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REAL ESSENTIAL

POLY BEAD - RESIN KIT INSTRUCTIONS

The Real Essential Resin Kit you have just purchased will produce a perfectly fitted seat, with excellent durability, however you must take care at each stage of the process; following these instructions meticulously. Allowing sufficient time to prepare carefully, and plan each stage of the process, will ensure you achieve the best result.

The seats are made by ultimately positioning the driver in a bag filled with a mixture of foam beads, and slow-cure resin. Drivers can achieve their optimum seating position by displacing the resin / bead mix in the bag, which is then held in place, by vacuum to the bag. An initial curing time of 120mins must be allowed with the driver, and at least another 5-6hours (ideally, the seat should be left to harden overnight) must be allowed before making any alterations to the seat, such as removal of excess material, trimming, and cutting openings for belts.

Points for consideration:

1. Ensure there are no sharp edges (belt brackets, rivets, and/or bolt heads) or objects (electronic boxes) that will puncture the liner if not protected or removed.

2. Remove belts and headrest.

3. Should the driver controls - pedals and steering-wheel be adjustable, place them in the middle of the range available, so that you have scope to fine-tune the driving position once the seat is finished. Be mindful that whatever choice of covering is applied once the seat is finished, it could effect on the drivers final position.

4. Drivers should wear their normal racing suit, or something of similar thickness, such as a wet-suit, which also aids in decreasing the amount of wrinkles in the seat.

5. At all stages during the process always check the drivers' position in relation to the safety regulations and/or stipulations required to meet safety approval.

6. When deciding to remove beads, remember that it is always advantageous to have an excess, as this can always be removed after curing, and allows drivers to trim the seat profile specifically around the lateral support areas to provide optimum assistance and comfort.

Introduction:

The bag contained in the kit is fitted with a push/release on / off tap valve. To apply vacuum to the bag, attach the pump hose and "press" the tap valve open whilst applying vacuum. Applying more vacuum will make the bag more rigid, and it can be formed to any shape required.

Once vacuum has been applied, close the valve and the bag will retain the vacuum applied. To release the vacuum from the bag, simply, press the valve open (to atmosphere) allowing air back into the bag.

To add / remove beads from the bag, or to add the resin, simply remove the valve section from the gland of the bag. Note that there is a high-density foam pad under the valve and this must be kept in place, otherwise, beads will escape when vacuum is being applied.

Stage 1 - Dry Fit

Lay the bag out on a flat smooth surface, and spread the beads evenly over the whole area of the bag. Stretch the bag by pulling at the corners to ensure there are no creases.

With the pump attached, apply vacuum until the bag starts to take on an "orange-peel" effect, and the bag is fairly rigid. This will ensure the bag will hold its shape when it is fitted into the cockpit.

Fit the bag to the cockpit or seat shell, and press the bag into all corners of the cockpit / seat shell, and firmly into position - by slowing releasing the vacuum it may help to achieve this. Ideally, the bag should be placed into the cockpit, with the valve gland at the top left or right hand side; allowing for easier access to adjust the vacuum whilst the driver is seated.

Seat the driver in the car, being careful to disturb the bag as little as possible. The driver will now have to achieve the desired position by displacing the beads around the bag. To aid in this process, it may help by releasing more vacuum from the bag. At this stage, if the driver is finding it difficult to achieve the desired position, it may be because the bead volume is too high, and therefore, to decrease the volume of beads, the bag will have to be removed from the cockpit, and then remove the valve gland, decanting beads into a container.

Taking considerable time at this stage is necessary, as by altering the amount, and by moving the beads around the bag, drivers will be able to achieve their optimum seating position.

Remember, by slightly adjusting the amount of vacuum, you will be able to "firm-up" or "soften" the bag in situ, and allow the driver to forcibly move around, so to force beads into the areas where support is required. Equally, drivers may require outside assistance so to shape the bag around areas where extra lateral support may be required.

Apply maximum vacuum to the bag, once the driver has achieved the desired seating position, and ask the driver to (carefully) extract themselves from the cockpit.

At this stage it will be advantageous to mark on the bag where the various thicknesses of the beads are; also marking where specific support areas are in relation to the driver, as this will aid when after having applied the resin, the bag layout can be replicated.

Stage 2 - Mixing Resin / Hardener

PLEASE ENSURE YOU MIX THE CORRECT QAUNTITIES OF RESIN/HARDENER MIX TO BEAD VOLUME

The amount of resin and hardener supplied with the kit is the correct amount to use with the volume of beads (50l OR 70l) contained in the bag. If you have to remove any beads, you will have to reduce the resin/hardener used. Please refer to the table below for detailed ration mix comparisons.

