

**DESIGN THE PROTOTYPE OF THE REPLACEMENT BRAKE OIL WITH  
CONTROL ON A FOUR-WHEEL DRIVE  
ON AUTO 2000 JOMBANG**

**Imam Syamsuri**

*Automotive Engineering Study Program  
Engineering Department*

**ABSTRACT**

The pneumatic system is a system that works by harnessing compressed air pressure. The study has implemented the pneumatik system as prototype replacement of brake oil with control through a custom-built electrical system that was strung together to analyze a 6 mm and 3 mm reduction in speed control. The purpose of this study is to find a comparison of the volume of brake oil that comes out when the replacement of brake oil in 1 minute using a device for variations instead of valves by three times the data retrieval of each valve speed control. Based on the results of the tests, the 6 mm valve openings are more efficient than the 3 mm valve openings with an average volume of brake oil coming out at 75,6 mm compared 72,1 mm. Ther testing of time comparisons using conventional methods and using a protype designed to get results, the conventional method is more efficient by requiring an 8 minute process of replacement brake oil. Final testing the instrument durability by performing a 3-time continuous replacement of brake oil and obtaining results of normal instrument conditions and no indication of damage to the remin-oil replacement with the control.

**Keyword:** pneumatic, brake oil, time, *durability*.