



GAR-BRO LAYDOWN BUCKET LIFTING BAIL INSPECTION RECOMMENDATIONS

The following are recommendations regarding GAR-BRO bucket bail inspection and wear limits. The details are for our standard Lightweight Laydown, and Extended Gate Laydown types. Specific lifting bail inspection recommendations for special buckets can be obtained by contacting the GAR-BRO at 1-800-643-8192.

General inspection of all GAR-BRO buckets, both daily (on the job), or in the shop (between jobs), should be made using the following guidelines as a minimum. Thorough cleaning of the bucket may be required for a proper inspection to be made. Specific recommendations for each type of bucket follow.

These recommendations are intended only as a guide for the responsible person checking and inspecting the buckets. These recommendations are not intended to be all-inclusive or as a substitute for good judgment and/or experience of the inspector.

GENERAL

1. Inspect all bolts for abrasion, damage, or wear, and insure that all bolts are in place and properly tightened.
2. Inspect all welds for damage, abrasion, cracks, and wear.
3. Inspect the lifting bail for cracks, distortion, abrasion, excessive wear, or any other unsafe condition, especially at lifting and pivot points. Specific instructions for each general type of bucket follow.
4. If any cracks, nicks, or other imperfections exist or if there is any question regarding the integrity of the bucket lifting bail, then the bucket should immediately be removed from service and further investigative action taken. Any modification to a lifting bail on any bucket renders the modified unit unsafe and immediate removal from service is required.

LAYDOWN BUCKET BAILS

All Laydown bucket lifting bails should be inspected as detailed below. See GAR-BRO drawing 74-49 for older "L" series Laydown bucket parts breakdown, GAR-BRO drawing 01-55 for newer "L" series buckets, GAR-BRO drawing 76-24 for older Extended Gate Laydown bucket parts breakdown, or GAR-BRO drawing 01-56 for newer Extended Gate Laydown's. The GAR-BRO service bulletin dated May 19, 1988 regarding Laydown bucket swing type lifting bail inspections, attached, should also be referenced for information. Lifting bails, bushings, and pivot bolts for the "L" series and Extended Gate Laydown buckets are available from the factory for installation by the customer.

A. Visually inspect the bucket lifting bail all over for general condition. Removal of concrete, rust, or other surface material that could hide any damage may be required. Visual inspection should be supplemented by dye penetrant or magnetic particle methods of inspection by properly trained personnel if there is any doubt as to the condition of the bail after a thorough visual inspection. Particular attention should be paid to the bend in the bail flat bar at the ends of the bail plate with the aid of a 7X to 10X magnifying lens since this is where significant side loading of the bail using improper hoisting techniques could cause cracking over a long period of time. Any cracks found are grounds for complete bail replacement before the bucket is returned to service. Further details regarding side loading of laydown bucket bails may be found in the service bulletin, which is attached.

B. Inspect the bail pivot bushings for general condition and replace if the radial movement of the bushing and the bail exceeds 1/16 inch. Radial movement indicates that the bushing is worn and if not replaced could cause wear on the bail pivot bolt. If the bushing is badly worn and has therefore allowed the bail pivot bolt to wear, the bail pivot bolt and bushing must be replaced before the bucket is returned to service.

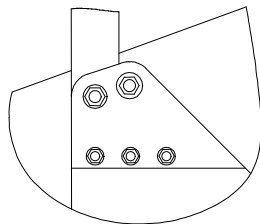
C. Inspect the bail flat bars where they contact the rear bail stop. Notching in this area should be smoothed out to eliminate sharp edges or nicks. Complete bail replacement before the bucket is returned to service is required if the depth of the notch exceeds 1/4 inch in depth as measured by laying a straight edge to bridge the notch and measuring the maximum distance from the root of the notch to the edge.

D. Inspect the bail flat bars where they contact the bucket with the bail pivoted forward in the charging position. Depending on the date of manufacture of the bucket, forward bail stops may or may not be present. Notching in this area should be smoothed out to eliminate sharp edges. Complete bail replacement before the bucket is returned to service is required if the depth of the notch exceeds 3/16 inch as measured by laying a straight edge to bridge the notch and measuring the maximum distance from the root of the notch to the edge.

