



GAR-BRO BUCKET LIFTING BAIL INSPECTION RECOMMENDATIONS – G & R SERIES BUCKETS

The following are recommendations regarding GAR-BRO bucket bail inspection and wear limits. The details which follow are for our standard upright, round buckets - General Purpose "G" series and lightweight "R" series. 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.

WHERE TO FIND INFORMATION ON YOUR BUCKET

If you have a:	Then go to page:
“R” Series Lightweight Round Bucket	2
“G” Series General Purpose Round Bucket	3
A bucket not listed or just not sure	Call the factory

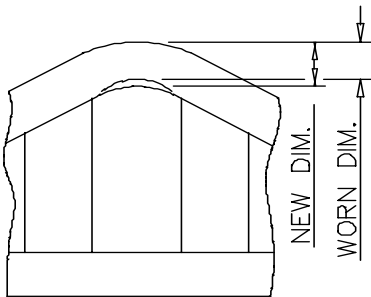
“R” SERIES LIGHTWEIGHT BUCKET BAILS

See GAR-BRO drawing 77-46 for the “R” series bucket parts breakdown. Lifting bails for the “R” series buckets are not available for installation by the customer. Factory installation of replacement lifting bails for any “R” series bucket may be available, depending on the bucket condition, by returning the affected bucket to the factory, freight prepaid, for evaluation.

A. Visually inspect the bail all over for general condition. Removal of concrete, rust, or other surface material that could hide any damage may be necessary. 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. Any cracks found are grounds for complete bail replacement before the bucket is returned to service. Distortion of the flat bars, which tie the upper and lower bars together in the center of the bail, is grounds for bail replacement.

Additionally, side loading of the “R” series bucket bails causing permanent distortion of the bail to the side requires bail replacement. This type of abuse is caused when the crane hook attached to the bucket bail is not directly below the end of the crane boom, lifting the bucket from the side and bending the bail over sideways.

Wear on the round bars that make up the bail on the “R” series buckets should be checked. Specific instructions and wear limits are as follows:



A. The lifting bail on all lightweight “R” series bucket requires replacement when either the top or bottom round bar (most likely the top bar) of the lifting bail wears such that the minimum thickness of the bar being measured is less than 75% of the original bar diameter. When measuring for wear, measure both the horizontal and vertical dimensions of all the round bars that make up the bail 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, on the top bar, and at the peak of the bail in the curved part of the bar. Use the

smallest measured value as the determining factor. The original diameter of the round bar

should be measured at some point on the straight portion of the bail that is clean and not subject to wear.

For example, the GAR-BRO Item 454-R two cubic yard lightweight bucket has a lifting bail fabricated from two pieces of 2 inch diameter round bar. When either the top or bottom round bars are worn such that any minimum measured dimension is less than 1 1/2 inches (or 75% of the original dimension), then the bucket should immediately be removed from service.

“G” SERIES GENERAL PURPOSE BUCKET BAILS

See GAR-BRO drawing 93-49 for the “G” series bucket parts breakdown. Lifting bails for the “G” series buckets are not available for installation by the customer. Factory installation of replacement lifting bails for the “G” series buckets may be available, depending on the bucket condition, by returning the affected bucket to the factory, freight prepaid, for evaluation.

A. Visually inspect the bail all over for general condition. Removal of concrete, rust, or other surface material that could hide any damage may be necessary. 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. Any cracks found are grounds for complete bail replacement before the bucket is returned to service.

Normal bail wear on the “G” series buckets is usually confined to the upper center of the cutout hole in the plate bail, and limits for this type of wear follow. Other wear patterns may be found in unique applications. Distortion of the lifting bail caused from placing one or more crane hooks in the bail hole that are wider than the cut out in the bail is a problem. In all cases, the “G” series buckets have hook-on holes 4 inches wide. This limits the crane hook size to about 20 tons. Larger hooks or multiple hooks can wedge into the hole, causing extreme side forces that literally spread the bail apart in the center. Evidence of this type of abuse is grounds for bail replacement.

