

ABSTRAK

Landing gear merupakan komponen yang berfungsi untuk menopang pesawat ketika pesawat sedang berada di *ground* dan juga membantu pesawat ketika melakukan *taxing*, *landing gear* juga memiliki fungsi transisi (*retract and extension*). Fungsi transisi (*retract and extension*) pada *landing gear* ini tidak bisa terlepas dari komponen *hydraulic system*. *Hydraulic system* merupakan sistem yang bekerja secara hidrolis untuk membantu menggerakkan berbagai komponen yang terdapat pada pesawat. *Hydraulic system* terbagi menjadi dua bagian yaitu *blue hydraulic system* dan *green hydraulic system*. *Green hydraulic system* merupakan sistem hidrolis yang berfungsi untuk melakukan transisi (*retract and extension*) serta *normal braking* pada *landing gear*. Sistem ini tentu memiliki peran yang cukup penting karena jika terjadi kerusakan atau kegagalan pada sistem ini tentu dapat mengakibatkan fungsi transisi (*retract and extension*) pada *landing gear* tidak dapat bekerja.

Terjadinya kegagalan *unproper fit position landing gear* diindikasikan dengan posisi *landing gear* ketika melakukan transisi *retract* tidak berada pada tempatnya dan *landing gear* tidak *terlock*. Kondisi yang terjadi ini tentu dapat membahayakan kegiatan terbang, dan dapat menyebabkan pesawat batal terbang. Menindak lanjuti kegagalan yang ditemukan ketika para *engineer* melakukan *functional test*, maka dilakukan pemeriksaan sesuai dengan referensi *troubleshooting manual* (TSM) ATR 72-600 pada *task* 32-31-00.

Setelah dilakukan pemeriksaan awal sesuai dengan referensi *troubleshooting manual* (TSM) ATR 72-600 pada *task* 32-31-00 kegagalan berasal dari *electric pump* yang tidak lagi beroperasi secara optimal. *Electric pump* yang tidak lagi beroperasi secara optimal disebabkan karena *electric pump* telah memasuki *lifetime*. Maka untuk mengembalikan performa normal *electric pump* dianggap perlu melakukan penggantian *electric pump*. Penggantian komponen *electric pump* dilakukan sesuai dengan referensi JIC 29-10-00 RAI 10010-002 ATR 72-600. Analisis penyebab terkait dengan permasalahan *unproper fit position landing gear* dengan menggunakan metode *fault tree analysis*, didapatkan 11 *basic event* yaitu, (1) *electric pump trouble*, (2) *weak battery*, (3) *connector trouble*, (4) *pressure transmitter trouble*, (5) *piston trouble*, (6) *roller pin fail*, (7) *hook crack*, (8) *tank leakage*, (9) *below minimum quantity*, (10) *contamination*, (11) *low viscositas*.

Kata Kunci: *green hydraulic system, unproper fit position, landing gear, fault tree analysis, ATR 72-600.*

ABSTRACT

Landing gear is a component that functions to support the aircraft when the aircraft is on the ground and assists the aircraft when taxiing, landing gear also has a transition function (retract and extension). The transition function (retract and extension) on this landing gear cannot be separated from the hydraulic system components. Hydraulic system is a system that works hydraulically to help move the various components contained in the aircraft. The hydraulic system is divided into two parts, namely the blue hydraulic system and the green hydraulic system. The green hydraulic system is a hydraulic system that functions to perform the transition (retract and extension) as well as normal braking on the landing gear. This system certainly has an important role because if there is damage or failure of this system, it can certainly cause the transition function (retract and extension) on the landing gear to not work.

The failure of the landing gear improper fit position is indicated by the position of the landing gear when the retract transition is not in place and the landing gear is not locked. This condition can certainly endanger flying activities and can cause the aircraft to abort. Following up on failures found when the engineers carried out functional tests, an inspection was carried out according to the ATR 72-600 troubleshooting manual (TSM) reference in task 32-31-00.

After the initial inspection was carried out according to the troubleshooting manual reference (TSM) ATR 72-600 on task 32-31-00, the failure came from the electric pump which was no longer operating optimally. The electric pump is no longer operating optimally because the electric pump has entered its lifetime. To restore the normal performance of the electric pump, it is considered necessary to replace the electric pump. Replacement of electric pump components is carried out in accordance with the reference JIC 29-10-00 RAI 10010-002 ATR 72-600. Analysis of the causes related to the problem of improper fit position landing gear using the fault tree analysis method, obtained 11 basic events, namely, (1) electric pump trouble, (2) weak battery, (3) connector trouble, (4) pressure transmitter trouble, (5) piston trouble, (6) roller pin fail, (7) hook crack, (8) tank leakage, (9) below minimum quantity, (10) contamination, (11) low viscosity.

Keywords: *green hydraulic system, improper fit position, landing gear, fault tree analysis, ATR 72-600.*