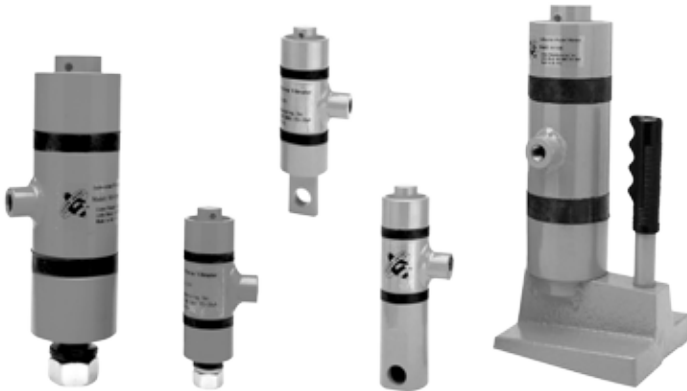


**Pneumatic
Piston Vibrators**
*Operating
Instructions*

**Yellow Jacket®
Piston Vibrators**



Industrial Piston Vibrators



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SAFETY PRECAUTIONS

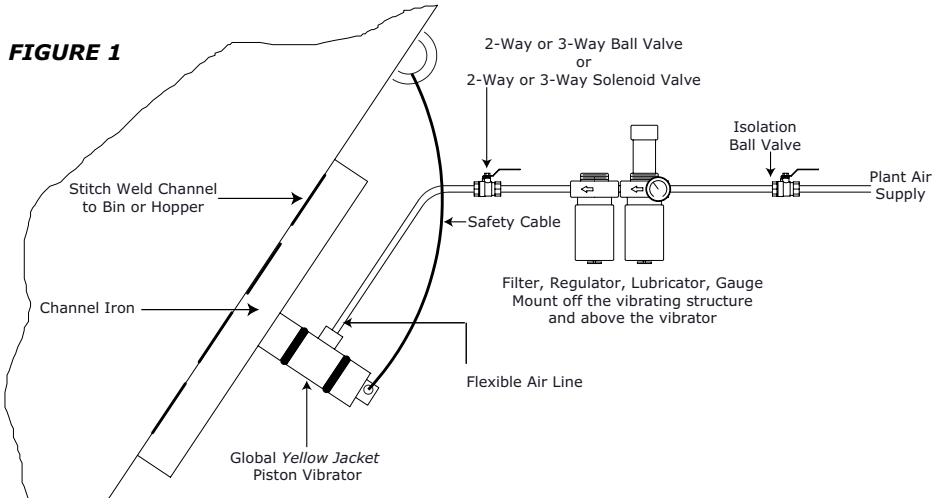
- Follow installation procedures.
- Use Grade 5 NF (National Fine) thread bolts to fasten vibrator.
- Hearing protection may be required when decibel level is above 90+ dBA.
- Disconnect air line and protect inlet port during installation, maintenance, or repair.
- Use regulated air. Do not operate above 80 psi (5.4 BAR).
- Use lubricated (SAE 10 weight) and filtered (50 micron or finer) air.
- Maximum operating temperature 200°F (93°C).
- To avoid damage to structure, do not operate the vibrator when the structure is empty.

