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SERVICE BULLETIN

GAR-BRO CONSIDERS COMPLIANCE WITH THIS SERVICE BULLETIN MANDATORY PRIOR TO FURTHER USE OF THE AFFECTED EQUIPMENT

EFFECTIVE DATE: MAY 19, 1988 - Reprinted July 2014

**SUBJECT: ALL GAR-BRO LAYDOWN BUCKETS EQUIPPED WITH SWING TYPE
LIFTING BAIL FABRICATED FROM FLAT BAR AND PLATE**

**SCOPE: Covers laydown buckets with the following item numbers regardless
of gate size or whether gate operation is manual or air:**

**414, 416-L, 424, 426-L, 434, 436-L, 444, 446-L, 464, 466-L, 494,
496-L, 4124, 4126-L, 4156-L, 4186-L, 4236-L**

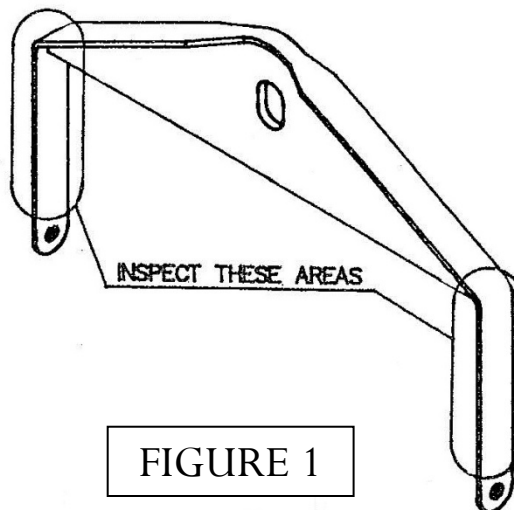
**NOTE: THIS BULLETIN DOES NOT APPLY TO OBSOLETE LAYDOWN
BUCKETS WHICH USED PIPE RATHER THAN FLAT BAR AS PART
OF THE LIFTING BAIL. CALL THE FACTORY IF THERE IS ANY
QUESTION AS TO WHETHER OR NOT YOUR BUCKET IS AFFECTED
BY THIS BULLETIN.**

Gar-Bro has recently received several field reports of lifting bails on laydown buckets which have failed under load while the bucket was being hoisted.

Investigation by the factory, additional stress analysis, and further metallurgical analysis by a qualified laboratory have indicated that these failures are due to fatigue cracks occurring close to the junction of the bail plate and the bail flat bar with subsequent failure occurring when these cracks are undetected during daily inspection and grow to the point of failure.

To date, the failures which have occurred took place on buckets at least 15 or 20 years old which further reinforces the conclusion that metal fatigue is responsible. Technically speaking, metal fatigue is defined as non-reversible or non-elastic movement of atoms in the crystalline structure of a particular metal placed under stress with a resulting strain or stretching of the part. Often this movement is not obvious because movements which do occur are of very small magnitudes. Over a period of time, this movement will eventually lead to failure of a stressed member. Metal fatigue may be easily demonstrated by simply bending a straightened paper clip back and forth several times. After several cycles of bending, the clip will break – this is metal fatigue. If a small notch were filed into the wire of the paper clip and the wire were again bent back and forth, the clip will break at the notch and it will be noted that the break took fewer cycles of bending than the clip without the notch. This is a simple example of what is occurring with the older laydown bucket lifting bails.

Visual examination of the failed lifting bails shows, in all cases, notches or indentations on the bail bar (see figure 1) in the area of the bail where the flat bar contacts the cone of the bucket when the bail is pivoted out of the way for charging of the bucket. As explained above, these notches will, over a period of time, cause a crack to form, and this crack will eventually grow to the point that insufficient flat bar is available to support the bucket when it is suspended, and the bail will fail. This process takes many, many lifting cycles to finally reach the point of failure, and our older buckets are reaching this point in their lifetime.



