SKYFOX AVIATION

CA-25N 25TH HOUR INSPECTION SCHEDULE

CH-25-N

AIRCRAFT REGISTRATION: VH- DATE : / /

VDO : _____ Air Switch Hours : _____

The following 25TH hour inspection schedule is to assist the maintenance personnel in carrying out a 25TH hour inspection in accordance with the Skyfox maintenance manual. Additional items may be required by the airworthiness authority in the country in which the aircraft is registered. These additional requirements must also be complied with.

It is necessary to also consult data supplied by the manufacturer of components not manufactured by Skyfox Aviation such as engine, propeller, wakes, wheels, nose wheel etc, for additional servicing information. Refer to list of vendor publications in the maintenance manual.

In addition to the requirements listed above, service bulletins and letters issued by the manufacturer of the aircraft, or components fitted to the aircraft must also be complied with.

The following schedule contains a list of tasks to be carried out, and a column for the signatures of both the person carrying out the task and the person coordinating or making the certification for the work. If the person carrying out the work and the person making the certification are the same person, then only one signature is necessary. The person making the certification must be approved or licensed by the appropriate airworthiness authority in the category for which he is making the certification and must record his license or approval number in the space provided at the bottom of each category for which he is signing for.

The inspection required by this schedule shall be a thorough functional and visual check of the nominated system, component, assembly and/or installation. The inspection should be conducted making extensive use of inspection panels, removable items, using adequate lighting and, where necessary, inspection aids such as mirrors and torches. Surface cleaning of individual components may also be required. The condition of the nominated system, component, assembly and or installation when so inspected shall be such as to maintain the continued airworthiness of the aircraft.

SKYFOX AIRCRAFT RECOMMENDED FLUIDS (NOV 97)

ENGINE Oil.---------- CASTROl. GRAND PRIX
High Performance 4 Stroke Motorcycle Engiue Oil
SAE 15W-50 API SG CD 3 Litres
Maintain oil level on Hat of dipstick (approx 500ml)

COOLANT---------- LOCTITE ALL SEASONS RADIATOR CARE
Just under 3 Litres.
Maintain coolant level approx half-full on plastic expansion tank.
100% for aircraft pre CA25N073 (June 1997).
80% for others with 20% water, but as placarded.

BRAKE FLUID---------- AEROSHELL FLUID 41
MIL-11-56061
Maintain master cylinders half full.

GREASE---------- CASTROL HIGH TEMPERATURE BEARING (HTB) GREASE
Apply IAW Maintainance & Repair Manual.

FUEL---------- UNLEADED MOGAS Preferred
LEADED MOGAS Second Preference
100LL AVGAS Third Preference

SKYFOX AVIATION

CA-25N

Gazelle

MAINTENANCE

&

REPAIR MANUAL

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INDEX TO CHAPTERS

RECORD OF REVISIONS

Any revision of the present manual, except actual weighing data, must be recorded in the following table and in case of approved sections endorsed by the responsible airworthiness authority.
The new or amended text in the revised pages will be indicated by a black vertical line in the left hand margin, and the Revision No. and the date will be shown on the bottom left hand side of the-page.

Rev. No	Affected Chapter	Affected Page	Effectivity Date	Date Inserted	Signature

RECORD OF REVISIONS (Cont)

Rev. No	Affected Chapter	Affected Page	Effectivity Date	Date Inserted	Signature

CHAPTER 4

AIRWORTHINESS LIMITATIONS

CHAPTER 4: AIRWORTHINESS LIMITATIONS

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4-00-00 AIRWORTHINESS LIMITATIONS

The airworthiness limitations are CASA approved and specify inspections and maintenance required under Paragraph 1529 of the Joint Aviation Requirements for Very Light Aeroplanes.

The following limitations related to the fatigue life of the aircraft and its components with respect to the CA-25N are interim estimates only and are currently under review.

MANDATORY RETIREMENTS

ITEM	COMPONENT	MAXIMUM TIM IN SERVICE
1	WING FRONT SPARS Part No's WI-8L & WI-8R	4,000 HRS
2	WING REAR SPARS Part No's WI-9L & WI-9R	4,000 HRS
3	WING LIFT STRUTS AND CARRY THROUGH STRUCTURES	4,000 HRS
4	HORIZONTAL STABILIZER SPAR Part No TP-1-9	8,000 HRS
5	ALL OTHER PRIMARY STRUCTURE	8,000 HRS

- NOTE 1 –

REFER TO THE LIMITATIONS IN THE CASA APPROVED FLIGHT MANUAL FOR DETAILED DELINEATION OF THE FLIGHT LIMITATIONS OF THE AIRCRAFT.

-NOTE 2-

REFER TO AIRCRAFT LOG BOOK FOR ENGINE TBO AND OTHER LIFED COMPONENTS AS EACH AIRCRAFT MAY DIFFER.

CHAPTER 5
TIME LIMITS/MAINTENANCE CHECKS

CHAPTER 5 TIME LIMITS/MAINTENANCE CHECKS

5-00-00 GENERAL

This chapter provides instructions for conducting inspections. Repair or replacement instructions for those components found to be unserviceable at inspection may be found in the section covering the applicable aircraft system.

NOTE: THE ROTAX OPERATOR'S MANUAL IS THE SOLE REFERENCE FOR THE MAINTENANCE OF THE ROTAX 912 ENGINE FITTED TO THE CA-25N

-CAUTION-

WHEN WORKING ON ENGINE, GROUND THE IGNITION PRIMARY CIRCUITS BEFORE PERFORMING ANY PRIMARY OPERATIONS.

5-10-00 TIME LIMITS

The time limits are specified in Chapter 4.

5-10-01 INSPECTION REQUIREMENTS.

Required inspection procedures are listed in inspection report. The inspection procedure is broken down into eight major groups which are propeller, engine, cabin, fuselage and empennage, wing, landing gear, operational inspection and general. The first column in each group lists the inspection or procedure to be performed. The second column is divided into five columns indicating the required inspection intervals of 100 hours, 200 [hours, 1200 hours, annual and bi-annual. Each inspection or operation is required at each of the inspection intervals as indicated by a circle (0). When performing inspections, use forms furnished by Skyfox Aviation service department available through Skyfox dealers and distributors.

-**NOTE**-

IN ADDITION TO INSPECTION INTERVALS REQUIRED IN INSPECTION REPORT, PREFLIGHT INSPECTIONS MUST BE PERFORMED.

5-10-02 PREFLIGHT CHECKS.

This check is for the pilot and/or mechanic and should become part of the aircraft operational routine and/or preflight check before each flight. Refer to section 4 of the flight manual for a listing of items that must be checked.

5-10-03 OVERLIMITS INSPECTIONS.

If the aircraft has been operated so that any of its components have exceeded their maximum operational limits, check with the appropriate manufacturer.

5-10-04 SERVICE LIFE LIMITS

For mandatory retirement life of the aircraft and its components, refer to Chapter 4 of this manual.

5-20-00 SCHEDULED MAINTENANCE

The scheduled of maintenance for the CA-25N "Gazelle" is laid down in this manual in accordance with CAR Schedule 5.

5-20-01 PERIODIC INSPECTIONS

- NOTE -

Perform all inspections or operations at each of the inspection intervals as indicated by a circle (O).

For clarity of reading, all items marked with (O), are intended to have included with them, the items from the earlier time limit.

With the items that are called up by calendar times, the calendar period starts from the date of the last operation.

The service time (in hours) overrides the calendar time and visa versa, depending on which occurs first.

A 25th Hour Inspection Schedule "check list" is available from Skyfox Aviation. Part Number CH-25-N. (Included with Logbook)

A 100 Hour Inspection. Schedule "check list" is available from Skyfox Aviation. Part Number CH-100-N. (See Chapter 91)

The order laid down in this Check List has been prepared to enable a logical and time efficient process for carrying out the 100 hour check.

NOTE: IN ADDITION TO THE FOLLOWING CHECKS, THERE ARE SOME ADDITIONAL ITEMS TO BE CARRIED OUT AT THE 600 HOUR CHECK.

(SEE SECTION 6.7 IN THE ROTAX OPERATORS MANUAL.)

NOTE: AT VARIOUS TIMES, THE ROTAX SERVICE DEPARTMENT ISSUE TECHNICAL BULLETINS. CHECK WITH YOUR LOCAL ROTAX AGENT FOR THE LATEST ISSUES.

To gain access to all parts of the aircraft, remove:-

Engine Cowls.

Seat.

Centre Console.

Either Elevator Inspection Panel.

Wing Tips to access strobes.

A clearer view of the aft fuselage may be established, by removing the baggage compartment bag.

NATURE OF INSPECTION	100 HR	200 HR	1200 HR	2 YR	3 YR
A. PROPELLER GROUP					
1. INSPECT SPINNER AND BACKPLATE.	O				
2. INSPECT BLADES FOR NICKS AND CRACKS.	O				
3. INSPECT PROPELLER MOUNTING BOLTS AND SAFETY WIRE. CHECK TORQUE IF SAFETY WIRE IS BROKEN. Refer AD107/PFP/1.	O				
4. INSPECT COMPLETE PROP AND SPINNER ASSEMBLY FOR SECURITY, CHAFING, CRACKS, DETERIORATION, WEAR AND CORRECT INSTALLATION.	O				
B. ENGINE GROUP					
CAUTION: GROUP IGNITION PRIMARY CIRCUITS BEFORE WORKING ON ENGINE					
1. REMOVE ENGINE COWL AND INSPECT FOR DAMAGE.	O				
2. CLEAN AND INSPECT COWL FOR CRACKS, DISTORTION, AND LOOSE OR MISSING FASTENERS.	O				
3. DRAIN OIL TANK.	O				
4. CLEAN OIL STRAINER AT OIL CHANGE, (INSPECT STRAINER FOR FOREIGN PARTICLES).			O		
5. CHANGE OIL FILTER.	O				
6. INSPECT OIL TEMPERATURE SENDER UNIT FOR LEAKS AND SECURITY.	O				
7. INSPECT OIL LINES AND FITTINGS FOR LEAKS, SECURITY, CHAFING, DENTS AND CRACKS.CHECK MAGNETIC PLUG (GEARBOX)	O				
8. CLEAN AND INSPECT OIL COOLER.	O				
9. FILL ENGINE WITH OIL PER LUBRICATION CHART IN CHAPTER 12.	O				
10. REPLACE ENGINE COOLANT.			O	O	
11. INSPECT COOLANT HOSES, EXPANSION TANK CAP FOR LEAKS, SECURITY, CHAFING DENTS AND CRACKS.	O				
12. CLEAN AND INSPECT COOLANT RADIATOR.			O		

	NATURE OF INSPECTION	100 HR	200 HR	1200 HR	2 YR	3 YR
B.	**ENGINE GROUP (cont')**					
13.	INSPECT COOLANT TEMPERATURE SENDER UNIT FOR LEAKS AND SECURITY.	O				
14.	CLEAN ENGINE.	O				
15.	OPERATE ENGINE UP TO NORMAL OPERATING TEMPERATURES, INSPECT FOR OIL AND COOLANT LEAKS AFTER SHUTDOWN.	O				
16.	INSPECT CONDITION OF SPARK PLUGS, ADJUST GAP AS REQUIRED. (Refer engine operators manual.)	O				
17.	REPLACE SPARK PLUGS.		O			
18.	CHECK CYLINDER COMPRESSION. (Refer Chapter 7.4 of engine operators manual.)	O				
19.	INSPECT CYLINDERS FOR CRACKS OR BROKEN FINS..	O				
20.	INSPECT TAPPET COVERS FOR OIL LEAKS. IF FOUND, REPLACE GASKET.	O				
21.	INSPECT IGNITION HARNESS FOR DAMAGE AND SECURITY.	O				
22.	REMOVE AIR FILTER, CLEAN AND INSPECT FOR DETERIORATION AND RE-OIL PER LUBRICATION CHART IN CHAPTER 12 OR REPLACE.	O				
23.	INSPECT CONDITION OF CARB HEAT AIR DOOR AND BOX.	O				
24.	INSPECT CONDITION OF AIR INTAKE SEALS	O				
25.	REMOVE ALL CLAMPS ON DUCT HOSES AND INSPECT INTERNALLY AND EXTERNALLY (replace if required)	O				
26.	INSPECT CONDITION OF FLEXIBLE FUEL LINES.	O				
27.	INSPECT FUEL SYSTEM FOR LEAKS.					
28.	CLEAN FILTER SCREEN IN GASCOLATOR. CHECK OPERATION OF ENGINE DRIVEN AND ELECTRIC FUEL PUMPS.	O				
29.	INSPECT THROTTLE, CARB HEAT AND CHOKE CONTROLS FOR TRAVEL AND OPERATION.	O				
30.	INSPECT SECURITY OF CARBURETTOR THROTTLE ARMS.	O				