Real Essential Bead / Resin & Hardener Ratio Table		
Bead Volume (litre)	Resin Volume (litre)	Hardener Volume (litre)
10	0.7	0.01
20	0.8	0.02
30	0.9	0.1
40	1.0	0.2
50	1.1	0.3
60	1.2	0.4
70	1.3	0.5

Operative Times	
Working Time	Up to 1 hour at room temperature
Cure Time	A minimum of 6 hours at room temperature
Note: These times can be reduced by an increase in temperature. This can be achieved by either raising the ambient room temperature, or by introducing an outside source such as a fan heater. The Resin & Hardener should be kept at a storage temperature of 18° - 23°C and should only be mixed with the beads at this stage to ensure correct curing.	

A variation of +/- 10% will not greatly affect the properties of the finished seat, but try to be as accurate as possible when mixing the correct amount of resin/hardener. Always make a note of the amount of beads removed so that the resin/hardener mix can be adjusted as required.

Pour the correct amounts of resin and hardener into a mixing jug and stir well. A better mix will be achieved by adding the hardener first, followed by the resin, which is denser.

Mix thoroughly for approximately 5 minutes.

Once ready to add the mix to the bag, remove the valve gland, and hold the opening in a central position just above the beads. Pour the mix straight onto the beads, trying to avoid it running down the inside of the bag walls. Replace the valve gland, once all the mix is added, and start blending the mix with the beads.

Note: At all times when removing/replacing the valve gland, ensure that no beads are present around the neck of the gland face, as this may lead to a loss of vacuum due to the gland not sealing properly as a result.

Important: Take around 10-15 minutes to combine the mix completely with the beads. This is imperative so to ensure all beads are coated, guaranteeing an excellent final result.

Move the beads and mix around by kneading the bag, noting the slight change colour of the beads when coated. It is extremely important that there are no lumps of mix in the bag, and that there are no beads left uncoated. Make sure that the beads at the edges and corners of the bag are mixed in thoroughly by repeatedly pushing the corners right into the centre of the bag.

When satisfied that the contents are completely mixed, move onto the final fitting.

Stage 3 - Final Fitting

The final fitting is a repeat of the dry fit, except that the beads are now mixed with the resin/hardener, so to produce a solid end product.

Using the markings made on the bag during the dry fit stage, spread the beads around so to replicate the various thicknesses of beads required in each location marked. Take extra time to ensure that there are no creases formed on the bag when applying initial vacuum. This is very important, as any creases will affect the final look and possibly leave cracks in the seat.

Take care as adjusting the vacuum at this stage, as the mix behaves differently than under dry vacuum conditions.

In order to achieve the optimum final position for the driver, all involved must work collectively to aid in the process. Remembering that there is approximately 1 hour working time at this stage, there is no need to rush, but the driver must (with aid if required) shift the beads around by forcibly moving around in the seat, to displace the beads to the areas required.

Important: During the process, try to remove any creases that may have formed by pulling at the bag material edges. This will remove any creases away from the central area of the bag, and any creases near the edges can be trimmed away if necessary.

At this stage the driver can get out of the seat, and time can be taken to ensure that all creases are removed, as well as ensuring that there are no crevices or thin areas of beads. Additionally, now is the time to ensure that the liner is forced into all areas of the cockpit / seat shell.

The unique properties of the Real Essential bag are designed for this purpose, and it is extremely "stretchy" and almost tear-proof. It is vital that in order to produce a quality finished product, as many creases that have formed, are removed. A crease may cause a deep crack which will weaken the seat. "Pulling-out" firmly on the bag material where creases have developed will allow the bead mix to form together, and careful kneading and moving of the beads at the same time will also aid this process.

Only when the driver is completely satisfied with the seat position and profile, apply a strong vacuum, with the driver maintaining his position. At this stage, the longer the driver can remain seated in the car, it will aid in ensuring the seat profile is kept. With a strong vacuum applied, no further moulding or shaping of the bag can be done.

The longer the driver can remain in the seat, the better, as this will ensure that the liner will conform to his/her shape, and profile whilst the curing process is taking place.

Carefully extract the driver from the car, and leave the bag in place for at least the minimum 2 hour curing period.

Stage 4 - Seat Finishing

The bead mix will set sufficiently for the seat to be handled after 5-6 hours, but ideally, should be left to cure (in room temperature conditions) overnight, before the seat is trimmed to its final profile.

If the seat is left in the car to cure, please remove carefully. In some instances the seat may be required to be cut into 2 pieces to allow removal. It may pay to give some thought beforehand to the best way to section the seat should it be required to do so.

Cut away any excess parts of the bag, and begin trimming away excess material to allow clearance, and easy future fitment/extraction of the seat itself.

When trimming the seat, allowances may be have to be considered for crotch/lap/shoulder belts, as wells items such as a HANS device and headrest.

Note:

Before covering the seat, it may require some alterations which the driver will only be able to make after using the seat. Therefore, it is best to ask the driver to use the seat first, before spending valuable time and money covering.

The final product can then be covered in a variety of options such as nomex cloth, suede or alcantara; even "tank-tape" can be used.