

## **AUTOMATIC TIRE CHAIN SYSTEM BID SPECIFICATION SHEET**

Our Vehicles will be equipped with an Automatic Tire Chain System with the following specifications:

**Chain Unit** - There will be one driver's side and one passenger's side chain unit. The chain unit will be delivered fully assembled with the following components:

- a. An air cylinder containing one diaphragm, one return spring, one pushrod and a collapsible dust boot held in place with an Oetiker® style retainer to prevent foreign material from entering the air cylinder. The cylinder will be assembled with a two-piece cylinder clamp. The air cylinder will be cast aluminum and the lid will be threaded to receive a 90-degree DOT approved air fitting. The cylinder and lid must be anodized for corrosion resistance. Each cylinder will have 6 strengthening ribs. The cylinder wall thickness will be a minimum of 6mm.
- b. An extension rod and ball joint assembly that is fastened to the cylinder pushrod by means of a left hand thread. The ball joint must have a provision for greasing.
- c. A swing arm that is connected to the ball joint assembly with a nylock lock nut on one side and is fastened to the cylinder bracket at the pivot point. The arm will be supported by 2 greaseable arm bushings. The arm will be one-piece hardened alloy material that is formed in such a fashion that it allows the chainwheel to contact the vehicle tire at 3-1/2 to 4 inches off the ground.
- d. A chainwheel that is fastened to the arm with one 20mm bolt that is hardened to Metric Grade 8.8 along with a hardened lock nut. The bolt will also come with one chainwheel spacer for wheel height adjustment. The chainwheel will be 7-3/4 inches in diameter and will be constructed of a one-piece cast aluminum center hub that contains two maintenance-free sealed bearings. The circumference of the chainwheel will be rubber coated so that it may ride on the inside of the vehicle tire without causing any damage to the tire. There will be 6 lengths of chains approximately 13 inches long that will be welded to a single steel ring at 60-degree intervals. The steel ring will be bolted to the center hub with 6 Grade 8 cap screws and locknuts. Each length of chain will contain up to 10 twisted links that are square-cut to provide for maximum traction in forward and reverse. Each chainwheel will be delivered with a chainwheel helmet to protect the chainwheel bearing and casting.

**Mounting Bracket Assembly** - There will be one driver's side and one passenger's side mounting bracket. The mounting bracket will be constructed of ASTM-A36 steel that is 5/8 inches in thickness and will be one piece. The mounting bracket will include 5 holes for mounting. Three of these holes will be for attachment to the rear suspension and two of the holes will provide for attachment of the chain unit. Two grade 8 hardened cap screws; lock nuts and flat washers will be provided for the attachment of each chain unit. The bracket will attach to three of the four U-bolt legs via certified Grade 8 coupling nuts, manufactured in accordance with SAE specifications, designed in such a way that they may be threaded onto the U-bolt legs on one side of the nut and allow the mounting bracket to be bolted to the opposite side of the nut. All hardware including the coupling nuts must be certified Grade 8 and have zinc yellow chromate coating for corrosion resistance.

**Solenoid** - A continuous duty solenoid must be provided that, when activated by the dashboard switch, opens and allows compressed air to flow to the chain units. Compressed air will be delivered to the solenoid from the vehicle's air tank. The air source to the Onspot system **MUST BE** pressure protected. The air electric solenoid must be 12 volts and draw no more than 1.75 amps. The solenoid must comply with NFPA 2010 and have a diode suppressed coil. The solenoid must have a muffler/filter to keep debris out of the solenoid and be sealed to the body of the solenoid via a rubber gasket. Electrical wire shall be in accordance with NFPA 1901 standards.

**Dashboard Switch** - A 12-volt dashboard switch will be provided so that the operator may engage the chains from the driver's seat. The switch must be lighted to indicate when the chains are engaged. The switch must come complete with a switch guard to avoid accidental engagement of the automatic chains. The switch guard must be properly labeled. A dashboard sticker with operating instructions must be provided.

**System Connection Components** - The system will be delivered with all wire, fittings, and tubing necessary to complete the installation. Documentation must include mounting instructions, warranty card, and operating instructions via a dashboard sticker as well as a card or booklet that outlines operating and maintenance instructions for the Fleet Manager. A CD-ROM with installation, maintenance and operating instructions must be included with the system. The system will carry a one-year warranty covering any defects in material or workmanship.

**Compressed Air System** - Some of our vehicles do not have an on-board air source. On those vehicles, the supplier will include a 12-volt compressor kit to include a 12-volt electric continuous duty air compressor with .35 CFM minimum output and have an internal thermal protection switch. A pressure switch will be supplied so that the system can maintain a minimum of 90 PSI. A storage tank with mounting brackets shall be included that will hold 600 cubic inches of air. Build up time from 0 PSI to 90 PSI **MUST** be less than 5 minutes. This kit will include its own wire, hose and fittings.

**Liability** - The supplier must furnish proof of Product Liability Insurance upon request.

**Product History** - Product must have been in production for a minimum of 30 years. The product **MUST** be of U.S. manufacture in a factory that is ISO 9001 Certified.

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