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TREATMENT FORMULA FOR ODD SIZED TYRES OR TYRES NOT LISTED IN TREATMENT GUIDE

OVER-THE-ROAD

Rim Diameter multiplied by Tyre Width divided by 6 = Ounces

OFF-ROAD

Rim Diameter multiplied by Tyre Width divided by 3 = Ounces

CONSTRUCTION - SLOW MOVING - HEAVY DUTY

Rim Diameter multiplied by Tyre Width divided by 2 = Ounces

1 OUNCE = 30mL approx

METRIC CONVERSION

When working out the amount of product required in a tyre with metric sizing as opposed to imperial you will need to divide the first large figure by 25.4 to give you an imperial measurement.

Example:

A truck tyre size 225/65-17.5 used in an over the road application will give you the following formula 225 divided by 25.4 = 8.86 so rim diameter 17.5 multiplied by tyre width 8.86 = 155.05 divide by 6 will give a final figure of 25.84 fl ozs (approx 736ml).

For ease of installation 3 calibrated pump strokes will be sufficient for that size of tyre.

When installing the product into 4x4's do not install more than 2 pumps or 16 fl ozs (approx 456ml) per tyre and with saloon cars the recommendation is 1½ pumps or 12 fl ozs (approx 342ml) per tyre. This will reduce the risk of a wheel imbalance problem at speeds of over 50 mph (approx 80kms).

SERVICE TIPS

1. After the tyre is treated it is recommended that the vehicle is then driven to ensure the sealant is fully distributed within the tyre.
2. Tyres should be inspected at weekly intervals and all puncturing objects (nails etc) removed and pressures checked. The vehicle must be driven immediately after removing the object which has penetrated the tyre. If this action is not taken the tyre could lose air pressure and the puncture may not seal properly. If operating under extreme conditions, daily inspection may be necessary. Leaving a puncturing object in a tyre for long periods can result in sealing difficulties once the object is removed. This occurs because the rubber will lose its elasticity and conform to the shape of the puncturing object. When the object is removed, an open hole will remain. While the Sealant will seal punctures up to a ½ inch in the tread area of the tyre, the size of any puncture it can plug in the side wall will decrease the further it is from the tread.
3. Increased amounts of the Tyre Sealant may be required for off-the-road and recreational vehicles which travel at low speeds and under extremely hazardous conditions. In such conditions or over rough terrain, small amounts of the Sealant are lost each time a puncture occurs.
4. Tube and tubeless tyres treated with the Tyre Sealant will produce a significant reduction in flat tyres and related downtime. A reduction of 90% or better in punctures occurring can be expected.
5. If a puncture DOES NOT seal properly, check for the following:
 - Lack of Sealant in the tyre
 - Oily or lubricated puncturing object
 - Side wall puncture
 - Tread separation
 - Rips, tears, or cord damage
 - Stretched rubber, sometimes found in over inflated tubeless tyres
 - Improper tube size for the tyre
 - Puncturing object larger than 13mm or 30 mm diameter (Depending on product used)
 - Valve leaks
 - A puncturing object that has been in the tyre for over a month
 - A large puncturing object that tore the tyre or tube.

6. It is important to recognise that not all vehicle vibration problems are tyre balance related. Where the problem is actually a tyre balancing problem, the Sealant will normally solve it. The Sealant is not, however, recommended for older vehicles where front end and alignment problems may exist.
7. If excessive vibration occurs, check for the following:
 - Out of round tyres or rims
 - Excessive lateral run out
 - Shifted belting in the tyre
 - Creased tube in tyre
 - Toe-in or toe-out
 - Mechanical malfunction
 - Tread separation
8. If tyre repair is necessary, the following steps should be followed:
 - a. Clean the puncture area clear of Sealant using water and a damp cloth.
 - b. Patch normally.
 - c. Re-apply the recommended amount of Sealant in the tyre.

CHECKLIST FOR INSTALLING SEALANT

1. Verify tyre size and refer to Technical Manual
2. Find treatment dosage according to tyre size
3. Have 20 litre pail and pump ready for installation. Be sure pump and hose are primed, clean and free of dried-up product. Visually check tyre valve for any damage.
4. If practical rotate tyre so valve stem is between 8 o'clock and 4 o'clock position on the tyre.
5. Remove valve core and attach pump hose using quick connector.
6. Open the hose flow tap on pump hose.
7. Inject sealant into tyre or tube. Do not under treat the tyre. If you run short, open a new container.
8. Shut hose flow tap on pump hose.
9. After treatment, remove quick connect from valve stem and allow air pressure to bleed a few seconds to clear sealant from stem, then install valve core.
10. Identify treated tyres by placing GREEN I.D. rings over valve stem.
11. Re-inflate tyre to proper air pressure and rotate tyre.
12. Tyre is ready to be put in service.
13. One point we are finding we are having to emphasise, even to experienced tyre fitters, is that as our product is water washable then if new tyres are being fitted any excess water should be removed prior to fitting otherwise the effectiveness of the tyre sealant will be affected. This is mainly relevant in new plant tyres when the tyre has been sitting exposed to the elements, which is when most tyres will end up with an amount of water inside the casing i.e. a rain puddle. Tyre fitters should dry the inside of a tyre before fitting due to the water turning to steam and causing rim rust during operation but a lot of tyre fitters do not bother to check for water. One of the most common methods for water to enter the tyre is via an air line that is without an effective water trap.