Additionally, side loading of the “G” series bucket bails causing permanent distortion of the bail to the side requires bail replacement. This type of abuse is identical to that previously described, where the crane hook attached to the bucket bail is not directly below the end of the crane boom, lifting the bucket from the side and bending the bail over sideways.

Specific instructions and wear limits for “G” series bucket bails are as follows:

411-G and 413-G

A. The lifting bail on general purpose “G” series buckets in the 1/3 and 1/2 cubic yard sizes (411-G and 413-G, respectively) are round bar type bails and require replacement when the round bar of the lifting bail wears such that the minimum thickness of the bar being

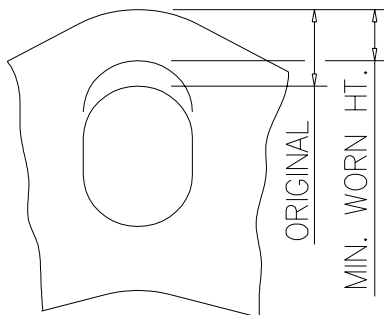
measured is less than 75% of the original bar diameter. When measuring for wear, measure both the horizontal and vertical dimensions of the round bar at a point where maximum wear is evident by inspection. The point of maximum wear will probably (although not absolutely) be in the center of the bail and at the peak of the bail in the curved part of the bar. Use the smallest measured value as the determining factor. The original diameter of the round bar should be measured at some point on the straight portion of the bail that is clean and not subject to wear.

For example, the GAR-BRO Item 411-G 1/3 cubic yard bucket has a lifting bail fabricated from 1 1/4 inch diameter round bar. When the round bar is worn such that any minimum measured dimension is less than 15/16 inches (or 75% of the original dimension), then the bucket should immediately be removed from service.

423-G thru 4123-G

A. The standard lifting bails on general purpose “G” series buckets in the 3/4 to 4 cubic yard sizes (423-G, 433-G, 442-G, 462-G, 493-G and 4123-G) are mild steel plate type bails with a 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 on the left. 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 peak of the bail in the curved part of the plate. Use the smallest measured value as the determining factor.

Bucket	Min. Worn ht.
423-G	1.75
433-G	1.75
442-G	2.25
462-G	3.00
493-G	2.75
4123-G	2.75



For example, the GAR-BRO Item 442-G 1 1/2 cubic yard bucket has a plate type lifting bail. When the distance from the top, inside edge of the bail hole is worn such that any minimum measured dimension is less than 2 1/4”, then the bucket should immediately be removed from service.

