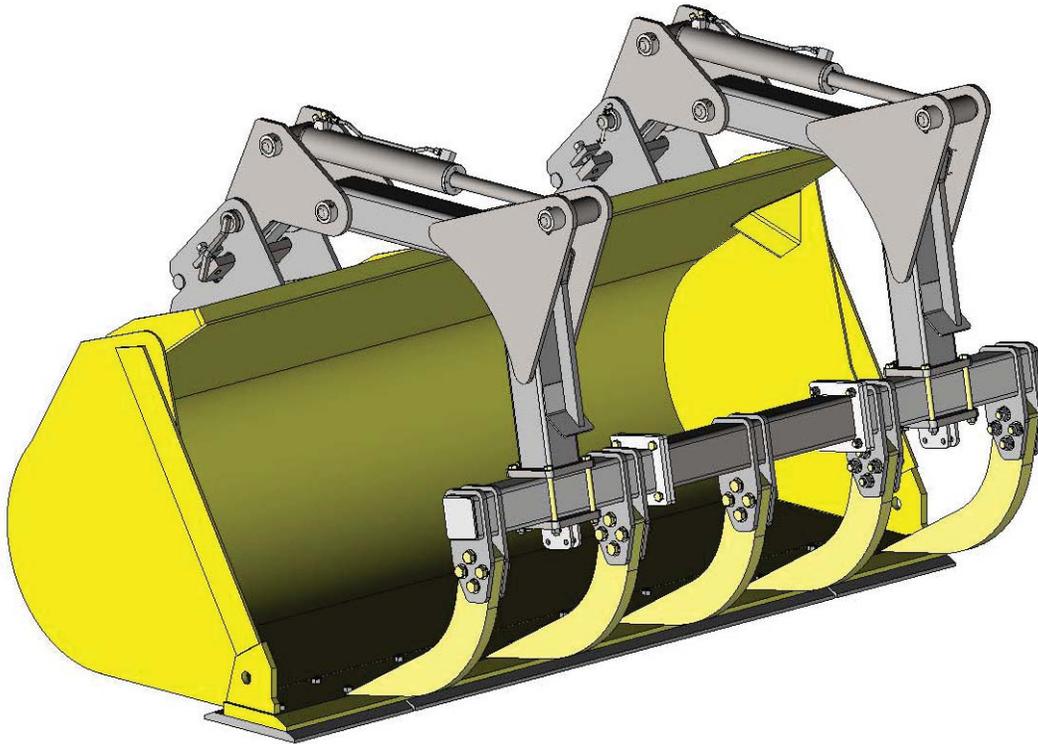


GrabTec

Wheel Loader Grapple

OWNER'S MANUAL



QUICK-ATTACH Models
GX104 (Five Tines)

© Grabtec
www.grabtec.com
email: sales@grabtec.com

Feb 2012

Install Center/Shipping/Receiving:
1242 Arizona Ave
Larchwood, IA 51241
(888) 857-8952
(712) 477-2675
FAX (712) 477-2500

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.

◇ **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 (712-477-2675). 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.

QUICK-DISCONNECTING THE GRAPPLE FROM THE BUCKET

STEP 1(See Figure 1)

Drive bucket over level, hard ground and tilt it forward as shown. Move the parking stands to their park position, making sure that the pad of the stand is facing the ground.



◇ **DO NOT STAND IN FRONT OF THE BUCKET AND GRAPPLE WHEN PERFORMING STEP 2. STAND TO THE SIDE.**

STEP 2 (See Figure 2)

Note how the bucket is tilted downward enough so that the retaining pin is below hook pin. This will ensure that the weight of the grapple is restrained by the hook pin. Pull out the retaining pins that secure the grapple to the mounts. If the pins are difficult to remove, it may be necessary to adjust the support plates. See the section titled "Adjustment of the Support Plates" found later in this manual.

Fig. 1



Fig. 2



QUICK-DISCONNECTING THE GRAPPLE FROM THE BUCKET

STEP 3 (See Figure 3)

Disconnect the grapple hydraulic hoses from the wheel loader's auxiliary supply. For some large and deep-bottom buckets (deeper than 48"), it may be best to leave the grapple hydraulics connected thru Step 5. This way the grapple cylinders can be used to help disengage the grapple from the hooks on the bucket. **REMEMBER** to disconnect hoses before backing away!

STEP 4 (See Figure 4)

Lower the bucket and grapple to the ground so that the stand legs and the outer curved edge of the teeth touch the ground at about the same time.

STEP 5 (See Figure 5)

Rotate the bucket to un-hook the mounts from the hook pins of the grapple and back away. With some large and/or very deep buckets, it may be necessary to actuate the grapple cylinders to aid in disconnecting the hook pins from the bucket mounts.



Fig. 3



Fig. 4



Fig. 5

QUICK-CONNECTING THE GRAPPLE TO THE BUCKET

STEP 1 (See Figure 1)

Approach the grapple with the floor of the bucket nearly straight up and down.

STEP 2 (See Figure 2)

Hook the mounts into the hook pins of the grapple and begin rotating the bucket until the grapple is just slightly lifted off the ground and the weight of the grapple is still supported by the hook pins.

STEP 3 (See Figure 3)

Insert the retaining pins that secure the grapple to the mounts. If the pins are difficult to install, it may be necessary to adjust the support plates. See the section titled "Adjustment of the Support Plates" found later in this manual.



Fig. 1



Fig. 2



Fig. 3

QUICK-CONNECTING THE GRAPPLE TO THE BUCKET

STEP 4 (See Figure 4)

Connect the grapple hydraulic hoses to the wheel-loaders auxiliary supply.

STEP 5 (See Figure 5)

Place the stand legs in their store position.



