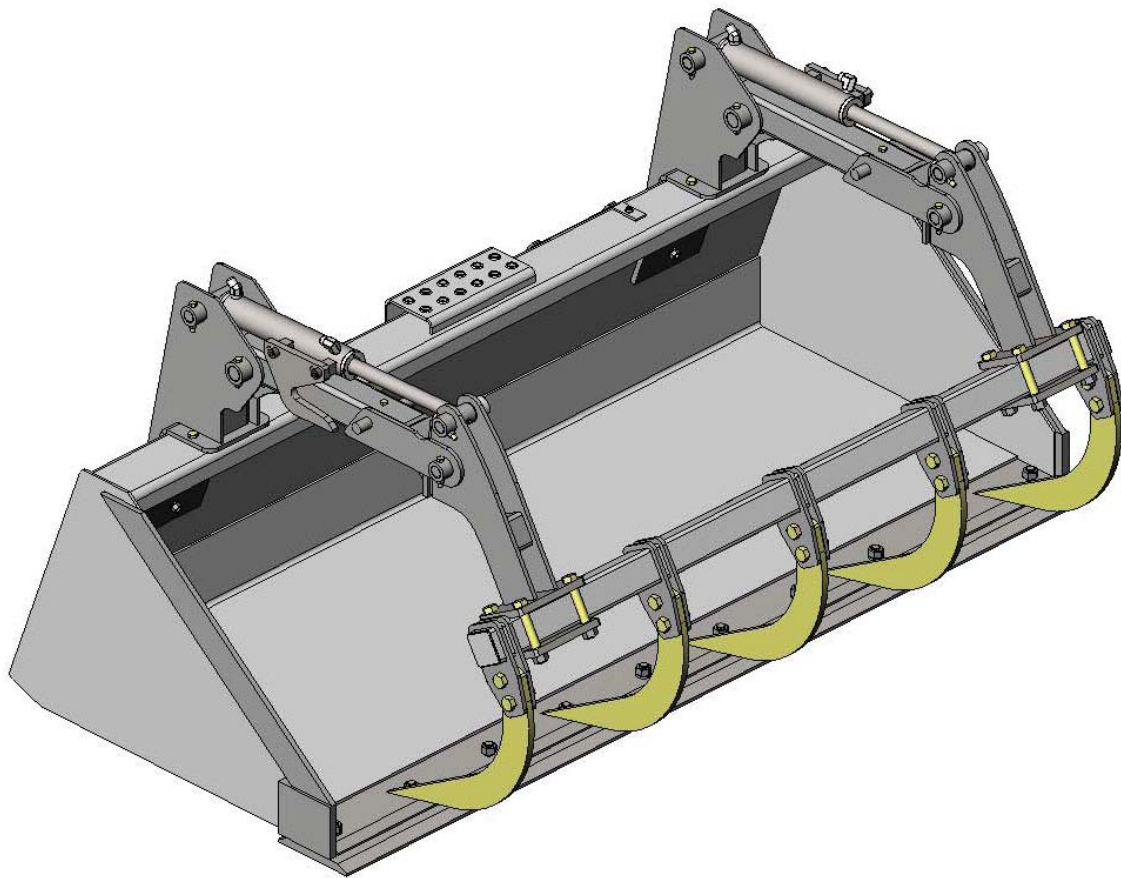


GrabTec

OWNER'S MANUAL



Model 'GS' Grapple/Bucket Combo

© Grabtec Inc
June 2012

Install Center/Shipping/Receiving:
1242 Arizona Ave
Larchwood, IA 51241
(888) 857-8952
(712) 477-2675



PREFACE

This manual describes the installation, operation and maintenance of the Grabtec grapple. Please read and understand this manual in its entirety before performing installation, operation, or maintenance procedures to ensure the satisfactory performance and durability of the grapple. Read and follow all safety and precautionary notes included in this text. Any questions related to this product should be directed to Grabtec Customer Service at 1-888-857-8952 (712- 477-2675).

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SAFETY STATEMENTS



This statement is used where serious injury or death will result if the instructions are not followed properly.



This statement is used where serious injury or death could result if the instructions are not followed properly.



This statement is used where minor injury could result if the instructions are not followed properly.



This statement is used where equipment or property damage could result if the instructions are not followed properly.

GENERAL PRECAUTIONS

◇ **READ MANUAL PRIOR TO INSTALL or OPERATION**

Improper installation, operation, or maintenance of this equipment could result in serious injury or death. Operators and maintenance personnel should read all manuals related to this equipment thoroughly before beginning installation, operation, or maintenance.

◇ **DUAL-PIVOT GRAPPLES CAN CLOSE IN UNPREDICTABLE MANNERS**

All grapples are dangerous because of their sharp teeth, weight and clamping power. The model GS grapple has two pivot points. This allows for added opening and reach, but the mechanical means of controlling the second pivot does have limitations. **STAY AWAY** from the teeth whenever the grapple is in operation!

◇ **AVOID ESCAPING FLUID that is under PRESSURE**

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure.

◇ **PROTECT AGAINST FLYING DEBRIS**

When driving connection pins, always guard against injury from flying pieces of metal or debris. WEAR GOGGLES OR SAFETY GLASSES.

◇ **SUPPORT RAISED EQUIPMENT**

Do not work under raised loader booms, buckets or grapples without supporting them. Lower booms, buckets and grapples onto blocks.

◇ **DO NOT MODIFY GRAPPLE**

Do not modify the grapple in any way without written authorization and instructions from Grabtec Customer Service at 1-888-857-8952. Modifications may weaken the integrity of the grapple and may impair the function, safety, usable life, and performance of the grapple.

◇ **DO NOT IMPROPERLY USE GRAPPLE**

Grapples are designed to be used as material handling tools for loading or transporting material that can be safely contained in the bucket the grapple is mounted on. Uses outside this method of material handling must be approved by Grabtec.