October 12, 2007

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

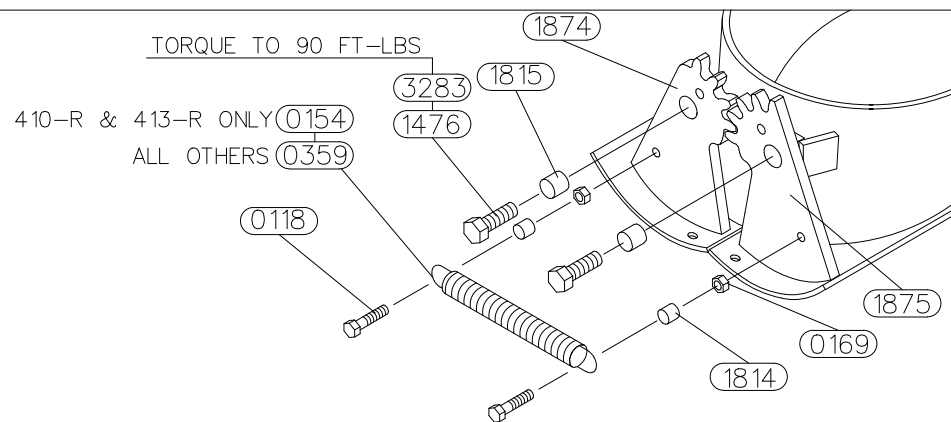
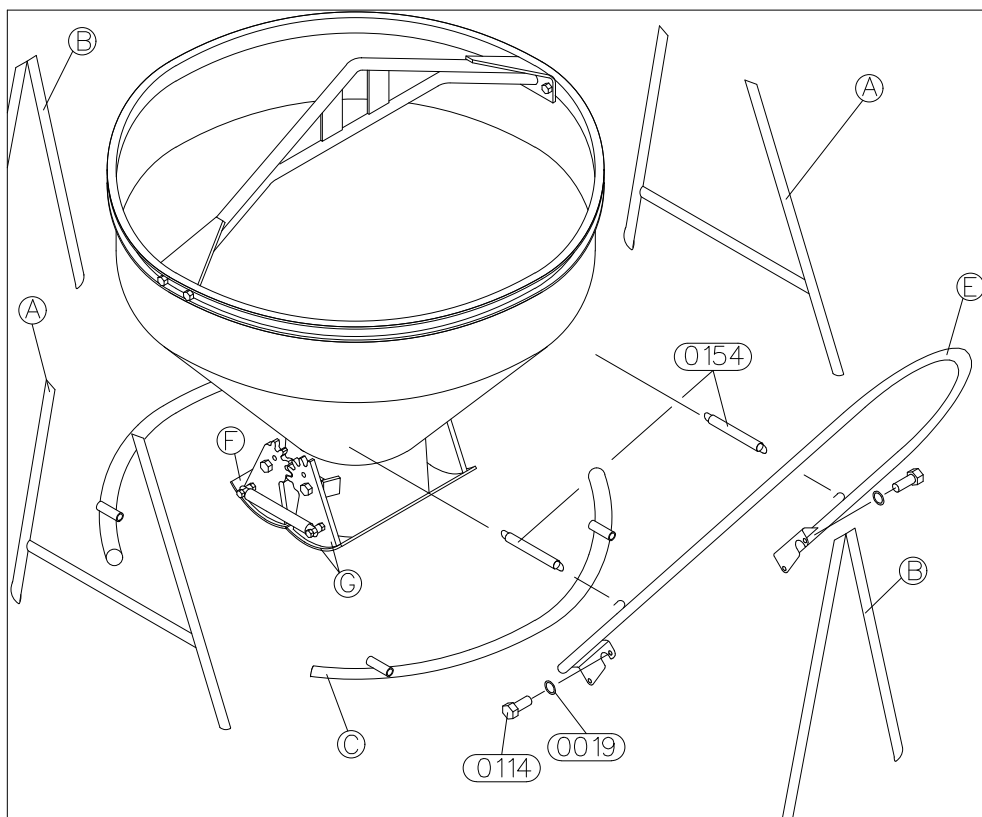
Attachments:

Dwg 77-46 Sheet A

Dwg 93-49 Sheet A

Dwg 00-73 Sheet A

Dwg 00-74 Sheet A



TORQUE TO 90 FT-LBS
 410-R & 413-R ONLY (0154)
 ALL OTHERS (0359)

PART NO.	DESCRIPTION
△ 0019	LOCKWASHER
△ 0114	GATE LEVER BOLT
△ 0118	GATE SPRING BOLT
⊕ 0154	GATE or LEVER SPRING
△ 0169	HEX NUT
△ 0359	GATE SPRING
△ 1476	PIVOT BOLT

PART NO.	DESCRIPTION
△ 1814	SPRING SPACER
△ 1815	PIVOT BUSHING
1874	RADIUS ARM, 4 TEETH
1875	RADIUS ARM, 5 TEETH
2620	R GATE COMPLETE
3002	R GATE REPAIR KIT
△ 3283	THREAD LOCKING CMPD

