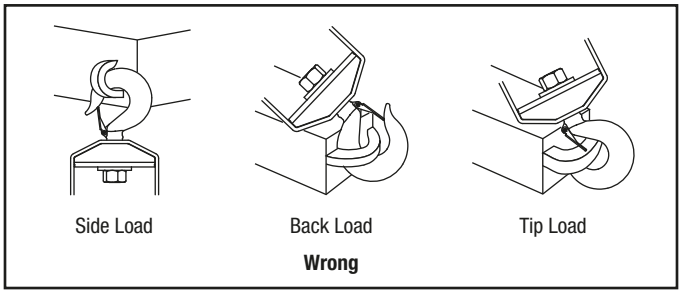


Figure 2

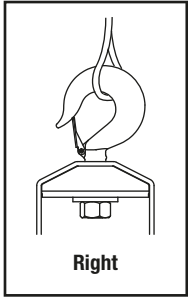


Figure 3

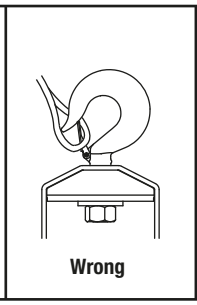


Figure 4

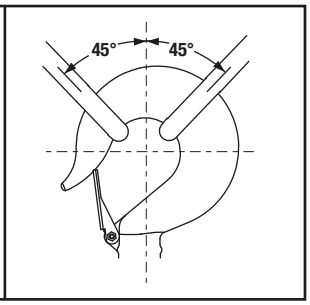
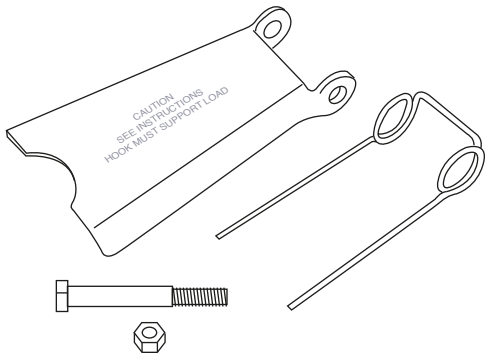


Figure 5

Hook Latch Kit

Warnings and Application Instructions



- Always inspect hook and latch before using.
- Never use a latch that is distorted or bent.
- Always make sure spring will force the latch against the tip of the hook.
- Always make sure hook supports the load. The latch must never support the load. (See Figures 1 and 2.)
- When placing two (2) sling legs in hook, make sure the angle between legs is small enough and the legs are not tilted so that nothing bears against the bottom of the latch.
  (See Figures 3 and 4.)
- Latches are intended to retain loose sling or devices under slack conditions.
- Latches are not intended to be an anti-fouling device.

⚠WARNING

- Loads may disengage from hook if proper procedures are not followed.
- A falling load may cause serious injury or death.
- Hook must always support the load. The load must never be supported by the latch.
- Read and understand these instructions before using hook.

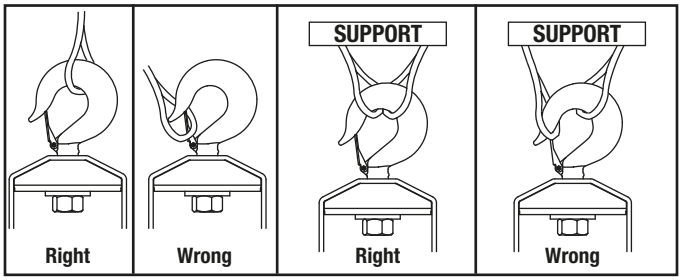
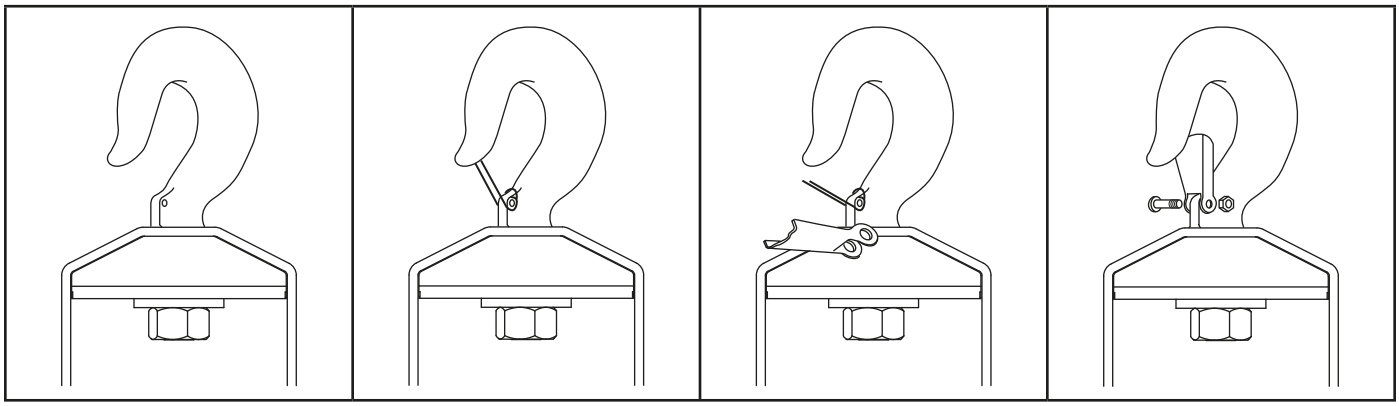


Figure 1 **Figure 2** **Figure 3** **Figure 4**

IMPORTANT — Instructions for Assembling Latch on Hooks



Step 1

Place hook at approximately a 45-degree angle with the cam up.

