

Scheibe- Flugzeugbau GmbH August- Pfaltz- Str. 23 85221 Dachau LBA- Approval LBA.NSD.008	Technische Mitteilung 653-78 Elektrische Trimmungssteuerung	SF 25C GeräteNr. 653 Seite 1 von 5
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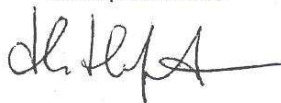
- Gegenstand:** Betätigung des Trimmruders über einen elektr. Trimmservo anstelle des bisherigen Bowdzenzuges.
- Betroffen:** Motorsegler der Firma Scheibe Flugzeugbau GmbH des folgenden Musters:
SF 25 C: wahlweise alle Werknummern
- Dringlichkeit:** Keine
- Vorgang:** Anstelle des bisher verwendeten federunterstützten Bowdzenzuges, der mittels Antriebshebel im Cockpit und Gegendruckfeder an der Trimmklappe die Trimmrudereinstellung und die Feineinstellung der Trimmung ermöglichte, soll zukünftig ein elektrischer Servomotor T3-12A der Firma RAY ALLEN diese Aufgabe übernehmen. An der Funktion der Trimmung an sich und den bisher festgelegten Ruderausschlägen wird nichts geändert.
- Maßnahmen:**
1. Die bisherigen Trimmruderantriebsbeschläge nach Zeichnung 653B-34-S6 werden ersetzt durch den Einbau des Servomotors T3-12A von RAY ALLEN Comp. Am Trimmruder wird der Antriebshebel nach Zeichnung 653C-34-S 3.2. angebracht und mittels einer Gewindestange mit je einem Gabelkopf (Clevis/ Pushrod Kit RC8-7 der RCA Comp.) mit dem Servomotor verbunden.
 2. In der Mittelkonsole wird der Schalter (Rocker Switch RS2 der RCAComp.) zusammen mit der Stellungsanzeige (Needle Indicator RP2 der RCA-Comp.) eingebaut. Für die Verschaltung der einzelnen Komponenten unter- und miteinander sind die Einbauunterlagen der RCA. Comp. für T2-7A-TS, T2-10A-TS, T3-12A-TS Trim Systems verbindlich.
 3. Die Einbauanweisung des Herstellers für die o.g. Komponenten (nachfolgend abgebildet) sind verbindlich zu beachten.
 4. Für SF 25 C mit ROTAX- Triebwerken gilt das Flug- und Wartungshandbuch Ausgabe MÄRZ 1997 mit Änderungsstand 5 vom 20.05.2004.
 5. Für alle SF 25 C ohne ROTAX Triebwerk wird das Zusatzblatt „Elektrische Trimmung“ ins Flughandbuch eingeklebt und dies handschriftlich im Blatt Berichtigungsstand vermerkt.

Massen und Schwerpunktslagen: Keine Veränderung, da sich Massen und Momente der bisher verwendeten Teile (Bowdzenzugwiderlager mit Antriebsstange inkl. Feder) und der neuen Teile (Servomotor mit Antriebsgewindestange inkl. Antriebshebel am Ruder) entsprechen. Die Massen von Schalter und Stellungsanzeiger sind vernachlässigbar.

Hinweise und Anmerkungen: Die Maßnahme wird bei Neubau vom Hersteller oder im Rahmen einer Überholung von einem entspr. zugelassenen LTB nach Unterlagen der Fa. SCHEIBE- Flugzeugbau GmbH durchgeführt.

SCHEIBE- Flugzeugbau GmbH
 Dachau, den 07.07.2004
 LBA. NSD.008

Musterprüfleitstelle



(Haferkorn)

LBA- genehmigt



20. JUL. 2004

"Approved by EASA under approval No. 2004-7850 on 26. July 2004."



2525-8 Pioneer Avenue, Vista, California 92081 USA Phone 760 599 4720 Fax 760 599 4383

www.rayallencompany.com

INSTALLATION INSTRUCTIONS FOR

T2-7A-TS, T2-10A-TS, T3-12A-TS TRIM SYSTEMS

ABOUT THE RAY ALLEN SERVO

NOTE: The T2-7A servo has .7" (17mm) travel, the T2-10A servo has 1" (26mm), and the T3-12A servo has 1.2" (31mm).

