

PROSES MANUFAKTUR DAN PERHITUNGAN *CENTER OF GRAVITY* (CG) PESAWAT UAV V-SKY 14 NG

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ABSTRAK

Pesawat Unmanned Aerial Vehicle (UAV) adalah sebuah pesawat yang dapat menjalankan misi penerbangan dengan dikendalikan pada perangkat elektronik tanpa pilot di dalam pesawat, dengan perkembangan teknologi UAV yang semakin maju dan berkembang secara pesat, teknologi UAV sudah banyak diaplikasikan untuk pemantauan lingkungan secara Vertical Take Off and Landing (VTOL). Pada penulisan skripsi ini membahas tentang manufaktur dan penentuan center of gravity (CG) pada pesawat UAV V-SKY 14 NG yang memiliki misi pemantauan lalu lintas jalan raya.

Pada proses manufaktur pesawat UAV V-SKY 14 NG ini memakai metode conventional dan nonconventional dengan menggunakan bahan styrofoam, pipa karbon, plywood dan kertas laminating. Penggunaan metode conventional pada manufaktur UAV V-SKY 14 NG diantaranya adalah hot wire, pemotongan menggunakan cutter, gergaji besi dan finishing yang menggunakan amplas, sedangkan metode non-conventional digunakan pada pemotongan menggunakan laser cutting dan 3D printing. Setelah pesawat selesai manufaktur dilakukan penimbangan dan mengukur arm untuk menghitung weight and balance pada pesawat tersebut.

Proses manufaktur pesawat UAV V-SKY 14 NG meliputi pemotongan mal, manufaktur fuselage, wing, tail boom, vertical dan horizontal stabilizer, batang VTOL, beberapa penambahan part seperti pengunci wing dengan bolted conector. Hasil dari manufaktur didapatkan bahwa pesawat UAV V-SKY 14 NG memiliki tingkat penyimpangan dimensi desain dengan actual manufaktur dengan tingkat penyimpangan teliti, sedang, dan kasar, memiliki letak center of gravity pada titik 360.5 mm dari datum (nose) atau 26.5 % dari MAC (wing).

Kata kunci: *UAV, VTOL, Manufaktur, Center of gravity*

**MANUFACTURING PROCESS AND CALCULATION CENTER OF GRAVITY (CG)
UAV V-SKY 14 NG**

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ABSTRACT

Unmanned aerial vehicle (UAV) is an aircraft that can carry out flight missions by being controlled on electronic devices without a pilot in the aircraft, with the development of UAV technology that is increasingly advanced and growing rapidly, UAV technology has been widely applied for vertical take off and landing (VTOL) environmental monitoring. In writing this thesis, we discuss the manufacturing and determination of the center of gravity (CG) on the UAV V-SKY 14 NG aircraft which has a mission to monitor road traffic.

In the manufacturing process of the UAV V-SKY 14 NG aircraft using conventional and non-conventional methods using styrofoam, carbon pipe, plywood and laminating paper. The conventional methods used in manufacturing UAV V-SKY 14 NG include hot wire cutting, cutting using cutters, hacksaw, and finishing using sandpaper, while non-conventional methods are used for laser cutting and 3D printing. After the aircraft is finished manufacturing, it is weighed and measured the arm to calculate the weight and balance on the aircraft.

The manufacturing process for the UAV V-SKY 14 NG includes cutting malls, manufacturing fuselage, wings, tail booms, vertical and horizontal stabilizers, VTOL rods, several additional parts such as wing locks with bolted connectors. The results from the manufacturing show that the V-SKY 14 NG UAV has a design dimensional deviation level with actual manufacturing with a precise, medium, and rough level of deviation, has a center of gravity location at 360.5 mm from the datum (nose) or 26.5% of MAC. (wings).

Keywords: UAV, VTOL, Manufacturing, Center of gravity