ACTION REQUIRED:

BECAUSE OF THE SERIOUS CONSEQUENCES OF THIS POTENTIAL PROBLEM, WE MUST INSIST THAT ALL LIFTING BAILS ON THE ABOVE

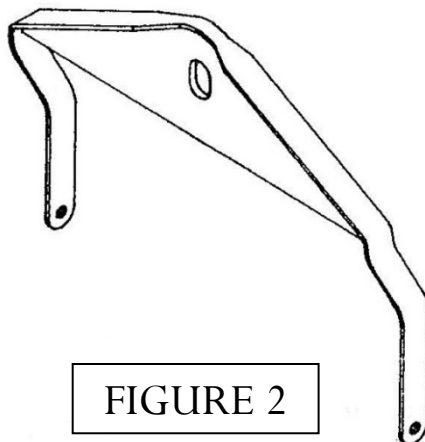
AFFECTED MODELS BE INSPECTED PER THE FOLLOWING RECOMMENDATION PRIOR TO FURTHER USE.

It is absolutely necessary that the bail or bails to be checked be thoroughly cleaned of all paint, corrosion, or concrete on the areas to be inspected. Sand blasting of the bail is an acceptable method of cleaning. Failure to accomplish this step before beginning the inspection of the bail could hide potentially serious flaws.

Visually inspect the lifting bail in the general area where the flat bar intersects the steel plate beam for cracks, dents, or nicks as indicated on (Figure 1). The inspected area includes both the outer edges of the flat bar (narrow dimension) and the width of the bar (large dimension). Inspection should be made using sound visual inspection techniques aided by dye penetrant inspection. These inspection requirements should be accomplished on each bail as a minimum standard, with further testing using ultrasound or other inspection methods if personnel are so trained.

In the event that a crack, cracks, or nicks are found, the bail **MUST BE REMOVED FROM SERVICE AND DESTROYED. DO NOT ATTEMPT TO REWELD OR REPAIR IN ANY WAY ANY CRACKS OR NICKS.** Repair of the nicks or cracks by grinding out the material and re-welding must not be attempted since this does not really remove the problem because the weld material added is harder and, therefore, more brittle than the parent bail material and thus has even less tolerance to fatigue cracking than the original bail.

Inspect the bail flat bars as shown in (Figure 2, next page) for distortion due to excessive side loading when the bucket was hoisted. Note that the distortion shown in the drawing is greatly exaggerated and any bending in the bail flat bars will probably be much less than shown. Any deformation, regardless of magnitude, as shown in the figure requires that the bail be **REMOVED FROM SERVICE AND DESTROYED.** Straightening of the bail flat bars while cold or by heating and rebending should not be attempted because of the possibility of hardening the flat bar and reducing its tolerance to metal fatigue (See Figure 2, next page).



Inspect the bail pivot bolts, bail stop bolts, bail pivot bushing, and bail stop bushing for wear. Replace these parts if any wear is evident.

Replacement bails and related parts are available from the factory. The appropriate part numbers and pricing for each of the above listed laydown buckets are listed in the appendix.

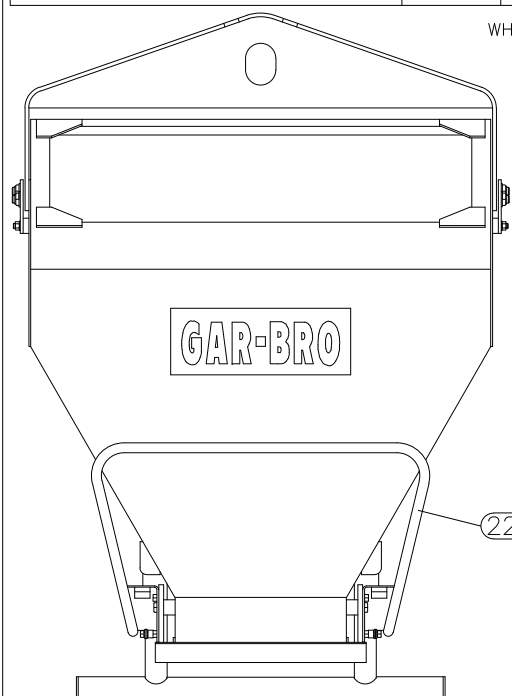
Buckets that pass the above inspection are still subject to eventual fatigue failure with continued use, and, therefore, continued visual inspections as outlined above are mandatory.