Installation Procedures

1. Prime vibrator through the air inlet side port with 3 drops of SAE 10 weight non-detergent, non-gumming petroleum oil designed for air tools.
2. Shake the vibrator to determine that the piston is moving freely and to help distribute the oil. A start spring will return the piston to its starting position inside the vibrator (not provided or needed in 3" Railcar pistons). **The elastic exhaust port seals (two black bands) must be in place** as shown in FIGURE 2, page 3.
3. The vibrator has a threaded stud in one end. Use a Grade 5 NF (National Fine) thread nut to mount the vibrator (nut and washer included). This stud and nut will accommodate most mounting surfaces.
4. Any mounting bolt may be used as long as it is Grade 5 NF and the threads meet or exceed the minimum length of engagement in TABLE III, page 9.
5. Mount vibrator on a standard structural channel iron that is clean and flat (FIGURE 8, page 6). The channel iron should be no more than 1 inch (25.4 mm) wider than the vibrator base and the length should be at least two times as long as the height of the vibrator. Skip weld channel iron flanges to the bin wall or the structure to be vibrated. **Do not weld the ends of the channel iron to the structure.**
6. Use a lock washer (provided) between the nut and the channel iron (FIGURE 10) or weld the nut to the channel iron (FIGURE 11). See page 6 for FIGURES 10 & 11.
7. Apply Loctite® 242 thread locker or equivalent, to mounting stud, and torque to recommended torque listed in TABLE II, page 8.
8. Securely attach flexible air line to the nylon hose barb in the inlet port with at least 12 inches (200 mm) of slack near the vibrator's side inlet. A nylon hose barb is better than brass. A brass fitting is more likely to fatigue and break off due to the vibration.
9. The size of the air line must be equal to or larger than the inlet port of the vibrator. **Place operating valve and FRL within 6 feet (1829 mm) of vibrator. Make sure operating valve is between the FRL and the vibrator.**
10. **The elastic exhaust port seals (two black bands) must be in place** as shown in FIGURE 2, page 3.
11. Start vibrator and operate for 5 minutes. Check lubrication.
12. After 2 hours of operation, make sure vibrator mount is tight.

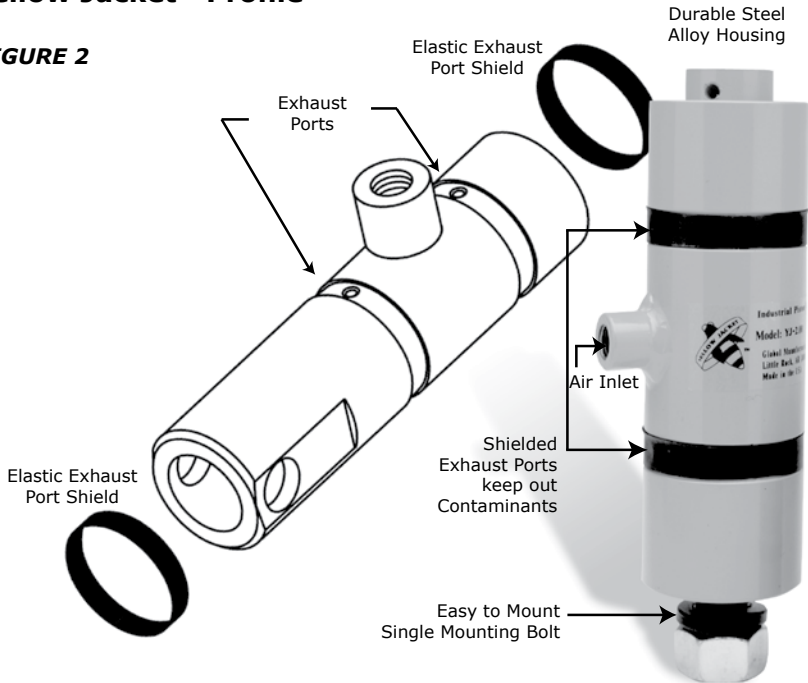
Accessories & Channel Iron Mount Configuration

FIGURE 1



Yellow Jacket[®] Profile

FIGURE 2



Filtration - Lubrication

Operate the Global *Yellow Jacket* piston vibrator on:

- **filtered air - 50 micron or finer**
- **regulated air - 80 psi (5.4 BAR) maximum**
- **lubricated air - SAE 10 weight oil - non-detergent & non-gumming**

It is important to select the proper FRL (filter-regulator-lubricator) to match the requirements of the piston vibrator. Global recommends a Micro-Fog type lubricator. Lack of lubrication or excessive lubrication will reduce the power and may damage the vibrator.

Locate FRL no more than 6 feet (1829 mm) from vibrator. Place at a level even with or above the vibrator, but not on the surface being vibrated. Proper location of the FRL keeps oil mist in suspension in the air line. See FIGURE 1, page 3. Check oil level and filter periodically.

How much lubrication?