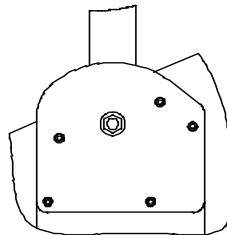
E. Laydown buckets of 3 cubic yards or greater capacity and manufactured later than 1977 incorporate a bail stiffener on the outside of the bail flat bar at the bend in the flat bar on

the end of the bail plate. This plate increases the stiffness of the bail in a transverse direction to decrease bending in the flat bar due to side loads incurred when the crane boom is not centered on the bucket during hoisting. This plate may be added in the field provided that the bucket bail to be modified has, as a minimum, been inspected in accordance with the inspection guidelines in paragraphs A thru D, above. Contact the factory for further information.

Normal bail wear on the "L" series and Extended Gate Laydown buckets is usually confined to the upper center of the cut out hole in the plate bail, and limits for this type of wear follow. Of further concern is distortion of the bail that is caused from placing one or more crane hooks in the hook cutout that are wider than the cutout in the bail. In all cases, the "L" series and Extended Gate Laydown buckets have hook-on holes 4 inches wide. This basically limits the crane hook size to 20 tons. Larger hooks or multiple hooks can wedge into the hole, causing extreme forces that literally spread the bail apart in the center. Evidence of this type of abuse is grounds for bail replacement.



Current 416-L thru 436-L, 4236-L, older 466-L thru 4156-L, and all older Extended Gate Laydown Buckets



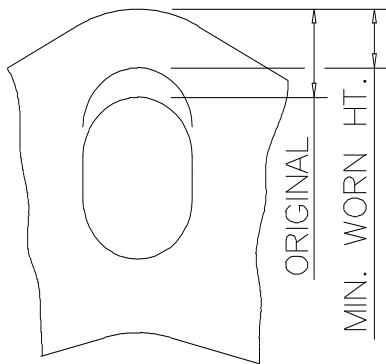
Current 446-L thru 4156-L, and current Item 444 thru Item 4124 Extended Gate Laydown Buckets

In 1991 a design change to lifting bails on some sizes of Lightweight "L" series and Extended Gate Laydown buckets was incorporated. The new arrangement includes a single pivot bolt on each side of the bucket and no bail-stop bolts. The new arrangement can be identified as having only a single large bolt on each side of the bucket, which is the bail attach

point. Older bail designs on the Item 446-L through Item 4156-L, older Extended Gate Laydown buckets (Items 444 through Item 4124) and all current laydown buckets smaller than 1 1/2 cubic yard capacity (Item 416-L through Item 436-L, Item 414 through Item 434) have two large bail bolts on each side of the bucket. One is the bail attach bolt and the other is the bail stop bolt. Use this information to determine the bail design on your specific laydown bucket and then use the table below to determine the maximum wear dimension for each bail type.

Specific instructions and wear limits for “L” series and Extended Gate Laydown bucket bails are as follows:

Bucket	Min. Worn ht. (inches)	Bucket	Min. Worn ht. (inches)
416-L	2.00	446-L (new)	3.25
426-L	2.00	466-L (new)	3.25
436-L	3.00	496-L (new)	3.25
446-L (old)	3.00	4126-L (new)	4.25
466-L (old)	2.50	4156-L (new)	5.75
496-L (old)	4.25	444 (old)	2.00
4126-L (old)	2.75	464 (old)	2.00
4156-L (old)	3.75	494 (old)	3.25
4236-L	4.00	4124 (old)	3.25
414	1.50	444 (old)	2.00
424	1.50	444 (new)	3.25
434	2.00	464 (new)	3.25
		494 (new)	3.25
		4124 (new)	4.25



peak of the bail in the curved part of the plate. Use the smallest measured value as the determining factor.

- A. The standard lifting bails on the “L” series and Extended Gate Laydown buckets are mild steel plate type bails with an oblong or “oval” hole for attachment to a lifting device. Bail replacement is required when the height of the steel between the top edge of the oblong hole and the top of the lifting bail wears such that the minimum dimension being measured is less than that shown in the table above. When measuring for wear, measure at a point where maximum wear is evident by inspection. The point of maximum wear will probably (although not absolutely) be in the center of the bail and at the

For example, the GAR-BRO Item 436-L 1 cubic yard bucket has a plate type lifting bail. When the distance from the top, inside edge of hook opening to the top of the bail is worn such that any minimum measured dimension is less than 3 inches, then the bucket should immediately be removed from service and bail replacement accomplished.