Fig. 4

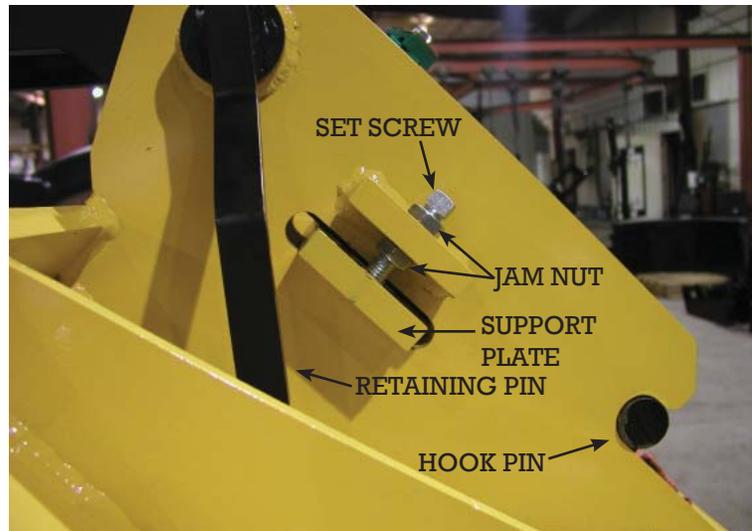


Fig. 5

ADJUSTMENT OF THE SUPPORT PLATES

NOTE

The photo below shows the grapple when the bucket is flat on the ground. For best results, adjustment of the support plates should take place when the weight of the grapple is being supported by the hook pins, as shown in Fig 2 of "Quick Disconnecting the grapple from the Bucket" on Page 3.



The Grabtec grapples have a unique feature in that they can be quickly disconnected from the bucket by removing two pins. There are two critical requirements that allow the pins to be removed easily (by hand). The first is that the mounts were installed correctly and that the collars that the pins slide through are properly aligned with the grapple. The second is that the support plates are adjusted correctly.

FUNCTION

When turned in the proper directions, the jam nuts and set screws can raise or lower the support plate. The support plate is "supporting" the grapple. When the support plate is moved, the grapple rotates about the hook pin and the upper holes in the mount that the retaining pin slides through can be better aligned with the long sleeve in the grapple. As the alignment improves, the retaining pin is more easily installed (or pulled out).

TO ADJUST THE SUPPORT PLATES UPWARD

Loosen the lower jam nut. Turn the top jam nut clockwise while keeping the set screw from turning. When proper adjustment is achieved, tighten both jam nuts.

TO ADJUST THE SUPPORT PLATES DOWNWARD

Loosen the top jam nut. Turn the lower jam nut counter-clockwise while keeping the set screw from turning. When proper adjustment is achieved, tighten both jam nuts.

MAINTENANCE

NOTE

The pivots on each end of the cylinders and the main pivots for the grapple frame are equipped with zero-maintenance bushings. There are no grease zerks on the grapple. Each end of the bushing housings are equipped with wiper-style dust seals to keep out debris. This pin system has proven to provide years and years of service in severe duty environments, provided the following precautions are met:

- ◇ **IF YOU REMOVE A PIVOT PIN, MAKE SURE IT IS CLEAN AND DRY BEFORE YOU REINSTALL IT.**

- ◇ **IF YOU REMOVE A PIVOT PIN, DO NOT PERFORM ANY GRINDING OR WELDING THAT WOULD ALLOW PARTICLES TO ENTER THE BEARING HOUSING.**

- ◇ **DO NOT ATTEMPT TO LUBRICATE THE PINS WITH ANYTHING.**

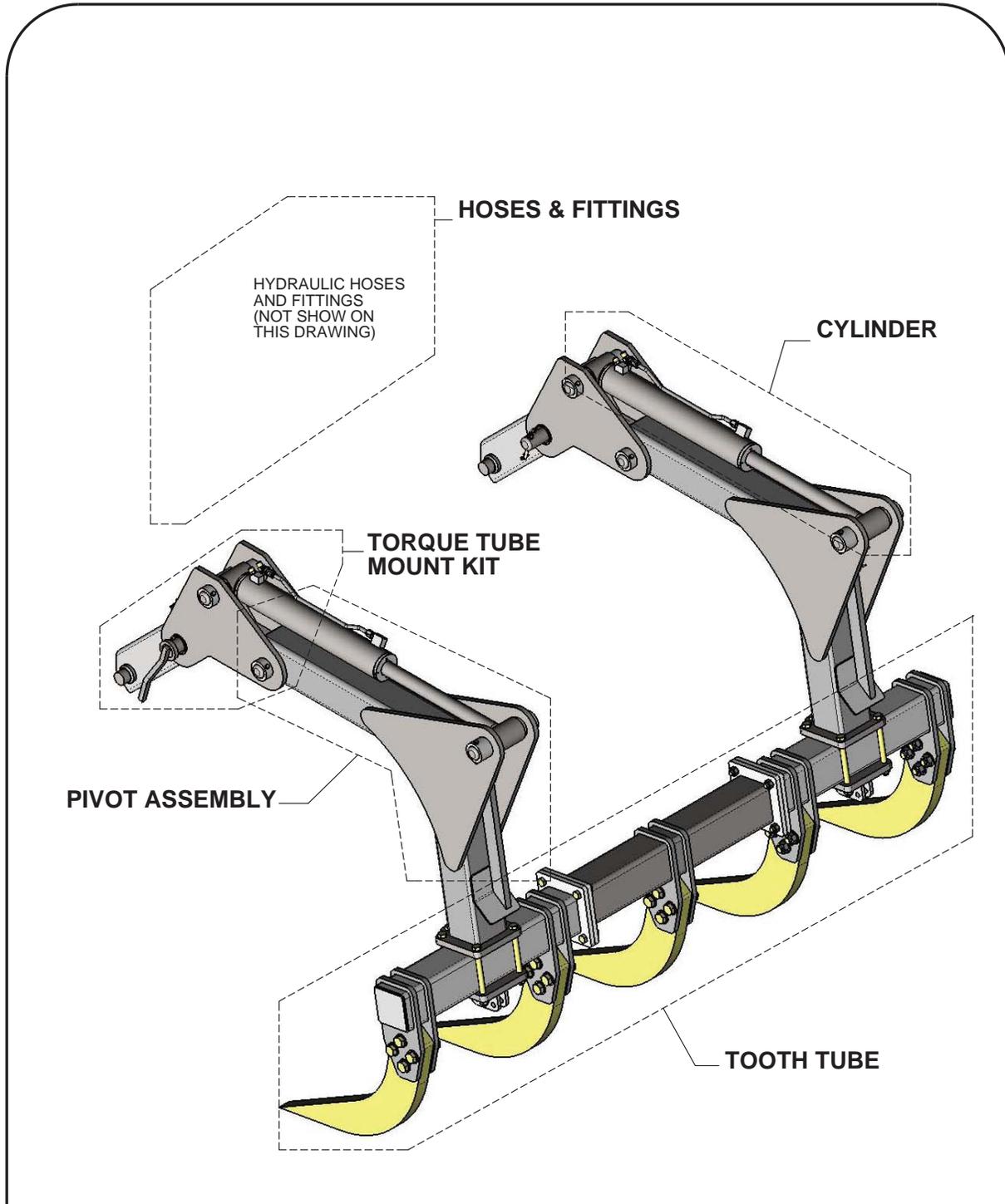
- ◇ **IF A DUST SEAL (WIPER SEAL) THAT PROTECTS THE BEARING HOUSING IS DAMAGED, REPLACE IT.**

