



MatJack is a division of Indianapolis Industrial Products, Inc.
1441 Sadlier Circle, West Drive Indianapolis, Indiana 46239 317.359.3078 FAX 317.359.3079
<mailto:matjack@sprynet.com> Or Call 1-800-827-3755 for more information

CONGRATULATIONS

You may soon be receiving a set of air cushions carrying the proud name of "SAFELIFT" and the trade mark "JUMBO".

Possibly you have bought a set of used cushions of the BIG ORANGE series. Whichever type you have, you will to read the following guidelines in order to put them to work in a safe and profitable manner.

STEP ONE: Open the box!

PLEASE COMPARE WHAT IS IN THE BOX (ES) WITH THE INVOICE WE SENT YOU, AND MAKE SURE YOU IDENTIFY EACH PIECE.

If you note any shortage or breakages, you have 7 days to report it to us or the carrier, and YOU SHOULD NOT SIGN FOR ANY DAMAGED GOODS. Once you do that, you carry responsibility and we cannot make up any shortages or damages.

Note: We do NOT include recovery straps in our kits, as 95% of all buyers already have them, but you need at least two, 26ft by 6in)

Usually your kit will consist of the following elements:

1. **THE HI-LIFT CUSHIONS.** Four or five depending on what you ordered. 48 in square and made from a special tear resistant material, these cushions have two or more 12" canvas/nylon straps inside, which, when the cushion is inflated, help give them a flat top and bottom correctly angled to meet the ground and the load. Please note that the top and bottom surfaces are covered with 1/4" thick grip face material, in which you will find small breathing holes, since should the cushions get hot the orange surface will expand at a different rate to the black grip face. Also air must be allowed into the space between the two materials to allow them to dry out fully if they have become wet. Please note also the 1in air inlet and nearby handles. NEVER DRAG A CUSHION BY ITS AIR INLET: IT IS NOT MADE FOR THAT PURPOSE. ALWAYS USE THE CARRYING HANDLES. Into this cushion we will be pumping air at up to 9 lb p.s.i. and it will become rock hard.

2. **THE STARTER CUSHIONS.** In order to use the larger cushion, it's necessary to have a smaller cushion to start the load on its way, and this we call a starter for obvious reasons. It will usually be about 36"x36", with a smooth hard top and bottom, 1" high deflated. You seldom need to inflate it over 6", as I will explain in the procedure we will use.

It is vital that a starter works at 9-10 lbs p.s.i., otherwise it won't work with these modern 54ft trailers. Even with this pressure you will frequently find you have to use two at one end to start the load rising.

3. **A MOBILE COMPRESSOR.** The product of years of practical experience, this deceptively simple looking compressor is designed to give you years of trouble-free use with the minimum of maintenance. We have found the 5 hp Honda engine to be extremely reliable under all conditions, and the direct drive means that there are no belts to break. The rotary vane, oil-less compressor is designed to pump 60-70 cu. ft. of air at 15 lb p.s.i.; the safety valves are preset at 9 lb p.s.i. to avoid any damage to the cushions. The only factor to bear in mind in using the compressor is to make sure that no foreign particles enter the compressor when it is in "sucking" mode.

4. **THE VALVE BLOCK.** After many years experimentation we have developed the modern two line hook up with fully automatic plastic overload valves.

The purpose of the valve is two-fold: first to control the inflation rate of the cushions, and secondly to allow cushions to stop inflating at maximum pressure, or to allow release of air if the cushion gets subjected to a sudden overload, such as the load moving. The important point is to see that the air flow coming from the compressor is able to get through the valves without hindrance on the way out, which is why we have had to do so much research before settling on a rate of up to 75 c.f.m. and no more. Apart from this, we have found that if you power the cushions with a bigger compressor everything happens too fast at a recovery job for safety. There is nothing to stop you using 200 c.f.m. if you want, but you had better supply your own valves to match. This problem causes us a lot of trouble, because some do not understand why in this case "FASTER IS NOT BETTER".