⊕ 440-R, 454-R, & 483-R

△ INCLUDED IN PN 3002 REPAIR KIT

WHEN ORDERING PARTS, SPECIFY:

1. THIS DRAWING NO: 77-46
2. PART NUMBER
3. QUANTITY
4. DESCRIPTION

GAR-BRO MANUFACTURING CO.
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PARTS LIST

"R" SERIES

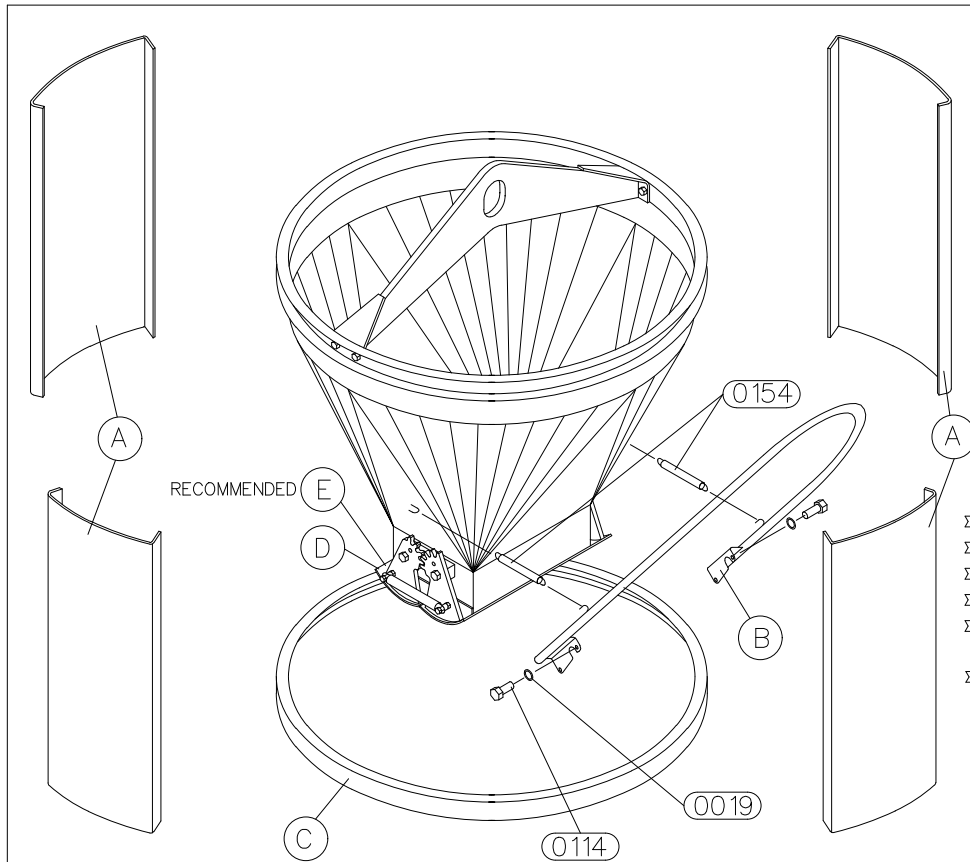
LIGHTWEIGHT ROUND-GATE BUCKETS

STANDARD 16" DIAMETER GATE

REF	DESCRIPTION	ITEM NUMBER						
		410-R	413-R	420-R	427-R	440-R	454-R	483-R
A	"A" LEG ASSEMBLY	2884	2885	2886	2887	2888	2889	2890
B	"V" LEG ASSEMBLY	2891	2892	2893	2894	2895	2896	2897
C	RING SECTOR, PIPE	2898	2899	2900	2901	2902	2903	2904
D	COMPLETE FRAME	2877	2878	2879	2880	2881	2882	2883
E	GATE LEVER	2905	2906	2907	2908	2909	2910	2911
F	GATE PLATE ONLY	2332	2332	2332	2332	2332	2332	2332
G	GATE PLATE / RADIUS ARM ASSEMBLY	2505	2505	2505	2505	2505	2505	2505