While the vibrator is operating, place your hand about 1/2" (12.7 mm) from an exhaust port of the vibrator and keep it there for about 30 seconds. The exhaust ports are located beneath the black elastic exhaust port seals (FIGURE 2, page 3). Two exhaust ports are on the same side as the air inlet port and the other two are 180° from those. **Do not remove the exhaust port seals.** A light film of oil will form on your hand if the vibrator is receiving proper lubrication. If no film of oil is visible, increase the lubrication rate until the film appears. Check the FRL manufacturer's recommendation on oil drip rate.

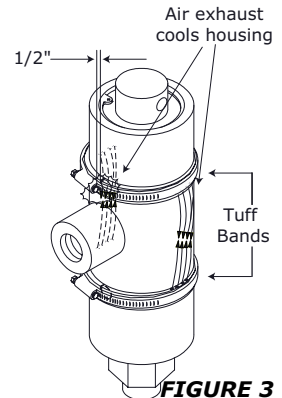
Exhaust Port Seals:

The vibrator is designed with special elastic seals to prevent contaminants from entering the vibrator's exhaust ports.

Tuff Band Seals:

Rugged exhaust port shields keep contaminants out of housing. Tolerates harsh environments and rough handling. Engineered to cool vibrator. Standard on Railcar models. See page 5 for replacement instructions.

Exhaust Port Seals		
Model #	Part #	Use With
EPS-1.00	270325	YJ-1.00
EPS-1.25	270330	YJ-1.25
EPS-1.50	270340	YJ-1.50
EPS-2.00	270350	YJ-2.00
EPS-3.00	270375	YJ-3.00



Tuff Band Kits available: TBK2 (pn 270451) for 2" and TBK3 (pn 270476) for 3" piston vibrators.

Operation:

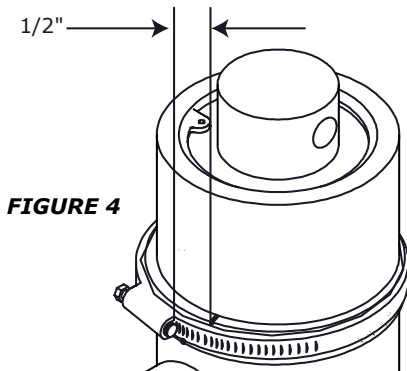
Yellow Jacket piston vibrators have been tested at pressures above 100 psi (6.9 BAR). It is strongly recommended not to operate them above 80 psi (5.4 BAR).

Operation Valve:

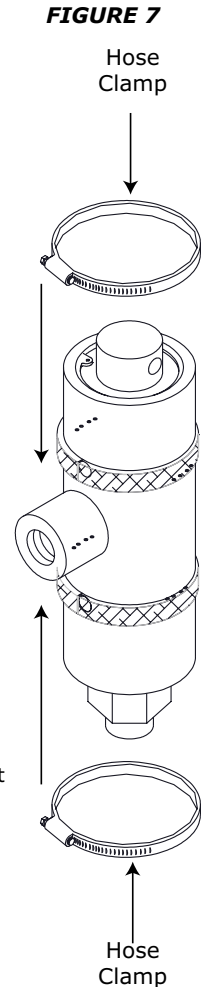
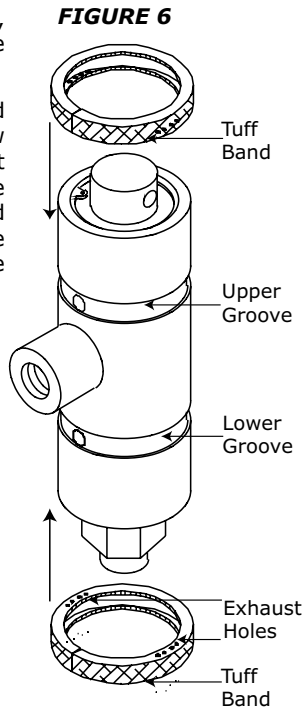
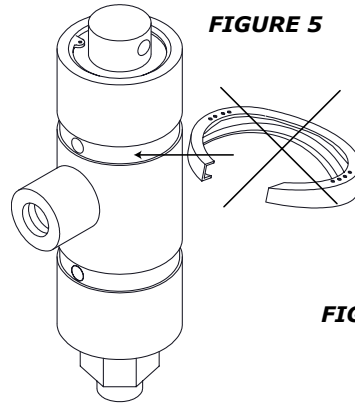
Use an operation valve, 2-way or 3-way manual ball valve, or a solenoid valve to assure reliable start and operation. **Place operating valve within 6 feet (1829 mm) of vibrator and between FRL and vibrator.** Start at the lowest pressure and increase the vibrator speed until the desired results are obtained. **When the operation valve is closed, the air pressure in the vibrator and the air line must bleed off (exhaust) before the vibrator will restart.** If instant re-starting is necessary, use a 3-way valve that will immediately bleed off the line pressure when closed. Use a muffler on the exhaust port of the 3-way valve to protect from contaminants.