VALVE STEMS AND CORES

When treating tube or tubeless tyres, valve stems should always be inspected. A damaged or dry rotted valve stem can create a lot of trouble if not replaced.

Example:

1. A valve that is bent can cause clogging during injection of sealant, replace the valve before resuming treatment.
2. If the stem is slightly bent or creased, clogging may occur due to the restriction of sealant. If clogging occurs, remove the quick connector from the stem. Forcing the sealant through will only increase the problem. Normally, a high pressure air hose will break loose the clogged area. However, if the air hose fails to free up the blocked area, spray water directly into the valve stem. This will cause the fibres to loosen up and allow the clogged area to either be blown out of the stem by the air pressure in the tyre or be pushed into the tube or tyre.

NOTE: NEVER FORCE OBJECTS INTO THE STEM. THIS WILL CAUSE DAMAGE TO THE VALVE CORE SEAT AREA AND THREAD DAMAGE TO THE INSIDE OF THE VALVE SYSTEM.

3. If the stem is a rubber type and is cracked or splitting, it is possible that it may break off during treatment.

NOTE: ALWAYS REPLACE WORN OUT OR DRY ROTTED STEMS BEFORE TREATING TYRES.

4. Any time a tyre or tube is treated, a damaged valve core should be replaced. In certain circumstances the valve core can become bent and the seat area can become damaged due to removal and re-installation several times.

INSPECTING TYRES & TUBES BEFORE TREATING

NOTE: ALWAYS INSPECT THE TYRE CASINGS AND TUBES BEFORE TREATING, THIS WILL PREVENT UNNECESSARY PRODUCT WASTE ON TYRES AND TUBES THAT SHOULD BE REPLACED OR REPAIRED BEFORE TREATING.

For example, a tyre casing that is cut badly should be discarded. A cut or slash will spread apart when the tyre rolls on to the load point. When this occurs, the fibre content has nothing to hold on to and will blow through the damaged area, resulting in deflation.

When tubes are badly stretched or pinched they should be replaced to prevent the risk of premature failure.

Inspection of tyre and tubes will require good judgement and good safety habits. It makes no sense to waste time, money and sealant on tyres and tubes that are beyond repair or beyond being used safely.

NOTE: SAFETY SHOULD ALWAYS BE THE MOST IMPORTANT FACTOR IN MAKING DECISIONS ON TYRES AND TUBES.

SEALANT TREATMENTS AND TYRE IDENTIFICATION

It is important to install the correct amount of sealant into the tyre according to the Tyre Application Chart. Incorrect amounts of sealant may cause problems with the performance of the tyre, i.e. vibration. Also, when tyres and tubes are treated, the valve stem should be marked by colour coding. This will eliminate double treating the tyres and also if tyres are changed from one piece of equipment or one vehicle to another, enabling the user to track which tyres are treated. A can of spray paint is another way to colour code the stems.

A simple way of identifying your treated tyres is with the GREEN I.D. Rings. The rings are colour coded for easy identification and should be pressed over the valve stem of each treated tyre. I.D. Rings are packaged 100 rings per bag and can be purchased from AIR-SEAL® AUSTRALIA. www.airsealaustralia.com.au

MAINTAINING PROPER INFLATION

When a tyre is injected with tyre sealant, regardless if it is a tube or tubeless tyre, maintaining proper air pressure will be the key factor in establishing a high percentage rate of success in reducing flats.

For example, a properly inflated 295/80 R 22.5 tyre requires about 90 – 120 psi pressure. If this tyre is punctured numerous times and the sealing process takes place, the tyre's air pressure is being reduced each time it is punctured. The user should check air pressure daily and replace any air loss as soon as possible.

If the air pressure is not maintained and the tyre is continuously operated at an extremely low pressure the following may occur:

1. Sealant may not be carried to punctured area and forced into the puncture wound.
2. Tyre will operate at a higher temperature due to extreme under inflation and tyre wear will be increased drastically.
3. Tyre could break loose from rim and destroy tube and tyre.

NOTE: A SUCCESSFUL TYRE MAINTENANCE PROGRAMME BEGINS WITH MAINTAINING PROPER INFLATION.