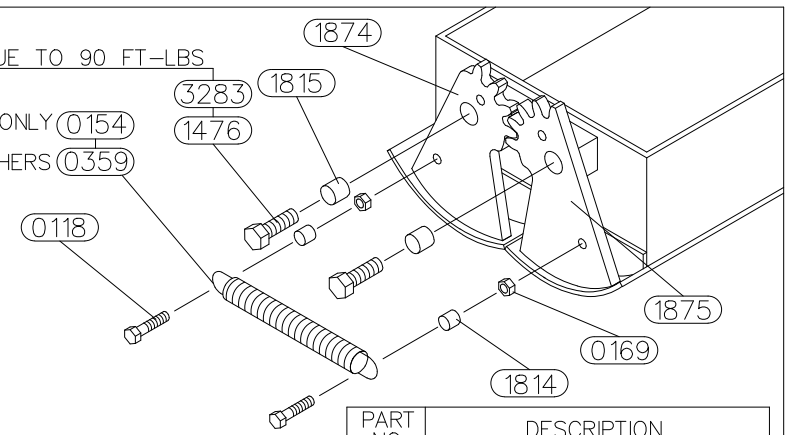
NOTE: RADIUS ARMS AND GATE PLATES MAY BE ORDERED SEPARATELY USING CORRESPONDING PART NUMBERS AS SHOWN - HOWEVER - FOR EASE OF ASSEMBLY AND PROPER GATE ALIGNMENT IT IS RECOMMENDED THAT THE "GATE PLATE / RADIUS ARM ASSEMBLY" - REF "G" - BE ORDERED. THE "GATE PLATE ASSEMBLY" IS FURNISHED COMPLETE WITH RADIUS ARMS ATTACHED AT EACH END - TWO GATE PLATE ASSEMBLIES ARE REQUIRED PER GATE.

SCALE	NONE	SHOP NO.	PARTS
DATE	10-24-95	SHIPPING CUBICS	
REVISED	11-28-07	DRAWING NO.	
MADE BY	BLC	77-46	
CHANGED TO/FROM			
SUPERSEDES			
		SHEET	A OF A



TORQUE TO 90 FT-LBS

411-G ONLY (0154)
ALL OTHERS (0359)



PART NO.	DESCRIPTION
☆△ 0019	LOCKWASHER
☆△ 0114	HANDLE BOLT
☆△ 0118	GATE SPRING BOLT
☆⊕ 0154	GATE or GATE LEVER SPRING
☆△ 0169	HEX NUT
△ 0359	GATE SPRING
☆△ 1476	PIVOT BOLT

PART NO.	DESCRIPTION
☆△ 1814	SPRING SPACER
☆△ 1815	PIVOT BUSHING
1874	RADIUS ARM, 4 TEETH
1875	RADIUS ARM, 5 TEETH
2289	15" x 22" GATE COMPLETE
3000	G GATE REPAIR KIT
411-G ONLY 3173	15" x 18" GATE COMPLETE
☆△ 3283	THREAD LOCKING CMPD
3309	411-G GATE REPAIR KIT