The pressure gauges on the valve block are very important as they will tell you the load on the cushion: always be alert for unequal loads. It is vitally important that the cushions should be used to **LIFT THE LOAD**, not the casualty, and in use the pressure on each cushion must be the same, otherwise there is a danger of the cushion with the least pressure coming out.

5. **HOSES.** Up to ten, depending on your order. Use "Vaseline" to make coupling easier.

6. **A PLACING POLE.** Which has an unusual hook on one end for placing straps, cushions, etc. **WITHOUT PUTTING ANY PART OF YOUR BODY UNDER A LOAD.**

7. **REPAIR KIT.** Please see separate section on repairs. In general, any small punctures can be repaired by you, but if there is a problem from one reinforcing band to the next, or involving the air inlet, return the cushion to us for expert repair.

8. **BLANKING OFF PLUGS.** To go into the ends of the hoses, as required.

9. **AN INSTRUCTIONAL DVD VIDEO.**



MatJack is a division of Indianapolis Industrial Products, Inc.
1441 Sadlier Circle, West Drive Indianapolis, Indiana 46239 317.359.3078 FAX 317.359.3079
<mailto:matjack@sprynet.com> Or Call 1-800-827-3755 for more information

PRACTICE SESSION

So now you have all your gear out of the box and you're set to go...
What should you do before your first job?

Well, technically speaking, nothing: the safety valves on the compressor and the valve block will come to you set in the correct position, so you will have nothing to do there.

We suggest that a little practice run is probably a good idea. Find a convenient yard or field, and run through the following so that you will know more than the inevitable "expert" who will appear as if by magic at your first real job (you know how it is!).

First, lay out all the gear.

Unload the compressor ensuring that you do not tip it sideways or upside-down to prevent oil entering the engine cylinder.

Place it 20 ft or more away from you imaginary casualty. Remember this because if anything goes wrong you must always leave yourself an escape route: **SAFETY FIRST!**

Take one red hose and connect the red end to the red outlet on the compressor. Connect the other end to the valve bank at "INFLATE". Connect the other red hose with black coupling to the other black inlet on the compressor.

Go to the valve block and open at least four of the outlet valves on the bank; this will avoid heating up the compressor with too much back pressure.

Make it a habit to check the oil in the engine. Then start the engine by switching on the fuel tap, closing the choke and opening the throttle a little. As soon as it fires (usually second time), open the choke and set the throttle to half-open.

Hook up the two starters to the two outside valves, and the four **BIG ORANGE** cushions to the other outlets.

To inflate the cushions: turn the handles to "inflate" at the valve block, as on the label according to how you connected the block. To deflate: turn them the other way.

Easy, huh!?! Just note the following: do not use more throttle than you need on the compressor as excess revs do not increase either power or speed. Half open is your best setting.



MatJack is a division of Indianapolis Industrial Products, Inc.
1441 Sadlier Circle, West Drive Indianapolis, Indiana 46239 317.359.3078 FAX 317.359.3079
<mailto:matjack@sprynet.com> Or Call 1-800-827-3755 for more information

ON THE JOB

O.K. Here is the basic procedure for up righting a trailer (or tanker).

To lift a trailer or tanker we have to decide whether to use our wrecker to lift one end or the other to get out cushions underneath. Now, if you can lift the load without having to use your starters then go ahead and do it, but you'd better beware. Most trailers, when they fall over, have been subjected to all sorts of twisting moments and may well have started to "spring" some rivets or other fasteners. You can lift a "zipped up" trailer about 6" without damaging it, but if it's "unzipped" then you may bring about a collapse of the side by using the wrecker to lift it. If it's a tanker, the problem is worse because the slightest strain on a tanker can rupture it, so I recommend you always lift it with the cushions. If it's a container, use your wrecker but do beware of getting your chain hook snagged in the lifting eye, because you won't get it out without a sledgehammer.

STEP 1. Find a space, or make one, for the starters.

If you have to dig out the soil to make a gap, then make a 2: high gap.

Use both starter cushions at one end to give maximum support to the trailer, and NEVER LIFT MORE THAN 6".

Here's a hint you will find useful. Remember those blanking off plugs? After you have lifted the load 6", pick up the starter hose feed line and bend it in two to hold in the pressure, then insert the blanking off plugs and they will hold the trailer up, whilst you now have six ports to which you can attach as many big cushions as you wish to use.

