SAE International

SURFACE VEHICLE INFORMATION REPORT

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Superseding J1377 MAY1997

(R) Off-Road Rim Maintenance Procedures and Service Precautions Diameter Code 20 and Larger

RATIONALE

Proper handling of off-road rims and rim components is critical to the safety of personnel, equipment, site location, and the environment. This SAE information report provides guidelines to address proper handling, maintenance and inspection of off-road rims.

1. SCOPE

This SAE Information Report covers the important fundamental maintenance and service precautions for all off-road single-piece and multi-piece rims. Detailed information on specific procedures concerning mounting, demounting, maintenance and service of a particular type, style, or design of off-road rim assembly can be obtained by consulting rim or tire manufacturers or distributors.

These procedures and service precautions are guidelines to be considered in preparation of the machine service manual and operator's manual and workplace procedures. It is the intent of this Information Report to allow for further development and review of these guidelines and then make this document a Recommended Practice.

2. REFERENCES

2.1 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J751 Off-Road Tire and Rim Classification - Construction Machines

SAE J1315 Off-Road Tire and Rim Selection and Application

SAE J1440 Off-Road Tire and Rim Classification - Forestry Machines

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

2.1.2 Rubber Manufacturers Association (RMA) Publication

Available from the Rubber Manufacturers Association (RMA), 1400 K Street, NW, Suite 900, Washington, DC 20005, Tel: 202-682-4800, www.rma.org.

OHM-882 Care and Service of Off-the-Highway Tires

2.1.3 Mine Safety and Health Administration Publication

Available from MSHA, 1100 Wilson Boulevard, 21st Floor, Arlington, VA 22209-3939, Tel: 202-693-9400, www.msha.gov.

MSHA IG 60 Tire and Rim Safety Awareness Program, Instruction, Guide Series
http://www.msha.gov/S&HINFO/IG60.PDF

MSHA Job Task Analysis "Spider": Tire Changer
http://www.msha.gov/interactivetraining/tasktraining/forms/Service%20Tire%20Worksheet.pdf

2.1.4 SAI Global Limited Publication

Available from SAI Global Limited, GPO Box 476, Sydney, NSW 2001, Australia, Tel: 1-300-65-46-46, www.saiglobal.com.

Australian Standard AS 4457-1997 Earth-Moving-Off-The-Road Wheels, Rims and Tyres—Maintenance and Repair

2.1.5 Tire Industry Association Publication

Available from Tire Industry Association, 1532 Pointer Ridge Place, Suite G, Bowie, MD 20716-1883, Tel: 800-876-8372, www.tireindustry.org.

OTR Tire Mount/Demount Training & Certificate Program 1

2.1.6 Occupational Safety and Health Administration (OSHA) Publication

Available from U.S. Department of Labor/OSHA, OSHA Publications, P.O. Box 37535, Washington, DC 20013-7535, Tel: 202-693-1888, http://www.gpoaccess.gov/.

Code of Federal Regulations 29 CFR 1910.177 Servicing multi-piece and single piece rim wheels

3. DEFINITIONS

See Figures 1 and 2.

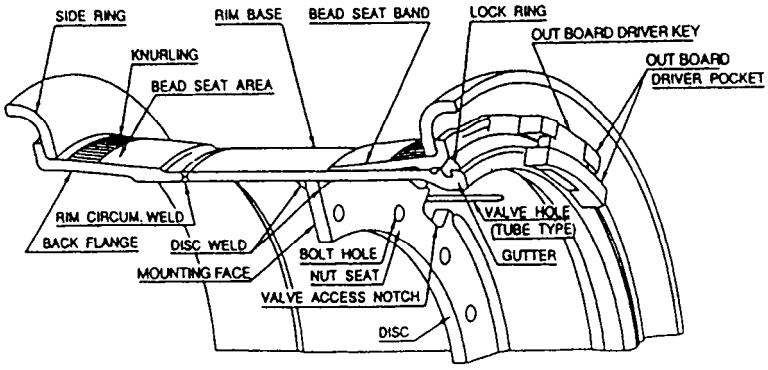

FIGURE 1 - MULTI-PIECE WHEEL COMPONENT NAMES

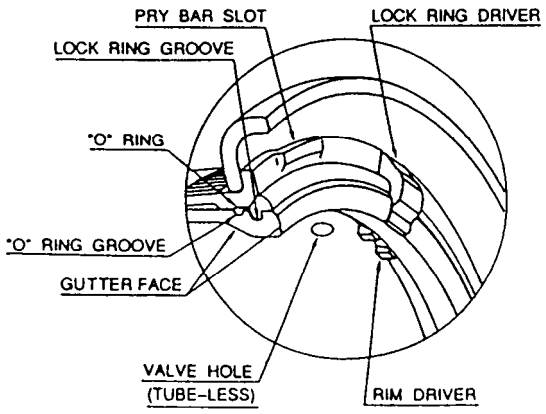

FIGURE 2 - DETAIL OF GUTTER AREA

4. MAINTENANCE PROCEDURES AND PRECAUTIONS

4.1 General

Rim and tire servicing can be hazardous unless correct procedures are practiced by trained personnel. Use of personal safety equipment such as hard hats, ear protectors, safety glasses, safety shoes, gloves, etc., and proper tools, and equipment are required for safe tire and rim servicing.