△ INCLUDED IN PN 3000 GATE REPAIR KIT
 ☆ INCLUDED IN PN 3309 411-G GATE REPAIR KIT
 ⊕ 442-G, 462-G, 493-G & 4123-G

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PARTS LIST

"G" SERIES

GENERAL PURPOSE BUCKETS

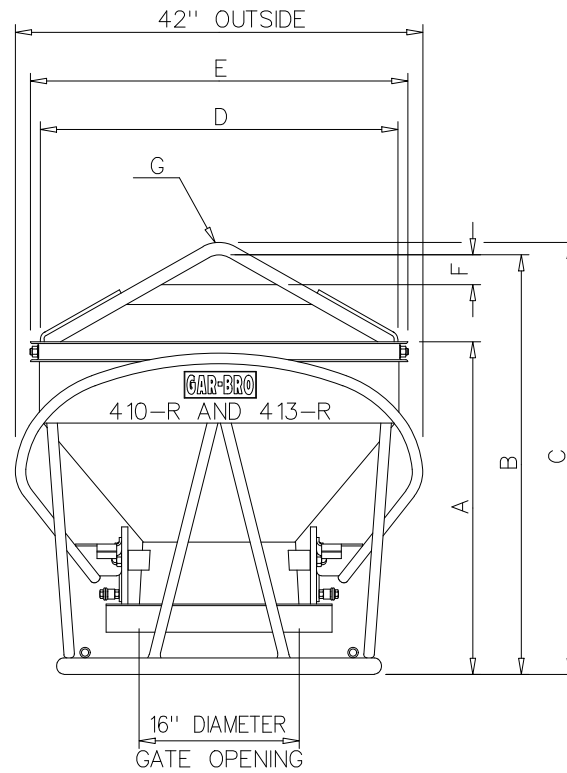
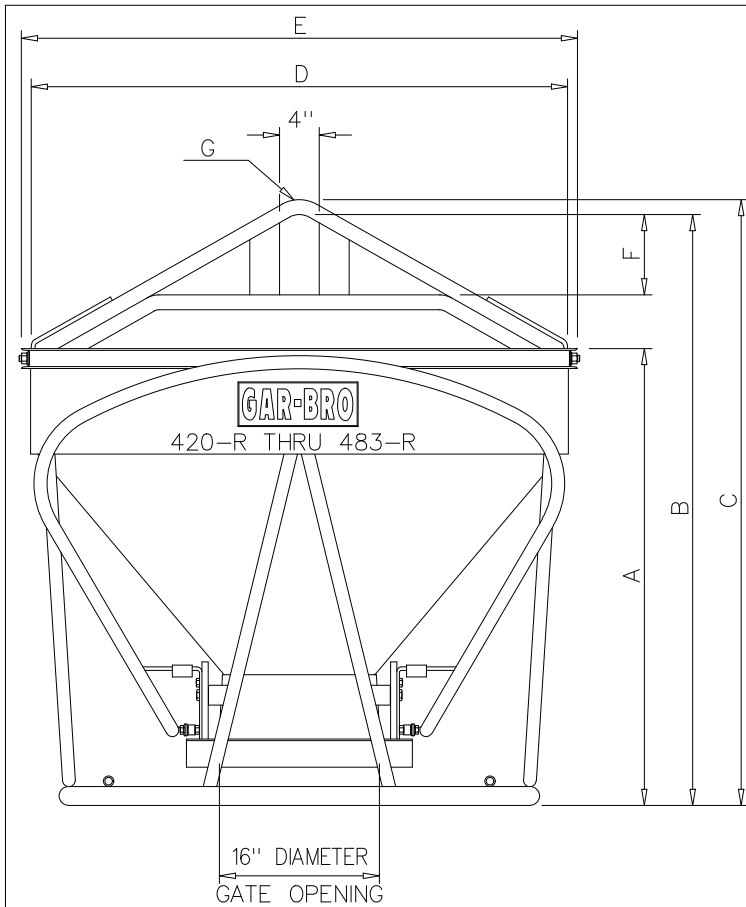
STANDARD 15"X18" OR 15"X22" GATE

REF	DESCRIPTION	ITEM NUMBER							
		411-G	413-G	423-G	433-G	442-G	462-G	493-G	4123-G
A	SKIRT PANEL	1820	1821	1822	1823	2145	2146	1845	1847
B	GATE LEVER	1824	1825	1826	1827	2147	2148	2148	2148
C	BOTTOM CHANNEL RING	1828	1829	1830	1409	366	2149	1852	1852
D	GATE PLATE ONLY	1831	1832	1832	1832	1832	1832	1832	1832
E	GATE PLATE ASSEMBLY	1833	1834	1834	1834	1834	1834	1834	1834