	NATURE OF INSPECTION	100 HR	200 HR	1200 HR	2 YR	3 YR
B.	**ENGINE GROUP (cont')**					
31.	INSPECT EXHAUST PIPES, CONNECTIONS AND GASKETS. (Replace gaskets as required.)	O				
32.	INSPECT MUFFLER, HEAT EXCHANGERS AND BAFFLES.	O				
33.	INSPECT BREATHER TUBE FOR OBSTRUCTIONS AND SECURITY.	O				
34.	INSPECT ENGINE CRANK CASE FOR CRACKS, LEAKS AND SECURITY OF SEAM BOLTS.	O				
35.	INSPECT ENGINE MOUNTS FOR CRACKS, SECURITY AND CONDITION.	O				
36.	INSPECT ALL ENGINE BAFFLES.	O				
37.	INSPECT ALL WIRING CONNECTED TO THE ENGINE OR ACCESSORIES.	O				
38.	INSPECT ENGINE MOUNT BUSHINGS FOR DETERIORATION. REPLACE AS REQUIRED.	O				
39.	INSPECT FIREWALL SEALS.	O				
40.	INSPECT CONDITION OF ALTERNATOR AND STARTER.	O				
41.	LUBRICATE ALL CONTROLS. (Refer chapter 12.)	O				
42.	COMPLETE OVERHAUL OF ENGINE OR REPLACE WITH FACTORY REBUILT.			O		
43.	CHECK CARBURETTOR FLOAT BOWLS	O				
44.	INSPECT CARB. NEEDLE VALVE CIRCLIP FOR MOVEMENT	O				
45.	RE-INSTALL ENGINE COWL.	O				
C.	**CABIN GROUP**					
1.	INSPECT CABIN ENTRANCE, DOORS AND WINDOWS FOR DAMAGE AND OPERATION.	O				
2.	INSPECT UPHOLSTERY FOR TEARS.	O				
3.	INSPECT SEATS, SEAT BELTS FOR SECURITY OF BRACKETS AND BOLTS.	O				
4.	INSPECT ELEVATOR TRIM OPERATION.	O				
5.	INSPECT RUDDER PEDALS FOR PROPER OPERATION.	O				
6.	INSPECT BRAKE PEDALS FOR PROPER OPERATION AND LEAKS.	O				
7.	CHECK FLUID LEVEL IN BRAKE RESERVOIRS (Fill as required.)(Refer chapter 12)	O				
8.	INSPECT CONTROL COLUMN, PUSHRODS, ROD ENDS AND BELLCRANKS FOR PROPER OPERATION.	O				

	NATURE OF INSPECTION	100 HR	200 HR	1200 HR	2 YR	3 YR
C.	**CABIN GROUP (cont')**					
9.	CHECK LANDING AND NAVIGATION LIGHTS FOR CORRECT OPERATION.	O				
10.	INSPECT INSTRUMENTS, LINES AND ATTACHMENTS.	O				
11.	INSPECT GYRO OPERATED INSTRUMENTS. OVERHAUL OR REPLACE AS NECESSARY.	O				
12.	CHECK ALTIMETER. CALIBRATE ALTIMETER IN ACCORDANCE WITH CHAPTER 34 OF THIS MANUAL.(If Required)		O			
13.	CHECK OPERATION OF FUEL COCK.	O				
14.	INSPECT CONDITION OF HEATER CONTROLS AND DUCTS.	O				
15.	INSPECT CONDITION AND OPERATION OF AIR VENTS.	O				
D.	**FUSELAGE AND EMPENNAGE GROUP**					
1.	REMOVE INSPECTION PANELS.	O				
2.	INSPECT ELECTRONIC INSTALLATIONS.	O				
3.	INSPECT TUBULAR STRUCTURE AND WOODEN STRINGERS FOR DAMAGE.	O				
4.	INSPECT ANTENNAE MOUNTS AND ELECTRICAL WIRING.	O				
5.	INSPECT FUEL LINES, VALVES AND COLLECTOR TANK FOR OPERATION AND DAMAGE.	O				
6.	CHECK SECURITY OF ALL LINES.	O				
7.	INSPECT VERTICAL FIN AND RUDDER FOR DAMAGE.	O				
8.	INSPECT RUDDER HINGES, HORN AND ATTACHMENTS FOR DAMAGE AND OPERATION.	O				
9.	INSPECT REAR FIN SPAR.	O				
10.	INSPECT RUDDER HINGE PINS AND BUSHES FOR EXCESS WEAR. REPLACE AS REQUIRED.	O				
11.	INSPECT ELEVATOR AND STABILIZER SURFACES FOR DAMAGE.	O				
12.	INSPECT ELEVATOR HORN AND ATTACHMENTS FOR DAMAGE AND OPERATION.	O				
13.	INSPECT ELEVATOR HINGE PINS AND BUSHES FOR EXCESS WEAR. REPLACE AS REQUIRED.	O				
14.	INSPECT ELEVATOR TRIM MECHANISM.	O				
15.	INSPECT STROBE AND LANDING LIGHTS FOR SECURITY AND OPERATION.	O				

	NATURE OF INSPECTION	100 HR	200 HR	1200 HR	2 YR	3 YR
D.	**FUSELAGE AND EMPENNAGE GROUP (cont')**					
16.	INSPECT AILERON, ELEVATOR, RUDDER, TRIM CORDS, TURNBUCKLES, FAIRLEADS, PUSHRODS, RODENDS AND BELLCRANKS FOR SAFETY, DAMAGE AND	O				
17.	LUBRICATE PER LUBE CHART JN CHAPTER 34.	O				
18.	RE-OIL FUSELAGE TUBES.				O	
19.	REPLACE BATTERY.				O	
	RE-INSTALL INSPECTION PLATES AND PANELS.					
E.	**WING GROUP.**					
1.	INSPECT WING SURFACES AND TIPS FOR DAMAGE.	O				
2.	INSPECT AILERON HINGES AND ATTACHMENTS.	O				
3.	INSPECT AILERON PUSHRODS AND BELLCRANKS FOR DAMAGE AND OPERATION.	O				
4	LUBRICATE PER LUBRICATION CHART IN CHAPTER 12.	O				
5.	VISUALLY INSPECT WING ATTACHMENT BOLTS AND FITTINGS FOR ANY INDICATION OF MOVEMENT BETWEEN NUTS AND BOLTS.	O				
6.	VISUALLY INSPECT MAIN SPAR REINFORCING TABS FOR DAMAGE AND SECURITY.	O				
7.	INSPECT FUEL TANKS, LINES, FITTINGS AND CAPS FOR LEAKS AND WATER.	O				
8.	CHECK FUEL TANKS MARKED FOR CAPACITY AND FUEL GRADE.	O				
9.	INSPECT FUEL TANK VENTS FOR BLOCKAGE.	O				
10	INSPECT ALL ELECTRICAL LEADS, LINES AND ATTACHING PARTS FOR SECURITY, ROUTING, CHAFING, DETERIORATIONS, WEAR AND CORRECT INSTALLATION.	O				
F.	**LANDING GEAR GROUP.**					
1.	INSPECT TYRES FOR CUTS,. UNEVEN OR EXCESSIVE WEAR.	O				
2.	REMOVE, CLEAN AND INSPECT WHEELS CLEAN, INSPECT AND REPACK BEARINGS.	O				
3.	CHECK TYRE PRESSURE PER CHAPTER 6.	O				
4.	INSPECT BRAKE LINING AND DISC FOR CONDITION AND WEAR.	O				
5.	INSPECT BRAKE HYDRAULIC LINES.	O				

	NATURE OF INSPECTION	100 HR	200 HR	1200 HR	2 YR	3 YR
F.	**LANDING GEAR GROUP (cont')**					
6.	INSPECT MAIN GEAR LEGS, ATTACHMENTS AND BOLTS FOR CONDITION AND SECURITY.	O				
7.	INSPECT RUBBER IN SHEAR STRUTS FOR DETERIORATION, CHAFING AND SECURITY.	O				
8.	CHECK MAIN WHEELS FOR ALIGNMENT.	O				
9.	CHECK NOSE OLEO EXTENSION IS NOT LESS THAN 50mm.	O				
10.	INSPECT NOSE WHEEL SPRINGS FOR SECURITY, DAMAGE, CRACKS AND DEFORMATION CHECK STEERING.	O				
11.	INSPECT WHEEL SPATS FOR SECURITY, DAMAGE, CRACKS & DEFORMATION	O				
12.	LUBRICATE PER LUBRICATION CHART IN CHAPTER 12.	O				
H	**OPERATIONAL INSPECTION**					
1.	CHECK FUEL PUMP FOR OPERATION	O				
2.	CHECK FUEL QUANTITY INDICATORS.		O			
3.	CHECK FUEL PRESSURE WARNING LIGHT.	O				
4.	CHECK OIL PRESSURE AND TEMPERATURE.	O				
5.	CHECK ALTERNATOR OUTPUT/WARNING LIGHT	O				
6.	CHECK CARBURETTOR HEAT.	O				
7.	CALIBRATE COMPASS.(EVERY 3YRS)					O
8.	CHECK GYRO'S FOR NOISE AND ROUGHNESS.	O				
9.	CHECK CABIN HEATER OPERATION.	O				
10.	CHECK IGNITION SWITCH OPERATION.	O				
11.	CHECK IGNITION RPM VARIATION.	O				
12.	CHECK THROTTLE AND CHOKE OPERATION.	O				
13.	CHECK ENGINE IDLE.	O				
14	CHECK ELECTRONIC EQUIPMENT OPERATION.	O				
I	**GENERAL**.					
1.	AIRCRAFT CONFORMS TO CASA SPECIFICATIONS.				O	
2.	ALL APPLICABLE AIRWORTHINESS DIRECTIVES FOR THE AIRCRAFT TYPE COMPLIED WITH.	O				
3.	ALL MANUFACTURERS SERVICE BULLETINS AND LETTERS COMPLIED WITH.	O				
4.	CHECK FOR PROPER, APPROVED FLIGHT MANUAL.	O				
5.	AIRCRAFT LOGBOOKS, RECORDS AND MAINTENANCE RELEASE ARE CURRENT.	O				

5-20-02 CONTINUOUS INSPECTIONS

The continuous inspection was designed to permit the best utilization of the aircraft by scheduling inspections through the use of a planned inspection schedule.

5-50-00 UNSCHEDULED MAINTENANCE CHECKS

The items in this section do not occur at regular intervals of flight time or calendar times.

5-50-01 SPECIAL INSPECTIONS ARE REQUIRED UPON CONDITION

The special inspections given supplement the scheduled inspections as outlined in the report to include inspections which are required at intervals not compatible with airframe operating time or inspection intervals. Typical of this type are:

1. Inspections required because of special conditions or incidents, an immediate inspection would be required to ensure further safe flight.

2. Hard or overweight landing. This inspection should be performed after a known rough landing is made or when a landing is made while the aircraft is known to exceed the design landing weight.

Check the following areas and items:

- ❖ Wings for wrinkled fabric, loosened bonding joints, broken stringers.
- ❖ Fuel leaks around the fuel tanks.
- ❖ Wing spars, bulkheads, wing and fuselage stringers and fabric for any signs of over stress or damage.
- ❖ A possible alignment check to clarify any doubt of damage.

3. Severe turbulence inspection. The same items and locations as stated for hard or overweight landings along with the following:

- ❖ Top and bottom fuselage for loose or wrinkled fabric.
- ❖ Empennage fabric and attachments.

4. Engine overspeed, sudden stoppage, loss of oil, over temperature and lightning strike.

- ❖ Check with the engine manufacturer for necessary corrective action.