If you have any questions regarding these recommendations for bail inspection on GAR-BRO equipment please feel free to call us at 1-800-643-8192. We look forward to hearing from you.

GAR-BRO MANUFACTURING COMPANY

Attachments:

Dwg 74-49 Sheet A

Dwg 76-24 Sheet A

Dwg 01-55 Sheet A

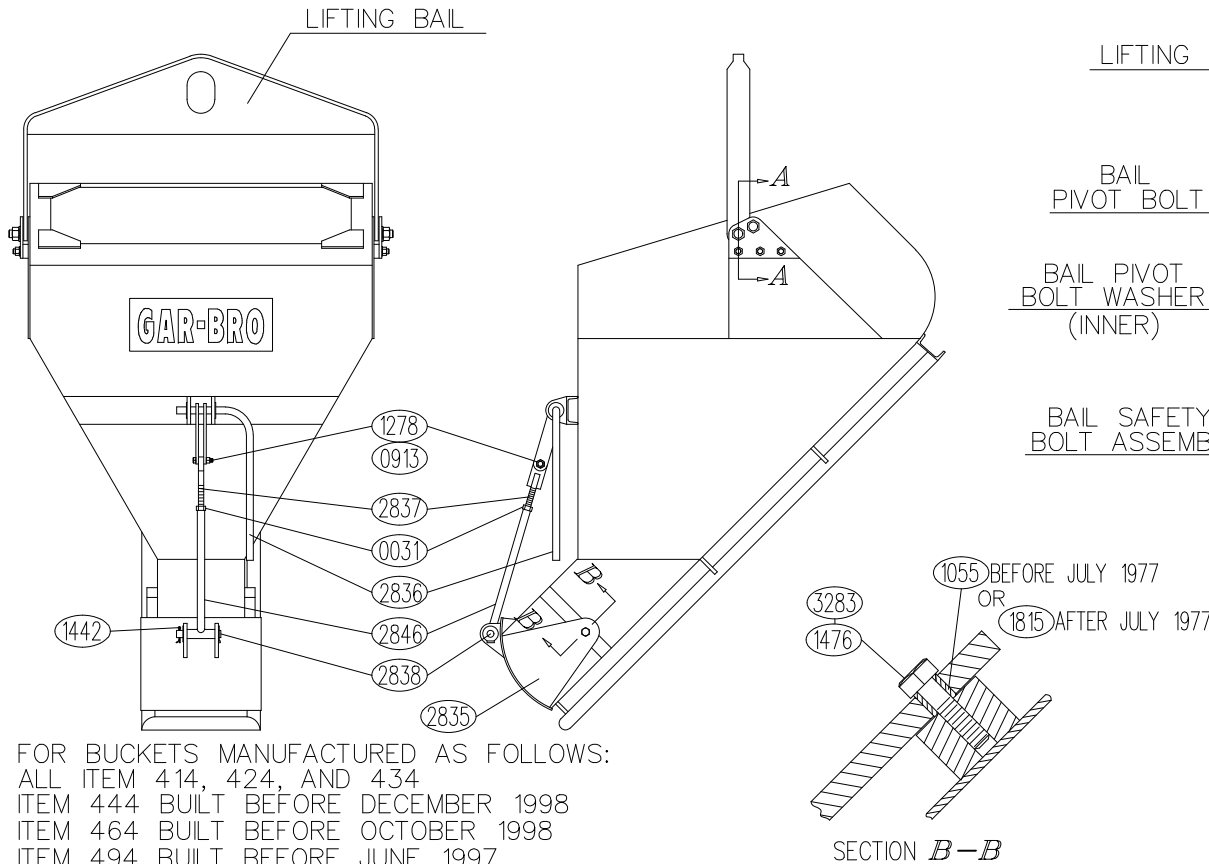
Dwg 01-56 Sheet A

WHEN ORDERING PARTS, SPECIFY:

1. THIS DRAWING NO: 76-24
2. PART NUMBER
3. QUANTITY
4. DESCRIPTION

DESCRIPTION	414	424	434	444	464	494	4124
LIFTING BAIL	1057	1058	1059	1060	1061	1062	3166
BAIL PIVOT BOLT	1204	1204	1204	1204	1204	1206	1206
BAIL PIVOT BOLT NUT	1761	1761	1761	1761	1761	3065	3065
BAIL PIVOT BUSHING	1066	1066	1066	1066	1067	1068	1068
BAIL SAFETY BOLT ASS'Y	3168	3169	2873	2874	2875	2875	3167
BAIL PIVOT BOLT WASHER OUTER	0203	0203	0203	0203	0203	0274	0274
BAIL PIVOT BOLT WASHER INNER	0203	0203	0203	0203	0203	1220	1220

PART #	DESCRIPTION
3283	THREAD LOCKING CMPD
2846	GATE LINK TO LEVER
2838	LOWER LEVEL PIVOT PIN
2837	LEVER EYE BOLT
2836	GATE LEVER
2835	GATE PLATE ASSY.
1815	PIVOT BUSHING
1476	GATE HINGE BOLT
1442	COTTER PIN
1278	UPPER LEVER PIVOT BOLT
1055	PIVOT BUSHING
0913	LOCK NUT
0031	HEX NUT



SECTION A-A

SECTION B-B

FOR BUCKETS MANUFACTURED AS FOLLOWS:

- ALL ITEM 414, 424, AND 434
- ITEM 444 BUILT BEFORE DECEMBER 1998
- ITEM 464 BUILT BEFORE OCTOBER 1998
- ITEM 494 BUILT BEFORE JUNE 1997
- ITEM 4124 BUILT BEFORE MAY 1999

FOR BUCKETS MANUFACTURED LATER THAN SHOWN, SEE DRAWING 01-56

GAR-BRO MANUFACTURING CO.
 104 BOLTON SULLIVAN DRIVE P.O. DRAWER 1077
 HEBER SPRINGS, ARKANSAS - 72543-1077

**ITEM 414 THRU. 4124
 LIGHTWEIGHT EXTENDED
 GATE LAYDOWN BUCKETS
 PARTS LIST**

SCALE	NONE	SHOP NO.	SALES
DATE	6-8-01	SHIPPING CUBICS	
REVISED	9-1-11	DRAWING NO.	
MADE BY	JPA	76-24	
CHANGED TO/FROM			
SUPERSEDES		SHEET	A OF A