Step 2

Position coils of spring over cam with tines of spring pointing toward point of hook and loop of spring positioned down and lying against the hook.

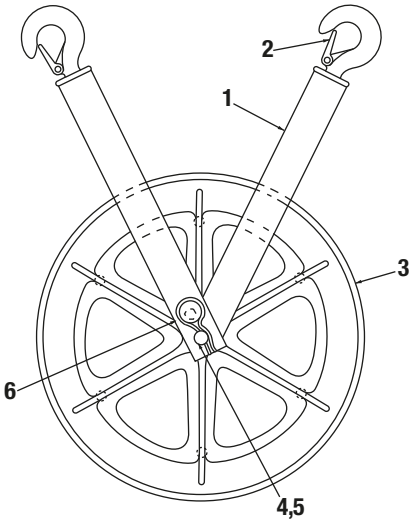
Step 3

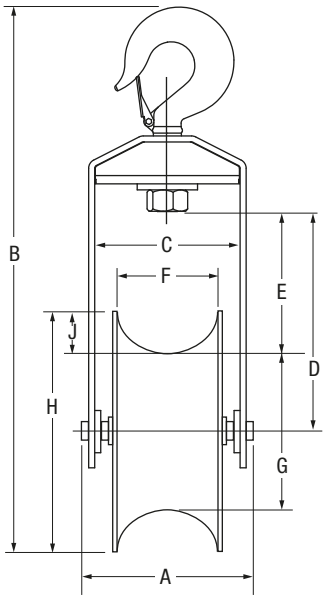
Position latch over tines of spring with ears partially over hook cam. Swing latch to one side of hook, point and depress latch and spring until latch clears point of hook.

Steps 4, 5, and 6

4. Line up holes in latch with hook cam.
5. Insert bolt through latch, spring, and cam.
6. Tighten self-locking nut on one end of bolt.

Illustration and Parts List—639, 650, 651, 652, and 653



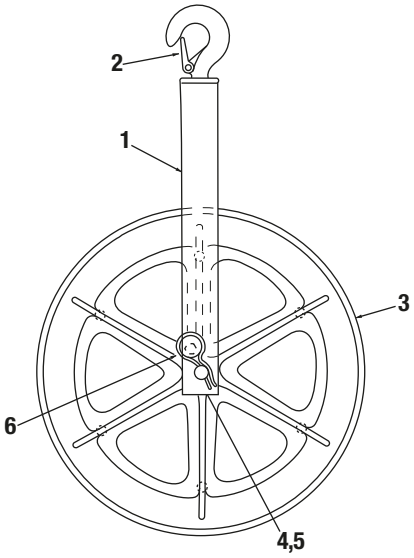


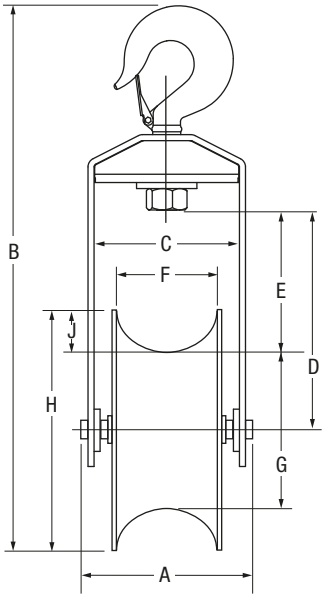
Maximum Pulling Force: 17.8 kN (4000 lb) 1/2" – 1-1/4"
Use with Greenlee Easy Tugger® and Tugger® Cable Pullers

Key	Part No.	Description	Qty
639			
1	50172999	Yoke frame	2
2	90541847	Latch unit, small hook	1
3	50153641	Sheave (includes qty. 2 of item 4)	1
4	50167987	Bearing	2
5	50172662	Pin (includes qty. 1 of item 6)	1
6	90503023	Clip, hitch pin, #8	2
650			
1	50167995	Yoke frame	1
2	90526600	Latch unit, small hook	1
3	50153625	Sheave (includes qty. 2 of item 4)	1
4	50167987	Bearing	2
5	50251600	Pin (includes qty. 1 of item 6)	1
6	90503023	Clip, hitch pin, #8	2
651			
1	50168002	Yoke frame	1
2	90541847	Latch unit, small hook	1
3	50153587	Sheave (includes qty. 2 of item 4)	1
4	50167987	Bearing	2
5	50167979	Pin (includes qty. 1 of item 6)	1
6	90503023	Clip, hitch pin, #8	2
652			
1	50168010	Yoke frame	1
2	90526600	Latch unit, small hook	1
3	50153633	Sheave (includes qty. 2 of item 4)	1
4	50167987	Bearing	2
5	50251600	Pin (includes qty. 1 of item 6)	1
6	90503023	Clip, hitch pin, #8	2
653			
1	50168029	Yoke frame	1
2	90541847	Latch unit, small hook	1
3	50153641	Sheave (includes qty. 2 of item 4)	1
4	50167987	Bearing	2
5	50167979	Pin (includes qty. 1 of item 6)	1
6	90503023	Clip, hitch pin, #8	2