For a tanker, there's a special problem, as a tanker will invariably shuffle off the starter cushions when you start to lift. So, put the two little cushions under one end and lift as before, and, if still in trouble, hook a small wrecker or tow truck under the tank to the axle mountings so that it can't shuffle about. **DON'T PULL WITH THE WINCH, JUST HOLD IT.**

STEP 2. I cannot tell you whether you will require four or five JUMBOS for the big lift; you can only decide by kneeling down and peering under the trailer to see in how many places the load has come through or the trailer has split. If more than 50% of the load is out through the side and the top is unzipped, then forget it and unload it. If you think you can recover it, then work with four cushions and two pairs of straps, or five cushions and one pair of straps.

It's at this point in the job where we separate the men from the boys, because men will size up the job, make the decision and carry it out, whereas boys will try to lift it anyway.

Turn the valves to the suck down positions and deflate the first JUMBO, but only to the point where it lays flat. Do not suck it down until it curls up or you will never get it underneath.

With your placing pole in the side handle, slide the cushion square underneath as far as you can. It's likely only to go half under, but it doesn't matter too much. You are aiming to get it under so that the outside of the cushion is level with the top line of the trailer, but however far it goes, make sure it's next to the starter and inflate it only enough to lift the load off the starter.

Into the gap which you have now created further along, slide the next JUMBO and inflate it until it starts to lift the load from the first cushion. Repeat with the rest of the cushions.

All the time watch the gauges and make sure that when you inflate each bag it reaches the same pressure, ensuring they all take their fair share of the load.

Soon you should have the whole length of the trailer supported, a few inches high.

STEP 3. Go to the other side of the trailer, and uncoil your 50 ft piece of rope. Tie something like a shackle to the end, and throw it under the trailer at the back and front so you can haul your recovery straps underneath. Attach them to the trailer.

STEP 4. Hook straps to wrecker in approved manner and take up slack, BUT DO NOT PULL.

STEP 5. Inflate all cushions to achieve an equal lift along the line of the wreck. Stop and read gauges: higher readings indicate heavier parts of the load. Re-site the cushions to support the heavier parts of the load.

STEP 6. When the roof line is 2 ft up, you have got to replace the cushions to get them from where they are, to where they ought to be. You do this by switching off all JUMBOS, then, selecting the cushion that's sticking out the most, deflate it and poke it underneath to see that it lines up with the roof line. Inflate until it reaches standard pressure.

Repeat with all JUMBOS so that when you look along the trailer, nothing sticks out topside. Now inflate until roof is about 7-8 ft high, at the same time ensuring the wrecker keeps taking up the slack BUT DOES NOT PULL.

STEP 7. Check the landing area and all shackles and blocks.

STEP 8. Command the wrecker to start winching and NOT STOP AT ANYTIME, FOR ANYTHING. You will soon see why this is necessary: if you ever do it, you may drop the trailer or tanker.

STEP 9. Deflate all cushions. PUT THEM AWAY. Refill compressor.

...and that's the basic recovery procedure, step by step. Now let's take a look at it in a bit more detail.

To effectively lift any casualty, we have got to consider a number of questions as they occur. The first problem we are likely to encounter is how to get the starters underneath (anything!). It is unusual to find a wreck with absolutely NO gap at all, but as explained before the procedure for creating a gap WHERE YOU WANT IT, i.e. at the top corners of the trailer/tanker, is really simpler than you might think.

The way to deal with it is to go round the back and push one of the starter cushions under the tires. These tires are usually narrower than the wreck by about 1 1/2". Place the starter under the tire and blow it up to about 3", which rocks the casualty back onto the frame corner, which is always strong. Then either use another starter or a block of some sort in the MIDDLE of the back of the trailer/tanker and let the first one down. The wreck will rock over the middle cushion/block, and the gap will now be on the topside for you to insert the other starter (again).

