What to look for in a tyre changing machine or balancer

Are you or your company thinking of taking advantage of the Federal Government's immediate tax deductions on capital equipment of up to $20,000.00? If you are considering investing in wheel service equipment, please take a look at my article in the current Workshop Manager magazine. In it I have composed a "what to look for before you buy" hit list of 20 points worth considering. If you have any questions please feel free to reach out via Linked In. A copy of the article below:

Buying a new piece of equipment can get confusing at the best of times. Listening to each salesman explain why his product or service is better just makes it worse. Here's a few ideas which will hopefully clear some of the mist when purchasing a wheel balancer or tyre fitting machine.

Wheel Balancers

1. Shaft diameter - This is worth considering as generally speaking the larger the diameter the more wear surface so in theory it should last longer, with a 40 mm shaft being the industry norm. Don't forget to incorporate a monthly lubrication of the shaft and wing nut with graphite powder in your SOP's or SWP's as a new shaft assembly can be upwards of $1,000., Also the length of the shaft and its distance from the machine is very important. There's nothing worse than realizing after you've bought a product that a large wheel scrapes on the wheel balancer cabinet because the main shaft is too short or the wheel mounting accessory can't be used because the threaded shaft is too short. Before buying, take a look at the distance from the wheel balancers mounting bell (the surface the wheel mates up against) to the body of the cabinet and compare each machine. Please also consider the length of the threaded shaft which will increase the machines ability to accept some accessories mentioned later in this article.

2. Consider the maximum WHEEL diameter not just the maximum rim diameter. Larger four wheel drive wheels might only have a small rim diameter but they can have extremely large wheel diameters. Larger wheels may rub on the hood or wheel cover on smaller machines. On paper a four wheel drive rim might fit, however the tyre may just hit on the hood.

3. Digital readout or LCD monitor display? If you have many techs using the balancer or have a higher than normal turnover of staff, then consider the benefits of the monitor type display over the digital type. Monitor displays can step a technician through the calibration procedure using on screen graphics and step by step instructions. This is so much easier to understand than reading and understanding the manual then deciphering the control panel and executing the step by step procedure. A monitor can also allow your techs to access some of the more advanced features and display it in an easy to understand and easy to follow format. For example using the match mounting, split weight or stick on weight programs.

4. Ease of calibration - keeping your machine accurate is up to your techs. It makes sense that the easier a machine is to calibrate, the more frequently it gets done.

5. Laser pointers – a laser pointer takes the guess work out of positioning stick on weights. Most late model cars and many aftermarket wheels cannot be balanced using hammer on weights (clip on weights). These wheels require an adhesive weight to be stuck on the inside of the rim to ensure a clean aesthetic from the outside. Stick on weight application can be tricky to master and this can lead to excessive weight usage and unnecessary expense not to mention an unhappy customer. The laser indicator points to the correct position for the stick on weights, the wheel balancer will show the amount to be added reducing wastage and improving results.

6. Run out detectors? A run out detector can be in the form of mechanical arms which measures rim, tyre run out or it can be in the form of a light or even an ultra-sonic measurement system. The reason for this accessory is to identify a mismatch between the rim and the tyre or to help identify a poorly manufactured tyre. Most shops wouldn't use advanced features such as this and it's difficult to charge as an add on sale for this sort of work, therefore it may be difficult to justify the extra expense. If you have experienced a lot of wheel balance ride disturbance and have already tried the accessories described below, it may be worth considering an option like this. However, for most tyre shops and workshops it may be worth saving the money and keeping the machine true to its primary function – a wheel balancer not a diagnostic machine. A run out detector is not be confused with a road simulation roller which works on very different principles and can offer significant advantages.

7. Fully automatic rim data entry – simply allows the technician to enter the specific rim dimensions into the machine without the need to press buttons. This is normally achieved through the use of mechanical/electronic arms which do the

measuring for you but can also be done ultra-sonically or with laser/infra-red light. Ask the sales representative if this is an option as it can make the balancer much faster to use and can make it more accurate than manually measuring and then typing in the dimension. It also significantly reduces set up times and wear and tear on the keyboard which is very prone to wear failures. An option well worth considering.

8. Accessory – flange plate. The flange plate is an accessory which should be on everyone's shopping list. The flange plate ensures the wheel is mounted accurately onto the wheel balancer. The heavier the wheel the more challenging correct mounting becomes. Without the use of a flange plate it is quite possible to actually put a wheel OUT of balance using a brand new and freshly calibrated balancer with both readings showing the wheel has no imbalance! The customer will clearly know there is a wheel balance problem and there is nothing wrong with your wheel balancer just the way the wheel has been mounted to the balancer. Before ringing your wheel balancer supplier about poorly balanced wheels, take some time to research how to identify poorly centred wheels. A flange plate helps to minimize this inaccuracy by mounting the wheel to the balancer through the wheel stud holes in the rim. This reflects the same way the wheel is mounted to the vehicle. There is a great deal of information available about this subject and far too much to cover in this article. Your equipment sales person will be able to help you find more information or supply the accessory. They can be an expensive accessory but they may save a lot of re-works or lost customers.