Installing Tuff Band Exhaust Shields

1. Remove the existing exhaust port seals and clean grooved areas.
2. Place vibrator in upright position on a flat surface.
3. **Do not insert the ring over the side of the housing.** This will distort and ruin the exhaust shield. Place the ring with the 8 exhaust holes facing downward on top of the housing. **Open the ring slightly, so that it will slide down the housing.** Position the exhaust shield in the upper groove of the housing.
4. Place the second ring up through the bottom of the housing with the exhaust holes facing upward. Slide the exhaust ring up into the lower groove of the housing. The exhaust ports of the two rings should face each other. If unit is already mounted, carefully slip lower ring by inlet spud to the lower groove.
5. Slip one of the hose clamps around the top exhaust shield. Position the screw $1/2"$ to the side of the split in the exhaust shield. Point the end of the screw in the direction of the split. Position the free end of the hose clamp so that it pulls across the split, helping close and seal the split in the shield. Tighten the clamps securely.



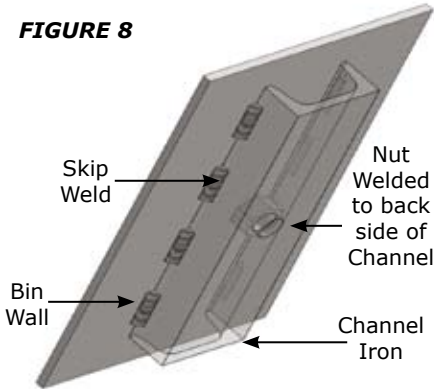
6. Place 2 drops of Loctite® 262 thread adhesive on screw threads of clamp.
7. Place the second hose clamp around the bottom exhaust shield. Repeat steps 5-6.
8. Let the thread adhesive dry a minimum of 3 hours before use.



Installation Instructions for Safety Mount Kit

1. Skip weld mount channel to bin wall at 1" intervals, but do **not** weld ends of channel. Use "low hydrogen" filler equivalent to E7018 rod.

FIGURE 8



2. Apply Loctite[®] to threads of stud. Screw vibrator to mount. NOTE: A nut is welded to the inside of the mount channel. You do not need the lock washer if nut is welded to channel iron.

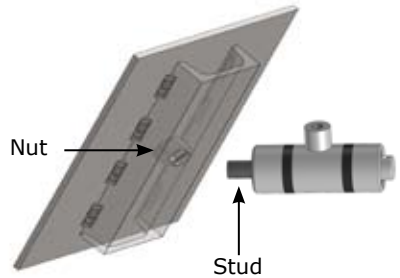


FIGURE 11

3. Using tools shown, tighten vibrator to mount until "solid".

FIGURE 9

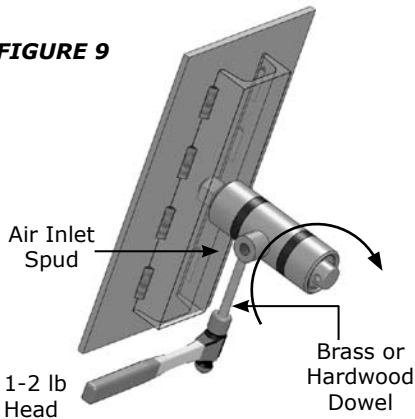
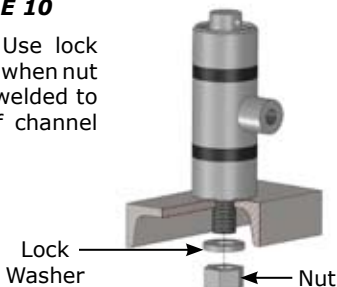


FIGURE 10

NOTE: Use lock washer when nut is **not** welded to back of channel iron.