CHAPTER 6
DIMENSIONS AND AREAS

CHAPTER 6 DIMENSIONS AND AREAS

TABLE OF CONTENTS/EFFECTIVITY

DIMENSIONS

The principal aircraft dimensions are shown in Figure 601 and are listed in Chart

CHART 601 LEADING PARTICULARS AND PRINCIPAL DIMENSIONS	
MODEL	**CA25N GAZELLE**
ENGINE	
MANUFACTURER	BOMBARDIER/ROTAX
MODEL	912A
RATED HP AT PROPELLER RPM	80
OIL TANK CAPACITY	2.5 LITRES
FUEL GRADE	PREMUIM GRADE GASOLINE TO DIN 51600,-NORM C EURO-SUPER RON 95, UNLEADED MIN RON 90, OR AVGAS 100LL
IGNITION	ROTAX DUAL INGNITION - BREAKERLESS CAPACITOR DISCHARGE, WITH INTERFERENCE SUPPRESSION.
ELECTRODE GAP	0.5mm (0.02 inch)
FIRING ORDER	1-4-2-3
STARTER	12V/0.6kW, ENGAGEMENT VIA GEAR REDUCTION AND OVERRUNNING CLUTCH.
GENERATOR	DUCATI, PERMANENTLY EXCITED SINGLE PHASE AC-GENERATOR WITH RECTIFIER REGULATOR
PROPELLER	
MANUFACTURER	ALLSIZE AVIATION
TYPE	FIXED PITCH. WOODEN
MODEL	CHP-1
DIAMETER	1727mm (68 inches)
DIAMETER MINIMUM	1727mm (68 inches)
FUEL SYSTEM	
LEFT WING TANK	26 LITRES
RIGHT WING TANK	26 LITRES
COLLECTOR TANK	3.75 LITRES
TOTAL	55.75 LITRES
LANDING GEAR	
TYPE	TRICYCLE
TRACK	1.90m (75.0 inches)
WHEEL BASE	1.45m (57.1 inches)
NOSE WHEEL TYPE	WELDED STEEL TUBE / RUBBER DISC OLEO
MAIN GEAR TYPE	WELDED TUBE STRUCTURE WITH
MAIN WHEEL TYRE	137Kpa (20 psi)
NOSE WHEEL TYRE	206Kpa (30 psi)
TYRE MAIN	CHENG SHIN / DELI 15 x 6.00 - 6
TYRE NOSE	CHENG SHIN / DELI 13 x 5.00 - 6
BRAKES	MATCO 5BA, MC13, HYDRAULIC DISC BRAKES

SPECIFICATIONS AND PERFORMANCE FOR CA25N GAZELLE

SPECIFICATIONS:

Wing Span	9.52 mts	31’ 3”
Wing Area	11.6 sq mt	124.6 sq ft
Chord Length	1.01 mts	3’ 6”
Chord Length (Including Ailerons)	1.29 mts	4’ 3”
Aspect Ratio	7.5	
Length	5.6 mts	18’ 4 ½”
Length (Wings Folded)	6.57 mts	21’ 6 ½”
Width (Wings Folded)	2.40 mts	7’ 10 ½”
Height	2.45 mts	8’ ½”
Tread Width (Mains)	1.90 mts	6’ 3”
Wheel Base (Mains to Nosewheel)	1.45 mts	4’ 9”
Tyres Size, Main	15” x 6”	
Tyres Size, Nose	13” x 6”	
Empty Weight	330 kg	730lbs
Gross Weight	520 kg	1150 lbs
Fuel Capacity (Useable)	48 lts	10.6 gal
Cabin Maximum Width	1.02 mts	3’ 4”
Pilot Maximum Height	195 cm	6’ 5”

ROTAX ENGINE

Powerplant	4 Stroke ROTAX 912A
Maximum Horsepower	80 @ 5800 rpm
Propeller	68 x 48 inch, 2 bleade, wooden

PERFORMANCE Take Off Weight 520 kg

Top Speed (Sea Level)	85 kts	157 km/hr
Cruise Speed (75% at 5000 rpm)	75 kts	139 km/hr
Cruise Speed (70% at 4800 rpm)	70 kts	130 km/hr
Fuel Flow (70% power)	13.5 lts/hr	
Never Exceed Speed	93 kts	172 km/hr
Stall Speed	44.5 kts	82 km/hr
Rate of Climb (Sea Level)	657 fpm	
Range at 70% 13.5 lts/hr	250 NM	460 km
Best Rate of Climb Speed	55 kts	102 km/hr
Best Angle of Climb Speed	50 kts	93 km/hr
Service Ceiling	10000 ft	
Take-off / Landing Ground Roll	340 ft	100 mtrs
Maximum Direct Crosswind Component	20 kts	37 km/hr

(Airspeed in KIAS)

THREE VIEW DIAGRAM

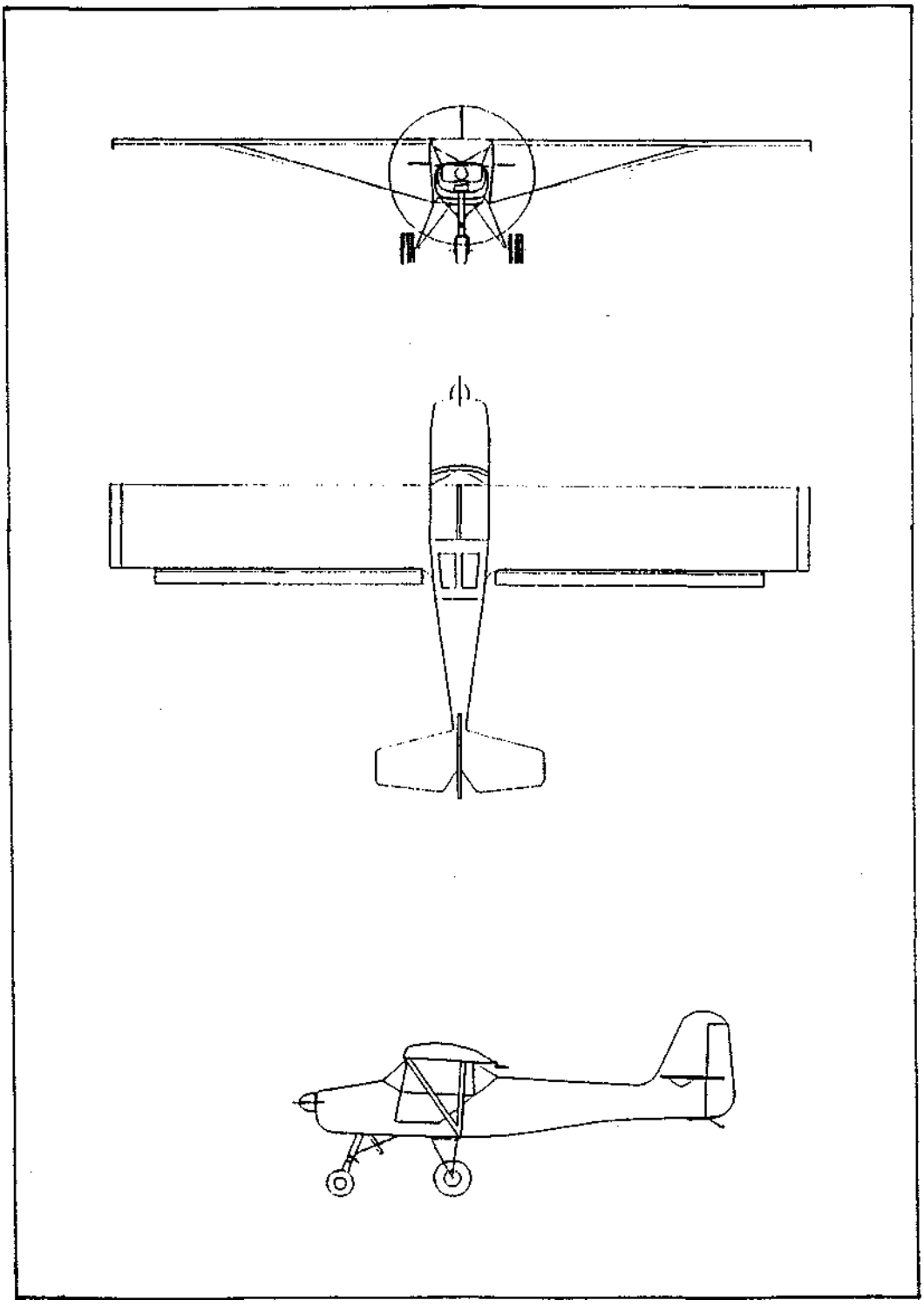

Figure 601

6-20-00 STATION REFERENCE LINES

NOTE: Arm from datum (Wing Leading Edge)

Fuel	+ 379 mm
Oil	- 410 mm
Coolant	- 750 mm
Occupants	+ 396 mm
Baggage	+ 1650 mm

All Skyfox series aeroplanes use the wing leading edge as a preference datum. This datum is measured with the aircraft in the level position as shown for levelling and weighing in Section 8 of this manual, and a plumb bob hung down from the leading edge at the root of either wing. The horizontal point indicated by the plumb bob is station zero. All points aft of station zero are positive and all points forward of station zero are negative.

6-30-00 ACCESS AND INSPECTION PROVISIONS

The Gazelle access and inspection provisions are unique, as after removal of the upper and lower engine cowlings, complete access to the engine and instrument panel is available.

With the removal of the seat and centre console access is available to all flight controls and electrical installations.

An inspection panel, one either side of the fin under the stabiliser, gives access to the elevator horn and tail skid attachments.

The removal of wing tips gives access to strobe fittings.

-END-

CHAPTER 7
LIFTING AND SHORING

CHAPTER 7 LIFTING AND SHORING

TABLE OF CONTENTS/EFFECTIVITY

7-10-01 JACKING

There are no jacking points as such fitted to the aircraft, however if the aircraft must be lifted up off all three wheels simultaneously then the following method is recommended:-

Support fuselage under wing strut attachment points on fuselage -and hold the tail down by attaching a heavy weight (50Kg) to the fuselage hard point above tail skid mount via chain or attach to the ground.

OR

Place timber across the fuselage just behind the nose leg struts together with the wing strut attachment points on fuselage.

NOTE: If engine is removed while in this position, the tail must be supported to prevent it from falling.

Aircraft may also be jacked by individual points under each main undercarriage leg where wheel axles are mounted.

NOTE: A suitable jacking pad must be used to ensure no damage to undercarriage components.

CHAPTER 8
LEVELLING AND WEIGHING

CHAPTER 8 LEVELLING AND WEIGHING

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8-10-01 LEVELLING AND WEIGHING

The empty weight includes unusable fuel, undrainable oil and undrainable coolant. The aircraft must be drained of oil, coolant and fuel before weighing or if this is inconvenient, it may be weighed with full oil and full coolant but must be drained of fuel. The oil and coolant should then be subtracted from the empty weight and the C of G adjusted accordingly. To weigh aircraft, place all three wheels on load cells, (see fig 801), place spirit level from one fuselage door sill to the other and level by inflating or deflating main wheel tyres, then place spirit level along one fuselage door and deflate or inflate nose wheel. Record the weights from each load cell and repeat procedure. Refer fig 802.

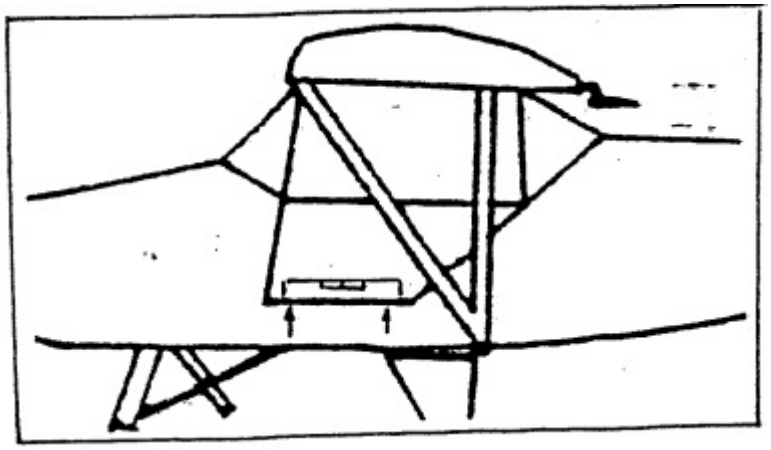

Figure 801

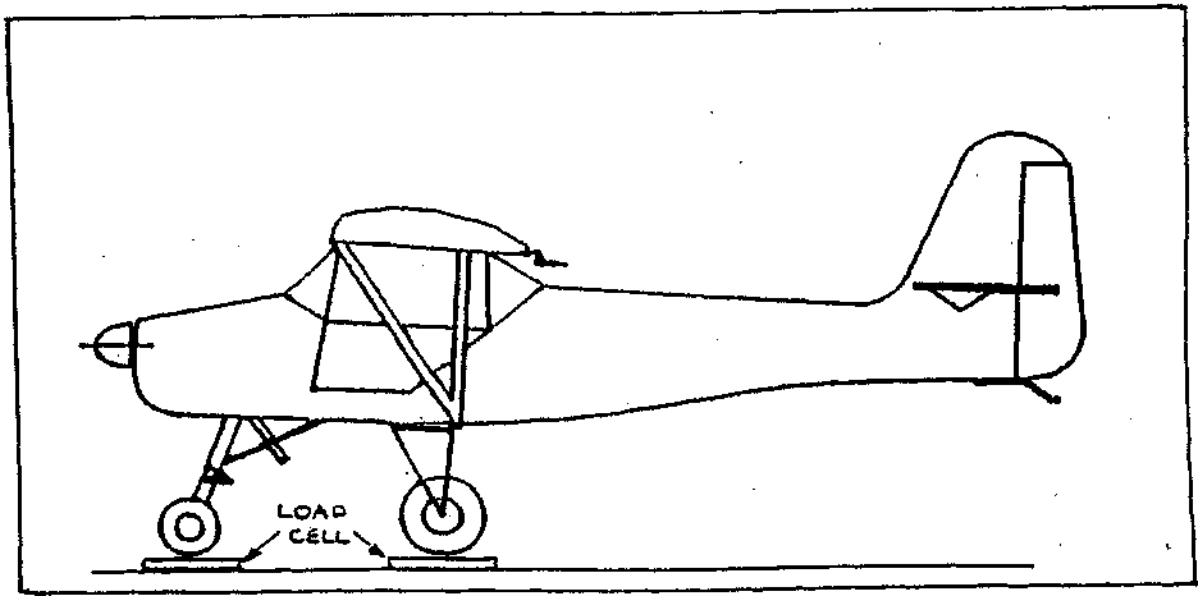

Figure 802

When two readings are obtained where the total weights are within 0.5kg then the empty weight and C of G may be calculated as follows.