NOTE: RADIUS ARMS AND GATE PLATES MAY BE ORDERED SEPARATELY USING CORRESPONDING PART NUMBERS AS SHOWN - HOWEVER - FOR EASE OF ASSEMBLY AND PROPER GATE ALIGNMENT IT IS RECOMMENDED THAT THE "GATE PLATE ASSEMBLY" -REF "E"- BE ORDERED
 THE "GATE PLATE ASSEMBLY" IS FURNISHED COMPLETE WITH RADIUS ARMS ATTACHED AT EACH END - TWO GATE PLATE ASSEMBLIES ARE REQUIRED PER GATE

WHEN ORDERING PARTS, SPECIFY:
 1. THIS DRAWING NO: 93-49
 2. PART NUMBER
 3. QUANTITY
 4. DESCRIPTION

SCALE	NONE	SHOP NO.	PARTS
DATE	11-15-93	SHIPPING CUBICS	
REVISED	1-17-11	DRAWING NO.	
MADE BY	BLC	93-49	
CHANGED TO/FROM			SHEET A OF A
SUPERSEDES			

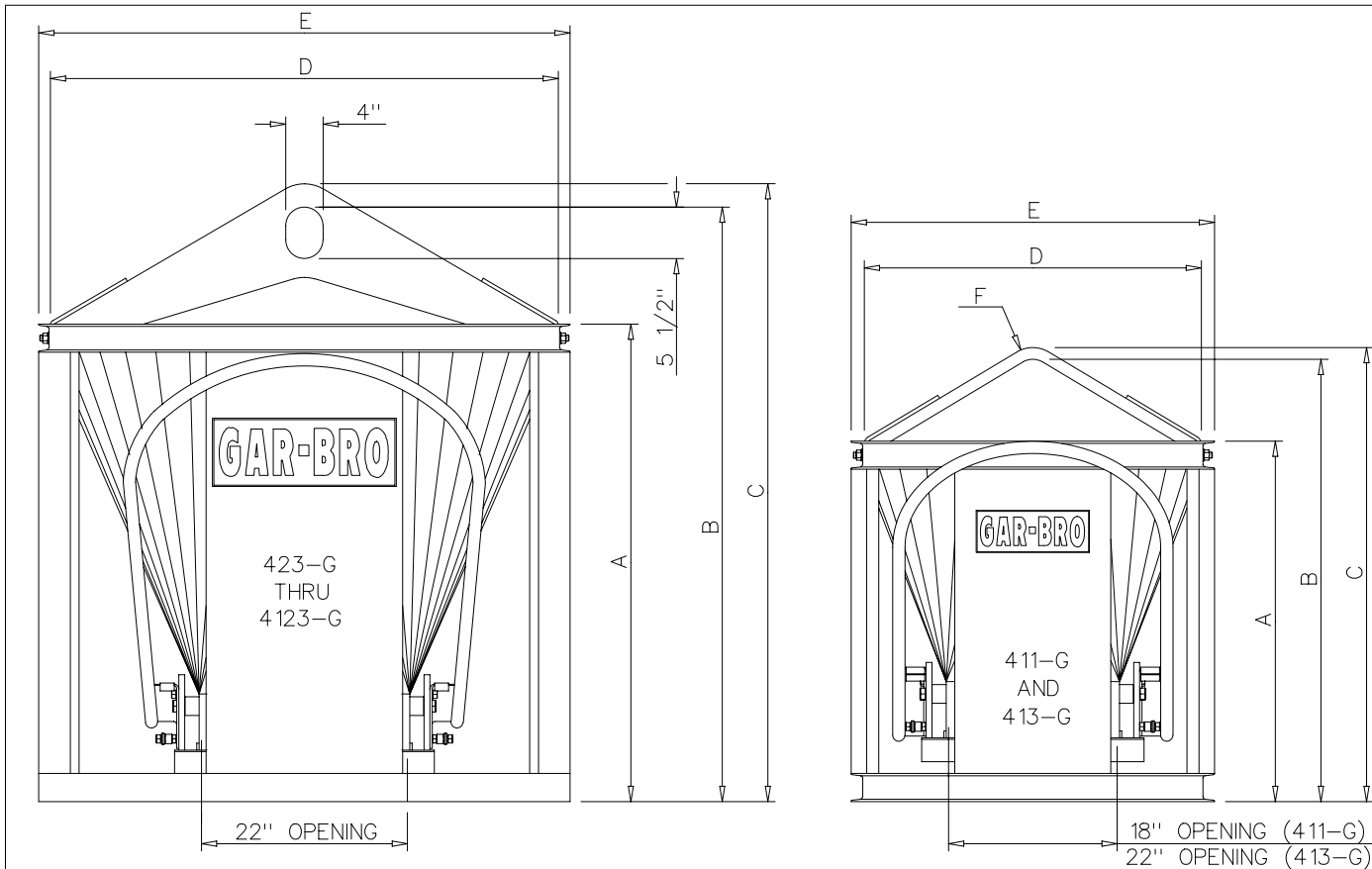


Item No.	Rated Capacity Cu.Yd	Loading Height A (in)	Suspended Height B (in)	Overall Height C (in)	Inside Diameter D (in)	Outside Diameter E (in)	Between Rnd Bar F (in)	Round Bar Dia. G (in)	Empty Weight (lbs)
410-R	1/3	34	42 3/4	44	36	38	3	1 1/4	237
413-R	1/2	41	50	51 1/4	36	38	3	1 1/4	257
420-R	3/4	45	55	56 1/4	45	47	4 1/2	1 1/4	330
427-R	1	46	60	61 1/2	54	56	8	1 1/2	400
440-R	1 1/2	53	68	69 1/2	60	63	8 1/2	1 1/2	500
454-R	2	59	73	75	66	70	7 1/2	2.0	675