4. Weld safety cable attachment ring to a surface, which is not vibrated, above the vibrator. Loop cable through the hole in the vibrator cap and secure with the cable clamp. Leave some slack in the cable. Screw in the nylon hose barb until it seals in the inlet spud. Use a hose clamp to attach airline to nylon barb.

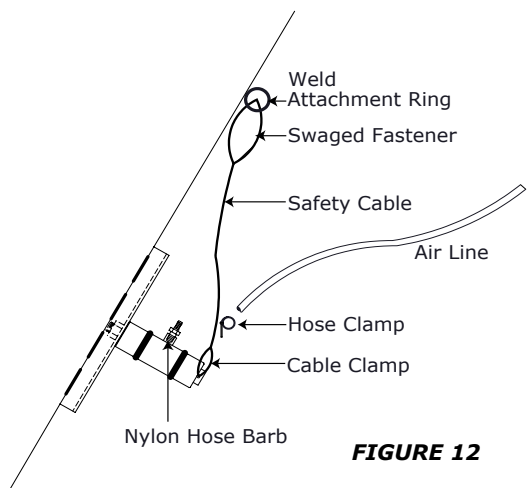


FIGURE 12

TABLE I

Performance Data for Yellow Jacket Piston Vibrators

VIBRATOR MODEL	AIR PRESSURE								
	40 PSI (2.8 BAR)			60 PSI (4.1 BAR)			80 PSI (5.4 BAR)		
	SPEED	FLOW	FORCE	SPEED	FLOW	FORCE	SPEED	FLOW	FORCE
	CPM	CFM	LBS	CPM	CFM	LBS	CPM	CFM	LBS
	LPM	KN	LPM	KN	LPM	KN	LPM	KN	
IMPACT									
YJ-1.00-IM	4800	3.0	450	6000	4.9	1000	7400	5.5	1250
		85	2.0		139	4.4		156	5.6
YJ-1.25-IM	3700	4.0	770	4800	6.0	1620	6000	10.5	2400
		113	3.4		170	7.2		297	10.7
YJ-1.50-IM	3200	5.0	1300	4100	9.0	2700	4800	11.0	3600
		142	5.8		255			311	
YJ-2.00-IM	2400	6.5	3200	3000	13.5	5200	3500	19.0	7000
		184	14.2		382	23.1		538	31.1
YJW-2.00-IM*	2400	6.5	3200	3000	13.5	5200	3500	19.0	7000
		184	14.2		382	23.1		538	31.1
YJW-3.00-IM*	1600	12.5	6800	2000	21.0	10000	2200	29.0	13300
		354	30.2		595	44.5		821	59.2
AIR-CUSHIONED									
YJ-1.00-AC	3700	3.0	16	4400	5.0	26	5200	6.0	40
		85	0.1		142	0.1		170	0.2
YJ-1.25-AC	3100	4.5	21	3500	6.0	31	4000	10.0	46
		127	0.1		170	0.1		283	0.2
YJ-1.50-AC	2700	6.0	60	3000	11.0	100	3300	14.0	135
		170	0.3		311	0.4		396	0.6
YJ-2.00-AC	2000	7.5	120	2200	14.0	195	2400	23.0	270
		212	0.5		396	0.9		651	1.2
YJW-2.00-AC*	2000	7.5	120	2200	14.0	195	2400	23.0	270
		212	0.5		396	0.9		651	1.2
YJW-3.00-AC*	1300	13.0	225	1500	21.0	360	1700	30.0	500
		368	1.0		595	1.6		850	2.2
RAILCAR									
YJR-2.00-IM*	2400	6.5	3200	3000	13.5	5200	3500	19.0	7000
		184	14.2		382	23.1		538	31.1
YJR-3.00-AC*	1300	13.0	225	1500	21.0	360	1700	30.0	500
		386	1.0		595	1.6		850	2.2
MATCHPLATE									
YJM-1.00-IM	4800	3.0	450	6000	4.9	1000	7400	5.5	1250
		85	2.0		139	4.4		156	5.6
YJM-1.25-IM	3700	4.0	770	4800	6.0	1620	6000	10.5	2400
		113	3.4		170	7.2		297	10.7
SCREED									
YJS-1.00-IM	4800	3.0	450	6000	4.9	1000	7400	5.5	1250
		85	2.0		139	4.4		156	5.6

All force data exceeding 4800 LBS is estimated.