8-10-02 SAMPLE WEIGHT & BALANCE

EXAMPLE ONLY

A/C Reg No: VH-XAB Serial No: CA25003

		FIRST WEIGHING		SECOND WEIGHING
LEFT MAIN		127.8		127.9
RIGHT MAIN		127.2		127.4
NOSE WHEEL		76.7		76.2
TOTAL		331.6		331.5
AVERAGE BOTH WEIGHINGS		331.6		
DEDUCTION				
ITEM	QTY		KG/L	KG
OIL	2.5		0.9	2.25
COOLANT	2.5		1.1	2.75
OTHER TOTAL DEDUCTIONS				5.00
ADDITIONS				
ITEM	QTY		KG/L	KG
UN-USABLE FUEL	4.0		0.74	3.00
OTHER TOTAL ADDITIONS	4.0		0.74	3.00
AIRCRAFT EMPTY WEIGHT				329.60
DATUM TO WEIGHING POINT	1		2	3
DISTANCE IN mm	563		563	-912
AVERAGE WEIGHT	127.85		127.3	76.45
	WEIGHT IN Kg		MOMENT	INDEX UNITS
ITEM	+	-	+/-	+ -
LEFT MAIN	127.85	XXXXXX	563	71979.55
RIGHT	127.30	XXXXXX	563	71669.90
NOSE	76.45	XXXXXX	-912	-69722.40
DEDUCTIONS				
OIL	XXXXXX	-2.25	-410	922.5
COOLANT	XXXXXX	-2.75	-750	2062.5
OTHER	XXXXXX			
ADDITIONS				
UN-USABLE FUEL	3.0	XXXXXX	549	1647.0
OTHER		XXXXXX		
EMPTY WEIGHT	TOTAL INDEX UNITS			76912.05
	TOTALEMPTY ARM			233.35
	EMPTY WEIGHT			329.60
FULL OIL	2.25	XXXXXX	-410.0	-922.5
FULL COOLANT	2.75	XXXXXX	-750.0	-2062.5
BASIC WEIGHT	TOTAL INDEX UNITS			73927.05
	TOTAL BASIC ARM			222.94
	TOTAL BASIC WEIGHT IN Kg			331.60

The basic weight includes 2.25kg oil at -410mm, 2.75Kg coolant at -750mm.

NOTE: Arm from datum (Wing Leading Edge)

Fuel + 379 mm
Oil - 410 mm
Coolant - 750 mm
Occupants + 396 mm
Baggage + 1650 mm

CHAPTER 9
TOWING AND TAXIING

CHAPTER 9 TOWING AND TAXIING

TABLE OF CONTENTS/EFFECTIVITY

9-10-01 TOWING

It is recommended to obtain a purpose built trailer available from Skyfox Aviation. Fold wings on aircraft as described in this sections, secure wings into the folded position by attaching the tow struts and hardware kit to the rear wing spar attachment point on the wings to the bracket provided at the base of the fin. Load aircraft onto trailer, nose first, so that main wheels are located in the wells in the trailer floor. Raise the tail and assemble the tail support struts to the fuselage hardpoint located above the front tail skid spring mount. Tie main wheels to trailer.

9-20-01 TAXIING

Before attempting to taxi the aircraft, ground personnel should be checked out by a qualified pilot or other responsible person with CASA approval. (CAO 20.22). Engine starting and shutdown procedures should be covered as well. When it is established that the propeller back blast and taxi areas are clear, apply power to start the taxi roll and perform the following checks.

1. Taxi forward a few feet and apply brakes to determine their effectiveness.
2. While taxiing make slight turns to determine the effectiveness of the steering.
3. Observe wing clearance when taxiing near buildings or other stationary objects. If possible, position an observer outside the aircraft to guide you.
4. When taxiing on uneven ground, avoid holes and ruts.
5. Do not operate the engine at high RPM when running up or taxiing over ground containing loose stones, gravel, or any loose material that may cause damage to the propeller blades.

9-30-01 WING FOLDING

- Chock both main wheels front and rear.
- Close both cabin doors. Remove turtle deck.
- Fold map and flight manual pocket forward.
- Ensure ailerons are at neutral.
- Remove safety pin from left front spar clevis pin, while holding wing at top of jury strut, remove clevis pin, slowly allow wing to fold back ensuring aileron does not foul fuselage.
- Replace clevis pin and safety pin in head rack.
- Lower tail skid to the ground before folding the other wing.
- Repeat for right wing.
- Fit wing hold back struts if required
- Reverse process for unfolding wings.

NOTE: Take care when inserting the wing root tongue.

- END -

CHAPTER 10
PARKING AND MOORING

CHAPTER 10 PARKING AND MOORING

TABLE OF CONTENTS/EFFECTIVITY

10-10-01 PARKING

When parking the aircraft, ensure that it is sufficiently protected against adverse weather conditions and presents no danger to other aircraft. When parking the aircraft for any length of time, it is recommended that the aircraft be moored.

1. To park the aircraft, head it into wind if possible.
2. Chock both main wheels front and behind each wheel.
3. The control stick may be locked by using the seat belt.

10-20-01 MOORING

Park aircraft nose into prevailing wind, place chocks in front of and behind both main, wheels. Lock elevator and aileron controls sticks with lap seat belt. Using strong rope or chain attached to suitable pegs or mooring points in ground, secure wings by attaching rope or chain: to tie down points provided, at front wing spar attachment brackets on both wings. Secure tail skid to peg or mooring point by tying with rope. Refer Fig. 1001.

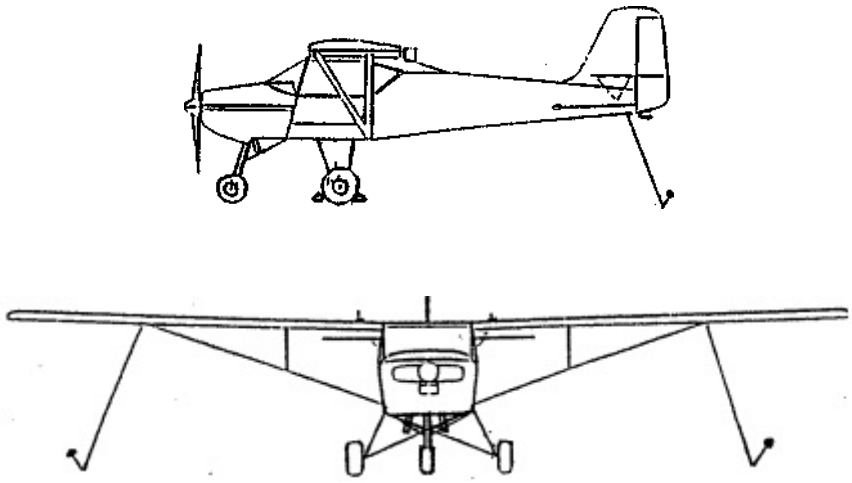

Fig. 1001

CHAPTER 11

REQUIRED PLACARDS

CHAPTER 11 REQUIRED PLACARDS

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EXTERIOR PLACARDS AND MARKINGS

1.	FUEL QUANTITY 26 LITRES PREMIUM GRADE GASOLINE TO DIN 51600, -NORM C1103 EURO SUPER RON 95 UNLEADED TO MIN RON 90, OR AVGAS 100LL	BOTH FUEL FILLER CAPS, EUROPEAN AIRCRAFT ONLY
2.	FUEL QUANTITY 26 LITRES USE 95 RON MOGAS (LEADED) UNLEADED TO MIN RON 90, OR 100LL AVGAS	BOTH FUEL FILLER CAPS AUSTRALIAN AIRCRAFT ONLY
3.	NO HEAVY OBJECTS 10Kg MAX	BAGGAGE HATCH
4.	COOLANT 80% GLYCOL 20% WATER OIL 0-20 DEG C SAE 30 20-40 DEG C SAE 40 API SF OR SG AUTOMOTIVE OIL ONLY QTY 2.5 LTRS	UPPER ENGINE COWL ACCESS HATCH
5.	EARTH	AT EACH EARTH TAB AT FILLER CAPS, AND EACH BOTTOM WING STRUT ATTACHMENT POINTS
6.	OPEN ---------- CLOSE	ON EACH DOOR AT EACH DOOR LATCH
7.	FUEL DRAIN	GASCALATOR COLLECTOR TANK
8.	CLOSE DOORS BEFORE REFUELING	AT EACH FILLER CAP

INTERIOR PLACARDS AND MARKINGS

MINIMUM PILOT WEIGHT = 55Kg DESIGN MANOEUVRING SPEED Va = 80Kts	INSTRUMENT PANEL
FLIGHT MANUAL STOWAGE BEHIND PILOT	INSTRUMENT PANEL
This aeroplane is classified as a very light aeroplane approved for day VFR only, in non-icing conditions. All aerobatic manoeuvres including intentional spinning are prohibited. See Flight Manual for other limitations.	INSTRUMENT PANEL
NO SMOKING	INSTRUMENT PANEL
TOTAL USEABLE FUEL 48.0 LITRES	AT FUEL COCK
USEABLE FUEL 24 LITRES	AT EACH FUEL QUANTITY INDICATOR
OPEN ----------CLOSE	ON EACH DOOR AT EACH DOOR LATCH
NO TAKE OFF 10 L, GROUND FUEL LITRES	ON EACH WING FUEL TANK
CAUTION - APPLICATION OF CARBURETTOR HEAT AT HIGH POWER WILL RESULT IN SIGNIFICANT POWER LOSS	ON INSTRUMENT PANEL

- NOTE –

All controls, (other than primary flight surface controls), switches, fuses, circuit breakers, gauges and instruments are to be placarded with their function, direction of operation and limitations.

- END -

CHAPTER 12
SERVICING

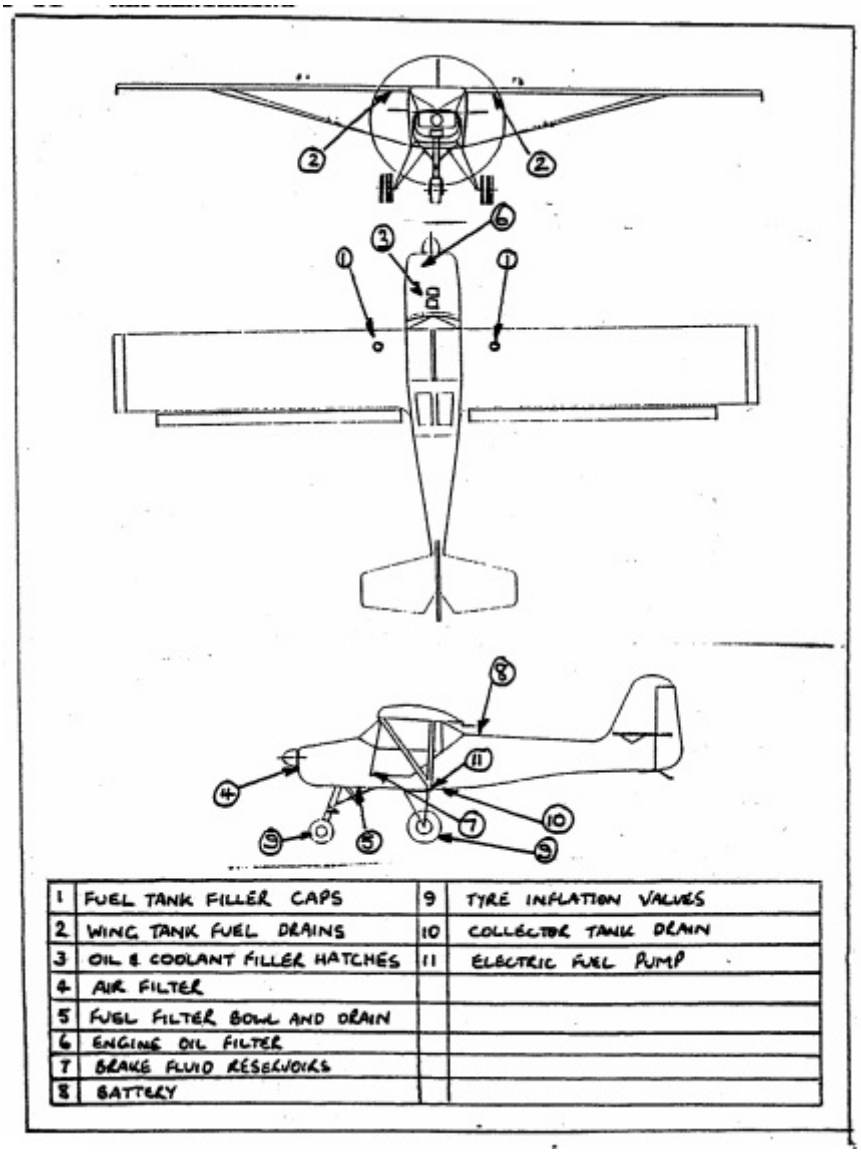
CHAPTER 12 SERVICING

TABLE OF CONTENTS/EFFECTIVITY

12-00-00 GENERAL

Servicing the aircraft includes the replenishment of fuel, oil, coolant, hydraulic brake fluid, tyre pressure, lubrication requirements and other required items. Refer Fig 1201.