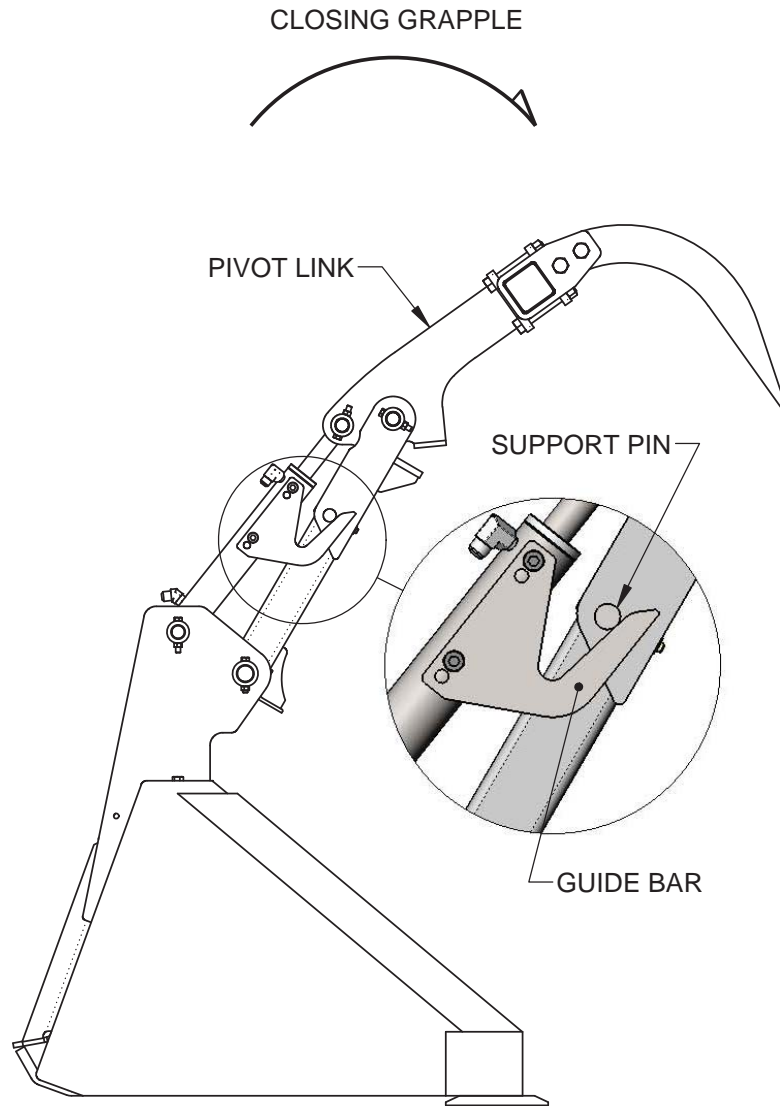
MAINTENANCE

MAINTENANCE PROCEDURES

| PROCEDURE | INTERVAL | NOTES |
|---------------------------------------|----------|--|
| Check for hydraulic fluid leaks | Daily | Look at hose connections and hose fittings |
| Check bolt tightness | Daily | Torque 3/4-10 nuts to 310 ft-lbs |
| Check for build-up around pivot areas | Daily | Remove ice, ground hay or any other debris from all pivot areas. |
| Grease all Pivot Pins | Daily | The main pivot pins have zerks on the end of the pin. |

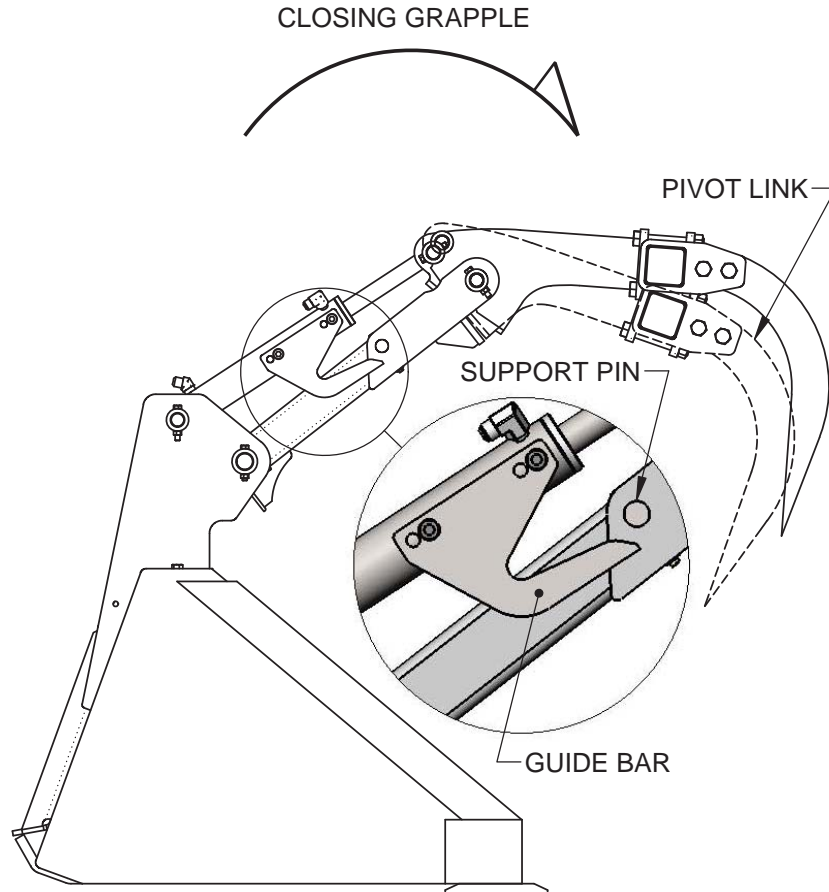
HOW THE DUAL-PIVOT GRAPPLE WORKS

The opening of the grapple is simple to understand. While retracting, the cylinders first rotate the front section of the grapple, which would be the pivot links and teeth. When the pivot links hit their stops, the cylinders then rotate the entire grapple to its open position. The power of the cylinders keeps everything moving smoothly during opening. The closing of the grapple is not quite as simple to understand, so look at the next few pictures.



During grapple closing, as long as the **SUPPORT PIN** contacts the **GUIDE BAR**, the **PIVOT LINK** can **NOT** swing closed

HOW THE DUAL-PIVOT GRAPPLE WORKS



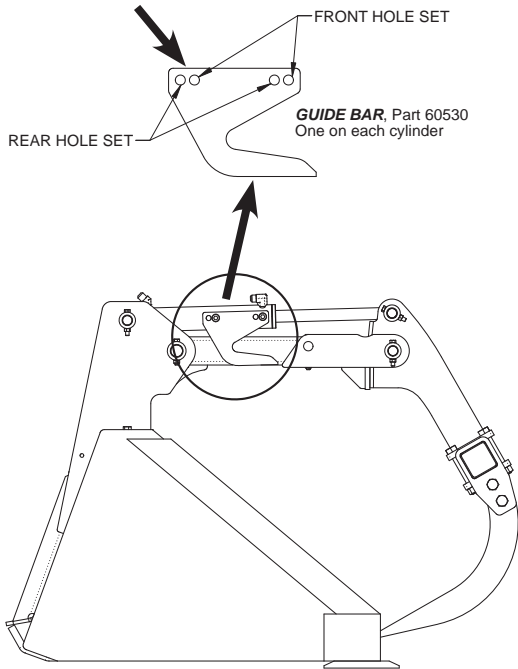
Once the grapple is about half-way closed, the **SUPPORT PIN** no longer is contacting the **GUIDE BAR**. This allows the **PIVOT LINK** to swing closed.