- ◇ **DO NOT REPLACE A PIVOT PIN WITH ANYTHING OTHER THAN A GRABTEC PIVOT PIN MADE FOR YOUR GRAPPLE MODEL. THE EXTREMELY DURABLE AND HARD CHROME FINISH OF THE GRABTEC PINS IS IMPORTANT FOR THE LIFE OF THE BUSHINGS AND FOR THE RESISTANCE TO CORROSION IN THE PIN HOUSING.**

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" nuts to 310 ft-lbs Torque 1" nuts to 750 ft-lbs
Check for build-up around pivot areas	Daily	Remove ice, ground hay or any other debris from all pivot areas.

PARTS INDEX

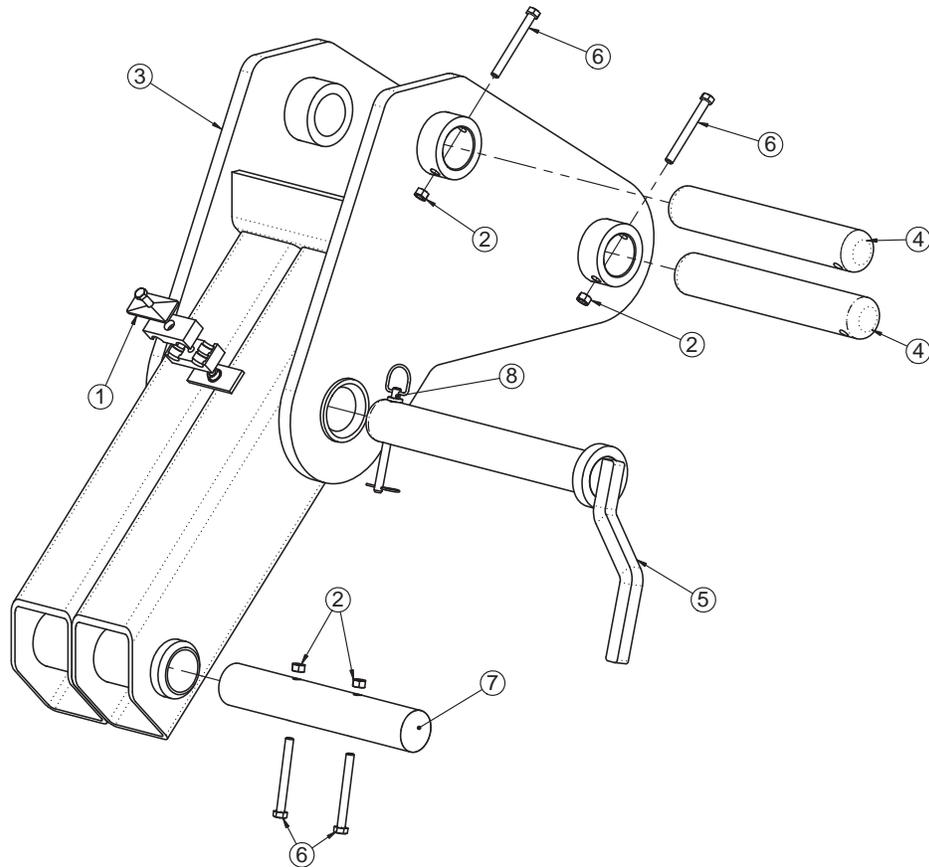


PARTS INDEX

PRODUCT MODEL: **GX**

DRAWING ID#: GX-S1
DRAWING REVISION: -
DRAWING DATE: 8/22/2011

PARTS



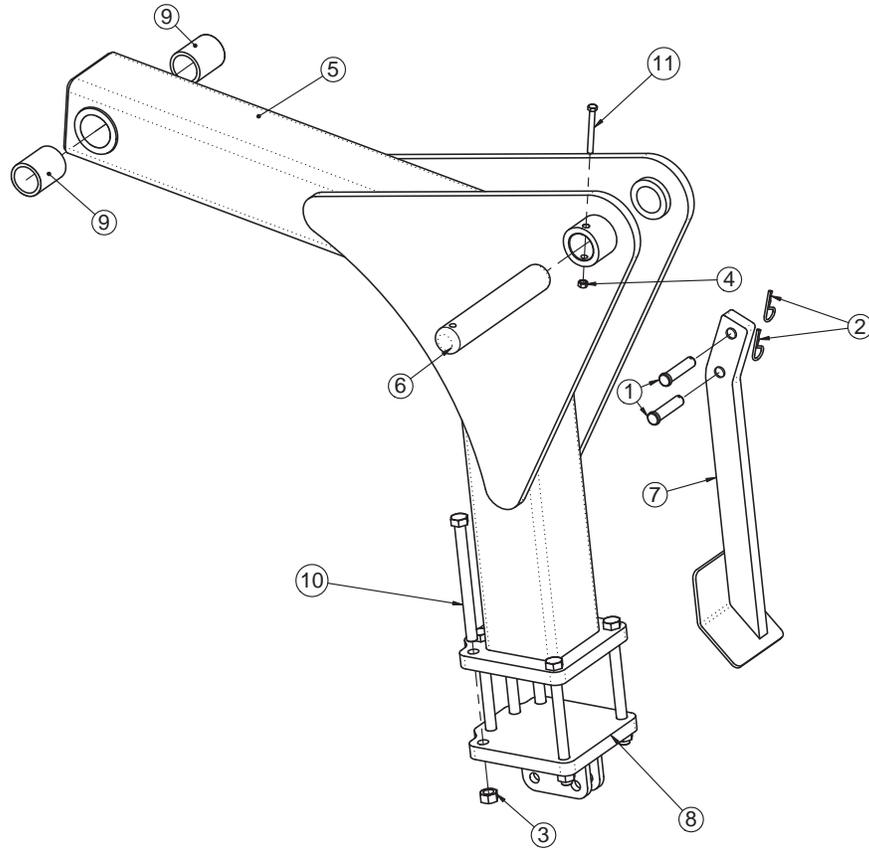
ITEM NO.	PART NUMBER	DESCRIPTION	Approx. Weight (LBS)	QTY. SHOWN
1	90800	TWIN HOSE CLAMP	0.3	1
2	98006	NUT, 3/8-16 NYLOCK, ZP	0.0	4
3	GX002	TORQUE TUBE	201.9	1
4	60630	PIN, 2" X 12"	10.5	2
5	GX010	RETAINING PIN, GX	15.5	1
6	98220	BOLT, 3/8 X 3-1/2, GR8, ZP	1.5	4
7	60616	HOOK PIN, GX	10.560	1
8	98403	HITCH PIN WITH COTTER, 3/8 X 4	0.19	1

