**ANALISIS KEGAGALAN *CYLINDER***

***AIR GRINDERASUD 20***

**UNTUK PROSES PELUBANGAN**

**KARET PINTU MOBIL**

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Intisari

**ANALISA KEGAGALAN POROS RODA BELAKANG KENDARAAN.** Tulisaninimembahastentangkegagalan yang terjadipada*cylinder air grinder ASUD 20*denganspesifikasi material yang belum diketahui..Tujuanpenelitianiniadalahuntukmengetahuifaktorpenyebabkegagalantersebutdanmemberikansolusibilaterjadikasus yang serupapadakomponendengan material yang sama. Studipadaanalisakerusakan*cylinder air grinder ASUD 20*menggunakanmetodepengamatan visual, makrostrukturdenganmikroskop stereo, pengamatanmetalografidenganmikroskopoptik (OM), fraktografipermukaanpatahandengan*scanningelectron microscope* (SEM), ujikekerasanmikrodenganVicker’ssertaanalisakomposisikimiamenggunakan *optical emission spectroscopy* (OES). Hasilfraktografimenunjukkanbahwapermukaanpatahanmerupakantipekerusakandiniataupatahtanpaterjadideformasiplastis. Strukturmikromenunjukkanadanyafasaferitsebagaibatasbutirdarifasamartensit. Struktur material sepertiinidapatmengurangiketahanan material terhadapgesekanterutama di area yang memilikikonsentrasitegangan yang tinggi. Padaakhirnyaketikaterjadigesekan, kekuatan*cylinder air grinder ASUD 20*menjadilebihrendah.

*Kata kunci :cylinder air grinder ASUD 20, pengerasanpermukaan, batasbutirferit*

Abstract

FAILURE ANALYSIS OF REAR WHEEL VEHICLES. This paper discusses the failures that occur in ASUD 20 air grinder cylinders with unknown material specifications. The purpose of this study was to determine the causes of these failures and provide solutions when similar cases occur on components with the same material. Study on analysis of air grinder ASUD 20 cylinder damage using visual observation method, macro structure with stereo microscope, metallographic observation with optical microscope (OM), fracture surface fractography with scanning electron microscope (SEM), micro hardness test with Vicker's and chemical composition analysis using optical emission spectroscopy (OES). Fractographic results show that the fault surface is a type of early or broken damage without plastic deformation. The microstructure shows the presence of the ferrite phase as the grain boundary of the martensite phase. Material structures like this can reduce material resistance to friction, especially in areas with high stress concentrations. In the end when friction occurs, the strength of the ASUD 20 air grinder cylinder becomes lower.

Keywords: cylinder air grinder ASUD 20, surface hardening, ferrite grain boundary

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