If you have any questions at all regarding this service bulletin or the inspection procedure, please contact the factory at 1-800-643-8192 or via email at garbroco@garbro.com. Thank you in advance for your cooperation.

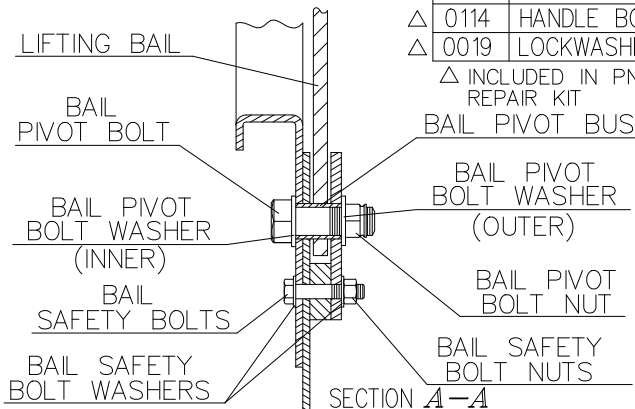
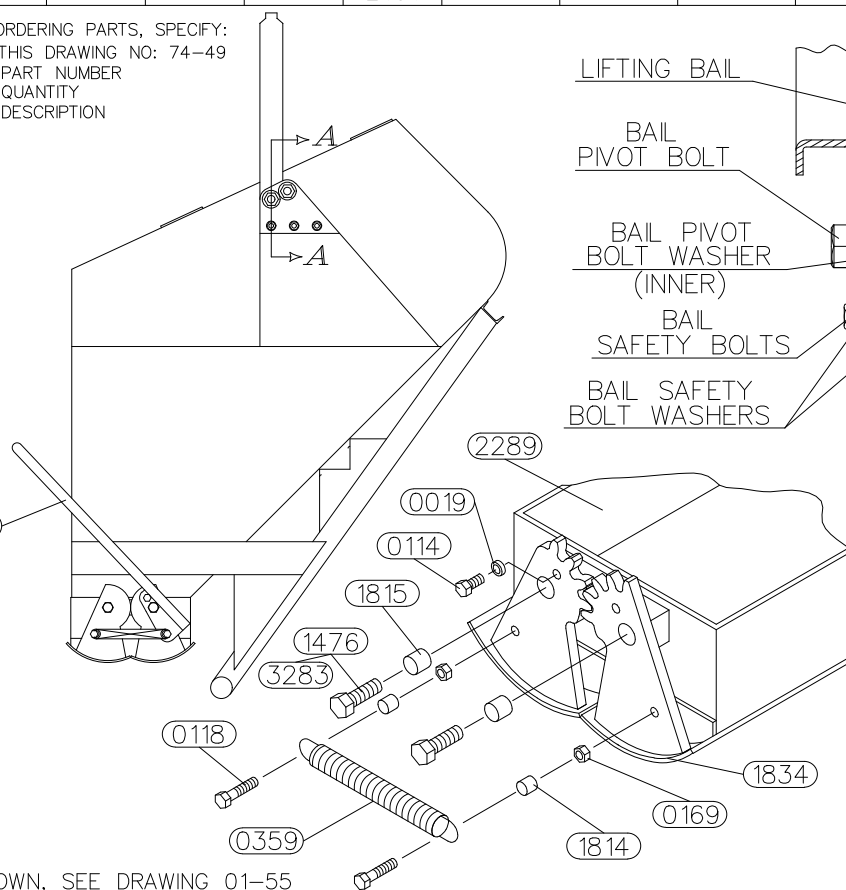
DESCRIPTION	416-L	426-L	436-L	446-L	466-L	496-L	4126-L	4156-L	4186-L	4236-L
LIFTING BAIL	2478	2481	2285	2484	2487	2490	2668	2669	2670	2671
BAIL PIVOT BOLT	2281	2281	2281	2281	2281	1206	0836	0836	3171	3172
BAIL PIVOT BOLT NUT	1761	1761	1761	1761	1761	3065	3065	3065	2683	2683
BAIL PIVOT BUSHING	2282	2282	2282	2282	2282	1219	1219	2680	2682	2685
BAIL PIVOT BOLT WASHER OUTER	0203	0203	0203	0203	0203	0274	0274	274	2375	2375
BAIL PIVOT BOLT WASHER INNER	0203	0203	0203	0203	0203	1220	1220	1220	2375	2375
BAIL SAFETY BOLT	2280	2280	2280	2500	2500	2501	1202	1202	1202	2267
BAIL BOLT NUT	2283	2283	2283	2245	2245	2245	1181	1181	1181	0891
BAIL BOLT WASHER	2284	2284	2284	2404	2404	2404	2185	2185	2185	3170