15-20 PSI (1-1.4 BAR) required for start-up.

* Models come with special wear resistant coated pistons.

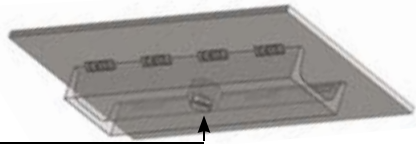
TABLE II

Yellow Jacket Channel Iron Mount Dimensions						
Model	Sizing Bin Wall Thickness (mm)	Channel Iron Size				Mount Stud Max Torque
		Channel Iron Size	Minimum Length (mm)	Web Thickness		
				MAX (mm)	MIN (mm)	
YJ-1.00 AC or IM	1/16" - 1/8" (1.6 - 3.2)	2 x 1 x 3 /16"	8" (200)	3/8" (9.5)	3/16" (4.8)	96 ft-lbs (130 N-M)
YJ-1.25 AC or IM	1/16" - 1/8" (1.6 - 3.2)	2 x 1 x 3/16"	10" (250)	3/8" (9.5)	3/16" (4.8)	150 ft-lbs (200 N-M)
YJ-1.50 AC or IM	3/16" - 1/4" (4.7 - 6.3)	C3 x 5	12" (300)	1/2" (13)	1/4" (6.5)	150 ft-lbs (200 N-M)
YJ-2.00 AC or IM	3/16" - 1/4" (4.7 - 6.3)	C3 x 5	16" (400)	1/2" (13)	1/4" (6.5)	300 ft-lbs (400 N-M)
YJ-3.00 AC or IM	1/4" - 3/8" (6.3 - 9.5)	C4 x 7.25	24" (600)	1/2" (13)	21/64" (8.2)	500 ft-lbs (680 N-M)
YJR-2.00 YJR-3.00	Wedge Base for Railcar					500 ft-lbs (680 N-M)

Yellow Jacket Mount Kits are available.

Mount kit includes:

- Channel iron with nut welded to back side
- Safety cable
- Anchor ring
- Hose barb
- Hose clamp



Yellow Jacket Mount Kits				
Model	Part #	Use With	LBS	KGS
PMK-1.00	161100	YJ-1.00	1.8	.82
PMK-1.25	161125	YJ-1.25	2.2	1.00
PMK-1.50	161150	YJ-1.50	5.4	2.43
PMK-2.00	161200	YJ-2.00	7.1	3.22
PMK-3.00	161300	YJ-3.00	15.2	6.89

See **FIGURE 12**, on page 6 for safety cable attachment illustration.

TABLE III

Mount Stud Thread Engagement			
Model	Minimum Mount Stud Length of Engagement	Mount Hole for use with factory supplied stud/nut	
		Mount Hole Diameter	Maximum Hole Length
YJ-1.00 AC or IM	3/8" (9.5)	5/8" (16)	3/8" (9.5)
YJ-1.25 AC or IM	7/16" (11)	11/16" (18)	3/8" (9.5)
YJ-1.50 AC or IM	9/16" (14)	11/16" (18)	1/2" (13)
YJ-2.00 AC or IM	13/16" (20)	15/16" (24)	1/2" (13)
YJ-3.00 AC or IM	1 1/8" (28)	1 3/8" (35)	1/2" (13)

The vibrator may be mounted with a Grade 5NF bolt however, if the minimum length of engagement is less than required, the vibrator threads may strip before proper torque can be applied to the mount bolt.