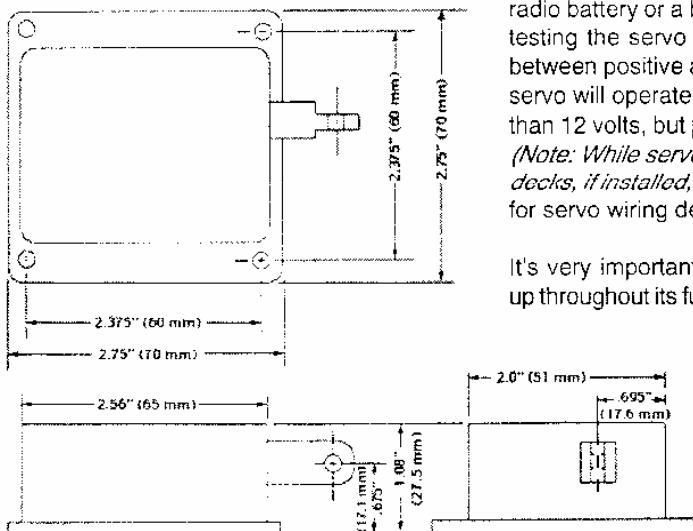
Ray Allen servos are constructed of a composite material that contains glass fibers added for strength and durability. Some of these glass fibers may appear as white smudges on the outside surface of the servo. This is caused by the injection molding process and while not very pretty, the fiber content makes for a very strong material.

Ray Allen servos operate on 12-14 volts DC. A lower voltage can be used, but will result in less power and slower speed. When activated, the servo will continue to run until the power is shut off or the output shaft reaches the end of its travel. Since the thrust is generated by means of a jackshaft (T2 models) or a jackscrew (T3 models), the output shaft will lock in any position when the power is shut off. The servos will not operate unless power is manually switched on by the pilot, no electronics are utilized in the servo. Voltage polarity determines the direction of travel.

INSTALLING THE SERVO

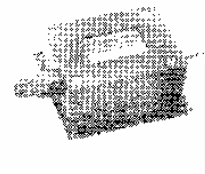
The following are a few general guidelines concerning servo installation. However, you should consult the manufacturer of your kit, or the designer of your aircraft, for any specific information about installing our electric trim.

For most aircraft designs, the trim servo will be installed inside the control surface to control a trim tab. It can also be used to adjust springs connected to a control surface. Ray Allen Servos can be mounted in any position, but they must be protected from water exposure. The mounting holes in the servo flange are 1/8" diameter. If you plan on securing the servo with 6-32 screws, you will have to carefully enlarge the flange holes. The servo should not be mounted with any larger diameter screws than 8-32.



Although Ray Allen Servos use 12 volt motors, a 9 volt transistor radio battery or a battery pack from a cordless drill are very useful for testing the servo during the installation process. Switch the wires between positive and negative to reverse the direction of travel. The servo will operate slower and have less power than when using less than 12 volts, but performance will be adequate for testing purposes. *(Note: While servos may be tested at lower voltages, Ray Allen relay decks, if installed, require 12-14 volts to operate reliably).* See page 4 for servo wiring details.

It's very important that the servo does not bind up throughout its full length of travel. This includes making room for the leadscrew on the T3-12A servo when the output shaft is fully retracted.



CAUTION! The output shaft is drilled for a 1/8" diameter clevis pin. DO NOT enlarge the 1/8" hole to accommodate a larger pin.

Warning: Installation and use of Ray Allen Company products is the responsibility of the aircraft designer and manufacturer. Use of Ray Allen products in any application which will exceed their capability can cause failure leading to injury or death.

THE RAY ALLEN COMPANY INC.

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RP2 NEEDLE TYPE POSITION INDICATOR

Because of the delicate balance on the registering needle, the indicator must be mounted with its "TOP" label towards the top. The indicator's needle balance is set at the factory and should not require any further adjustments. However, there is a small adjustment capability in where the needle stops at the far end of the display. To adjust where the needle stops, *carefully* insert a small #1 screwdriver in the hole in the back of the indicator and twist to put the needle where you desire. Make sure the servo or sensor is in the *fully extended* position when adjustments are made.



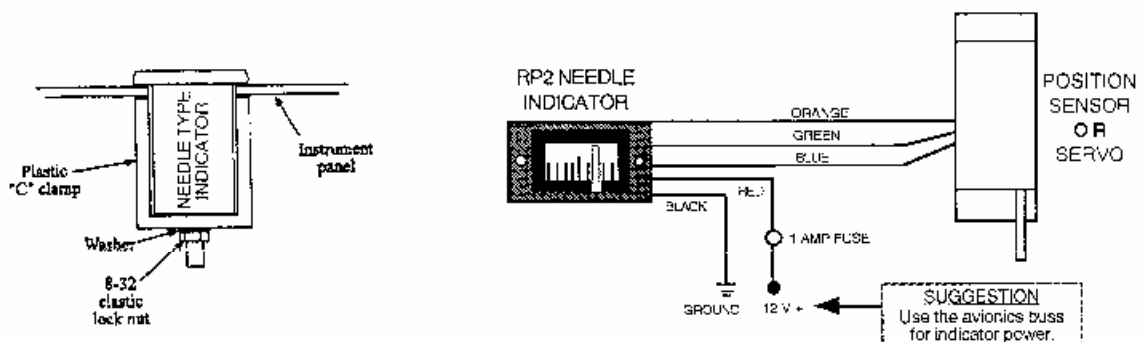
If, after wiring your indicator the needle moves in the opposite way you desire, **DO NOT** flip the needle indicator upside down, simply reverse the orange and blue wires that connect it to the servo or sensor. If the needle needs adjusting after the orange and blue wires are reversed, remember to do it with servo or sensor in the *fully retracted* position.



