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IMPACT WRENCH USE AND MAINTENANCE

All tire dealers and service stations use impact wrenches to perform various jobs in or out of the shop. These can vary from exhaust work to framework and, of course, tire/wheel service. These tools come in four sizes with a wide range of torque and shank length. The sizes are 3/8", 1/2", 3/4" and 1".

Most sizes are equipped with a square anvil although a spline drive is preferred in some OTR applications.

For tire service a 3/4" wrench is all that is needed, however most technicians prefer using a 1" wrench. The torque of the average 1" impact wrench is more than double the recommended torque (450 – 500 ft. lbs.) for Hub Piloted and Stud Piloted wheels.

Outside of North America most tire service is performed with a 3/4" impact wrench to reduce over torquing that can damage wheels, studs and nuts. Because the 1" wrench is typically used to apply the nuts, it then must be used to remove them due to the excessive force that has been applied. If the industry would switch to the 3/4" wrench and use torque wrenches, there would be less damage to wheel and parts as well as a reduction in wheels coming off of trucks. Even in the passenger and light truck market, over torquing is a problem. Especially with alloy wheels that crack easier than steel wheels.

The selection of an impact wrench should be based on the torque and speed required as well as the volume of work. An extra heavy duty tool is not required for a shop that changes four tires per day. It is required for high volume shops. The heavy duty or extra heavy duty wrenches are recommended for truck wheel service.

Compressor Set-Up

The performance of all air tools begins with a proper air supply. The compressor must have adequate output of air for all air tools in the shop. The compressor must be serviced and checked on a regular basis to assure maximum output. Tanks must be drained daily to reduce moisture in the lines and maximize capacity for air in the tank.

Repair air leaks that can reduce the power of air tools and increase operating cost due to the compressor running more often than necessary. All leaks in fittings, nipples, couplers and air hoses must be repaired immediately.

All piping must be of adequate size to maximize efficiency. Proper hoses and fittings are extremely important for top performance of all air tools. If piping, hoses or fittings are too small, the air tool will not operate at full power. This will reduce the operating torque and can lead to wheel system problems because of inadequate torque.

Air hoses must be connected properly by installing the appropriate size quick couplers and nipples.

The recommended operating air pressure for most air tools is 90 psi. This is the air pressure supplied by the system while the tool is running. An air pressure regulator gauge should be installed in line between the piping and air hose to ensure proper operating pressure. The gauge should be read while the air tool is running and the regulator adjusted to 90 psi operating pressure.

Higher operating pressures do not increase torque as much as most technicians think. 150 psi on an impact wrench will increase the torque by only 10% or less. The higher pressure can also damage the moving parts of an air tool. O-rings and valves will rapidly deteriorate.

Care and Service

Moisture and debris are the leading causes of failure in air tools. Moisture can cause rust and mainly affects motor parts such as the cylinder, rotor, vanes and end plates. Debris can lock up tools or cause permanent scarring and pitting of metal parts that will reduce power. There are no seals or gaskets between the cylinder and end plates, so all surfaces must be clean and smooth in order to maintain maximum torque.

The best system to eliminate moisture is an air dryer. There are different types of dryers, some must be drained daily and others drain automatically. If a dryer is not used each, air drop must be equipped with an inline filter and water separator. Separators must be drained daily.

Oiling of air tools is extremely important to assure maximum performance. An inline oiler will assure the air tool is always oiled. If an inline oiler is not available, daily oiling is a must. Non-detergent oil should be applied through the air inlet and the tool run for 30 seconds to one minutes. Oiling should be done at the end of the day so it has a chance to penetrate into all moving parts.

Whip hoses are recommended on impact wrenches to reduce weight and stress on air inlets. Use liquid pipe sealant to prevent air leaks when attaching whip hoses. If using Teflon tape be sure to avoid placing it on the last two threads. Teflon tape can flake off and can cause the motor to lock up. Use the recommended air hose and nipple shown in the parts list included in the box of most buffers and impact wrenches.

Regular Inspection

Impact wrenches should be inspected and checked on a regular basis. A wrench should be run in both directions to ensure proper output. To check output, tighten a nut onto a stud and use a torque wrench to set the final torque. If the working torque is not achieved upon removal of the nut, the wrench most likely needs rebuilt. This can be done in house or at an authorized repair center.

Impact wrenches should never be dropped, dragged by the hose, thrown or left in an area where they can be run over. It is also recommended to use protective covers to lessen the chance of cracks in the outer housing.

Even in a perfect environment an impact wrench will eventually wear out. Proper care and maintenance will extend the life of impact wrenches. Remember to use high quality non-detergent air tool oil and air tool conditioner to keep all air tools running at maximum torque for the life of the tool.