12-10-01 REPLENISHING



1	FUEL TANK FILLER CAPS	9	TYRE INFLATION VALVES
2	WING TANK FUEL DRAINS	10	COLLECTOR TANK DRAIN
3	OIL & COOLANT FILLER HATCHES	11	ELECTRIC FUEL PUMP
4	AIR FILTER		
5	FUEL FILTER BOWL AND DRAIN		
6	ENGINE OIL FILTER		
7	BRAKE FLUID RESERVOIRS		
8	BATTERY		

Fig 1201

12-10-02 FUEL SYSTEM

At intervals of 100 hrs, clean the fuel strainer screen located in the fuel bowl, mounted on the lower right side of the firewall.

12-10-03 FILLING FUEL TANKS

Observe all required precautions for handling fuel. Fill the fuel tanks as specified in Chart 601 of Chapter 6. Each fuel tank holds a maximum of 26 litres. To obtain the standard fuel quantity of 55.75 litres total, (only 48.0 litres useable), fill both tanks to the bottom of the filler neck.

12-10-04 DRAINING FUEL STRAINER

1. The fuel strainer, equipped with an easy drain valve is mounted on the lower right hand side of the firewall. The fuel strainer should be drained regularly to check for water or dirt accumulations.

2. The procedure for draining the right and left tank lines is to open the easy drain valve for a few seconds with the fuel cock "ON", allowing enough fuel to flow out to clear the fuel lines as well as the fuel strainer.

12-10-05 DRAINING FUEL SYSTEM

The fuel may be drained from the system by operating the collector tank drain valve located under the right wing strut attachment point and the fuel filter bowl drain valve located on the lower right hand side of the firewall. The remainder is drained from the main tank fuel tank valves located on the lower, inboard surface of the wing.

- NOTE -

IT IS NOT POSSIBLE TO DRAIN ONLY ONE TANK WITHOUT MODIFYING THE FUEL SYSTEM.

- END –

12-10-06 SERVICING OIL SYSTEM

See Chapter 79 for description of the oil system.

The engine oil system should be checked before each flight and the oil changed after each 100 hrs. During the oil change, the oil filter should also be replaced.

- CAUTION -

DO NOT INTRODUCE ANY GRADE ADDITIVE TO THE BASIC LUBRICANT UNLESS RECOMMENDED BY THE ENGINE MANUFACTURER.

DO NOT USE ANY AIRCRAFT ENGINE OIL, EITHER WITH OR WITHOUT ADDITIVES -

- END -

The engine manufacturer does not recommend oils by brand names. Use a quality brand oil of the proper seasonal viscosity ana specification. For information on the use of detergent oils, refer to engine operators manual.

12-10-07 DRAINING OIL TANK

To drain the oil tank, remove the engine cowls and centre consul then remove the oil box base plate (Drain Cover). Provide a suitable container with a minimum capacity of that required to fill the tank (at least 3Lt). Open the oil drain valve or drain plug located at the base of the oil tank and drain the oil into the container. It is recommended that the engine be warmed to operating'temperatures to ensure complete draining of the old oil.

NOTE: See Chapter 79 for "Quick Drain" oil system.

12-10-08 FILLING OIL TANK

The oil tank should normally be filled with oil, almost to the top mark on the dip stick. The quantity of oil required for the engine may be found in Chart 601 of Chapter 6. The specified grade of oil may be found in Rotax Operators Manual or on the oil access hatch on the top engine cowl. To service the engine with oil, open the oil access hatch on the top engine cowl, open the oil box lid and remove the oil filler cap with dipstick. Replenish the oil directly into the oil tank using a long funnel.

NOTE: The dipstick is marked with a flat area. The Top of the flat area is the MAX limit and the Bottom of the flat area is the MIN limit. The length of the flat area is 0.75 Its.

12-10-09 OIL SCREEN (IN OIL TANK)

The oil screen is located in the base of the oil tank and can only be serviced by removing the oil tank from the oil box. Once the oil tank has been removed from the oil box, the tank is disassembled and the oil strainer removed. Cleaning of the oil strainer should be carried out at each engine overhaul. When cleaning the strainer, take notice of any foreign particulars or metal filings which may indicate damage occurring in the engine. After reassembling the oil tank, pressurize to 14Kpa, (2psi), and check for leaks around the lid seal. Reinstall the oil tank into the oil box and attach to the firewall and reconnect all hoses.

NOTE: The Rotax Parts Manual refers to the screen as a baffle.

12-10-10 OIL FILTER

The disposable oil filter should be replaced at each engine oil change to prevent contaminants being passed on to the new oil. Loosen the oil filter clamp, (hose clamp), while leaving the lock wire intact, then remove the oil filter from the engine. Before installing the replacement filter, cut the old filter apart and examine for foreign particles and metal filings. If found, the source of the particles should be investigated further before allowing the engine back into service. When installing the new filter, tighten the filter to the engine and then rotate the oil filter clamp in an anti clockwise direction and tighten the clamp. The-oil filter should now be prevented from unscrewing.

12-10-12 SERVICING COOLANT SYSTEM

The engine coolant system should be checked before each flight and changed every two years or at engine overhaul, whichever occurs first.

- CAUTION -

DO NOT INTRODUCE ANY GRADE ADDITIVE OR WATER TO THE BASIC COOLANT UNLESS RECOMMENDED BY THE MANUFACTURER.

- END -

The engine manufacturer does not recommend coolant by brand names. Use a quality brand coolant of the proper specification. For information on the use of coolants, refer to engine operators manual.

12-10-13 DRAINING COOLANT SYSTEM

To drain the coolant system, provide a suitable container with a minimum capacity of that required to fill the coolant system. Remove the engine cowls and remove the bottom coolant pump retaining bolt. It is recommended that the engine be warmed to operating temperature to ensure complete draining of the old coolant.

12-10-14 FILLING COOLANT SYSTEM

The coolant system should be filled via the expansion tank, (Part No 922 312), to the base of the filler neck. Then with the cap in place, ensure that the overflow bottle contains coolant to the bottom mark when engine is cold. The engine should be given a short run and then the coolant level rechecked in case of air locks.

12-20-01 SCHEDULED SERVICING

Scheduled Servicing is detailed in chapter 5.

LANDING GEAR

The landing gear consists of wheels, tyres, brakes, and strut assemblies. Check brake linings for wear and frayed edges, and discs for scoring. Replace if necessary. Minor servicing is described in the following paragraphs. For detailed service and overhaul instructions refer to Chapter 32.

12-20-02 LANDING GEAR, (MAIN)

The main landing gear should be visually inspected before each flight as part of the preflight inspection. In addition, a more thorough inspection should be carried out each 100 hours of airframe time in operation^ The landing gear is checked for damage, corrosion and distortion and. the bonded rubbers checked for fraying, chafing, or delamination which may indicate degradation of the internal rubber. Replace as necessary. It is also necessary to check the top pivot bolts for wear and distortion. Lubricate in accordance with the lubrication chart in Chapter 12.

12-20-03 NOSE WHEEL

The nose wheel should, be inspected before each flight as part of the pref light inspection and a more, thorough inspection carried, out. at each 100 hour interval of airframe operation. This inspection should include the steering mechanism, pivot pin, axle, bearings, steering springs for wear, deformity, corrosion and correct operation. Lubricate in accordance with the lubrication chart in Chapter 12.

12-20-04 BRAKE SYSTEM.

The braking system should be checked periodically to ensure that maximum braking efficiency is maintained. A functional test should be carried out at the beginning of the taxi roll for each flight. Refer Chapter 9.

The brakes are dual, independent, disc brakes operated by toe pedals on both rudder pedal assemblies. The brakes can be. activated by either occupant. The master cylinders have self contained reservoirs and are mounted to the left side rudder pedals. High pressure PVC brake lines carry the brake fluid to the calipers which are mounted to the undercarriage leg at the axle.

The brake discs are bolted to the wheel in a manner which allows the caliper to operate on the inside circumference of the disc.

The brake fluid level is checked by removing the vent screw from the top of the master cylinders and measuring the distance from the top of the cylinder to the top of the fluid. This distance should be no more than 20mm. To check for air in the brake system, apply pressure to the top of the brake pedal and measure the angle of deflection. If the deflection exceeds 25°, the brake system must be drained and refilled.

12-20-05 FILLING BRAKE SYSTEM RESERVOIR

The brake master cylinders are located on the left rudder pedals and can be serviced without removal. Remove the top engine cowl and lift the rubber boot, (if fitted); over the master cylinders. Remove the vent screw from the top of the brake master cylinder reservoir and inject the required quantity of MIL-H-5606E brake fluid through the bleed nipple located at the base of each wheel caliper until the master cylinder reservoir is half full. Repeat this procedure for each side if necessary. Replace the vent screw, rubber boot and top engine cowling and carry out a functional test of the brakes. Check for leaks and spilled fluid.

12-20-06 DRAINING BRAKE SYSTEM

To drain the braking system, remove the top engine cowling and: lift the rubber boot, (if fitted), over the master cylinders. Remove the vent screw from the top of the brake master cylinder reservoir and with a suitable container place under the wheel caliper, open the brake bleed nipple. Some assistance may be required to drain the fluid by pumping the brake pedal.

12-20-07 TYRE SERVICING

INSPECTION: A careful inspection of both tyres (and tubes, if applicable)r should be made.

INSTALLATION: When installing tubes into tyres, it is recommended that the inside of the tyre and the outside of the tube be dusted with talc or soapstone prior to installing the tube into the tyre. This will prevent the tube from sticking to the inside of the tyre or tyre beads. This dusting also helps the tube assume its normal position in the tyre when inflated and thus lessens the chances of tube wrinkling and thinning out. Care must be taken so as not to "pinch" the tube between the two halves of the wheel rim, when bolting them together ~ After assembly the tyres must be inflated . to a pressure of 35 psi. The pressure must remain in the type for at least 2 minutes before being reduced to normal operating pressure of 30 psi (nose), 20 psi (main). During the high pressure testing of all tyres, any deformities must be noted and rejected if found.

TYRE SERVICING (cont)

LUBRICATION: On various tyre types, lubrication of the tyre bead may be necessary. An approved solution is 10% vegetable oil, soap or plain water.

12-20-08 POWER PLANT

Regularly check the engine compartment for oil and fuel leads, chafing of lines, loose wires and tightness of all parts. Maintenance instructions for the powerplant may be found in Chapter 72 of this manual and in the appropriate manufacturers manuals.

12-20-09 REMOVAL & INSTALLATION OF AIR FILTER

The air filter is located on the front of the engine below the propeller reduction gearbox and is mounted to the front of the induction air selector box. The air filter is removed by first removing both top and bottom engine cowls, then removing the two fixing screws on the front of the air filter. Installation is accomplished by reversing the above procedures.

12-20-10 CLEANING & INSPECTION OF AIR FILTER

The air filter should be removed and cleaned daily when operating in dusty conditions. If any holes or tears are noticed, the air filter must be replaced immediately. Wash the foam filter material in kerosene until the filter looks clean and free of dust particles, then rinse in clean soapy water and allow to dry. Recoat the foam with air filter oil as listed in the lubrication chart contained in Chapter 12.

12-20-11 PROPELLER

The propeller surfaces along with the spinner and backplate should be cleaned and inspected frequently for nicks, scratches, corrosion and cracks. Minor nicks and scratches on the prop may be removed as per instructions in Chapter 61. The face of each propeller blade should be painted when necessary with a flat black paint to reduce glare.

12-20-12 ELECTRICAL SYSTEM

Servicing the electrical system involves checking cable connections, and checking for any spilled electrolyte that would lead to corrosion. The security of all electrical connections should be checked as well as the operation of all lights, general condition of the alternator and starter. All electrical wires should be inspected for chafing and bare wires. For detailed information on this system, refer" to Chapter 39 of this manual.

12-20-13 BATTERY SERVICING

The battery in the Gazelle is a "Gel Cell" (Sealed).
i.e. Maintenance free, except for cleaning of the terminals.
Refer page 24-10.