TORQUE TUBE

PRODUCT MODEL: **GX**

DRAWING ID#: GX-S1
 DRAWING REVISION: -
 DRAWING DATE: 8/22/2011

PARTS



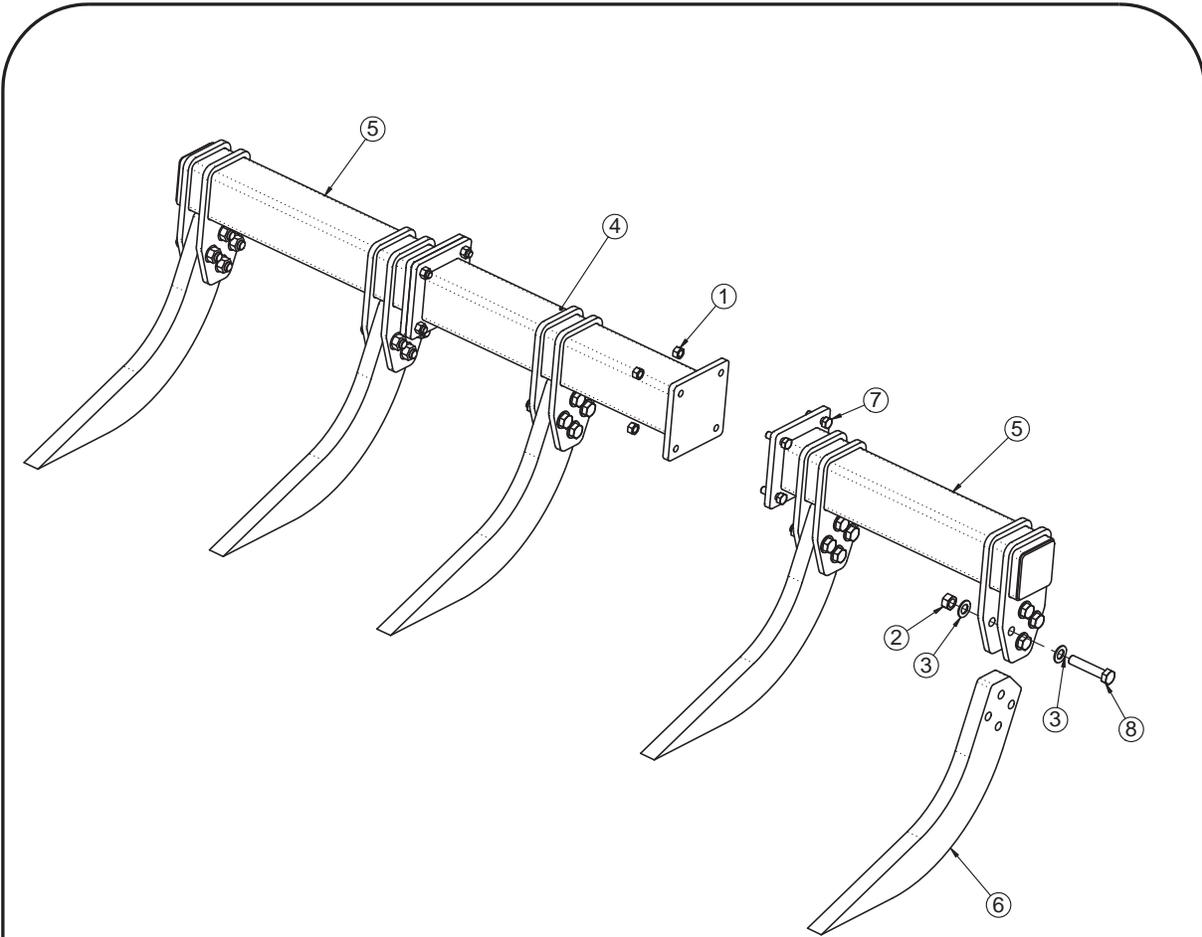
ITEM NO.	PART NUMBER	DESCRIPTION	Approx. Weight (LBS)	QTY. SHOWN
1	98401	PIN, ZINC PLATED, 3/4 X 3	0.3	2
2	98431	HAIRPIN COTTER, ZINC, 2-11/16 OAL	0.1	2
3	98015	NUT, 3/4-10 UNC TOP LOCK, PLATED	0.0	6
4	98006	NUT, 3/8-16 NYLOCK, ZP	0.0	1
5	GX001	PIVOT ASSEMBLY, GX	388.3	1
6	60630	PIN, 2" X 12"	10.5	1
7	GX005	STAND LEG ASSEMBLY, GX	18.4	1
8	GX004	COMBO CLAMP PLATE, GX	27.8	1
9	BR-2500K-3125	COMPOSITE BEARING, 2.00 BORE, 3.125 LONG	0.2	2
10	98219	BOLT, 3/4-10 UNC, GR8 ZN, 9" LONG	1.5	6
11	98220	BOLT, 3/8 X 3-1/2, GR8, ZP	1.5	1