! WARNING

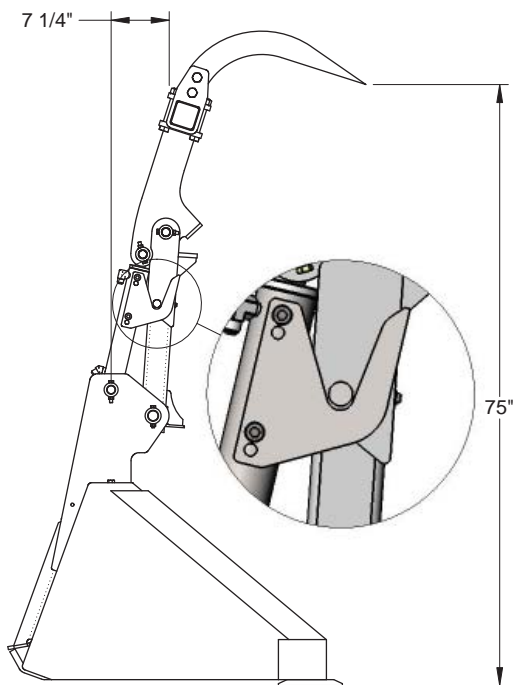
During the closing of the grapple, the front pivot links and teeth can swing closed in an unpredictable manner. This is not due to a cylinder malfunction. It is simply due to gravity overcoming the weight of the pivot links when the Guide Bars and Support Pins are no longer in contact. The closing action of the grapple should be fairly smooth when the bucket is flat on the ground, but since gravity is what's closing the grapple, the pivot links are more prone to pivot erratically as the **BUCKET IS TIPPED BACK**. Stay away from the grapple at all times during grapple and skidloader operation.

ADJUSTING THE GRAPPLE OPENING

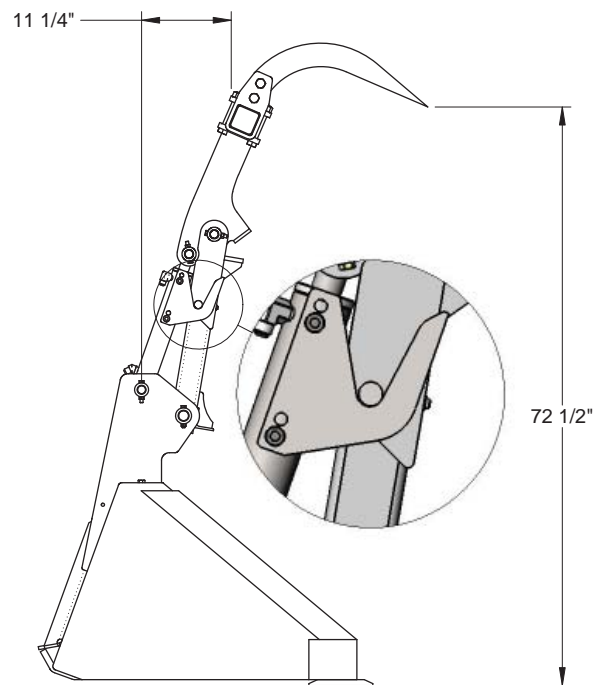
GUIDE BAR



Each cylinder is equipped with a Guide Bar that is bolted to the side of the cylinder with (2) bolts. The Guide Bars control the movement of the grapple during closing, but also act as opening STOPS. For maximum opening, use the FRONT HOLE SET. See the image at the lower left of this page. If your skidloader has a very cab-forward design, or if you simply want to decrease the opening of the grapple, use the REAR HOLE set as shown in the lower right image on this page. This option provides about 4 more inches of cab clearance. The only drawback is that you will lose about 2-1/2" of grapple opening. The hole set you choose does not affect the grapple operation in any other way.