12-20-14 BATTERY BOX INSPECTION

The battery should be checked for spilled electrolyte or corrosion at each 100 hour inspection. Should corrosion be found in the box, on the terminals or around the battery, the battery should be removed and both, box and battery be cleaned by the following procedure:

1. Clean the battery and box. Corrosion effects may be neutralized by applying a solution of -baking soda and water mixed to a consistency of thin cream. The application of this mixture should be applied until all bubbling action has ceased.
2. Rinse the battery and box with clean water and dry.
3. Reinstall battery and box into aircraft.

12-20-15 LUBRICATING INSTRUCTIONS

Proper lubrication procedures are of immeasurable value both as a means of prolonging the service life of an aircraft and as a means of reducing the frequency of extensive and expensive repairs. The periodic application of recommended lubricants to their relevant bearing surfaces, as detailed in the following paragraphs, together with the observance of cleanliness, will ensure that maximum efficiency and utmost service of all moving parts.
Lubrication instructions regarding the locations, time intervals, and type of lubricants used may be found in the lubrication charts, (Figs 12-3 - 12-6). To ensure the best possible results from the application of lubricants, the following precautions should be observed.

1. Use recommended lubricants. Where general purpose lubricating oil is specified but unavailable, clean engine oil may be used as a satisfactory substitute.
2. Check the components to be lubricated for evidence of excessive wear and replace them as necessary.
3. Remove all excess lubricant from the components in order to prevent the collection of dirt and sand in abrasive quantities capable of causing excessive wear to bearing surfaces.

12-20-16 APPLICATION OF OIL

Whenever specific instructions for lubrication of mechanisms requiring- lubrication are not available, observe the following precautions:

Apply oil: sparingly. Never more than enough to coat the bearing surfaces.

12-20-17 APPLICATION OF GREASE

Care must be taken when lubricating bearings and bearing surfaces with, a grease gun, to ensure that the gun is filled with new, clean grease of the required specified for the particular application. before applying lubricant to the grease fittings.

1. Where a reservoir is not provided around the bearing, apply the lubricant sparingly and wipe off any excess.
2. Remove wheel bearings form the wheel hub and clean thoroughly with a suitable solvent. When repacking with grease, ensure the lubricant enters the space between, the rollers and the retaining ring. Do not pack the grease into the wheel hub.

12-20-18 LUBRICATION CHARTS

The approximate location of each part of the aircraft to be lubricated is identified by an index number in the pictorial I portion, of the charts. Further identification of each, such indexed part, its proper lubricant and frequency of lubrication is given in the tabular section of the chart. Special instructions and precautionary notes applicable to specific items to be lubricated are included at the bottom of each tabular portion of the charts. The more common: notes to be observed during lubrication procedures are as follows:

1. Lubrication points - Wipe all lubrication, points clean of old lube, dirt etc, before applying; fresh lubricant.
2. Bearing; and bushings - Clean exterior with quick drying solvent before lubricating.
3. Do not apply lubricant to rubber parts except as noted.
4. Do not apply any lubrication, to black nylon bearings, flight control surface hinges or rudder cable guides.
5. Do not apply any lubrication to white nylon bearings on rudder pedal torque tube pivot points.
6. Do not apply any lubrication to rod end bearings where the bearing is housed in a teflon type liner.

CHART 1202 RUDDER PEDAL ASSEMBLY Refer figure 1203 ITEM / DESCRIPTION	LUBE INTERVAL	RECOMMENDED LUBRICANT
1. Rudder Pedal Cross Bars	100hrs	General purpose Lubricating Oil
2. Brake Pedal Pivots.	100hrs	General Purpose Lubricating Oil
3. Yoke Pivots	100hrs	MIL-G-8I322A General Purpose Grease
4. Brake Master Cylinder Base	100hrs	MIL- G81322A General Purpose Grease
5. Bearing; Pedal Pivots	NIL	DO NOT LUBRICATE

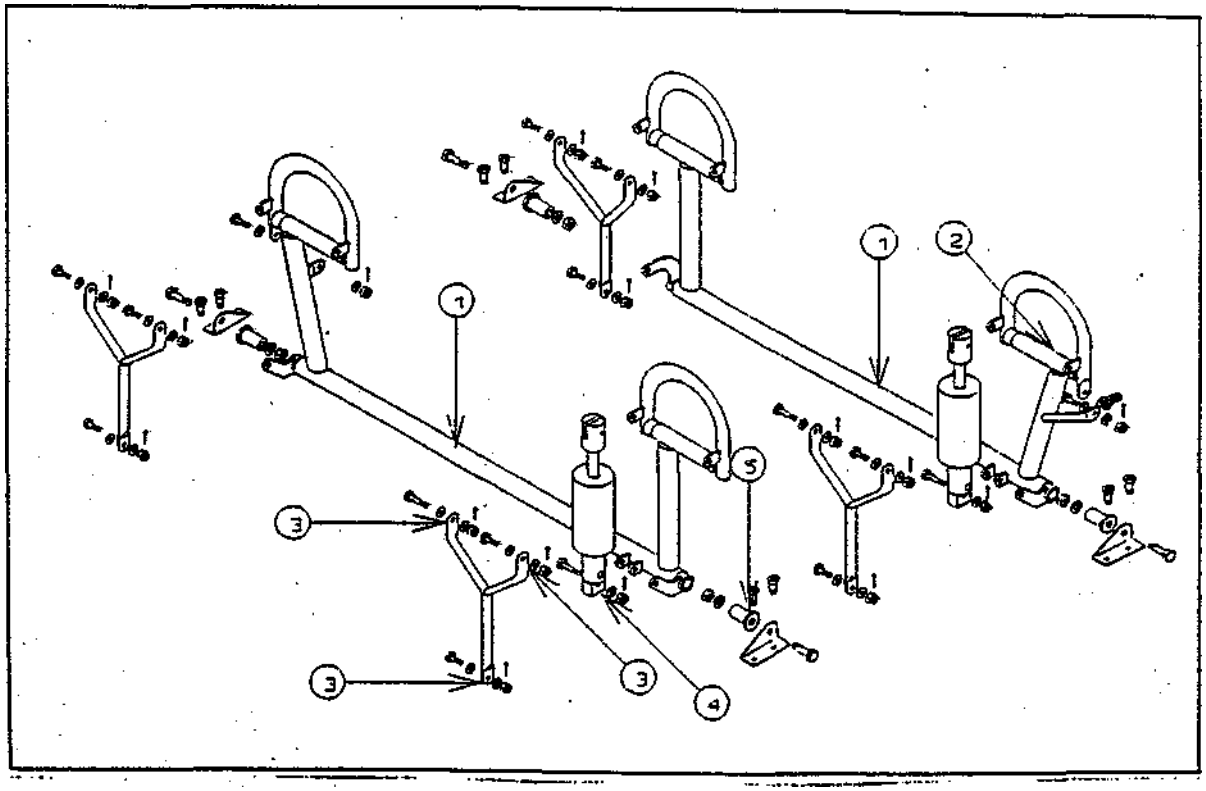


Figure 1203

CHART 1201 CONTROL SYSTEM. Refer figure 1202 ITEM: / DESCRIPTION.	**LUBE INTERVAL**	**RECOMMENDED LUBRICANT**
1. Control Stick Pivot	100hrs	MIL-G-81322A General Purpose Grease
2. Control Column Pivot	100hrs	MIL-G-81322A General Purpose Grease
3. Stick Pivot Control Tube Rod End	100hrs	General Purpose Lubricating Oil
4. Swivel Joint	100hrs	MIL-G-81322A General Purpose Grease
5. Stick Pivot Control Tube Rod End	100hrs	General Purpose Lubricating Oil
6. Forward Bellcrank Rod End	100hrs	General Purpose Lubricating Oil

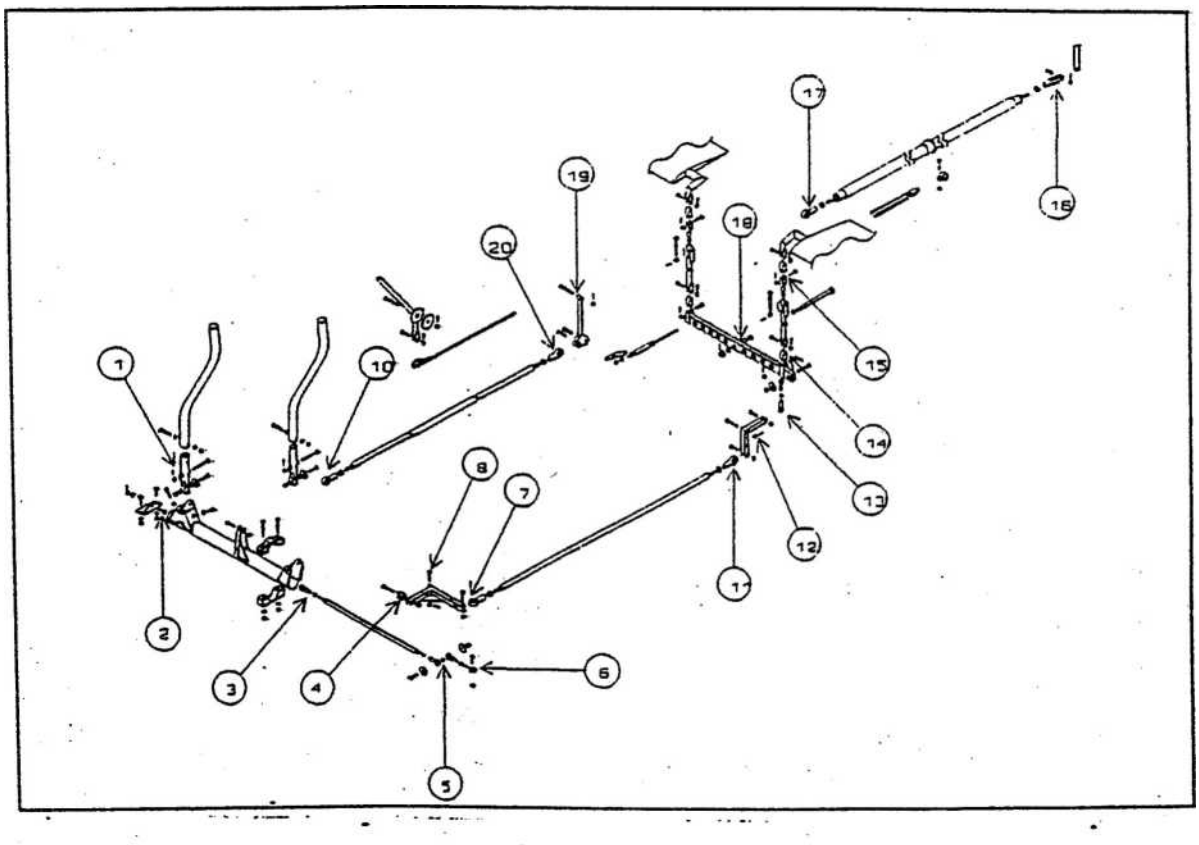


Figure 1202

7. Control Tube Forward Aileron Rod End	100hrs	General Purpose Grease
8. Bellcrank Forward Aileron	100hrs	MIL-G-81322A General Purpose Grease
9. Reserved		
10. Tail Control Tube Forward	100hrs	General Purpose Lubricating Oil
11. Control Tube Aft Aileron Rod End	100hrs	General Purpose Lubricating- Oil
12. Bellcrank Aileron Mid	100hrs	MIL-G-81322A General Purpose Grease
13. Bellcrank Aileron Mid Rod End	100hrs	General Purpose Lubricating Oil
14. "U" Joint	100hrs	MIL-G-81322A General Purpose Grease
15. Top Swivel Link Aileron	100hrs	MIL-G-81322A General Purpose Grease
16. Elevator Control Rod Clevis Yoke	100hrs	MIL-G-81322A General Purpose Grease
17. Elevator Control Rod Forward Rod End	100hrs	General Purpose Lubricating Oil
18. Bell crank Aileron Rear Yoke	100hrs	MIL-G-81322A General Purpose Grease
19. Bellcrank Elevator Idler Rod End	100hrs	MIL-G-81322A General Purpose Grease
20. Tail Control Tube Aft Rod End	100hrs	General Purpose Lubricating Oil