FIGURE 13

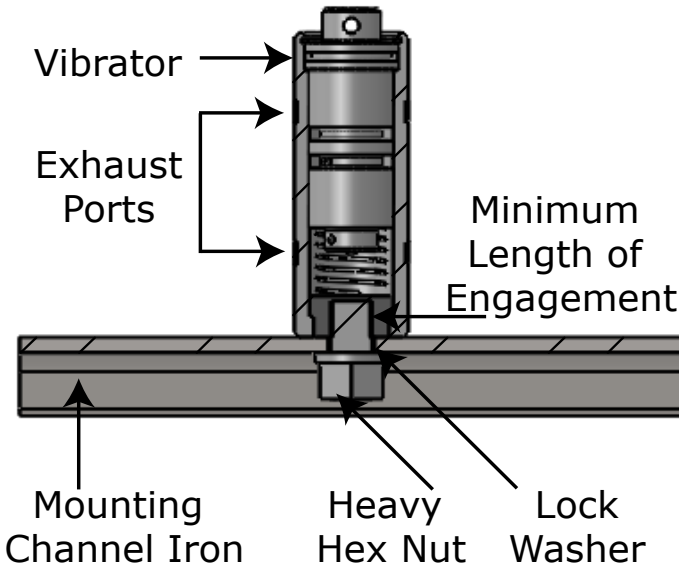
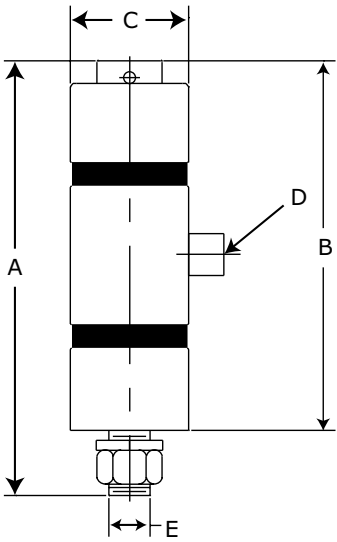


TABLE IV

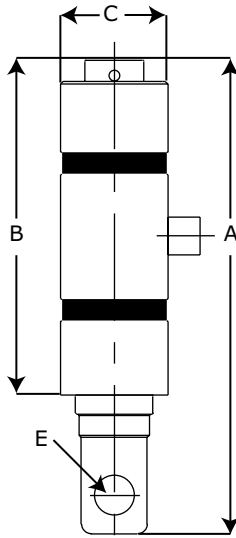
Yellow Jacket Piston Vibrators Dimensions						
MODEL AC or IM	WEIGHT	A	B	C	D	E
		TOTAL LENGTH	HOUSING LENGTH	WIDTH	INLET	MOUNT BOLT
	LBS	IN	IN	IN	IN	IN
	KG	MM	MM	MM	NPT	
YJ-1.00	1.25	4.75	4.00	1.38	1/4	1/2
	0.57	121	102	34.9		
YJ-1.25	2.25	5.88	5.13	1.63	1/4	5/8
	1.02	149	130	41.3		
YJ-1.50	3.13	7.13	5.94	1.88	1/4	5/8
	1.42	181	151	47.6		
YJ-2.00 YJW-2.00	7.75	9.19	7.88	2.50	1/4	7/8
	3.52	233	200	63.5		
YJW-3.00	21.50	12.88	11.30	3.50	3/8	1 1/4
	9.75	327	287	88.9		
YJR-2.00	22.00	10.81	N/A	2.50	1/4	6.5 X 6
	9.98	275		63.5		Wedge Base
YJR-3.00	35.75	14.25	N/A	3.50	3/8	6.5 X 6
	16.22	362		88.9		Wedge Base
YJM-1.00	1.45	5.53	4.00	1.38	1/8	1/2 Hole
	0.66	141	102	34.9		Matchplate Base
YJM-1.25	2.45	6.39	5.13	1.63	1/4	1/2 Hole
	1.11	162	130	41.3		Matchplate Base
YJS-1.00	1.55	5.50	N/A	1.38	1/8	17/32 Hole
	0.70	140		34.9		Screed Base

AC & IM models have the same dimensions.