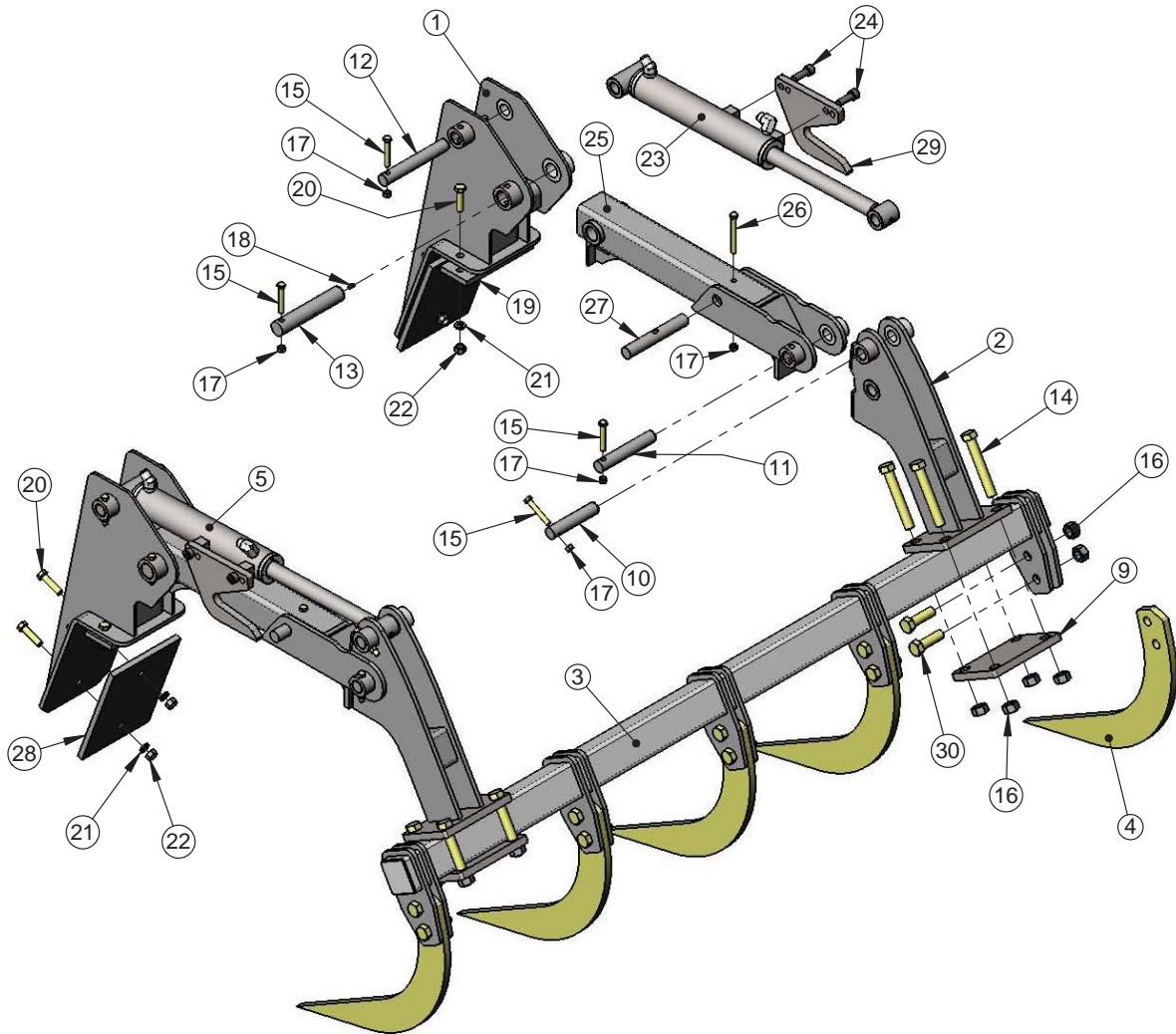


GUIDE BAR bolts in the **FRONT HOLE SET**



GUIDE BAR bolts in the **REAR HOLE SET**

PARTS INDEX



BILL of MATERIAL on FOLLOWING PAGE

PART LIST, GS69

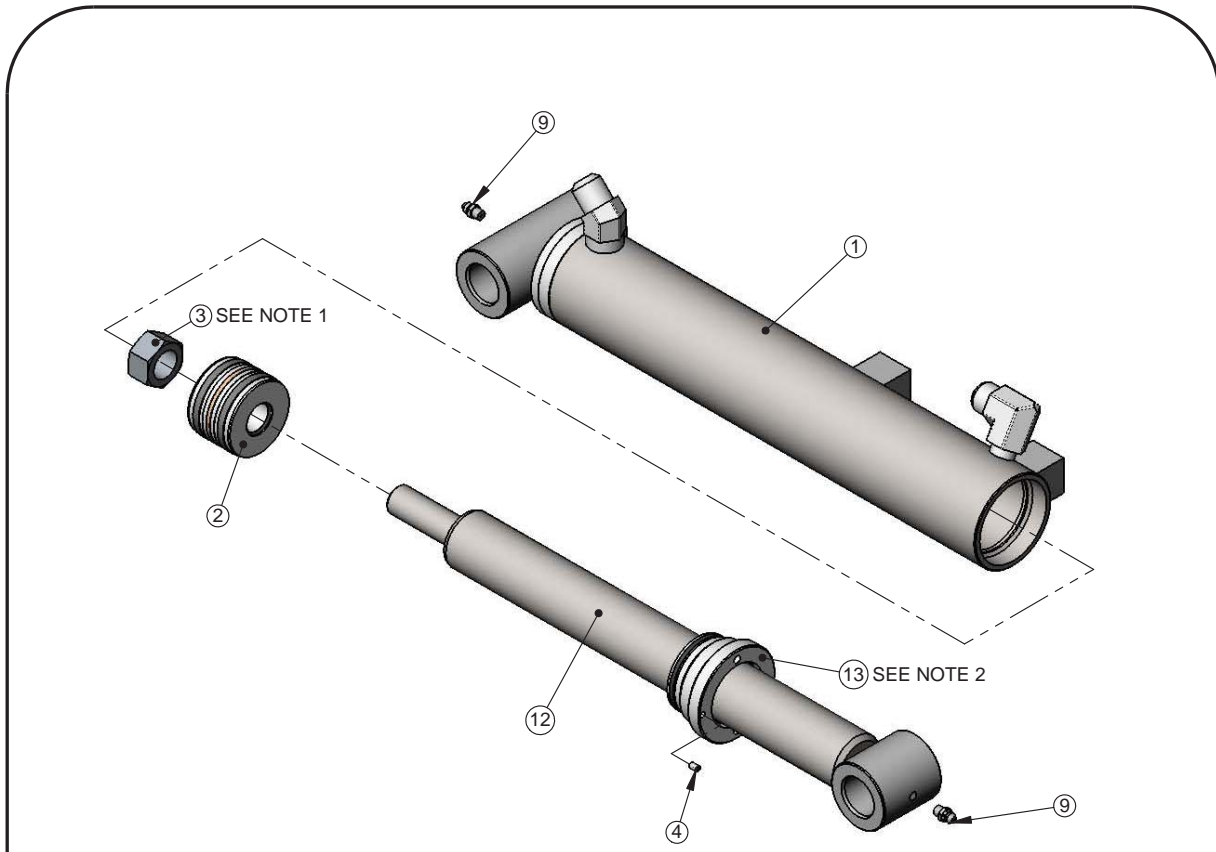
PRODUCT MODEL:

DRAWING ID#: GS69-S
DRAWING REVISION: RevA
DRAWING DATE: 3/8/2012

PARTS INDEX

| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. SHOWN |
|----------|-----------------|---------------------------------------|------------|
| 1 | GS002 | TORQUE TUBE ASSEMBLY | 2 |
| 2 | GS004 | PIVOT LINK | 2 |
| 3 | GS501 | TOOTH BAR, 69" TOOTH WIDTH | 1 |
| 4 | 60521 | TOOTH | 5 |
| 5 | GS121R | CYLINDER, RH | 1 |
| 9 | 60504 | CLAMP PLATE, PIVOT | 2 |
| 10 | 60525 | PIN, 5" | 2 |
| 11 | 60526 | PIN, 6" | 2 |
| 12 | 60527 | PIN, 7" | 2 |
| 13 | 60527A | PIN, 7", WITH GREASE-WAY | 2 |
| 14 | 98218 | BOLT, 3/4-10 UNC, GR8 ZN, 5" LONG | 8 |
| 15 | 98201 | BOLT, 3/8 X 2-1/2, GR8, ZP | 8 |
| 16 | 98015 | NUT, 3/4-10 UNC TOP LOCK, PLATED | 18 |
| 17 | 98006 | NUT, 3/8-16 NYLOCK, ZP | 10 |
| 18 | HW-ZK-001 | ZERK FITTING, 1/4-28 UNF | 8 |
| 19 | 60537 | DOUBLER PLATE | 2 |
| 20 | HW-BS-08-0200-A | BOLT, 1/2-13 UNC, GR5 ZN, 2" LONG | 8 |
| 21 | HW-LS-08-A | LOCKWASHER, 1/2, MED ZN | 8 |
| 22 | HW-NS-08-A | NUT, 1/2-13 UNC, ZN | 8 |
| 23 | GS121L | CYLINDER, LH | 1 |
| 24 | 98302 | SH CAP SCREW, 1/2NC X 1-1/2 LONG | 4 |
| 25 | GS001 | PIVOT | 2 |
| 26 | 98206 | BOLT, 3/8 X 3-1/2, GR8, ZP | 2 |
| 27 | 60529 | SUPPORT PIN | 2 |
| 28 | 60538 | BUCKET DOUBLER | 2 |
| 29 | 60530 | GUIDE BAR | 2 |
| 30 | HW-BS-12-0250-C | BOLT, 3/4-10 UNC, GR8 ZN, 2-1/2" LONG | 10 |

CYLINDER, GENERAL



- NOTES:
1. PUT LIGHT OIL ON THE NUT THREADS AND TIGHTEN TO 300-325 ft-lbs.
 2. TIGHTEN GLAND TO 100 ft-lbs WHEN INSTALLING ONTO THE TUBE.