Specifications			
639			
A	14.9 cm (5.88")	F	11.4 cm (4.50")
B	92.6 cm (36.46")	G	50 cm (19.62")
C	14 cm (5.50")	H	61 cm (24.00")
D	46.6 cm (18.34")	J	5.6 cm (2.19")
E	21.7 cm (8.53")	M/Wt.	20.4 kg (45.0 lb)
650			
A	17.8 cm (7.00")	F	11.4 cm (4.50")
B	47.9 cm (18.85")	G	7.6 cm (3.00")
C	13.8 cm (5.43")	H	15.2 cm (6.00")
D	24.4 cm (9.62")	J	3.8 cm (1.50")
E	20.6 cm (8.10")	M/Wt.	5.08 kg (11.2 lb)
651			
A	17.8 cm (7.00")	F	11.4 cm (4.50")
B	53.1 cm (20.89")	G	16.8 cm (6.62")
C	14.6 cm (5.75")	H	27 cm (10.62")
D	23.8 cm (9.37")	J	5.1 cm (2.00")
E	15.4 cm (6.06")	M/Wt.	7.7 kg (17.0 lb)
652			
A	17.8 cm (7.00")	F	11.4 cm (4.50")
B	79.6 cm (31.35")	G	35.6 cm (14.00")
C	13.8 cm (5.43")	H	45.7 cm (18.00")
D	41.0 cm (16.13")	J	5.1 cm (2.00")
E	23.2 cm (9.13")	M/Wt.	13.52 kg (29.8 lb)
653			
A	17.8 cm (7.00")	F	11.4 cm (4.50")
B	86.6 cm (34.08")	G	49.8 cm (19.62")
C	14.6 cm (5.75")	H	61 cm (24.00")
D	40.3 cm (15.87")	J	5.72 cm (2.25")
E	15.4 cm (6.06")	M/Wt.	15.9 kg (35.0 lb)

Illustration and Parts List—8012, 8018, and 8024





Maximum Pulling Force: 35.6 kN (8000 lb)
Use with Greenlee Easy Tugger®, Tugger®, Super Tugger®, and Ultra Tugger® Cable Pullers

Key	Part No.	Description	Qty
8012			
1	50008544	Yoke frame	1
2	90541855	Latch unit, large hook	1
3	50008439	Sheave (includes qty. 2 of item 4)	1
4	90548388	Bearing	2
5	50008382	Pin, sheave	1
6	90503023	Clip, hitch pin, #8	2
8018			
1	50008552	Yoke frame	1
2	50296019	Latch unit, large hook	1
3	50008447	Sheave (includes qty. 2 of item 4)	1
4	90548388	Bearing	2
5	50008463	Pin, sheave	1
6	90503023	Clip, hitch pin, #8	2
8024			
1	50008560	Yoke frame	1
2	50296019	Latch unit, large hook	1
3	50008455	Sheave (includes qty. 2 of item 4)	1
4	90548388	Bearing	2
5	50008501	Pin, sheave	1
6	90503023	Clip, hitch pin, #8	2

Specifications			
8012			
A	20.0 cm (7.87")	F	11.4 cm (4.5")
B	59.3 cm (23.35")	G	19.7 cm (7.75")
C	15.2 cm (6.00")	H	29.8 cm (11.75")
D	22.9 cm (9.00")	J	5.1 cm (2.00")
E	13 cm (5.125")	M/Wt.	12.4 kg (27.4 lb)
8018			
A	22.6 cm (8.90")	F	14 cm (5.50")
B	77.4 cm (30.47")	G	35.6 cm (14.00")
C	18.5 cm (7.28")	H	45.7 cm (18.00")
D	40.7 cm (16.03")	J	5.1 cm (2.00")
E	22.9 cm (9.03")	M/Wt.	19.3 kg (42.6 lb)
8024			
A	23.8 cm (9.38")	F	15.2 cm (6.00")
B	92.20 cm (36.30")	G	50.2 cm (19.75")
C	18.5 cm (7.28")	H	61 cm (24.00")
D	40.6 cm (15.98")	J	5.4 cm (2.125")
E	15.52 cm (6.11")	M/Wt.	28.5 kg (62.9 lb)



4455 Boeing Drive • Rockford, IL 61109-2988 • USA • 815-397-7070
©2019 Greenlee Tools, Inc. • An ISO 9001 Company

USA Tel: 800-435-0786 Fax: 800-451-2632
Canada Tel: 800-435-0786 Fax: 800-524-2853
International Tel: +1-815-397-7070 Fax: +1-815-397-9247

www.greenlee.com