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



WHEN ORDERING PARTS, SPECIFY:
 1. THIS DRAWING NO: 74-49
 2. PART NUMBER
 3. QUANTITY
 4. DESCRIPTION



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

ITEM 416-L THRU. 4296-L "L" SERIES LIGHTWEIGHT LAYDOWN BUCKET PARTS LIST

FOR BUCKETS MANUFACTURED AS FOLLOWS:
 ALL ITEM 416-L, 426-L, AND 436-L
 ITEM 446-L BUILT BEFORE NOVEMBER 1998
 ITEM 466-L BUILT BEFORE SEPTEMBER 1992
 ITEM 496-L BUILT BEFORE OCTOBER 1991
 ITEM 4126-L BUILT BEFORE FEBRUARY 1993
 ITEM 4156-L BUILT BEFORE MAY 1996

FOR BUCKETS MANUFACTURED LATER THAN SHOWN, SEE DRAWING 01-55

SCALE	NONE	SHOP NO.	SALES
DATE	7-9-01	SHIPPING	CUBICS
REVISED	9-1-11	DRAWING NO.	
MADE BY	BLC/JPA	74-49	
CHANGED TO/FROM		SHEET	A OF A
SUPERSEDES			

DESCRIPTION	446-L	466-L	496-L	4126-L	4156-L	4186-L
LIFTING BAIL	3237	3238	3239	3240	3241	3343
BAIL PIVOT BOLT	3250	3250	2678	2678	2678	**
BAIL PIVOT BOLT NUT	1761	1761	3065	3065	3065	2683
BAIL PIVOT BUSHING	3246	3246	3247	3248	3249	3344
BAIL PIVOT BOLT WASHER OUTER	0203	0203	0274	0274	0274	2375
BAIL PIVOT BOLT WASHER INNER	0203	0203	1220	1220	1220	**
BAIL SAFETY BOLT	2704	2704	2703	1626	1626	1626
BAIL BOLT NUT	2245	2245	2245	1181	1181	1181
BAIL BOLT WASHER	2404	2404	2404	2185	2185	2185