THE PART NUMBER FOR AN ENTIRE ASSEMBLED CYLINDER IS GS121L

THE SEAL KIT FOR THIS CYLINDER IS PART 94400

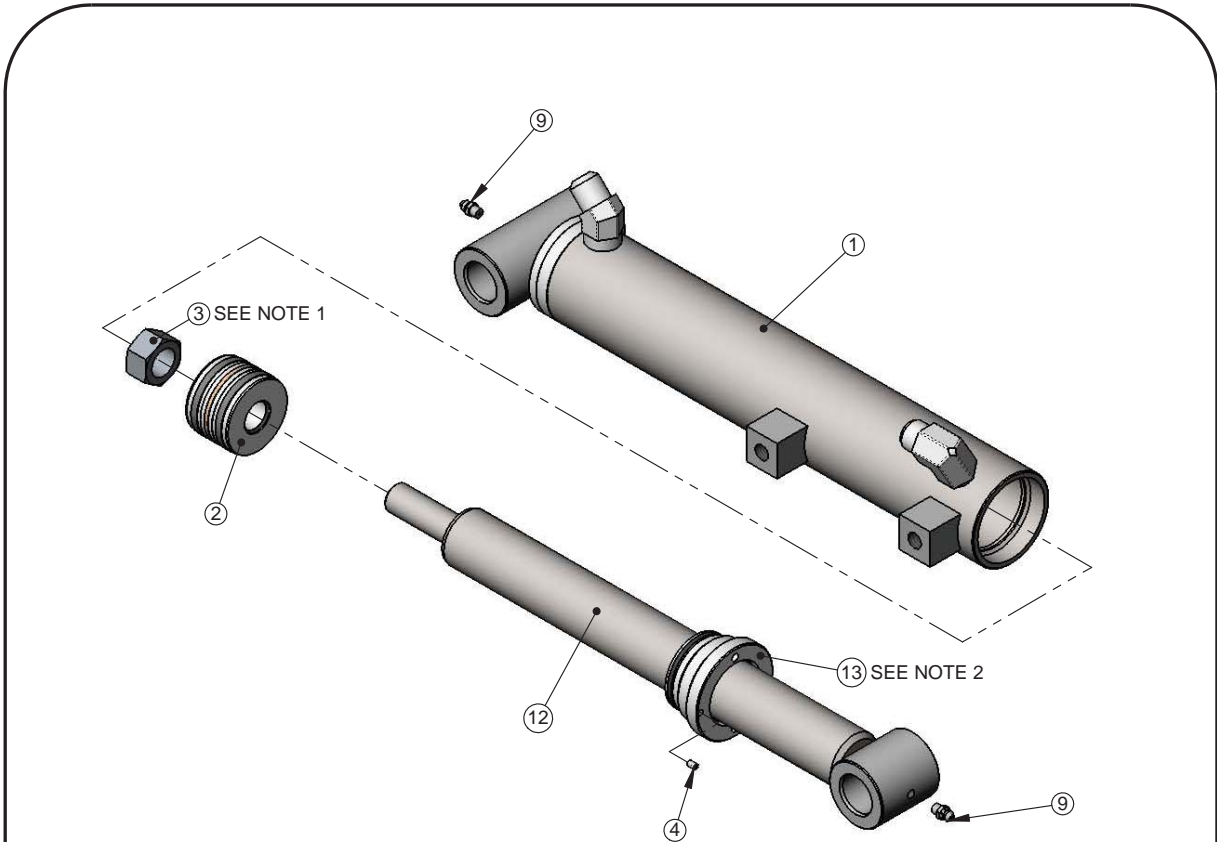
| ITEM NO. | PART NUMBER | DESCRIPTION | Approx. Weight (LBS) | QTY. SHOWN |
|----------|-------------|--|----------------------|------------|
| 1 | GS123L | TUBE ASSEMBLY, GS, LH | 10.3 | 1 |
| 2 | 90112 | PISTON, GS | 0.84 | 1 |
| 3 | 98014 | NUT, 3/4-16 UNF TL, PLAIN | 0.2 | 1 |
| 4 | 98714 | SOCKET SET SCREW, CUP 10-24 X 1/4 LONG, SS | 0.0 | 1 |
| 9 | HW-ZK-001 | ZERK FITTING, 1/4-28 UNF | 0.008 | 2 |
| 12 | GS006 | ROD ASSEMBLY, GS | 5.6 | 1 |
| 13 | 90163 | GLAND, GS, 1-1/2" ROD | 0.57 | 1 |

LEFT SIDE CYLINDER PARTS (GS121L), GENERAL

PRODUCT MODEL: GS

DRAWING ID#: GS121L
 DRAWING REVISION: -
 DRAWING DATE: 6/28/2012

CYLINDER, GENERAL



- NOTES:
1. PUT LIGHT OIL ON THE NUT THREADS AND TIGHTEN TO 300-325 ft-lbs.
 2. TIGHTEN GLAND TO 100 ft-lbs WHEN INSTALLING ONTO THE TUBE.

THE PART NUMBER FOR AN ENTIRE ASSEMBLED CYLINDER IS GS121R
THE SEAL KIT FOR THIS CYLINDER IS PART 94400 (SEE NEXT PAGE FOR DETAILS)