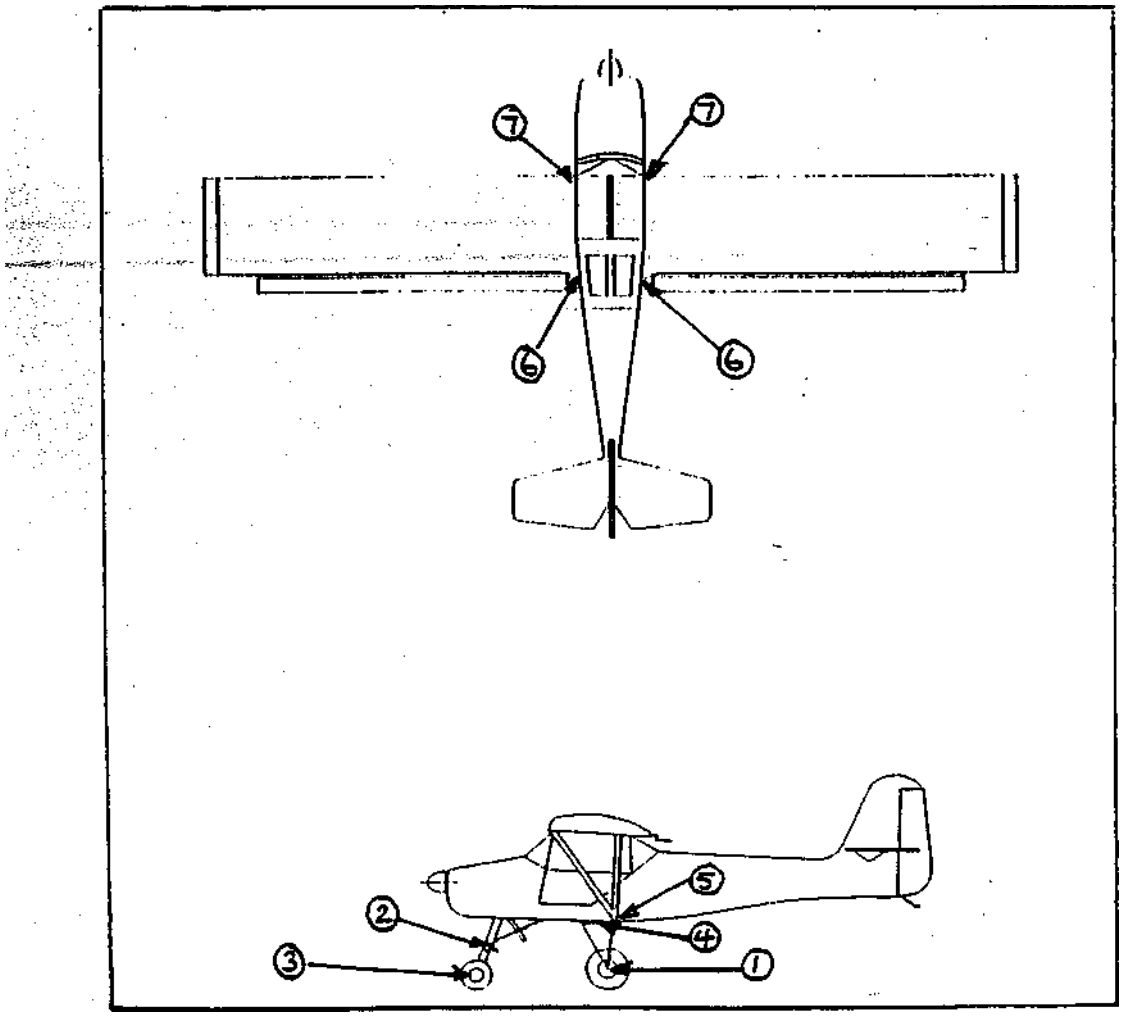


Figure 1204

CHART 1203 GENERAL Refer figure 1204 ITEM / DESCRIPTION	LUBE INTERVAL	RECOMMENDED LUBRICANT
1. Main Wheel Bearings	100hrs	MIL-G-81322A General Purpose Grease
2. Nose Wheel Top Bush	100hrs	General Purpose Lubrication oil
3. Nose Wheel Bearing & Steering Mechanism	100hrs	MIL-G-81322A General Purpose Grease

4. Undercarriage Pivot Bolts	100hrs	MIL-G-81322A General Purpose Grease
5. Wing Strut Pivot Point Yoke	1 Year	MIL-G-81322A General Purpose Grease
6. Main Wing Pivot Bolts	1 Year	MIL-G-81332A General Purpose Grease
7. Main Wing Clevis Pins	100hrs	MIL-G-81322A General Purpose Grease

- NOTE -

FOR ENGINE LUBRICATING INSTRUCTIONS, REFER TO THE MANUFACTURER'S OPERATING MANUAL.

- END -

12—30—01 PREPARATION OF ENGINE FOR STORAGE

Instructions for preparing the engine for storage are given in the engine manufacturer's operating manual.

12-30-02 PREPARATION OF ENGINE FOR INSTALLATION

Instructions for preparing an engine for installation are given in the engine manufacturer's operator's manual.

CHAPTER 20

STANDARD PRACTICES / AIRFRAME

CHAPTER 20 STANDARD PRACTICES / AIRFRAME

TABLE OF CONTENTS/EFFECTIVITY

20-00-00 STANDARD PRACTICES AIRFRAME

The acceptable methods, techniques and practices are described in AC 43.13-1A.

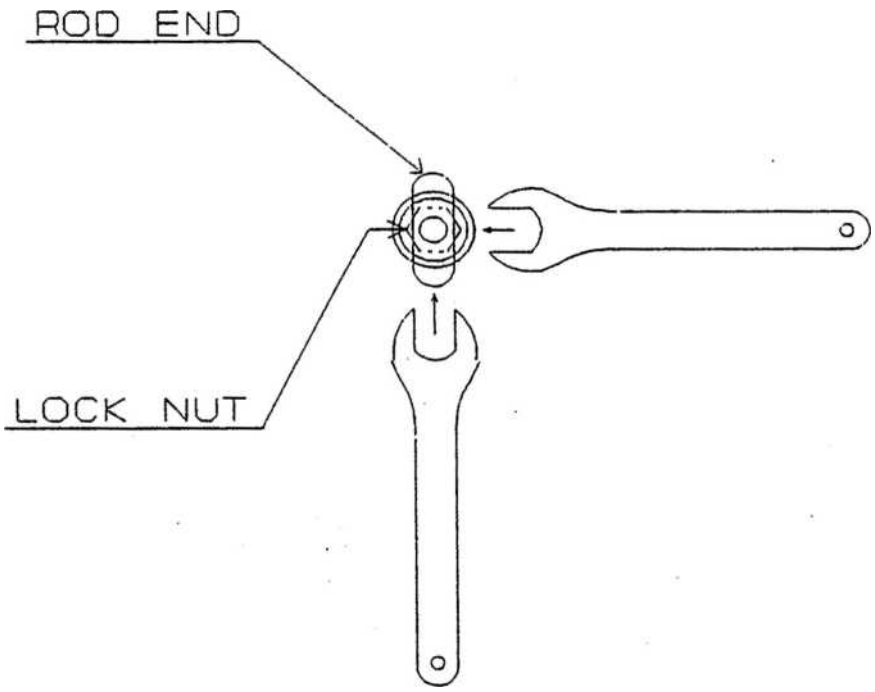
20-00-01 TORQUE WRENCHES

Torque wrenches should be checked daily and calibrated by means of weights and a measured arm to make sure that inaccuracies are not present. Checking one torque wrench against another is not sufficient and is not recommended. Some wrenches are quite sensitive as to the way they are supported during a tightening operation. Any information furnished by the manufacturer must be followed explicitly.

20-00-02 METHOD OF INSTALLING ROD END BEARINGS

CORRECT METHOD OF CHANGING

ROD END BEARING



- NOTE -

USING A SCREWDRIVER OR SIMILAR IMPLEMENT THROUGH THE EYE OF THE ROD END AS A MEANS OF REMOVING OR INSTALLING THE ROD END IS NOT AN ACCEPTABLE PRACTICE.

- END -

20-10-00 **AIRCRAFT FINISH CARE**

All exterior surfaces are painted with Dulux 2-Pack enamel. For fabric surfaces, 20% Plasticiser is added.

20-10-01 **EXTERIOR SURFACES**

Rinse fabric with lukewarm water; wash gently with mild soap or detergent and lukewarm water using a soft cloth or sponge. Rinse again. Dry with soft cloth or moist cellulose sponge to prevent water spotting. To remove oil or grease marks, use a petroleum based cleaner then rinse off.

20-10-02 **SKYLIGHT, DOORS AND WINDOWS**

LEXAN:

Rinse sheet with lukewarm water; wash gently with mild soap or detergent and lukewarm water using a soft cloth or sponge. DO NOT SCRUB or use brushes or squeegees. Rinse again. Dry with soft cloth or moist cellulose sponge to prevent water spotting.

To remove wet paint, glazing compound or grease, rub lightly with a good grade of VM&P Naphtha or isopropyl alcohol, then wash and rinse. DO NOT USE GASOLINE.

Compatible Cleaning Agents:

* Aqueous Solutions of Soaps and Detergents
  - Fantastik
  - Formula 409
  - Hexcel, F.0.554
  - Joy
  - Lysol
  - Mr. Clean
  - Neleco-Placer
  - Pinesol
  - Top Job
  - Windex

* Organic Solvents
  - Alphatic Hydrocarbons
  - Kerosene
  - Naphtha (VM&P Grade)
  - Petroleum Spirits

* Alcohols
  - Isopropyl Alcohol
  - Methanol

* Graffiti Removal
  - Butyl Cellosolve
    (For removal of paints, marking pen inks, lipstick, etc.)

To minimize scratches and minor abrasions, use a mild automobile polish such as Johnson's Paste Wax, Novus Plastic Polish #1 and #2 or Mirror Glaze Plastic Polish.

20-10-03 WINDSCREEN

The windscreen in the CA25N is molded acrylic plastic.

To remove scratches and minor abrasions, use a mild automobile polish such as Johnson's Paste Wax, Novus Plastic Polish #1 and #2 or Mirror Glaze Plastic Polish.

To clean the windscreen, use a soft grit free cloth with plenty of water and mild soap.

Cracks may be stopped temporarily by drilling a small hole at the extreme ends of the cracks.

See AC 43.13-1A for more information.

20-10-04 SIDE PANELS AND SEATS

UPHOLSTERY:

The seat cover can be removed and cleaned using upholstery cleaner or washed by hand.

The fixed upholstery is the same material as the seat cover and can be cleaned in the same manner.

The Flame Retardant product used will not be removed by washing or dry cleaning, however we recommend no more than five washes or dry cleans before returning fabric for re-treatment.

20-10-05 ENGINE COMPARTMENT

Do not spray solvent into alternator, starter motor, air intake or alternate air inlets.

With the engine cowling removed, spray or brush the engine with solvent or a mixture of solvent and degreaser, as desired. It may be necessary to brush areas where heavy grease and dirt deposits have collected in order to clean them.

Allow the solvent to remain on the engine for five to ten minutes, then rinse the engine clean with additional solvent and allow to dry.

-CAUTION-

DO NOT OPERATE ENGINE UNTIL EXCESS SOLVENT HAS EVAPORATED OR OTHERWISE BEEN REMOVED.

-END-

20-10-06 FUEL SYSTEM

1. To flush the fuel tanks and fuel cock, disconnect the fuel line at the carburettor (both carburettors for Rotax 912 engines).

2. Turn on the electric fuel pump and flush fuel through the system until it is determined that there is no dirt and foreign matter in the fuel cock or fuel tanks.

3. During this operation, agitation of the fuel within the tanks will help pick up and remove any dirt.

4. When all fuel tanks are flushed, remove and clean all filters.

NOTE: RE-FIT MAIN WING TANK FILTERS MAX. 30 IN/LBS

20-10-07 LANDING GEAR

Do not spray solvent onto rubber, brake linings, or fabric.

With the brake linings and tires covered with plastic, spray or brush the landing gear with solvent or a mixture of solvent and degreaser, as desired. It may be necessary to brush areas where heavy grease and dirt deposits have collected in order to clean them.

Allow the solvent to remain on the landing gear for five to ten minutes, then rinse the engine clean with additional solvent and allow to dry.

CHAPTER 21

ENVIRONMENTAL SYSTEMS

CHAPTER 21 ENVIRONMENTAL SYSTEMS

TABLE OF CONTENTS/EFFECTIVITY

21-00-00 GENERAL

Because of the simplicity of the heating and ventilation system installed in the Skyfox, the operation and maintenance instructions of the components are combined. A pictorial description of these systems may be found in figure 21-1.

21-00-01 DESCRIPTION AND OPERATION

Heat for the cabin is provided by a hot air heat muff installed around the right-hand exhaust manifold. Fresh air enters the engine compartment through the front of the engine cowling to the heater muff. The air is then heated and vented into the cabin area through a valve which can be controlled from the instrument panel. When the valve is completely closed off, the heated air is vented back to the engine compartment. The heater outlet in the cabin is located under the center of the instrument panel. Control for the heater system is located on the left panel below the instruments.

Fresh air is able to enter the cabin via two air vents located in each cabin door. These vents are adjusted to allow control of air entering the cabin.

- CAUTION -

WHEN RE-INSTALLING THE CABIN AND CARBURETTOR HEAT HOSES, ASSURE THAT THE PROPER HOSE IS CONNECTED TO THE PROPER HEAT MUFF OUTLET.

- END -

21-40-00 HEATER

The Cabin heat is derived from cold ram air passing through a shroud on the surrounding exhaust pipe on the lower right-hand side of the engine.

