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Automatic Hockey Puck Ejector

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MET 497 Report

the

Automatic Hockey Puck Ejector

for

Professor Donald J. McAleece
Purdue University
Fort Wayne, Indiana

by

Steven K. Igney

April 11, 1985

ABSTRACT

The Automatic Hockey Puck Ejector is to be used as a practice tool for hockey players. This report describes the basic principles of the ejector. Included in the report are the design, criteria, cost, fabrication and technical assurance of the ejector.

INFORMATIVE ABSTRACT

The Automatic Hockey Puck Ejector is designed to help develop the hockey skills of goalies. Hockey pucks are ejected by two ejector wheels rotating in opposite directions. The wheels are standard recreation vehicle trailer tires with 8-inch rims and an overall diameter of 16-inches.

A Dayton 1/2 hp motor Model No. 6K135B supplies the power for the ejector wheels. A double V-belt, Dayco AA75, is used to transmit power from the motor to the ejector wheels. The belt is in contact with two shaft pulleys, an idler pulley, and the motor pulley. The wheels rotate at 1725 rpm so the hockey puck can eject 60 mph at 20 feet.

The frame is made of aluminum to reduce weight. All components are mounted to the frame. Two shaft assemblies are required and placed vertical inside the frame. The vertical assemblies place the ejector wheels close to the ice surface. A factor of safety of 3.3 is given by the assemblies. A computer program verifies this and other calculations.

A push rod is used to load the pucks between the wheels. This keeps the operator away from the rotating wheels and other moving parts.

Prototype cost at retail prices is \$290.86. This cost can be reduced by purchasing other components. Tests determine that the pucks are ejected at 60 mph at 20 feet and the wheels rotate at 1725 rpm.

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