Always re-inflate the tyre and check for leaks. When the leak is found, check puncture to see that the hole is free of broken off material (use a bradawl for this procedure). Once the puncture has been checked and cleared of any obstruction, rotate tyre and drive on the tyre or, if a trailer, pull the trailer to complete the sealing process.

REMEMBER: Weight, centrifugal force and air pressure are the forces necessary for the sealant to seal the tyre.

PROCEDURE FOR SEALING PUNCTURED TYRES

NOTE: TYRE SEALANTS CANNOT REPAIR SIDE WALL DAMAGE.

1. HEAVY DUTY Grade will seal most punctures up to 15mm (6/8") in the tread area only.
2. ARMOR SEAL Grade will seal most punctures up to 30mm (1 1/4") in the tread area only.
3. Before removing objects from tyres that are treated with sealant, ensure the tyre has been driven so that the sealant is well distributed. If the object has been in the tyre for a long period of time it is wise to reduce the air pressure before removing the object so that excessive product waste is eliminated.

EXAMPLE: A

11.00 x 22.5 tyre has a recommended air pressure of 90-120 psi. Reduce air pressure to 40 psi and remove puncturing object. Rotate the tyre rolling over the punctured area a number of times. If the leak continues use a hammer to hit the tyre around the punctured area to flex the rubber. This encourages the fibres in the sealant to catch the rubber around the puncture and effect a seal. Then re-inflate the tyre to its correct pressure.

REMEMBER: Objects left in the tyre for a long period of time will be harder to seal because the rubber has conformed to the shape of the object that has been lodged in the tyre. If weather conditions are extremely cold where you are working, remember – rubber does not flex as well when it is cold.

4. It is unnecessary to remove the tyre from the wheel rim until all the above options have been exhausted.

NOTE: CHECK PUNCTURE TO SEE THAT THE HOLE IS FREE OF BROKEN MATERIAL (USE A BRADAWL FOR THIS PROCEDURE). ONCE THE PUNCTURE HAS BEEN CHECKED AND CLEARED OF ANY OBSTRUCTION, ROTATE THE TYRE AND DRIVE ON IT.

REMEMBER: Weight, centrifugal force and air pressure are the forces necessary for the sealant to seal the tyre.

PROCEDURE FOR THORN PUNCTURES

The following procedures should be followed when using the sealant in areas where thorns are the primary cause of punctures.

Always remember, when a thorn punctures a tyre it will usually break off, making removal impossible. At this point, the thorn will generally start decaying in the tyre casing. The sealant will always find the area of air loss and will seal the puncture while the tyre is rotating.

NOTE: REMEMBER IF A TYRE HAS BEEN PUNCTURED BY THORNS AND IS PARKED FOR A LONG PERIOD OF TIME, THE THORN WILL CONTINUE TO DECAY IN THE TYRE CASING AND WILL ALLOW AIR TO ESCAPE. THIS WILL HAPPEN BECAUSE THE SEALANT RETURNS TO THE BOTTOM OF THE TYRE WHEN THE WHEEL IS STATIONARY. ONCE THE TYRE IS ROTATED WITH WEIGHT ON IT, THE AREA AROUND THE THORN WILL RE-SEAL.

Air pressure, weights, and centrifugal force are all needed to assure a good seal. THE SEALANT CANNOT REACH PUNCTURED OR LEAKING AREAS IN THE TYRE CASING WITHOUT ROTATING THE TYRE.

USING THE SEALANT AS A REPAIR PRODUCT IN TUBELESS TYRES

Repairing tubeless tyres:

1. The tyre should be re-inflated and checked for puncture wounds or damaged areas.
2. When the punctured area is found, the tyre casing should be marked. Providing it is repairable, the Sealant can now be injected into the tyre.

REMEMBER: ALWAYS ROTATE THE TYRE SO THE VALVE SYSTEM IS BETWEEN EIGHT O'CLOCK AND FOUR O'CLOCK ON THE TYRE.

3. It is wise to install only enough product to repair the tyre. This will eliminate wasting product if the tyre casing is not repairable.
4. Once the sealant has been injected into the tyre, replace the valve core and re-inflate the tyre to the correct pressure. Immediately rotate the tyre, preferably by driving on it. Rotation will ensure that the fibres being pushed through the tyre casing result in a permanent plug.
5. If the tyre is off the equipment or vehicle, it should be re-mounted and driven on to complete the plugging process. Air pressure alone will not provide a solid seal. When the tyre is completely sealed, the full recommended quantity of sealant should be installed and the tyre inflated to the correct pressure.

When a punctured tyre treated with sealant does not seal properly and continues to seep, the following steps should be taken:

- Drive on the tyre (preferably with added weight to re-seal seeping area).
- If condition persists, use bradawl to press through the old puncture wound to remove the plug and allow a new plug to form. If puncture wound is beyond repair of sealant, the tyre will have to be patched or discarded. (See Tyre and Tube Repair information.)
- Repeat the necessary steps to complete the sealing process.