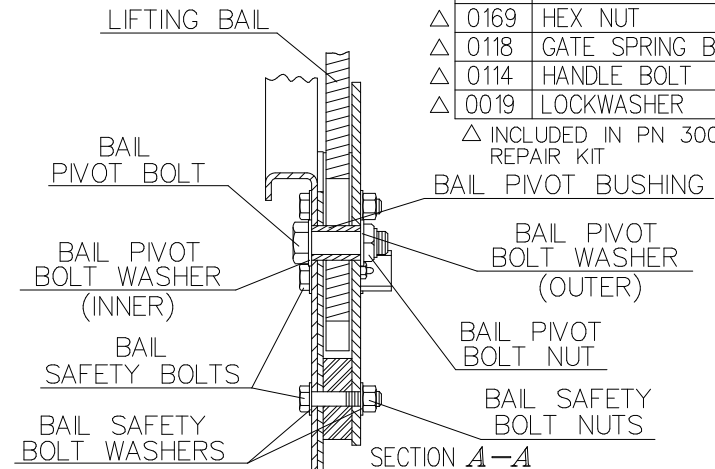
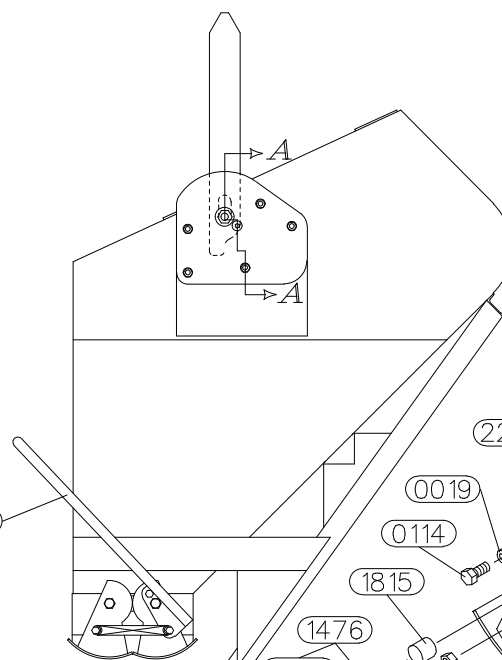
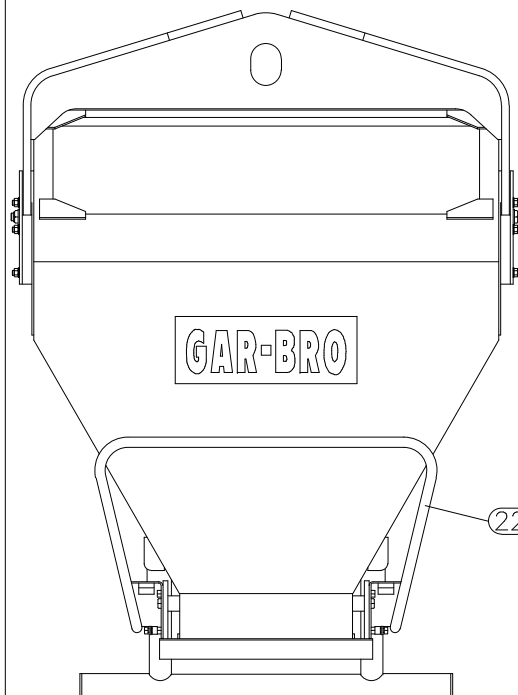
*** CALL THE FACTORY

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



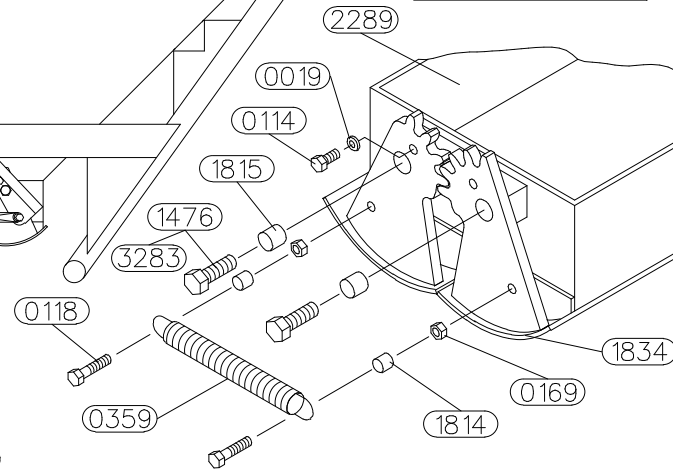
SECTION A-A

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

ITEM 446-L THRU. 4186-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
ITEM 4186-L BUILT AFTER FEB 2005 S.O. 4337