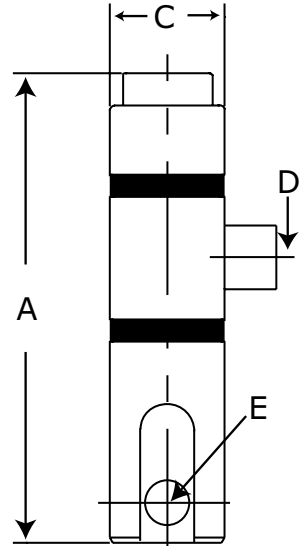
**YJ & YJW
 Standard Models
 including wear
 resistant**



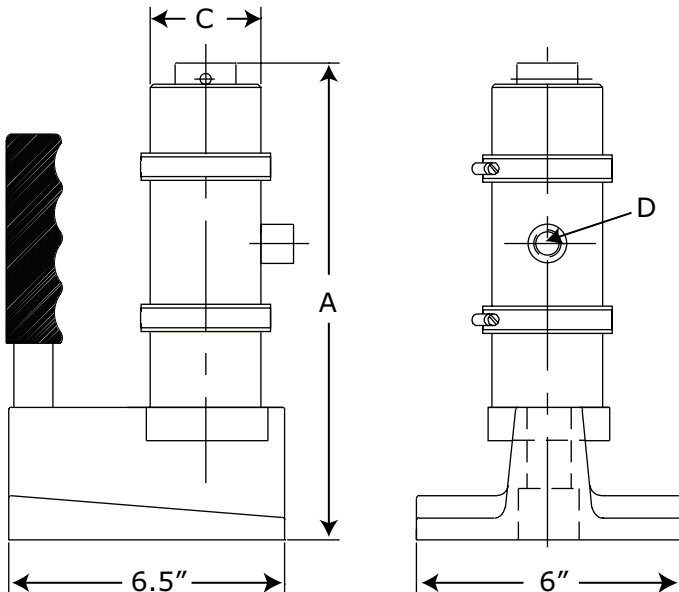
**YJM
 Matchplate**



**YJS
 Screed**



**YJR
 Railcar**



Troubleshooting

PROBLEM	PROBABLE CAUSE	SOLUTION
Vibrator will not start or runs slowly	Inadequate air supply	Check for proper connection to inlet port. Check for leaks or restrictions in line. Make sure air line size is equal to, or larger than the vibrator's inlet port. A burst of air pressure is required to start the vibrator. Operating valve must be within 6 feet of vibrator. For quick restart of the vibrator, a 3-way operating valve may be required to bleed off (exhaust) the line pressure when valve is closed.
	Inadequate lubrication	Check lubrication. Prime vibrator with 3 drops of oil into the inlet port, then shake the vibrator up and down. Set FRL to manufacturer's recommendations with SAE 10 weight, non-gumming, non-detergent type petroleum oil designed for air tools.
	Restriction of exhaust ports	Check ports and operating valve for obstructions. Replace worn elastic port seals. Use a muffler on the exhaust port of the 3-way operating valve to prevent contaminants from entering valve.
	Piston not returning to start position against the cap due to broken start spring	Replace spring. Install a start spring when the model YJR-3.0 railcar vibrator (or metric YJR-75) is mounted near the horizontal position. The YJR-3.0 (and metric model) is not supplied with start spring.
	Contaminants in vibrator	Do not disassemble to clean the vibrator. Contact the factory for help. Check air filter of the FRL. Use a 50 micron filter in the FRL. Replace elastic exhaust port seals.
Exhaust port seals melted or missing	Inadequate lubrication	Increase lubrication. Use filter/regulator/lubricator (FRL). Replace exhaust port seals.
	Exhaust port seals removed during installation	Replace exhaust port seals.
	Excessive air pressure - long term operations above 80 psi	Reduce operating pressure below 80 p.s.i. (5.4 BAR). Use an FRL. Replace exhaust port seals.
Brass hose barb breaks off	<i>Yellow Jacket</i> vibration is too stressful on brass hose barb.	Replace with nylon hose barb.
Breakage around mount stud	Flimsy mount	Stiffen mount to prevent flexing at vibrator base.
	Excessive air pressure	Reduce operating pressure below 80 psi (5.4 BAR). Use an FRL.
	Over-torque of mount bolt or stud	Use recommended torque (TABLE II, Page 8). Mount vibrator 'solidly', but not over-tightened.