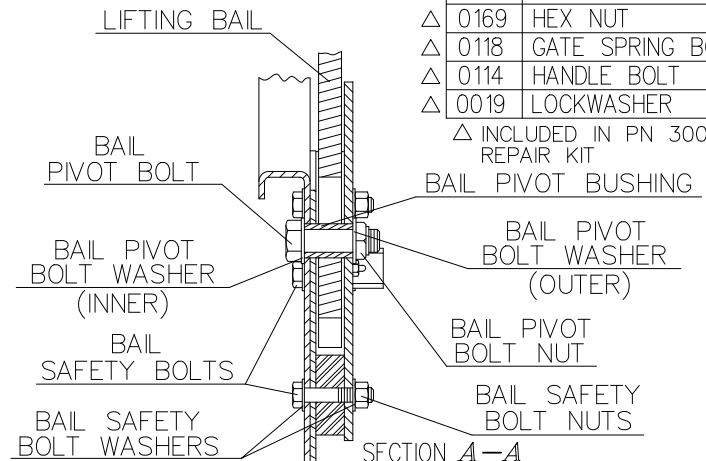
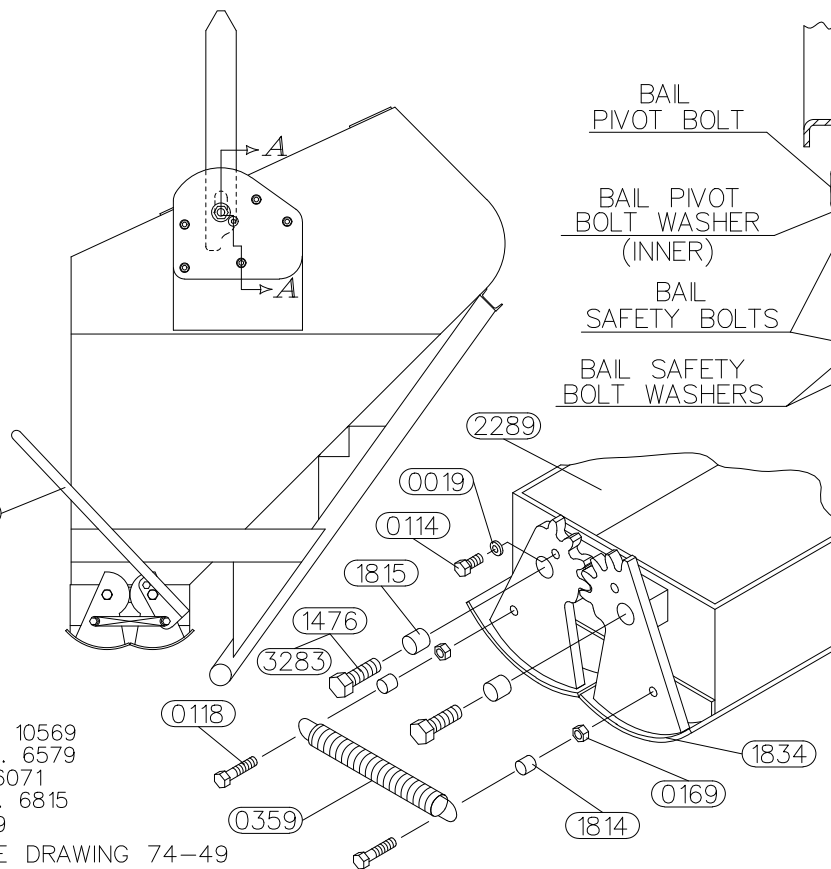
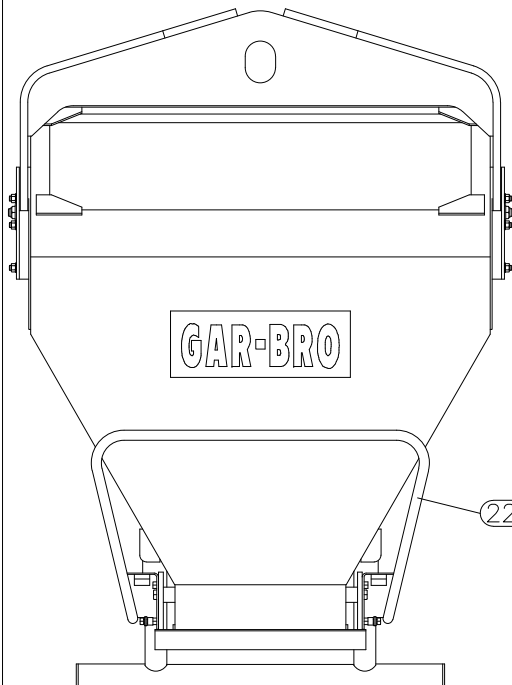
DESCRIPTION	446-L	466-L	496-L	4126-L	4156-L
LIFTING BAIL	3237	3238	3239	3240	3241
BAIL PIVOT BOLT	3250	3250	2678	2678	2678
BAIL PIVOT BOLT NUT	1761	1761	3065	3065	3065
BAIL PIVOT BUSHING	3246	3246	3247	3248	3249
BAIL PIVOT BOLT WASHER OUTER	0203	0203	0274	0274	0274
BAIL PIVOT BOLT WASHER INNER	0203	0203	1220	1220	1220
BAIL SAFETY BOLT	2704	2704	2703	1626	1626
BAIL BOLT NUT	2245	2245	2245	1181	1181
BAIL BOLT WASHER	2404	2404	2404	2185	2185

WHEN ORDERING PARTS, SPECIFY:

1. THIS DRAWING NO: 01-55
2. PART NUMBER
3. QUANTITY
4. DESCRIPTION

PART #	DESCRIPTION
3283	THREAD LOCKING CMPD
3000	"G" GATE REPAIR KIT
2289	"G" GATE COMPLETE
2288	GATE LEVER
1834	GATE PLATE/ R ARM ASSY
1815	PIVOT BUSHING
1814	SPRING SPACER
1476	PIVOT BOLT
0359	GATE SPRING
0169	HEX NUT
0118	GATE SPRING BOLT
0114	HANDLE BOLT
0019	LOCKWASHER