PIVOT ASSEMBLY

PRODUCT MODEL: **GX**

DRAWING ID#: GX-S1
 DRAWING REVISION: -
 DRAWING DATE: 8/22/2011

PARTS



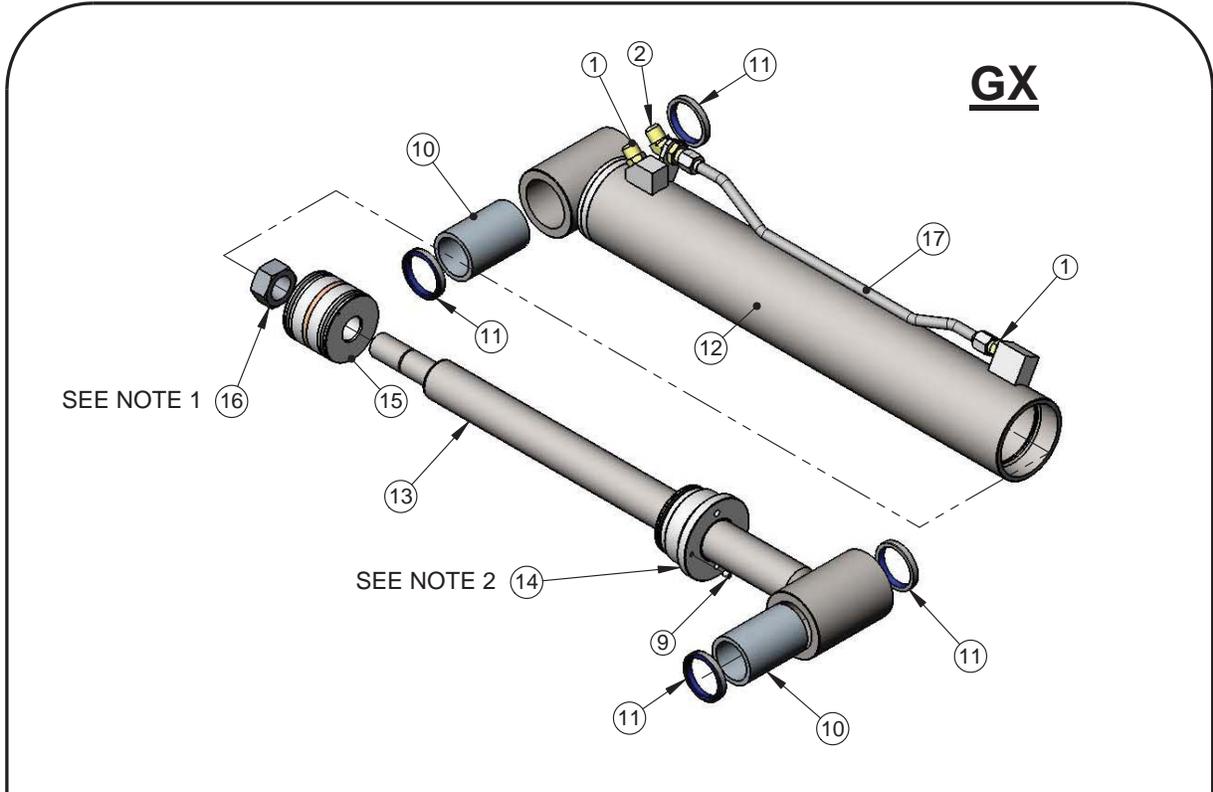
ITEM NO.	MODEL	PART NUMBER	DESCRIPTION	APPROX. WEIGHT
4	GX104	GX938	CENTER TUBE, GX, 38"	175

ITEM NO.	PART NUMBER	DESCRIPTION	Approx. Weight (LBS)	QTY SHOWN
1	98015	NUT, 3/4-10 UNC TOP LOCK, PLATED	0.0	8
2	98017	NUT, 1-8 UNC, TOP LOCK, ZN	0.0	20
3	98132	HARDENED WASHER, ZP, 1"	0.1	40
5	GX003	TOOTH BAR	177.8	2
6	60621	TOOTH, 'GX' GRAPPLE	102.4	5
7	98212	BOLT, 3/4-10 UNC, GR8 ZN, 2-1/2" LONG	1.5	8
8	98221	BOLT, 1-8 UNC, 5" GR8 ZP	1.5	20

TOOTH TUBE - 5 TOOTH MODELS

PRODUCT MODEL: GX	DRAWING ID#: GX-S1
	DRAWING REVISION: -
	DRAWING DATE: 8/22/2011

CYLINDER, GENERAL



- NOTES:
1. PUT LIGHT OIL ON THREADS AND TIGHTEN TO 625-750 FT-LBS.
 2. TIGHTEN GLAND TO 100-150 FT-LBS WHEN INSTALLING INTO TUBE.

THE PART NUMBER FOR AN ASSEMBLED CYLINDER IS GX121. THE PIN SEALS (ITEM 11) AND BEARINGS (ITEM 10) MUST BE ORDERED SEPARATELY.