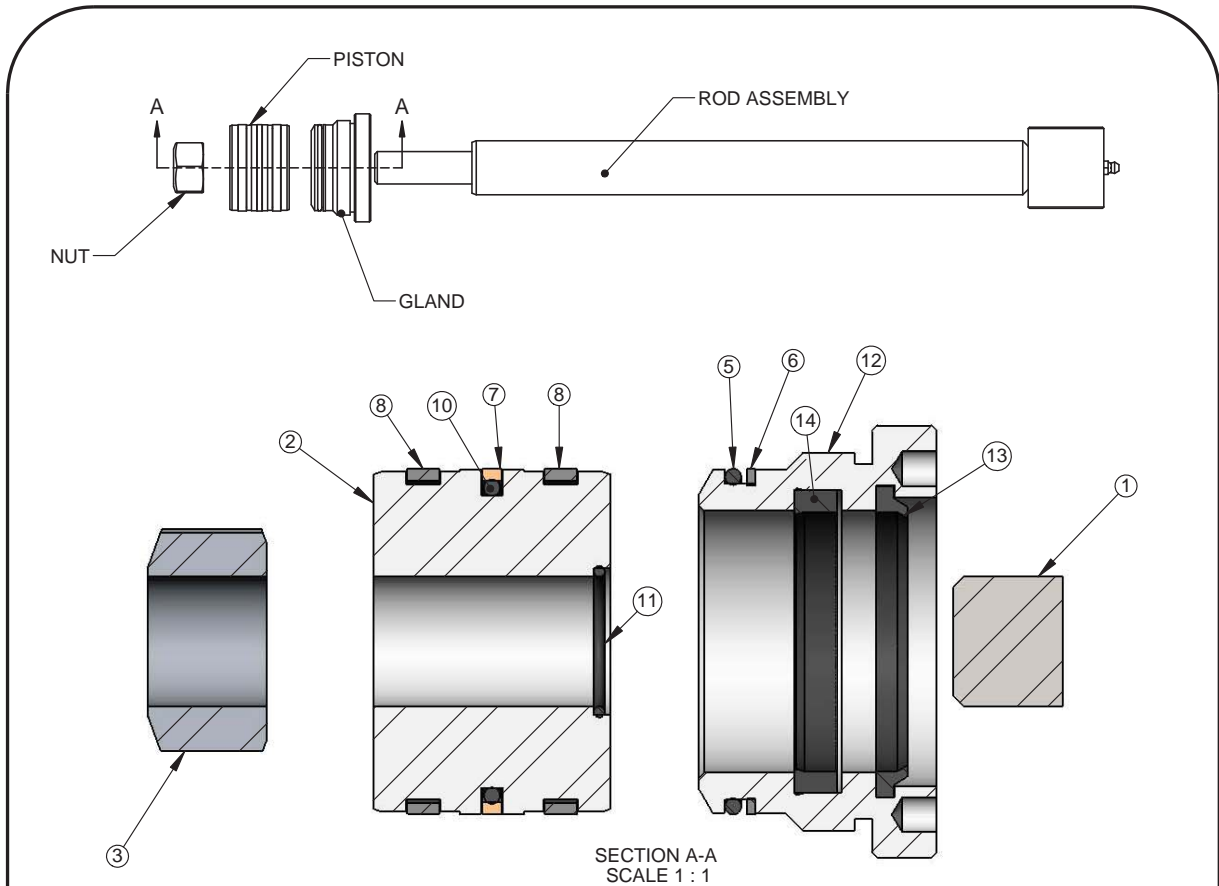
| ITEM NO. | PART NUMBER | DESCRIPTION | Approx. Weight (LBS) | QTY. SHOWN |
|----------|-------------|--|----------------------|------------|
| 1 | GS123R | TUBE ASSEMBLY, GS, RH | 10.3 | 1 |
| 2 | 90112 | PISTON, GS | 0.84 | 1 |
| 3 | 98014 | NUT, 3/4-16 UNF TL, PLAIN | 0.2 | 1 |
| 4 | 98714 | SOCKET SET SCREW, CUP 10-24 X 1/4 LONG, SS | 0.0 | 1 |
| 9 | HW-ZK-001 | ZERK FITTING, 1/4-28 UNF | 0.008 | 2 |
| 12 | GS006 | ROD ASSEMBLY, GS | 5.6 | 1 |
| 13 | 90163 | GLAND, GS, 1-1/2" ROD | 0.57 | 1 |

RIGHT SIDE CYLINDER PARTS (GS121R), GENERAL

PRODUCT MODEL: GS

DRAWING ID#: GS121R
 DRAWING REVISION: -
 DRAWING DATE: 6/28/2012

CYLINDER, DETAIL



| ITEM NO. | PART NUMBER | DESCRIPTION | Approx. Weight (LBS) | QTY. SHOWN | INCLUDED IN SEAL KIT 94400? |
|----------|---------------|--|----------------------|------------|-----------------------------|
| 1 | GS006 | ROD ASSEMBLY, GS | 5.6 | 1 | N |
| 2 | 90112 | PISTON, GS | 0.84 | 1 | N |
| 3 | 98014 | NUT, 3/4-16 UNF TL, PLAIN | 0.2 | 1 | N |
| 5 | 94126 | O-RING, -133, 1-13/16 ID X 2 OD, N70 | 0.00 | 1 | Y |
| 6 | 94110 | BACK UP RING, -133, 2" OD | 0.00 | 1 | Y |
| 7 | 94156 | PISTON SEAL HYTREL, 2" OD | 0.00 | 1 | Y |
| 8 | 94191 | CAST IRON RING, 2" OD X 3/16" WIDE | 0.04 | 2 | N |
| 10 | 94127 | O-RING, -131, 1-11/16 ID X 1-7/8 OD, N70 | 0.00 | 1 | Y |
| 11 | 94128 | O-RING, -018, 3/4 ID X 7/8 OD, N70 | 0.00 | 1 | Y |
| 12 | 90163 | GLAND, GS, 1-1/2" ROD | 0.57 | 1 | N |
| 13 | CP-WP-1500-AN | WIPER, 1.50 ROD, TYPE "AN" | 0.00 | 1 | Y |
| 14 | 94175 | BEVELED U-CUP, 1.5 ID X 1.75 OD X .250 W | 0.01 | 1 | Y |