NOTE: ALWAYS INSPECT THE TYRE CASING FOR BROKEN OBJECTS. THE SEALANT WILL NOT SEAL

PERMANENTLY UNTIL THE PUNCTURE WOUND IS CLEARED. THIS WILL ALSO PREVENT FURTHER TYRE CASING DAMAGE DUE TO OBJECTS LEFT IN THE CASING.

USING THE SEALANT AS A REPAIR PRODUCT IN TUBE TYRES

When repairing tube tyres, follow these procedures to repair punctured tyres.

1. Providing the tube is repairable, the sealant can be injected into the tube.
2. It is wise to install only a small portion of the recommended dosage to see if the tube can be repaired. This will eliminate product waste if tube is not repairable.
3. Once sealant is injected into the inflated tube (which is still in the tyre casing), the tyre should be rotated immediately, preferably while still mounted on the equipment or vehicle. This rotating procedure will ensure the fibres are being pressed through the tube and tyre casing enabling a solid plug to form.

REMEMBER: WEIGHT, CENTRIFUGAL FORCE AND AIR PRESSURE ARE ALL REQUIRED TO PROVIDE A SOLID PLUG.

4. If the tyre is off the equipment or vehicle, it should be remounted and driven on to complete the plugging process. Air pressure alone will not provide a good seal. When the tyre is properly sealed, the recommended treatment should be completed and re-inflated to the correct air pressure.

When a punctured tyre treated with sealant does not seal properly and continues to seep, the following steps should be taken:

- Drive on the tyre (preferably with added weight to re-seal seeping area).
- If condition persists, use a bradawl to press through the old puncture wound to remove the plug and allow a new plug to form. If tube shifts in the tyre casing and puncture would not seal when driven on with weight on tyre, the tube will have to be repaired by patching. (See Tyre and Tube Repair information.)
- Repeat the necessary steps to complete the sealing process.

NOTE: ALWAYS INSPECT THE TYRE CASING FOR BROKEN OBJECTS. THE SEALANT WILL NOT SEAL PERMANENTLY UNTIL THE PUNCTURE WOUND IS CLEARED. THIS WILL ALSO PREVENT TUBES FROM BEING TORN BY OBJECTS LEFT IN THE CASING.

TYRE AND TUBE REPAIRS BEYOND SEALANT CAPABILITIES

Tyres and tubes treated with the sealant may be recapped and repaired.

If a tyre or tube is in need of repair, the sealant can be removed by simply washing it out with water.

NOTE: A WORKSHOP WET & DRY VACUUM CLEANER WORKS WELL IN REMOVING USED SEALANT FROM THE TYRE. ON TUBELESS TYRES, THE TYRE WILL HAVE TO BE DISMOUNTED. THE PUNCTURED OR DAMAGED AREA CAN BE WASHED OFF AND WIPE DRY. AT THIS TIME A REPAIR CAN BE APPLIED TO THE CASING. AFTER COMPLETION OF THIS PROCESS, THE TYRE CAN BE REMOUNTED, THE NECESSARY AMOUNT OF SEALANT RE-INSTALLED AND THE TYRE INFLATED TO THE CORRECT PRESSURE. THE TYRE IS NOW READY TO BE PUT BACK INTO SERVICE.

If a tube needs repair. The tyre must be broken loose on one side and the tube removed. Upon finding the damaged or punctured area, the tube can be rinsed off and wiped dry. At this time, the tube can be repaired. After completing the repair, the tube can be re-installed into the tyre casing and inflated to the correct pressure. Additional sealant may be needed to replace lost product.

NOTE: THE SEALANT IN THE TUBE WILL NOT AFFECT THE REPAIR PROCESS. THIS ELIMINATES HAVING TO DRAIN THE TUBE TO CARRY OUT REPAIRS. THE TYRE CAN BE REMOUNTED FOR FURTHER USE.

BEFORE PUTTING THE TYRE BACK IN SERVICE, BE SURE CORRECT AIR PRESSURE IS IN BOTH TUBELESS OR TUBED TYRES AFTER THE REPAIR IS MADE.

THE SEALANT LIFE AND RE-TREATMENT

One treatment should last the life of the tyre in normal use. However, if the tyres have been subjected to several punctures, 6mm (1/4") or larger in size, each time the tyre is punctured, it may eject a little of the sealant as the puncture is sealed (this may or may not happen depending upon tyre size, air pressures, etc.).

If the tyre is subjected to many punctures then after 18 months we recommend that the level of sealant in the tyre is topped up with 20% of the original amount to keep the sealant at its maximum sealing level.

EXAMPLE:

If the original treatment was 40 ounces, in 18 months you should add another 8 ounces to the tyre. This will replace any material that may have escaped during the sealing action.