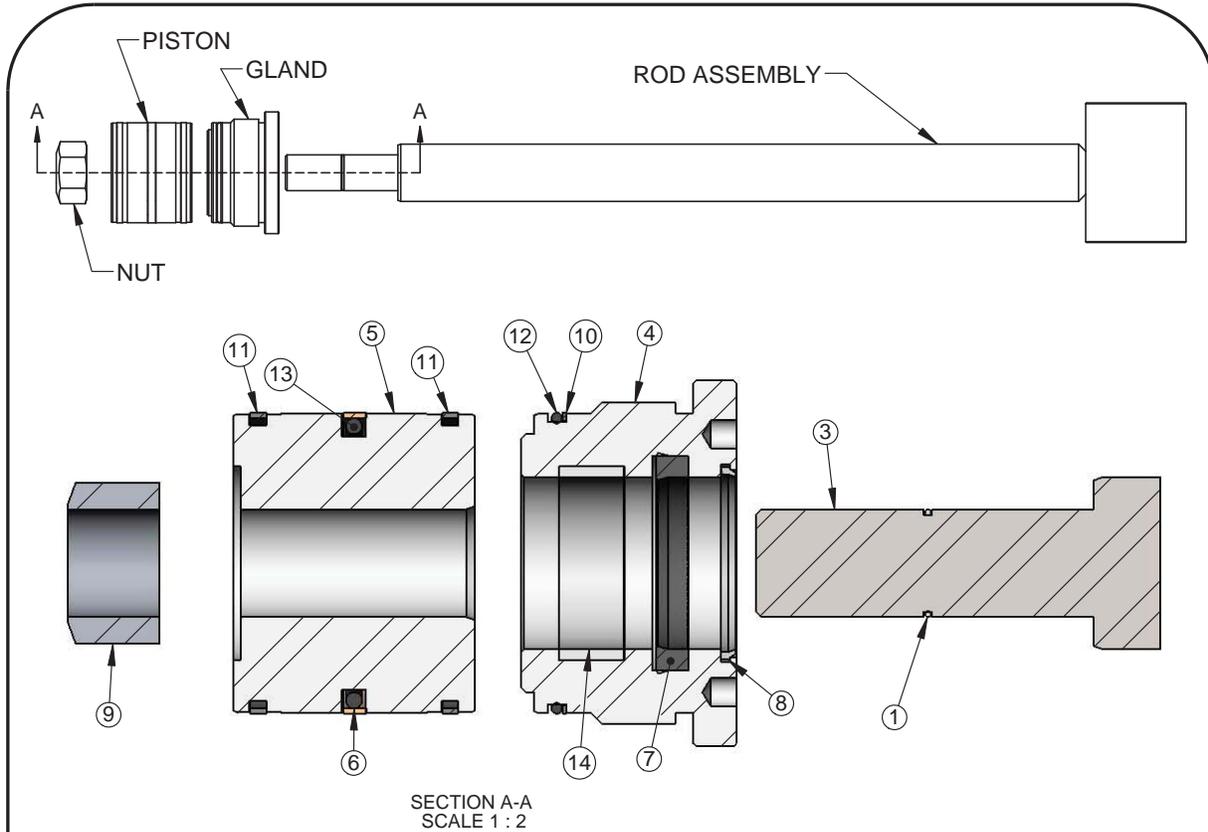
SEAL KIT FOR THIS CYLINDER (SEE NEXT PAGE FOR DETAILS)
PART # 94408

ITEM NO.	PART NUMBER	DESCRIPTION	QTY. SHOWN
1	90510C	ADAPTER, -8 MJIC -6MORB	2
2	90513A	BULKHEAD ADAPTER W/NUT, 45 DEG. MJIC -08	1
9	98712	SOCKET SET SCREW, CUP 1/4-20 X 3/8 LONG	1
10	BR-2500K-3750	COMPOSITE BEARING, 2.00 BORE, 3.75 LONG	2
11	PS-2000-45	Pin Seal (MRW), 2.0 ID x 2.5 OD x 5/16 Thick	4
12	GX123	TUBE ASSEMBLY (GX), AGILE	1
13	GX022	ROD ASSEMBLY, GX	1
14	90156	GLAND, GX	1
15	90114	PISTON, GX	1
16	98018	TOP LOCK NUT, 1-1/4 -12 GR C	1
17	GX024	FLUID LINE ASSEMBLY, GX	1

GX121 CYLINDER PARTS, GENERAL

PRODUCT MODEL: GX	DRAWING ID#: GX121S
	DRAWING REVISION: -
	DRAWING DATE: 2/2/2012

CYLINDER, DETAIL



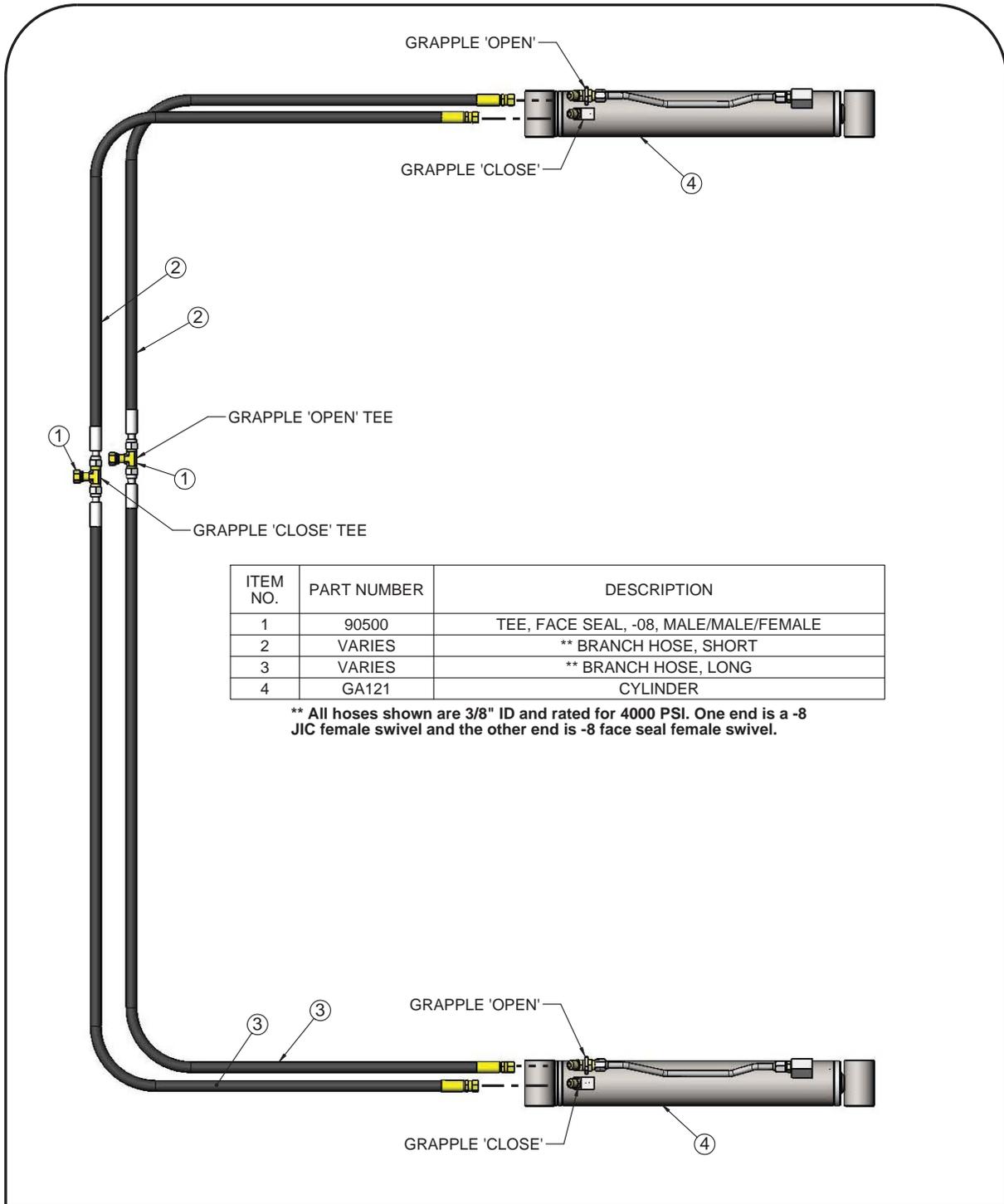
ITEM NO.	PART NUMBER	DESCRIPTION	QTY SHOWN	Included with Seal Kit 9440-?
1	94118	O-RING, -24, 1-1/8 ID X 1-1/4 OD, NITRILE 70A	1	Y
3	GX022	ROD ASSEMBLY, GX	1	N
4	90156	GLAND, GX	1	N
5	90114	PISTON, GX	1	N
6	94157	PISTON SEAL HYTREL, 3-1/2" OD	1	Y
7	CP-UC-2000-4	SEAL, U-CUP, 2.00 ID x .250 x .375W	1	Y
8	CP-WP-2000AN	WIPER, 2.000 ROD, TYPE "AN"	1	Y
9	98018	TOP LOCK NUT, 1-1/4 -12 GR C	1	N
10	94101	BACK UP RING, -236, 3-1/2" OD	1	Y
11	94194	CAST IRON RING, 3-1/2" OD X 3/16" WIDE	2	N
12	94130	O-RING, -236, 3-1/4 ID X 3-1/2 OD, NITRILE	1	Y
13	94129	O-RING, -337, 3 ID X 3-3/8 OD, NITRILE	1	Y
14	94186	WEAR RING, ROD, 2 ID X 3/4 WIDE	1	Y