△ INCLUDED IN PN 3000 REPAIR KIT



GAR-BRO MANUFACTURING CO.
104 BOLTON SULLIVAN DRIVE P.O. DRAWER 1077
HEBER SPRINGS, ARKANSAS - 72543-1077

**ITEM 446-L THRU. 4156-L
"L" SERIES LIGHTWEIGHT
LAYDOWN BUCKET
WITH NEW STYLE BAIL
PARTS LIST**

FOR BUCKETS MANUFACTURED AS FOLLOWS:

- ITEM 446-L BUILT AFTER NOVEMBER 1998 S.O. 10569
- ITEM 466-L BUILT AFTER SEPTEMBER 1992 S.O. 6579
- ITEM 496-L BUILT AFTER OCTOBER 1991 S.O. 6071
- ITEM 4126-L BUILT AFTER FEBRUARY 1993 S.O. 6815
- ITEM 4156-L BUILT AFTER MAY 1996 S.O. 8779

FOR ALL OTHER "L" SERIES BUCKETS, SEE DRAWING 74-49

SCALE	NONE	SHOP NO.	SALES
DATE	7-9-01	SHIPPING	CUBICS
REVISED	9-1-11	DRAWING NO.	
MADE BY	JPA	01-55	
CHANGED TO/FROM		SHEET A OF A	
SUPERSEDES			

DESCRIPTION	444	464	494	4124
LIFTING BAIL	3242	3243	3244	3245
BAIL PIVOT BOLT	3250	3250	2678	2678
BAIL PIVOT BOLT NUT	1761	1761	3065	3065
BAIL PIVOT BUSHING	3246	3246	3247	3248
BAIL PIVOT BOLT WASHER OUTER	0203	0203	0274	0274
BAIL PIVOT BOLT WASHER INNER	0203	0203	1220	1220

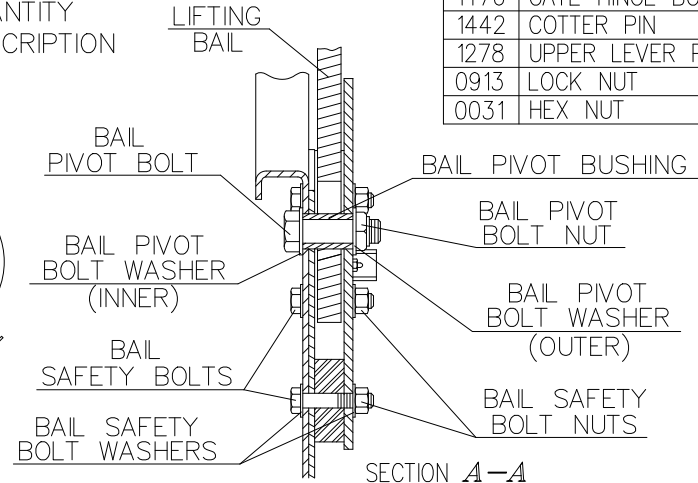
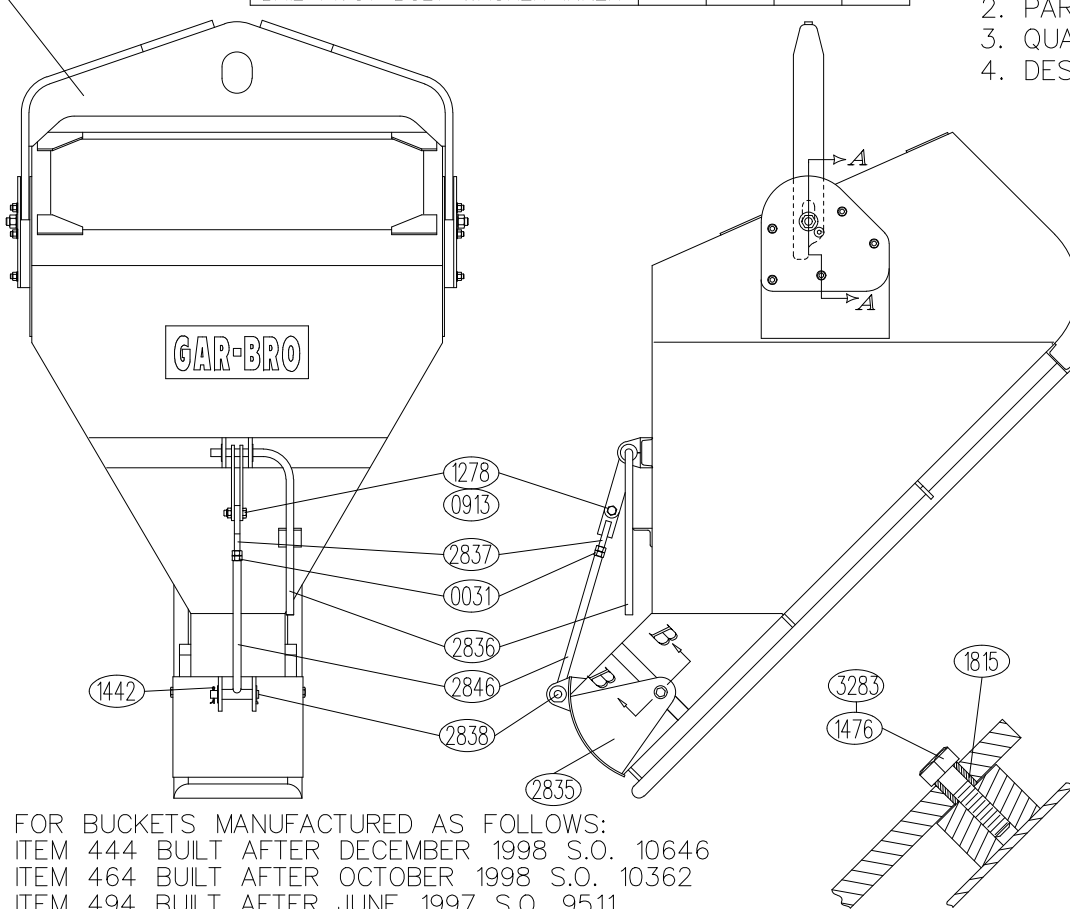
DESCRIPTION	444	464	494	4124
BAIL SAFETY BOLT	2704	2704	2703	1626
BAIL BOLT NUT	2245	2245	2245	1181
BAIL BOLT WASHER	2404	2404	2404	2185