9. Accessory – wheel lifter. This is normally sold as an option and is also used to lift the wheel for Health and Safety reasons. Another benefit of a wheel lift is the improvement of correct centering of the wheel on the shaft. Poor centering creates the same problems described above.

10. Accessory – Four wheel drive cone. Some machine are sold with the four wheel drive adapters (mounting cone) as an accessory. Make sure you ask the question of whether the cone is included in the price before you buy.

Tyrechangers

1. Size of the turntable – check the external rim gripping diameter capacity specifications of your potential new tyre changer. All machine brochures will also list the internal griping capacity as it always looks better on paper, however all large alloy rims must be gripped from the outside not the inside of the rim as this damages the rim and can result in the wheel becoming dislodged during the fitting process. This not only has the potential to damage rims, it can and has, damaged people so make sure the outside gripping capacity matches the rim sizes you think you might be fitting and any future considerations.

2. Size of the WHEEL - Don't just check for the rim size, but also take a look at the actual diameter of the wheel it will accept. I have seen many cheaper tyre fitting machines which will hold a four wheel drive rim but the machine is not physically big enough to accept the very large mud tyres fitted to some four wheel drives.

3. Helper arms - If you intend on fitting anything larger than a 17 inch low profile tyre consider having it fitted with a third arm or bead press device. A great feature of this type of accessory is the addition of an "articulated arm" this arm rotates with the wheel as the tyre is being fitted. Without an articulated arm, the technician must use a tyre lever or a manually operated plastic bead depressor to depress the bead as the turntable rotates. This is a potentially dangerous procedure and has resulted in many tyre levers damaging many faces. Plastic bead depressors are a cheap option but have the potential to damage the rim or as I have seen many times, shoot across the workshop at the final stage of fitting the tyre. Another great option is a roller fitted to the right hand side of the tool head, this depresses the bead while fitting. These two options in most cases ensures a tyre can be fitted

hands free and without the use of a tyre lever being used in a way it was never designed to be.

4. Manual swing arm vs tilt back - Tilt back machines have been the preferred style of machine for fitting low profile, Ultra High Performance and run flat tyres for decades as they are a much more rigid machine than the “manual swing arm” type machine. Unwanted tool head movement scratches rims, therefore with a rigid machine this is far less likely to occur. A tilt back machine (fully automatic machine) will tilt the tool back away from the operator via a foot pedal. A manual swing arm machine is operated by hand and the tool head swings away to the right. Please note some Italian manufacturers make a pedal operated (automatic) swing arm machine, these machines DO NOT suffer from the same problems the manual swing arm machines do.

5. Bead blaster or jet bead seat. Tubeless tyres, particularly four wheel drive tyres can be very difficult to seal or seat the tyres beads to the rim. This is needed to create an air tight seal so the tyre stays inflated. The bead blast or jet bead seat option shoots a high volume, high pressure blast of air into the tyre which helps to seat the tyre. This feature can be a great time saver and I would highly recommend purchasing a machine with this feature.

6. Accessory – Plastic tool heads. Plastic tool heads do not always work. The theory behind it is great however dirt becomes impregnated into the soft tool head and it is not rigid enough to maintain a gap between the tool head and the rim. Therefore, the tool head scrapes on the rim while a tyre is being fitted and the impregnated dirt scratches the rim. It sounds like a great idea and it can be, but the plastic tool head must be kept clean and lubricated and its best used by a technician who is prepared to take a little extra time and care. With the extra care the plastic tool head is a useful tool for limiting damage to alloy rims. If you do wish to purchase the plastic tool head, please make sure you option your machine with a “quick

change” adapter as this ensures that the steel tool head can be substituted quickly when used on steel or damaged alloy wheels.

7. Lever-less or not - Most manufacturers offer a machine which does away with the traditional tyre lever. Buying a lever-less machine is often based on personal choice, as it may not suit all operators. Lever-less can speed the fitting process up and without doubt it’s much safer. It does however add more complications, which will require more training and support/repairs. There are some very clever lever-less machines on the market, most of which require clever technician’s to operate them and may require clever technicians to repair them. To my way of thinking, if you can’t charge more for using a lever-less machine to fit tyres, with maintenance likely to be higher and operators requiring more training, then consider staying with the cheaper more traditional technology.

8. Turntable reverse - make sure any tyre machine you buy has a reverse. If a tyre bead falls into the wrong place during the fitting process and your machine has a reverse, it’s simply a matter of backing out of trouble. No reverse means either a damaged tyre, a damaged rim or both!

9. Accessory – wheel lifter. This accessory offers an obvious Health and Safety advantage. Take a look at the weight of the wheels your techs are lifting, if they fall outside of WHS or your organisations recommendations, then the natural choice would be a wheel lifter.

10. Accessory – automatic air inflator. This simple little computer is just like the ones fitted to a service station, only they can be fitted to a tyre machine. An inflation computer speeds up the fitting process as the auto inflator can be inflating a tyre whilst your tech is fitting the tyre to the next rim, rather than standing idle and unproductive, waiting for the first tyre to inflate.