**SEAL KIT FOR THIS CYLINDER
PART # 94408**

GX121 CYLINDER PARTS, DETAIL

PRODUCT MODEL: GX	DRAWING ID#: GX121S
	DRAWING REVISION: -
	DRAWING DATE: 2/2/2012

HOSE CONNECTIONS



ITEM NO.	PART NUMBER	DESCRIPTION
1	90500	TEE, FACE SEAL, -08, MALE/MALE/FEMALE
2	VARIES	** BRANCH HOSE, SHORT
3	VARIES	** BRANCH HOSE, LONG
4	GA121	CYLINDER

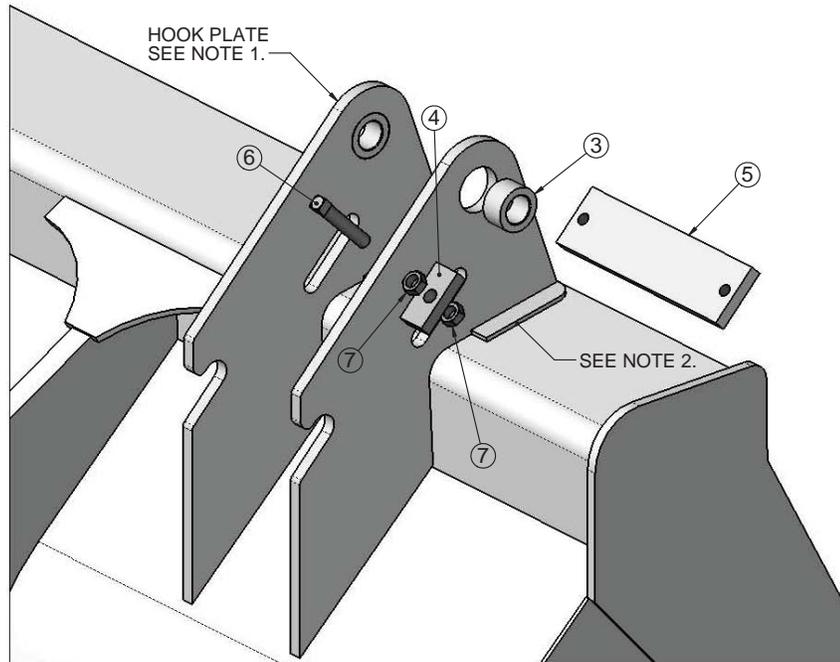
** All hoses shown are 3/8" ID and rated for 4000 PSI. One end is a -8 JIC female swivel and the other end is -8 face seal female swivel.

HOSE CONNECTIONS

PRODUCT MODEL: GA

DRAWING ID#: GA-S3
 DRAWING REVISION: -
 DRAWING DATE: 2/11/2009

MOUNT KIT PARTS



NOTES:

1. HOOK PLATES ARE CUSTOM FIT FOR EACH BUCKET AND MAY LOOK DIFFERENT THAN THOSE SHOWN HERE.
2. THIS IS A DOUBLER PLATE. NOT ALL MOUNT KITS INCLUDE A DOUBLER PLATE. THE MOST COMMON LOCATION FOR THE DOUBLER IS UNDER THE FRONT OF THE HOOK PLATES AS SHOWN, HOWEVER ON SOME BUCKETS THE DOUBLERS ARE UNDER THE REAR OF THE HOOK PLATES.

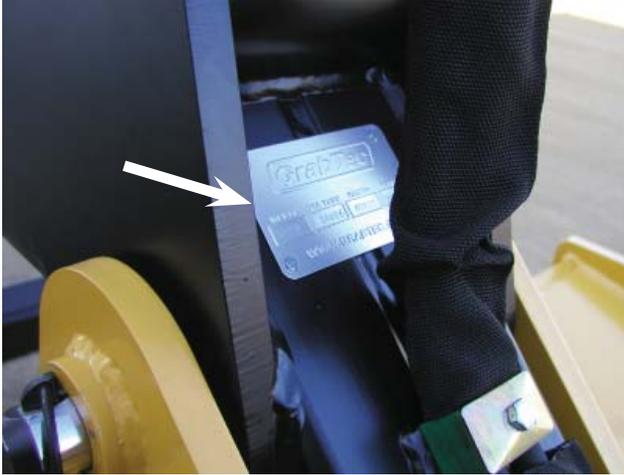
ITEM NO.	PART NUMBER	DESCRIPTION	QTY SHOWN
3	60608	BUCKET LUG COLLAR, GX	2
4	40078	BLOCK WITH HOLE, GX	2
5	40077	SUPPORT PLATE, GX	1
6	98716	SET SCREW, 1" X 4, SQ. HEAD CUP	2
7	98011	JAM NUT, 1" NC, ZC	4