Don't worry if it only goes in a little way - that's enough. Inflate it as soon as you can: the cushion will bulge out in a big mound, and then it's a simple matter to put the other cushions under, having previously got down on your hands and knees (but NOT at any time underneath anything) to find out where all the load is coming out. If all the rivets are broken, you are trying to hold the load up, not the trailer.

TIP: Don't ever open the doors of the trailer, if you can help it, because the minute you do so the trailer has lost its strength, so you can't lift it without bending.

When you placed the cushions, you should lift up the trailer a little bit and if you're not happy with where the cushions are, it's a simple matter to hold the load by deflating a cushion, push it where you want it, take the load again and do the same with the other three. Eventually you should have all the cushions where you want them, holding up the trailer.

You are aiming to finish with them all in line with the top of the roof. Don't put them in any further or you may face the problem of the trailer running away from you: always watch out for this, particularly when working on a slope.

Then comes an important part of the job. When you get to that point and you're ready to lift, you should have somebody on the far side ready with a wrecker and a pair of straps hooked up to the wrecker. He's not going to do anything: he's only there for safety, because by this time the cushions aren't doing a great deal, and the trailer should be at the point where it's rocking on the cushions. Another tractor/trailer going by on the road can be enough to pull that trailer off the cushions with suction, and down it goes again. The purpose of the wrecker is to take up the slack as you go, and if he's a good operator, he won't pull. If he does he'll create a disaster, because he'll pull it off the cushions and they'll come out. The only reason a cushion ever comes out is because it isn't loaded. **IT DOESN'T COME OUT BECAUSE IT'S WORKING TOO HARD.**

If there's a disaster, suppose for instance, on cushion comes out or blows out, then that's where the safety valves come in. They are designed to let the air out if the trailer comes down too hard on a cushion; they make a very loud noise and let out a sufficient amount of air to allow the load to bounce: then it'll settle down and there'll be enough to hold it. An inflated cushion will hold just about twice its normal load, although it won't be able to push that load.

At this point, you could pull the trailer over with your one-ton, if you remember one thing. With ALL airbag jobs, once you are ready to do your lift, don't let anyone stop you - **KEEP IT GOING.** As long as you are pushing, the bags won't come out.

If you have a tractor on the front (let's assume that you have a one-ton just pulling on the front axle), the minute the tractor starts to fall the trailer will follow it and come up.

Do trailers turn right over, and go over the other way? Well, yes and no. Whether you're using bags or just a wrecker, the trailer will never go over if you adopt this simple procedure: always carry two old empty tires on your wrecker. If you lay them on the ground, on top of the other, as the trailer comes over, it will come down and sit in the middle of those tires and gently bounce, then you can pull it forward off the tires and away. It will never go over. If you don't take that precaution, and if the load is loose, the trailer will sit down with a "boom" and then the load will move and it could go over. So lay a couple tires under the back axle, and when the trailer hits them they will go down to about 6" thick, which is fine. Then you will pull the trailer off them and away you go.

This means you are perfectly safe, which should always be uppermost in your mind. You will never need to restrain a load, **EXCEPT:**

1. SWINGING MEAT. Where the load hangs from the roof. If it's a full load, you're alright; if it's half a load, you're in trouble, because as the trailer comes up, the load will swing and the trailer will go over the other way.

2. HALF-LOADED TANKERS are the other problem. Again, fully loaded ones are no problem, but half loaded ones are, because as you pull the tanker up the load moves across the bottom, swings up the other side and turns it over the opposite way.

If you encounter either of these situations, be very careful: insist on restraining the tank or trailer just to make sure.

Now with a split roof, the only thing you can do is to get your straps around the trailer, and you have to splint the roof with timber planks (ordinary pallets are handy). As you pull harder on the straps, so it pulls the splints down on the roof and brings the roof down. If the side is completely out, forget it - you've got to unload it.

If the trailer is broken, you can still lift it up. You can put an airbag underneath, lift it up, pull the tandems forward towards the front, so that you balance the trailer better, and then you will frequently be able to move it if you have chained it up correctly. So you can use them as air jacks where you want to create some sort of space.

TIP: If you are handling a West Coast type tractor (the one with the long gap between the cab and the 5th wheel), then you will have to attach a chain to the tractor suspension, so that you pull the tractor and trailer over together, otherwise you will find that the tractor frame will twist.