Each mine site, job site or service contractor is responsible for documenting a written tire and rim servicing procedure.

4.2 Demounting

4.2.1 When removing a tire or rim assembly from a machine, ensure the machine is in a location where it can be safely serviced out of the way of traffic and machine operations. Place the machine on level ground surface, set the park brake, put the transmission in neutral position, turn off the engine, and follow the site lock out/tag out procedures and block the tire on the opposite side of the machine before placing jacks at the machine manufacturer's recommended position. Articulated machines must be pinned or locked in place to prevent unexpected movement. Put hardwood blocks, cribbing, under the jacks if necessary. Support the machine on stable cribbing blocks or jack stands before removing the wheel and tire. Ensure the cribbing/jack stands are stable. Place safety cones around the work area. Site and machine specific risks must be analyzed and managed.

4.2.2 Always release all pressure from a single tire, or from both tires of dual assembly, prior to removing any rim components or attaching hardware such as rim and rim clamps.

A broken or damaged rim or component under pressure may rupture or be propelled by the pressure.

4.2.2.1 When releasing pressure from the tire assembly, remove the valve core from the valve stem and stand clear during deflating to avoid particles in the high-speed air flow.

4.2.2.2 Check the valve stem passage for obstruction by carefully running a piece of wire through the stem.

4.2.3 When removing deflated dual assemblies from the machine, always support the outer rim prior to removing the attaching hardware to prevent the rim from falling.

4.2.4 Always stand clear when handling a tire/rim assembly using a lifting strap, cable, chain sling, or other lifting components.

Inspect lifting components for damage before using.

Never position yourself between the tire and the vehicle or the service truck. Allow room for escape.

Keep the tire as close as practical to the ground when moving it.

Lay the tire down if possible

4.2.5 When unseating tire beads, use proper tools suited to the rim, keep fingers clear, and stand to one side. Also, keep fingers clear when removing the lock ring and O-ring.

4.2.6 Always use mechanical aids when handling a heavy rim or component.

4.3 Inspection and Maintenance

4.3.1 Clean rim base and components to facilitate inspection and tire mounting. Clean all dirt and rust from those interlocking features of multi-piece rim components, paying special attention to the gutter section which holds the lock ring in place. After inspection, repaint as needed to prevent corrosion.

Clean parts facilitate inspection for fractures and designed fit.

4.3.2 Inspect rim base and components prior to assembly. Any rim or component that is bent out of shape, pitted from corrosion, broken, or cracked shall not be used.

4.3.3 Do not attempt to rework, weld, heat, or braze any rim base or components under any circumstances.

4.3.4 Repairs shall only be performed by the rim manufacturer or an authorized representative of the rim manufacturer. Replace with new parts or parts that are not cracked, broken or damaged and which are of the same size, type and manufacture. Any welding must be done by a properly trained person.

4.3.5 Never reinflate a tire that has been hit by lightning or exposed to fire.

4.3.6 Inspection should be performed at every mounting and demounting by a properly trained person.

4.4 Assembly and Inflation

4.4.1 Check the marking of the tire and rim components to make sure they are the correct size and type for the assembly. Follow the tire manufacturer's recommendations regarding tire lubricant and its application.

Make sure all components are seated as designed, paying special attention to the lock ring area prior to inflating the tire. Many rim components look similar, but are different in design and type even within the same rim manufacturer. Mismatched parts may appear to fit; however, when the tire is inflated, they may dislodge. If you are not sure about the correct match of rim parts, consult the tire/rim servicing organization, the rim manufacturer or the rim distributor for technical guidance.

4.4.2 Do not reinflate a tire that has been run flat or seriously under inflated (less than 60% of operating pressure) without first disassembling and inspecting the tire/rim assembly, inspect the rim, flanges, bead seat band, lock ring, lock ring groove and O-ring groove for damage. The tire should be inspected by the tire manufacture or tire professional before remounting. Make sure they are properly fitted and the lock ring is secure in the gutter section.

Ensure no water or foreign material is in the tire.

4.4.3 Lubricate components by following the tire manufacturer's recommendations regarding tire lubricant and its application.

Always install a new "O" ring