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



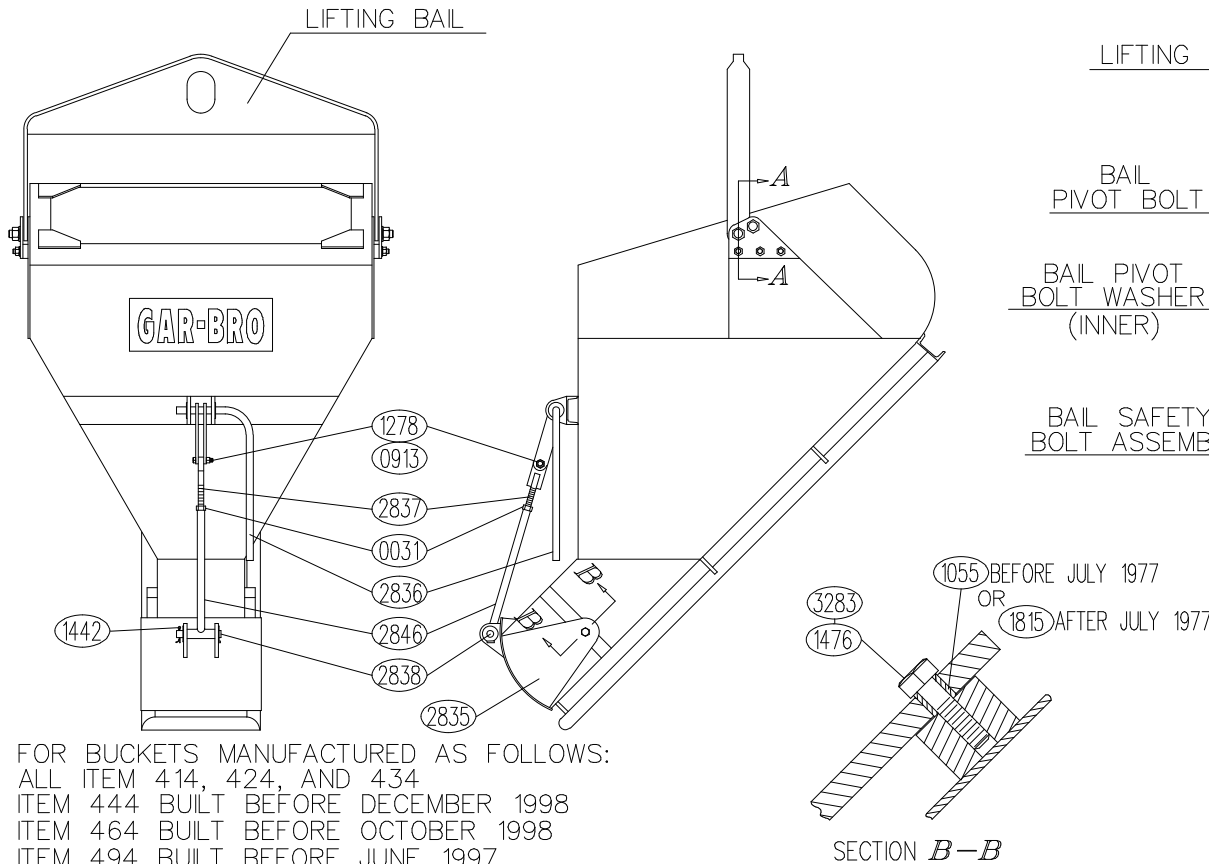
SCALE	NONE	SHOP NO.	SALES
DATE	7-9-01	SHIPPING CUBICS	
REVISED	5-2-12	DRAWING NO.	
MADE BY	DCG	01-55	
CHANGED TO/FROM			
SUPERSEDES		SHEET	A OF A

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 LEVER 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



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	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