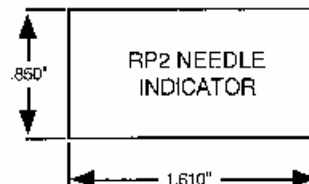
CAUTION!! Do not connect the orange wire of the needle type indicator to 12V+. This *instantly* damages the internal circuitry of the meter.

INSTALLING THE NEEDLE TYPE POSITION INDICATOR

Use the dimensions shown below to cut the mounting hole for the needle type indicator. The indicator is mounted with the "C" shaped clamp provided. See below for wiring instructions.



PANEL CUT-OUT (NOTE: DRAWING NOT TO SCALE)



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RS2 ROCKER SWITCH

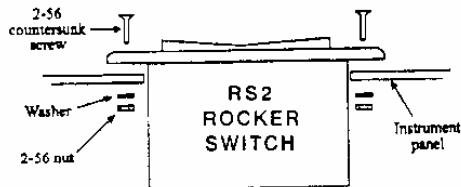
The RS2 rocker switch is designed to electrically short the servo motor to ground (-) when released. This stops the servo motor without any coasting, allowing precise positioning of the servo. Although the switches inside the RS2 rocker switch are rated at 15 amps, the 26 gage wiring used throughout Ray Allen trim systems must be protected by a one amp fuse or circuit breaker.

INSTALLING THE ROCKER SWITCH

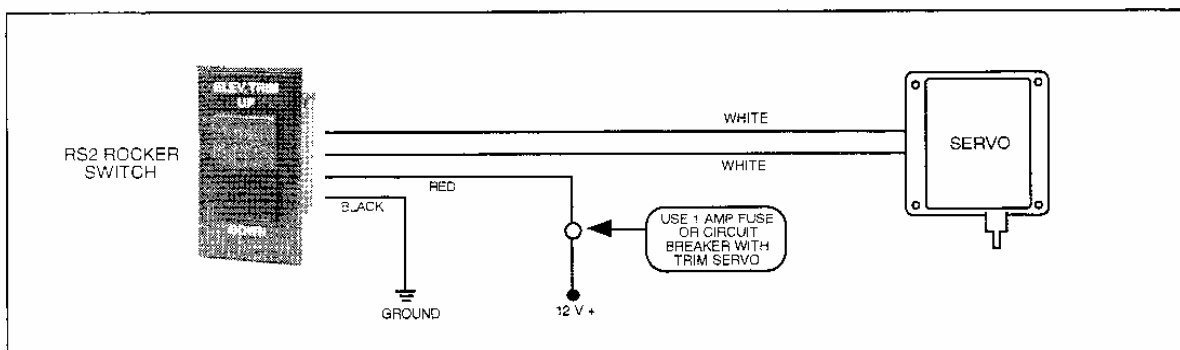
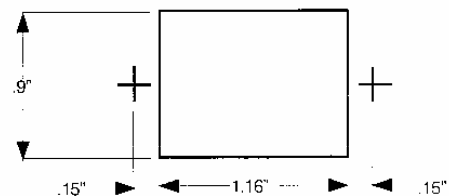
Use the dimensions shown below to cut the mounting hole for the rocker switch. The rocker switch can be mounted in any position using the two, 2-56 countersunk screws and nut provided.

Wiring connectors are not included. Use any type desired or simply solder all connections and insulate with heat shrinkable sleeving. A separate fuse or circuit breaker is recommended. Use a 1 amp fuse or circuit breaker for Ray Allen servo installations.

Notice that the self adhesive label (if used) for the rocker switch will cover the mounting screws. Don't apply the label until you are sure the rocker switch will not be removed. Make sure the label is centered properly and not rubbing on the sides of the rocker.



RS2 ROCKER SWITCH PANEL CUT-OUT





EUROPEAN AVIATION SAFETY AGENCY

EASA

Certification Directorate

653-78

2-10

Brussels, 26 July 2004
EASA D(2004)

APPROVAL FROM THE EXECUTIVE DIRECTOR

N° 2004-7850

**Major Change for SF 25 C
(Scheibe-Flugzeugbau GmbH)**

Whereas the Regulation (EC) N° 1592/2002, and in particular its Article 15 empowers the Agency to proceed certification tasks,

Whereas LBA Germany has been entrusted by the Executive Director to carry on the above mentioned tasks,

And

Having regard to the technical visa granted by LBA Germany and referenced to as "Ref.: Service Bulletin 653-78", as described in Annex I

I hereby approve

Activation of the trim tab by an electric Trim Servo against previous Bowden Cable

Done at Brussels in two copies,
For the Executive Director

R. Hardy
Certification Manager

Annex I: Ref.: Service Bulletin 653-78