MatJack is a division of Indianapolis Industrial Products, Inc.
1441 Sadlier Circle, West Drive Indianapolis, Indiana 46239 317.359.3078 FAX 317.359.3079
<mailto:matjack@sprynet.com> Or Call 1-800-827-3755 for more information

WHAT'S THE PROBLEM?

So now we've done a standard air cushion recovery, but what about the things that can go wrong?

Here are some of the unusual things that you may meet, after you have decided you're an expert:

1. CUSHIONS SLIPPING OUT...

Somehow you have allowed the weight to come off that cushion. Users tend to think that a cushion slips out because there is too much weight on it, but in fact the reverse is true. Supposing you have four cushions under a load and it is nearing the rollover point, then, if the winch man pulls too hard, any cushion not carrying its fair share of the load will immediately pop out. In the same way, when you are inflating them, you must ensure the pressure on each cushion shows the same, which is why you have pressure gauges (as we mentioned at the start). These gauges are particularly useful in telling you whether the trailer has an unequal load. I remember nearly making a terrible mistake in recovering a trailer that had a forklift in one end, and without the gauges I would have undoubtedly broken off the front end of the trailer, as there was nothing at one end to push on.

2. TRAILER BENDS...

this is due to making a basic mistake right at the start. Operators sometimes place their cushions to lift the trailer, but **YOU SHOULD PLACE THEM TO LIFT THE LOAD**. Make sure you place each cushion as close to each bulge as you can; if necessary, lift up the trailer on each side of the bulge until you can see daylight under the bulge, then slip a strop under the bulge and haul it tight. Sometimes a splint will help.

3. TANKER RUNS AWAY FROM CUSHION...

It is extremely important to get the tractor and trailer in a straight line before recovery commences. I would go as far as dragging the tractor straight by winch power if necessary, because if you don't, you will find the rear tractor wheels act as a stop when you roll the two upright, and this makes the effort needed very much more.

4. CUSHION TOP SLIPS...

Impossible if you have cushions with the grip face, but even then you can cause them to slip if you have put a strap between the cushion top and the load. As the pull comes on the strap, it will stretch and pull the top of the cushion to the topside of the trailer... don't do it!

5. TRAILER LIFTS OFF THE GROUND AND RUNS AWAY...

Cushions too far under, and it's very easily done when working on tankers. You know the right place for a square cushion under a trailer, but on a tanker you must put them in with the front third of the top actually past the widest part of the tank.

6. CUSHIONS MAKE STRANGE "WUMPING" SOUNDS AS THEY INFLATE...

Don't worry about this alarming noise, it's the cushions finding the best route to do their work, and they frequently bulge or moan as they inflate. If you did your bit right, leave them alone and let them get on with it.

7. UNEVEN PRESSURE IN CUSHIONS...

This is caused by an uneven load on them, so equalize it with air pressure.

8. OPEN ROOF ROLLOVERS...

There are no clear rules to allow positive recommendations as to whether you should, or should not, support the load where it is coming out of the trailer. Very often you will find it impossible to get the cushions under the actual load when it is out through the side on the ground, but you can rely most of the time on the friction of the load to hold the bits that are protruding in place, whilst you lift it, although this of course depends on the contents of the trailer. Sum it up for yourself, but generally loads that are in bags, vegetables, boxes or long packs will hold together, whilst hard unpacked objects like wheels, steel rods, paper rolls, etc will not. Consider also the great strength of the soft sided trailers with the "Pacamac" type curtains strapped down. they will very often contain a load when it goes over, and will only give way if you push or pull too hard.

9. WORKING WITH MIXED SETS...

What happens is that whilst the heavy lifting is going on in the early stages, it makes no odds, but then you get the trailer roof up 6-7 ft, the smaller ones will have come out, so you must make sure that the trailer is properly supported.

10. HAZARDOUS AND DANGEROUS LOADS...

It is only necessary to do a controlled drop when you encounter one of these problems:

- A hazardous load.

- A dangerous load.

- A load which you can't identify.