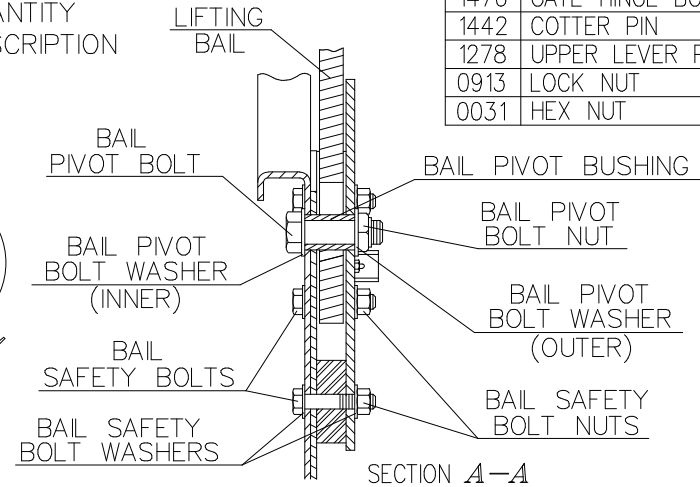
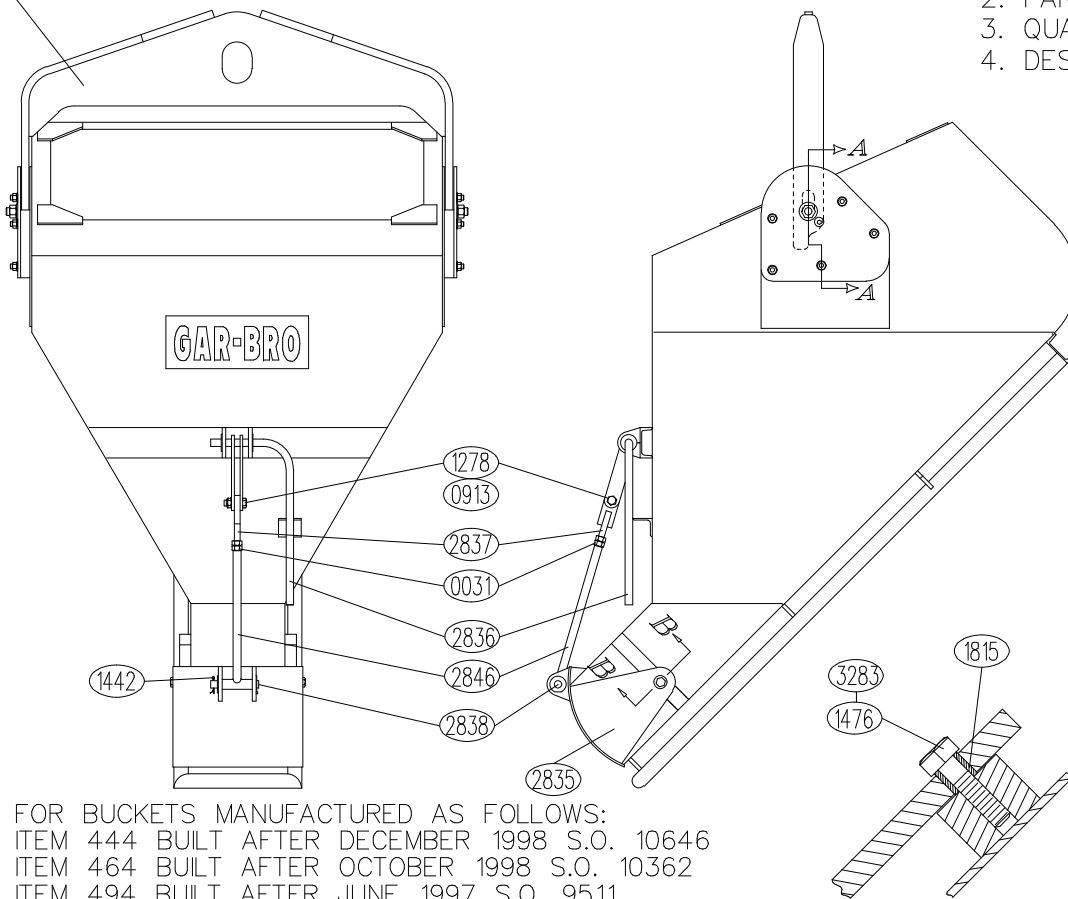
DESCRIPTION	444	464	494	4124
BAIL SAFETY BOLT	2704	2704	2703	1626
BAIL BOLT NUT	2245	2245	2245	1181
BAIL BOLT WASHER	2404	2404	2404	2185

PART #	DESCRIPTION
3283	THREAD LOCKING CMPD
2846	GATE LINK TO LEVER
2838	LOWER LEVER 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

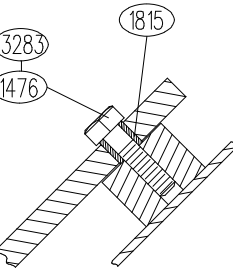
WHEN ORDERING PARTS, SPECIFY:

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			