483-R	3	72	87	89	66	70	9 1/2	2.0	760

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"R" SERIES - ROUND GATE LIGHTWEIGHT BUCKET SPECIFICATIONS

SCALE	NONE	SHOP NO.	SALES
DATE	12-04-00	SHIPPING CUBICS	
REVISED	1-12-10	DRAWING NO.	
MADE BY	BLC	00-73	
CHANGED TO/FROM			
SUPERSEDES	85-13	SHEET	A OF A



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"G" SERIES - GENERAL PURPOSE BUCKET SPECIFICATIONS

Item No.	Rated Capacity Cu.Yd	Gate Opening (in)x(in)	Loading Height A (in)	Suspended Height B (in)	Overall Height C (in)	Inside Diameter D (in)	Outside Diameter E (in)	Round Bar Dia. F (in)	Empty Weight (lbs)
411-G	1/3	15 x 18	35	44	46	36	39	1 1/4	355
413-G	1/2	15 x 22	38	48	51	42	45	1 1/2	420
423-G	3/4	15 x 22	46	57	60	48	51	-	565
433-G	1.0	15 x 22	51	64	67	54	57	-	615
442-G	1 1/2	15 x 22*	55	69	72	60	64	-	795
462-G	2.0	15 x 22*	58	73	78	68	72	-	1045
493-G	3.0	15 x 22*	72	88	91	68	76	-	1445
4123-G	4.0	15 x 22*	85	98	101	68	77	-	1825

* OPTIONAL 22" x 32" GATE AVAILABLE

SCALE	NONE	SHOP NO.	SALES
DATE	12-04-00	SHIPPING CUBICS	
REVISED	9-14-05	DRAWING NO.	
MADE BY	BLC	00-74	
CHANGED TO/FROM			
SUPERSEDES	83-56	SHEET	A OF A