SEAL KIT FOR THIS CYLINDER, PART 94400

GS121L & GS121R CYLINDER PARTS, DETAIL

PRODUCT MODEL: GS

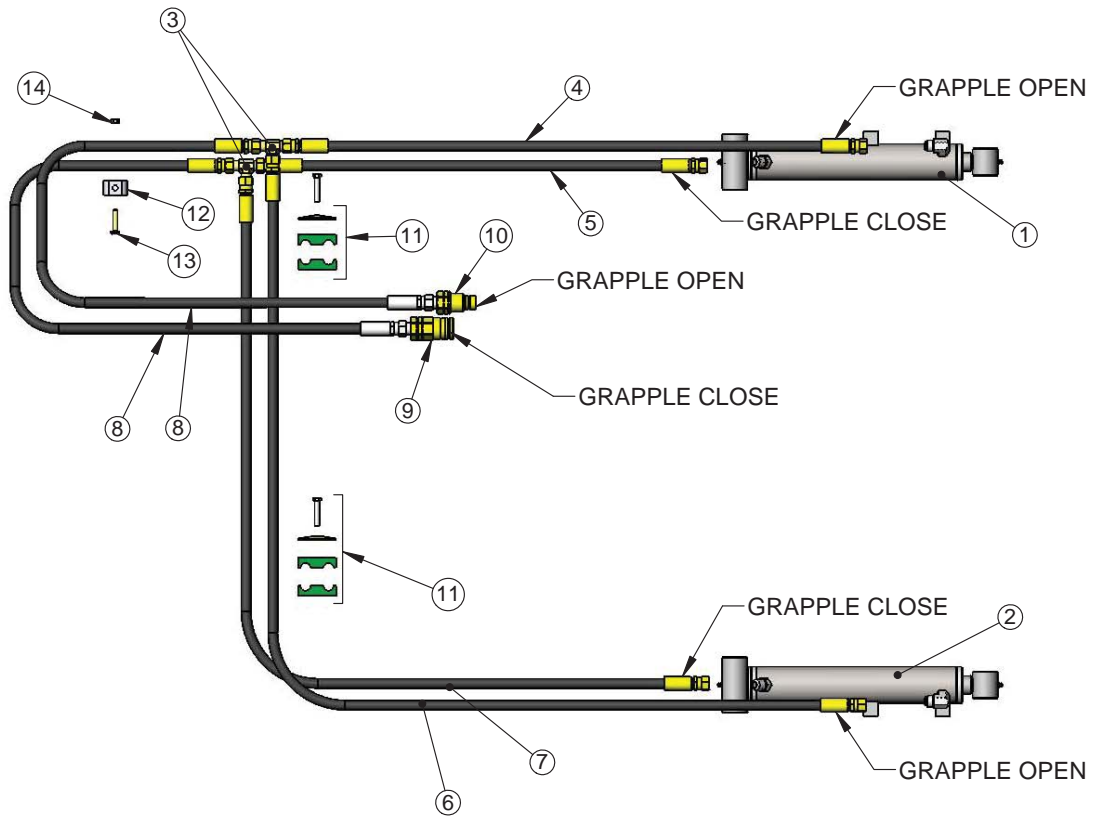
DRAWING ID#: GS121L

DRAWING REVISION: -

DRAWING DATE: 6/28/2012

HOSE CONNECTIONS

| ITEM NO. | PART NUMBER | DESCRIPTION |
|----------|-------------|----------------------------|
| 1 | GS121L | CYLINDER, LH |
| 2 | GS121R | CYLINDER, RH |
| 3 | 90519 | TEE, M/M/M, -08 JIC |
| 4 | HK35A | HOSE, LEFT SIDE, LONG |
| 5 | HK23A | HOSE, LEFT SIDE, SHORT |
| 6 | HK86A | HOSE, RIGHT SIDE, LONG |
| 7 | HK76A | HOSE, RIGHT SIDE, SHORT |
| 8 | HK68S | HOSE, SUPPLY, 68" |
| 9 | 90601F | COUPLER, 1/2 BODY, 1/2NPT |
| 10 | 90601M | NIPPLE, 1/2 BODY, 1/2NPT |
| 11 | 90804 | CLAMP, TWIN HOSE |
| 12 | PC06X2 | PIPE CLAMP |
| 13 | 98203 | BOLT, 5/16 X 1-1/2, 5NC |
| 14 | 98004 | NUT, 5/16-18, TOPLOCK, GR8 |



HOSE CONNECTIONS, GS GRAPPLE

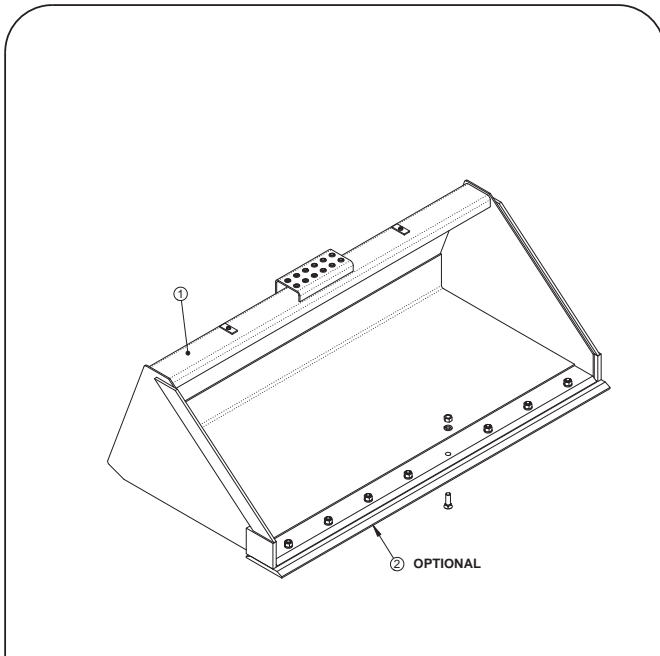
PRODUCT MODEL: GS

DRAWING ID#: GS hose 12-2010

DRAWING REVISION:

DRAWING DATE: 12/16/2010

BUCKETS shown with OPTIONAL cutting edge

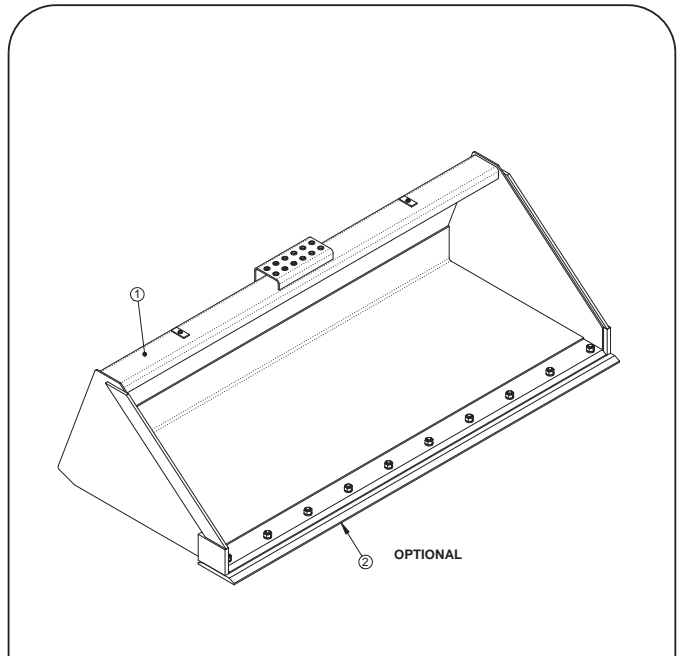


| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. SHOWN |
|----------|-----------------|---|------------|
| 1 | BFBC-72 | SKIDLOADER BUCKET, 72" | 1 |
| 2 | BF72-CE-02 | CUTTING EDGE PACKAGE, 74" WITH HARDWARE | 1 |
| | BF72-CE-04 | CUTTING EDGE, 3/4 X 8 DB, 74 IN | 1 |
| | HW-BS-12-0250-B | BOLT, 3/4-10 x 2-1/2, PLAIN PLOW | 8 |
| | HW-LS-12-B | LOCKWASHER, 3/4, G8, HI-ALLOY | 8 |
| | HW-NS-12-C | NUT, 3/4-10, G8, ZC | 8 |

6 FT

BUCKET with OPTIONAL CUTTING EDGE

| | |
|----------------|-------------------------|
| PRODUCT MODEL: | DRAWING ID#: BFBC-72S |
| | DRAWING REVISION: - |
| | DRAWING DATE: 8/31/2010 |



| ITEM NO. | PART NUMBER | DESCRIPTION | QTY. SHOWN |
|----------|-----------------|-------------------------------------|------------|
| 1 | BFBC-84 | SKIDLOADER BUCKET, 84" | 1 |
| 2 | BF84-CE-02 | CUTTING EDGE PACKAGE, WITH HARDWARE | 1 |
| | RCE-1208-D086H | CUTTING EDGE, 3/4 X 8 DB, 86 IN | 1 |
| | HW-BS-12-0250-B | BOLT, 3/4-10 x 2-1/2, PLAIN PLOW | 10 |
| | HW-LS-12-B | LOCKWASHER, 3/4, GR8 HI-ALLOY ZC | 10 |
| | HW-NS-12-C | NUT, 3/4-10 UNC GR8, ZN | 10 |

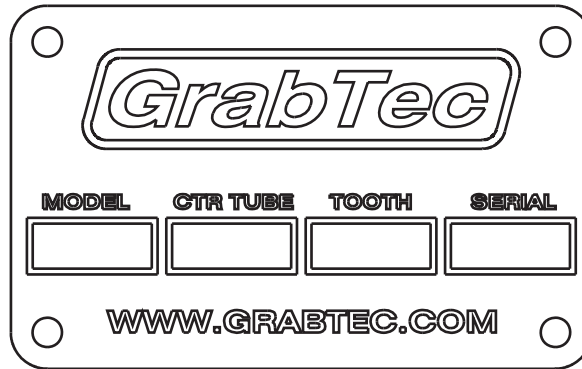
7 FT

BUCKET with OPTIONAL CUTTING EDGE

| | |
|----------------|-------------------------|
| PRODUCT MODEL: | DRAWING ID#: BFBC-84S |
| | DRAWING REVISION: - |
| | DRAWING DATE: 8/31/2010 |

IDENTIFYING YOUR GRAPPLE MODEL & SERIAL

The Serial plate is typically found on the rear of the right side torque tube.