PART #	DESCRIPTION
3283	THREAD LOCKING CMPD
2846	GATE LINK TO LEVER
2838	LOWER LEVEL PIVOT PIN
2837	LEVER EYE BOLT
2836	GATE LEVER
2835	GATE PLATE ASSY.
1815	GATE HINGE PIN BUSHING
1476	GATE HINGE BOLT
1442	COTTER PIN
1278	UPPER LEVER PIVOT BOLT
0913	LOCK NUT
0031	HEX NUT

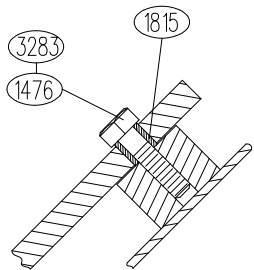
WHEN ORDERING PARTS, SPECIFY:

1. THIS DRAWING NO: 01-56
2. PART NUMBER
3. QUANTITY
4. DESCRIPTION

LIFTING BAIL



SECTION A-A



SECTION B-B

FOR BUCKETS MANUFACTURED AS FOLLOWS:
 ITEM 444 BUILT AFTER DECEMBER 1998 S.O. 10646
 ITEM 464 BUILT AFTER OCTOBER 1998 S.O. 10362
 ITEM 494 BUILT AFTER JUNE 1997 S.O. 9511
 ITEM 4124 BUILT AFTER MAY 1999 S.O. 01419
 FOR ALL OTHER BUCKETS, SEE DRAWING 76-24

GAR-BRO MANUFACTURING CO.
 104 BOLTON SULLIVAN DRIVE P.O. DRAWER 1077
 HEBER SPRINGS, ARKANSAS - 72543-1077

**ITEM 444 THRU. 4124
 LIGHTWEIGHT EXTENDED
 GATE LAYDOWN BUCKETS
 WITH NEW STYLE BAIL
 PARTS LIST**

SCALE	NONE	SHOP NO.	SALES
DATE	7-9-01	SHIPPING CUBICS	
REVISED	9-1-11	DRAWING NO.	
MADE BY	JPA	01-56	
CHANGED TO/FROM			SHEET A OF A
SUPERSEDES			