- A trailer with meat hanging from the roof.

- A part loaded tanker.

- A trailer with a loose load inside.

If the landing ground slopes away from the direction the cushions are pushing.

11. MOBILE HOME RECOVERY...

the cushions are great for this problem, as they are so gentle you can literally roll one from its roof to its side and onto its base without a mark. However, be warned to check what's going on inside, because in some cases there may be some very heavy appliances which are none too secure.

12. UNDERWATER RECOVERY...

Perhaps here is a good place to mention that you cannot use standard low pressure air cushions, of any make, for underwater recovery without fitting them with special automatic flapper valves to relieve the pressure as they come up from the depths.

Basically, you cannot use cushions designed for land recovery in underwater work, subject to certain provisions, for the pressures underwater are such that there is an entirely new set of problems. The cushions should never exceed their maximum working pressure of 9lbs psi, and underwater there is no way we can protect them without special valves. It is possible in emergency situations to use the standard cushion down to a depth of 10ft or so, but even then you are taking a risk.

It is our view that in order to protect your valuable investment it is better to purchase the correct type of cushion, with built-in automatic overload relief valves, than to risk using yours. Specialized underwater salvage cushions are readily available from us, and will be glad to discuss the benefits of the various types.

13. LOADS OVER 100 TONS...

There is no reason at all why you cannot quote and win success at handling loads of this and greater weights, because you just need enough cushions to give you the required up thrust. The big consideration however, is what will happen to the load when it's off the ground.

Unless you have made some very special arrangements, you will find that lifting the load is easy but restraining it from wandering off is another question entirely.

However, not to put you off trying, here are some of the loads that have been lifted successfully (usually with great care and a swift prayer):

- 20 ton oak tree collapsed on a car.

- 100 gas station canopy on top of three persons.

- Cellar in collapsed building under a tower block of apartments.

- Farm tractor on top of a driver.

Hundreds of feet of scaffolding on top of a car.
80 ton bases of gas tanks in a refinery raised three feet.
Butane tanks raised onto new foundations.
180 ton locomotives.
100 ft 12" diameter steel bars rolled over.
2 miles of floating pipeline over a swamp.

This list is endless, and is really only bounded by your own marketing skills and imagination, so take a look around at how some people publicize themselves, and then make yourself known to those who might want to use your services.



MatJack is a division of Indianapolis Industrial Products, Inc.
1441 Sadlier Circle, West Drive Indianapolis, Indiana 46239 317.359.3078 FAX 317.359.3079
<mailto:matjack@sprynet.com> Or Call 1-800-827-3755 for more information

AFTER CARE AND GENERAL MAINTENANCE

CUSHIONS:

Always make sure they are dry before storing, otherwise the black material may rot. Try not to store them folded up, since in cold weather you may have to wait whilst they straighten out.

The correct method of folding a cushion is as follows:

1. Wash cushion with soap and water - leave to dry off, inflated.
2. Deflate cushion with the top over the bottom, handles to handles, bring out the inflation hose.
3. Stand on the cushion, take hold of canvas handle and pull back and up, walking off the cushion as you do it. Smooth out the side wall and lay it back, handle to handle. Repeat for the other three sides, starting with the one opposite.
4. Put inlet hose into fold.
5. The cushion is now ready to go to work again.

COMPRESSOR:

Due to our policy of constant improvement, there is now more than one type of compressor in circulation, and the following should be noted:

NEW SETS of JUMBO cushions come with the 5 hp Honda engine with a DRY compressor. The only servicing required is as laid down in the engine manual, and the compressor itself requires no maintenance. Do however check the safety valves to blow off at about 10 psi.

USED SETS of cushions may come with a MASPORT type of compressor which has two oilers on the top, and which must be set to two drops per minute to avoid oil coming out of the hoses.

If the compressor supplied is a GAST type it will also have two oilers on the top, but there require filling with SAE 10 and just opening once every three months to allow oil to lubricate the compressor.

Please check you invoice to see which type you have. Each compressor should be labeled anyway.

THE VALVE BLOCK:

The valve block may need re-adjusting after some months of use. Please call our office for instructions.