

**PENINGKATAN EFISIENSI KOMPONEN TRANSMISI *FINAL DRIVE*
DENGAN PENDEKATAN PENGECILAN *DIAMETER PITCH*
PLANETARY GEAR PADA *BULLDOZER* KAPASITAS DORONG 15 TON**

REGIAN

ABSTRAK

Final Drive terdiri dari dua rangkaian roda gigi yaitu *spurgear* dan *planetary gear*, prinsip kerja *final drive* tidak berbeda jauh dengan prinsip kerja transmisi yaitu dimana terdapat pengurangan kecepatan putaran dengan tujuan untuk meningkatkan torsi dengan cara pemanfaatan dari perbedaan jumlah gigi. Terdapat hubungan antara *final drive* dengan efisiensi daya pada unit/alat. Awal perancangan dimulai dengan pemilihan dimensi roda gigi dari sisi jumlah gigi dan modul roda gigi pada rangkaian *planetary gear*. Dari hasil pemilihan tersebut didapatkan pengurangan jumlah gigi dan modul, yaitu sun gear dengan jumlah gigi 12 yang awalnya berjumlah 13 gigi, jumlah gigi *carrier gear* 24 yang awalnya 27 gigi dan *ring gear* dengan jumlah 60 gigi yang awalnya berjumlah 68 gigi, serta perubahan modul yang awalnya 6,5 diubah menjadi 6. Dari hasil pengujian tersebut diperoleh hasil efisiensi daya sebesar 57%. Jadi kesimpulannya, pengurangan dimensi pada roda gigi baik dari sisi jumlah gigi maupun modul, mampu meningkatkan efisiensi komponen sehingga menghemat konsumsi daya karena terjadi pengurangan beban pada komponen *final drive*.

Kata kunci : *Final Drive, Planetary Gear, Efisiensi komponen.*

**INCREASED EFFICIENCY OF THE COMPONENTS TRANSMISION OF
FINAL DRIVE WITH THE APROACH DIMINUTION PITCH
DIAMETER OF PLANETARY GEAR ON BULLDOZER THRUST
CAPACITY 15 TONS**

REGIAN

ABSTRACT

Final Drive consists of two gear sets namely spurgear and planetary gear, the final drive working principle is not much different from the working principle of transmission which is where there is a reduction in rotation speed with the aim of increasing torque by utilizing the increasing number of teeth. There is a relationship between the final drive and the power efficiency of the unit / tool. The beginning of the design begins with the selection of the gear dimensions in terms of the number of gears and gear modules in the planetary gear set. From the results of the selection, there was a reduction in the number of teeth and module, namely sun gear with a number of 12 teeth which initially amounted to 13 teeth, the number of 24 carrier gear teeth which were initially 27 teeth and a ring gear with a total of 60 teeth which initially amounted to 68 teeth, as well as module changes which initially 6.5 were changed to 6. From the test results the results obtained by the power efficiency of 57%. So the conclusion, the reduction in dimensions on the gears both in terms of the number of teeth and modules, is able to increase the efficiency of the components so that it saves power consumption due to a reduction in the load on the final drive components.

Keywords : *Final Drive, Planetary Gear, Efficiency of Components.*