MOUNT KIT

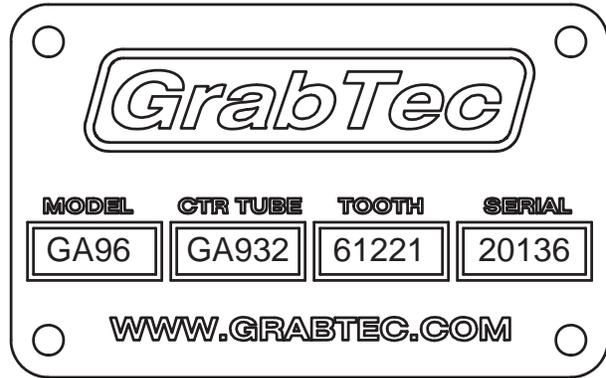
PRODUCT MODEL: GX

DRAWING ID#: GX-S1
 DRAWING REVISION: -
 DRAWING DATE: 8/22/2011

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

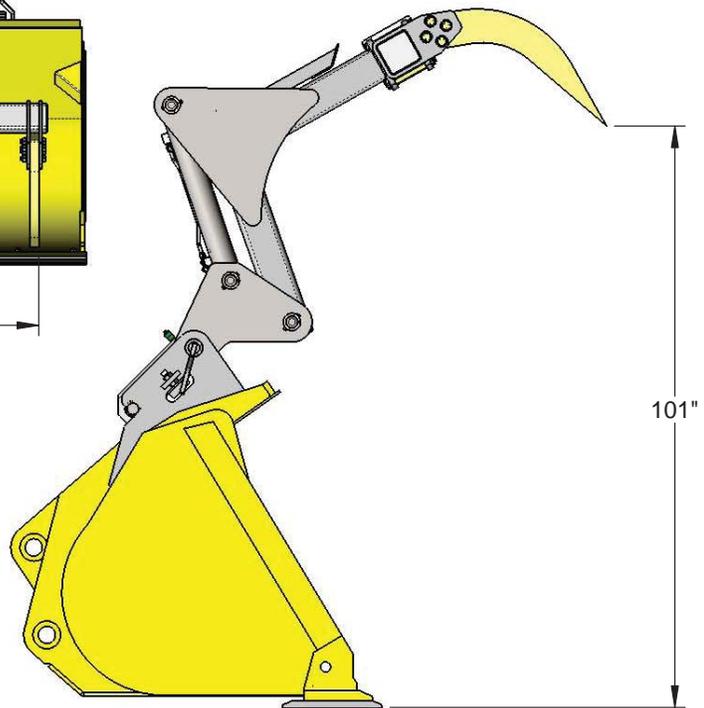
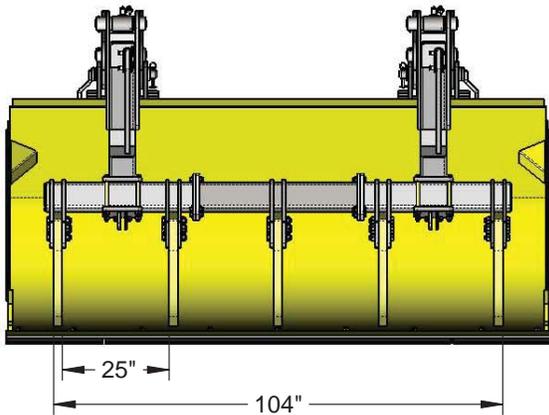
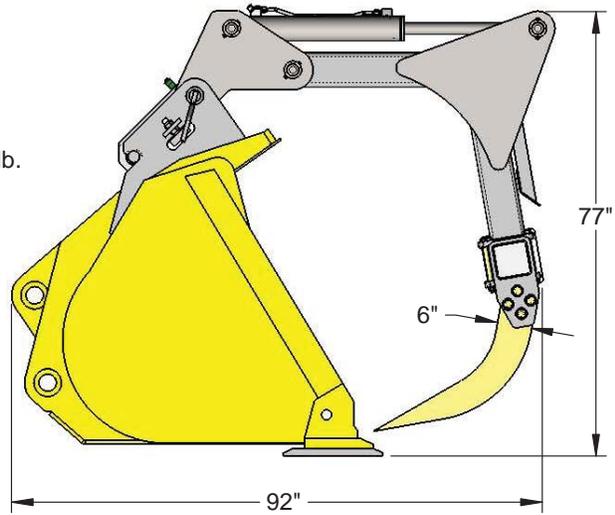
Revision ID	Models Affected	Starting Serial #	Ending Serial #	Revision Details	Parts Affected	See Pages
-	All GX's	21830	N/A	None - original design	N/A	N/A

SPECIFICATIONS

Specifications:

- Cylinder Size: 3-1/2 bore, 2" ram
- Square Tube size: 6 x 6 x 1/2 wall
- Tooth thickness: 2"
- Max Clamping Force with 3750 psi: 14,400 lb.
- Pin diameter: 2"
- Bucket fitment: 5.0 - 7.5 cubic yard

Grapple & Mount Kit
Weight: approx. 3000 lbs.



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. The composite bushings located at cylinder and grapple pivot points are warranted against breakage or loss of their self-lubricating properties for three years or 5,000 hours, whichever comes first. Refer to the Maintenance section of the Owner's Manual for proper care and precautions concerning the pivot bushings. The warranted coverage on the grapples or pivot bushings is for the parts only, not for labor to disassemble or reassemble the grapple or to remove or reinstall the bushings or for shipping costs.

If Grabtec installs the mounts on the bucket, Grabtec warrants the mounts against faulty design, material, or workmanship for a period of one year from date of delivery or 2,000 hours, whichever comes first. If Grabtec does not install the mounts, Grabtec warrants the mounts against faulty material for a period of one year from date of delivery or 2,000 hours, whichever comes first.

If Grabtec provides mounts that were designed with information supplied by the customer, Grabtec will not warranty the mounts against improper fitment. Grabtec will make every effort to design mounts that fit with minimal reshaping, but accepts no responsibility for the customer's ability to take accurate measurements of the bucket. If Grabtec provides mounts based on the fact that the customer's bucket is one that Grabtec has previously designed mounts for, Grabtec accepts no responsibility on manufacturing tolerances or design changes to the bucket made by the bucket manufacturer that result in mounts that do not fit without a significant amount of reshaping.

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.