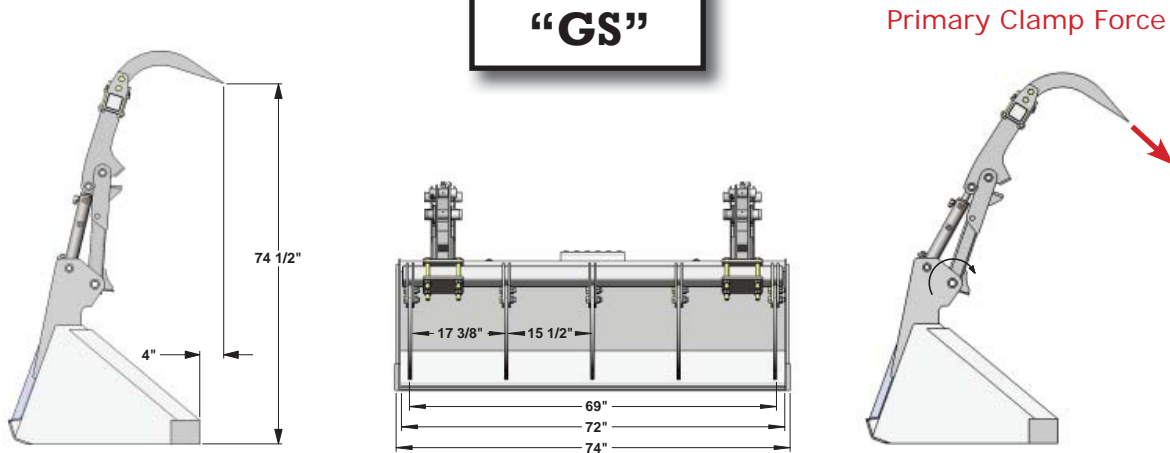
The serial plate shows the Model and Serial number of your grapple. The plate also shows the part numbers for a replacement Center tube or replacement tooth.

PRODUCT CHANGES AND SERIAL BREAK INFO

| Revision ID | Starting Serial # | Ending Serial # | Revision Details | Parts Affected | See Pages |
|-------------|--------------------|-----------------|---|---|-----------|
| - | 18000 | 20987 | None - original design | N/A | N/A |
| 1 | 21005 | - | Replaced universal GS121 cylinder with left and right versions (GS121L and GS121R) | The cylinders | 4-9 |
| 2 | 21243 | - | Made support pin removable and of harder material. Made guide bars thicker. Added bucket doubler plate. | Pivot Assembly GS001, Support Pin 60529, Guide Bar 60530, Doubler 60538 | 4-5 |
| 3 | 22085 June 2012 | - | Changed cylinder rod diameter from 1-1/4" to 1-1/2" | Rod Assembly GS006 updated. Gland part number changed from 90162 to 90163 and Seal Kit part number changed from 94401 to 94400. | 9-11 |

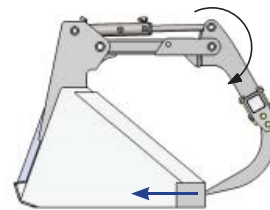
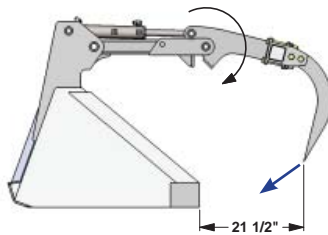
SPECIFICATIONS

**MODEL
"GS"**



Secondary Clamp Force Start

Secondary Clamp Force End



| General Specifications for Model 'GS' Grapple | |
|--|---|
| Max. Opening, Ground to teeth | 74-1/2" |
| Number of Teeth | 5 |
| Tooth thickness and material | 5/8" T-1 (100,000 psi yield) steel |
| Teeth replaceable? | yes, each tooth secured by (2) 3/4" Gr. 8 bolts |
| Max. Primary Clamping force at tips of teeth with 3250 psi | 2,500 lb. |
| Max. Secondary Clamping force at tips of teeth with 3250 psi | 2,600 lb. |
| Grapple opening time with 15GPM | 1.6 sec. (flow to cylinders is not restricted) |
| Bore and stroke of cylinders | 2.00 inch bore and 10.75" stroke |
| Maximum recommended operating pressure | 3,500 psi |
| Diameter of main grapple pivot pins | 1.25" |
| Diameter of cylinder pivot pins and pivot link | 1.00" |
| General type of steel used for grapple construction | 50-100,000 psi yield alloy steel |
| Limited Warranty on Grapple material and workmanship | 1 year or 2,000 hours, whichever comes first |

WARRANTY



1242 Arizona Ave
Larchwood, IA 51241
712-477-2675
888-857-8952
712-477-2500 FAX

Grabtec warrants its grapples against faulty design, material, and workmanship for a period of one year from date of delivery or 2,000 hours, whichever comes first.

OEM components not manufactured by Grabtec are warranted by Grabtec against failure from improper installation for one year from date of delivery date. Examples of OEM components would be cylinders and cylinder components, hose clamps, hoses, and assembly hardware such as bolts and nuts.

Dealer labor rate charges on approved repairs shall not exceed 70% of dealer regular hourly rate. Overtime charges need prior written approval. Claims received 30 days past the repair date will not be considered for warranty.

Warranty is void if grapples are modified in any manner without PRIOR expressed written permission from Grabtec.

RETURN POLICY



1242 Arizona Ave
Larchwood, IA 51241
712-477-2675
888-857-8952
712-477-2500 FAX

RETURNED GOODS POLICY – PARTS

Items **SHIPPED** in error

Grabtec will accept returned items, with prior approval of Grabtec (see RGA paragraph below), within 30 days after shipment without a restocking charge, freight collect.

Items **ORDERED** in error

When parts are incorrectly ordered and returned to Grabtec, the customer is responsible for freight costs and a 15% restocking fee.

When parts are purchased without reference to a model or serial number and returned to Grabtec, the customer is responsible for freight costs and a 15% restocking fee.

RGA- Returned Goods Authorization

All return items must have prior approval of Grabtec and be assigned an RGA (Returned Goods Authorization) number by either the Grabtec sales or parts department and must be returned within 30 days of request.