21-40-01 HEATER MAINTENANCE

If the exhaust pipe should become defective, carbon monoxide fumes may be discharged into the cabin area. Therefore, it is imperative that the exhaust system be inspected regularly. Refer to Chapter 5 for inspection of exhaust system. The heat collector must be removed in order to inspect the manifold assembly. Check the operation of the push/pull controls to ensure the valve doors function properly. Refer to fig 2101 for an illustration of the heater system.

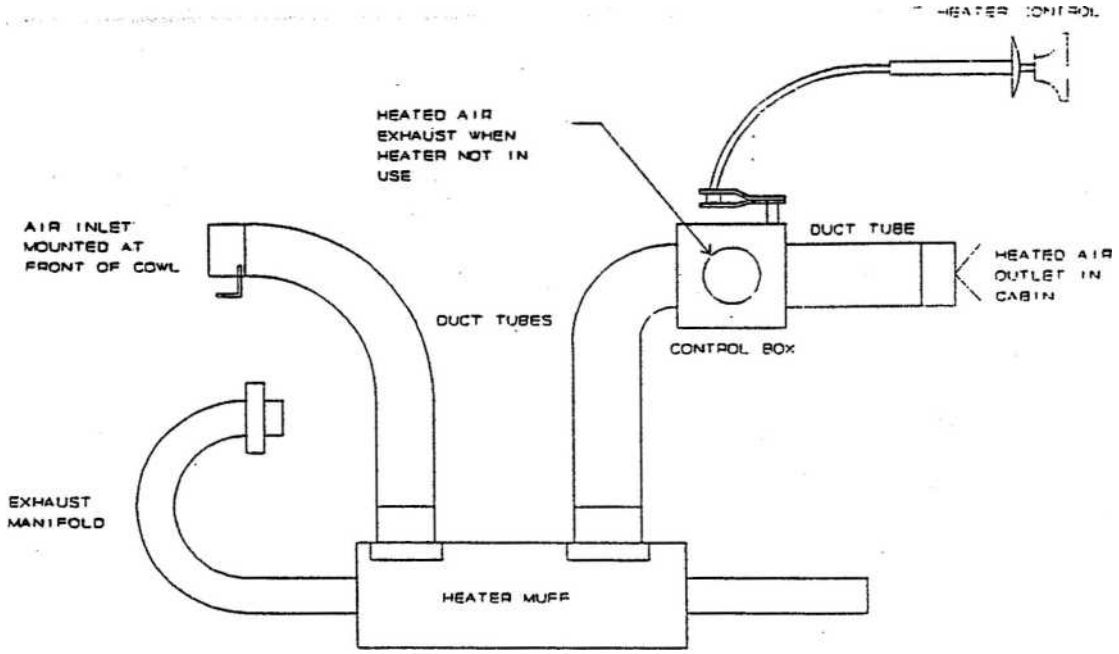

HEATER CONTROL
HEATED AIR EXHAUST WHEN HEATER NOT IN USE
AIR INLET MOUNTED AT FRONT OF COWL
DUCT TUBE
HEATED AIR OUTLET IN CABIN
DUCT TUBES
CONTROL BOX
EXHAUST MANIFOLD
HEATER MUFF

Figure 2101

CHAPTER 23

COMMUNICATIONS

CHAPTER 23 COMMUNICATIONS

TABLE OF CONTENTS/EFFECTIVITY

23-00-00 GENERAL

This chapter describes the communications systems installed as standard equipment in the Skyfox. A troubleshooting chart is also included for fault finding in the various communications systems.

- NOTE -

Some aircraft may be fitted with extra equipment which is not a standard fit. For information regarding that extra equipment, refer to the data supplied with the aircraft or the manufacturer of the equipment.

- END -

23-10-00 VHF Tx Rx

23-10-01 DESCRIPTION

The VHF communications transceiver fitted to the aircraft is a Bendix King KY97A or an ICOM IC-A200 A wiring diagram detailing the interwiring of the transceiver is shown in Chapter 91 of this manual.

23-10-02 LOCATION

The VHF transceiver is mounted in the instrument panel, to the left of the engine tachometer. The aerial is mounted to the baggage compartment hatch.

23-10-03 TROUBLESHOOTING

CHART 2301 TROUBLESHOOTING (VHF TRANSCEIVER)

TROUBLE	CAUSE	REMEDY
DISPLAY DOES NOT ILLUMINATE	Interruption to power supply. Faulty transceiver.	Check fuses, system voltage at transceiver input, replace transceiver.

Cont…

NO RECEIVER SIGNAL HEARD IN HANDSET	Faulty or damaged aerial, damaged coaxial cable, faulty transceiver, loose or broken audio output cables or connections, faulty intercom, faulty headset.	Check aerial and coaxial cable, replace transceiver, check audio output cables and connections, check intercom and head- set.
Tx INDICATOR DOES NOT ILLUMINATE WHEN PUSH TO TALK BUTTON IS PRESSED	Faulty intercom; damaged or loose key cables or connectors; faulty push to talk switch.	Replace aerial; repair or replace coaxial cable; replace intercom or headset.
Tx INDICATOR ILLUMINATES BUT NO SIGNAL IS TRANSMITTED	Faulty aerial, damaged or loose coaxial cable, faulty intercom, faulty headset.	Replace aerial, repair or replace coaxial cable, replace intercom or headset.

23-50-03 INTERCOM

23-50-02 DESCRIPTION

The intercom fitted as standard equipment to the aircraft is a Dacom, ICS-41. This intercom has voice activated inter occupant communications, constant communications radio monitoring, and push to transmit facility with left seat priority. This means that the left push to talk button will override and cut out the right push to talk. In the event of an intercom failure, radio communications will still be received through the headsets.

23-50-03 LOCATION

The intercom unit and control panel is mounted in the instrument panel, above the VHF transceiver. The sockets for the headsets are located on the head rack at the top of the windscreen.

23-50-04 TROUBLESHOOTING

CHART 2302 TROUBLESHOOTING (INTERCOM)

TROUBLE	CAUSE	REMEDY
NO INTER OCCUPANT COMMUNICATION OR VHF TRANSMISSION	Interruption to power supply, faulty intercom, loose or damaged audio output cables, dirty or faulty headset plugs.	Check fuses, - system voltage at intercom output, replace intercom, check audio output cables and clean headset plugs and sockets.
NO VHF TRANSMISSION	Faulty or damaged aerial, damaged coaxial cable, faulty transceiver, faulty intercom, faulty headset, faulty push to talk switch.	Check aerial and coaxial cable, replace transceiver, check intercom and headsets, check push to talk switch.
NO INTER OCCUPANT COMMUNICATION	Faulty intercom, incorrectly set squelch on intercom.	Replace intercom, reset squelch.
CONSTANT BACKGROUND NOISE THROUGH HEADSETS	Incorrectly set squelch on intercom.	Reset squelch.

CHAPTER 24

ELECTRICAL POWER

CHAPTER24 ELECTRICAL POWER

TABLE OF CONTENTS/EFFECTIVITY

24-00-00 GENERAL

This chapter contains instructions for correcting difficulties which may arise in the operation of the electrical charging system. Schematics for the individual systems are located in Chapter 91 of this manual. For further information concerning electronic equipment, refer to Chapter 23.

24-00-01 DESCRIPTION AND OPERATION

Electrical power is supplied by a 14-volt, direct current, negative ground electrical system. A 12-volt battery is incorporated into the system to furnish power for starting and as a reserve power source in case of an alternator failure. Access to the battery is gained by removing the turtle deck.

The electrical generating system consists of an engine driven 250-watt alternator. A solid-state voltage rectifier/regulator maintains the system bus voltage at 14 volts. The master switch must be ON before any electrical equipment will operate. The master switch controls the master solenoid. The switch is a single pole, single throw type.

NOTE: If the engine is running, then the alternator will supply electrical power to the entire electrical system, whether or not the Master Switch is OFF or ON.

24-00-02 TROUBLESHOOTING

Probable troubles peculiar to the electrical system components covered by this Chapter are listed in Chart 2401, along with their probable causes and suggested remedies. After the trouble has been corrected, check the entire system for security and operation of its components. Check the Rotax Operator's Manual for more details.

CHART 2401 TROUBLESHOOTING (ALTERNATOR)

VOLTMETER DISPLAYS LESS THAN 10 VOLTS REGARDLESS OF ENGINE RPM.

Check the following:

1. OPEN FIELD CIRCUIT.
   A. Check the continuity of circuits at the following points:
   (a) master solenoid field contact.
   (b) master solenoid output contact.
   (c) master switch.
   (d) bus bar.
   (e) voltmeter.

   The voltage recorded at each point should be the same as that of the battery. If an open field is detected, determine the cause and replace the component or effect a repair.

2. OPEN OUTPUT CIRCUIT.
   A. Check the integrity of the alternator fuse. Replace if necessary.
   B. With the engine running at 3000rpm, turn the master switch OFF and check the voltage at the bus bar. The voltage recorded at the bus bar should be approximately 14 volts. If a voltage is recorded which varies from approximately 14 volts, the rectifier/regulator is at fault. Replace if necessary.

3. OPEN FUEL WINDING.
   Check the continuity of the field circuits by disconnecting both wires connected to the "G" terminals on the rectifier/regulator and place a multimeter across those two wires. The circuit should be uninterrupted. If an open circuit is detected, replace the field windings.

OUTPUT ON VOLTMETER DOES NOT MEET MINIMUM VALUES REGARDLESS OF ENGINE RPM.

Check the following:

1. OPEN FIELD CIRCUIT.
   A. Check for a resistance in the following circuits:
      (a) master solenoid field contact
      (b) master solenoid output contact
      (c) master switch
      (d) bus bar
      (e) voltmeter

   If a high resistance is detected, determine the cause and replace the component or effect a repair.

2. OPEN OUTPUT CIRCUIT.

   A. Check the integrity of the alternator fuse. Replace as necessary.
   B. With the engine running at 3000RPM, turn the master switch OFF and check the voltage at the bus bar. The voltage recorded at the bus bar should be approximately 14 volts. If a voltage is recorded which varies from approximately 14 volts, the rectifier/regulator is at fault. Replace if necessary.

3. OPEN FIELD WINDING.
   Check the continuity of the field circuits by disconnecting both wires connected to the "G" terminals on the rectifier/regulator and place a multimeter across those two wires. The circuit should be uninterrupted. If an open circuit is detected, replace the field windings.

ALTERNATOR CIRCUIT FUSE BLOWS

Check the following:

A. Check the output circuit from the voltage regulator/rectifier with the engine running at 3000RPM and all electrical equipment turned off. It should show approximately 14 volts. If voltage is recorded which varies from approximately 14 volts, the rectifier/regulator is at fault. Replace if necessary.
B. Check for a dead short in all electrical systems. Repair or replace if necessary.
C. Check that the correct fuse rating is being used.

EXCESSIVE VOLTMETER FLUCTUATION

Check the following:

A. Check the continuity of circuits at the following points:
   (a) master solenoid field contact.
   (b) master solenoid output contact.
   (c) master switch.
   (d) bus bar.
   (e) voltmeter.

If an open field is detected, determine the cause and replace the component or effect a repair.

B. Check the output circuit from the voltage regulator/rectifier with the engine running at 3000RPM and all electrical equipment turned off. It should show approximately 14 volts. If a voltage is recorded which varies from approximately 14 volts, the rectifier/regulator is at fault. Replace as necessary.

C. Check the integrity of the control circuit of the voltage rectifier/regulator.

EXCESSIVE VOLTS INDICATED

A. Check the output circuit from the voltage regulator/rectifier with the engine running at 3000RPM and all electrical equipment turned off. It should show approximately 14 volts. If a voltage is recorded which varies from approximately 14 volts, the rectifier/regulator is at fault. Replace if necessary.

B. Check the integrity of the control circuit of the voltage rectifier/regulator.

TROUBLESHOOTING (BATTERY)

DISCHARGED BATTERY

Check the following:

1. CONTINUOUS CURRENT DRAIN
   A. Master switch has been left turned on.

      Turn master switch OFF and recharge battery.

   B. Master solenoid has remained in the closed position with the master switch OFF.

      (a) Check for voltage at the field circuit of the master switch. If voltage is present, replace master switch.
      (b) Check for voltage at the bus bar with the master switch OFF. If voltage is detected, replace master solenoid.

2. EXPIRED BATTERY
   If the battery is a wet cell type
   A. Check the specific gravity of each cell. There should be little or no variation between cells.

      Replace battery as required.

3. BATTERY UNUSED FOR LONG PERIOD
   A. Recharge battery and check voltage. If voltage is less than 13.5 volts replace battery.

BATTERY LIFE IS SHORT

---

1. EXCESSIVE CURRENT DRAIN
   A. Check the following circuits for excessive current usage:
      (a) starter motor.
      (b) master solenoid field circuit.
   Determine the cause of the fault and repair or replace as necessary.
   B. Check that the starter motor solenoid is disengaging after start. Replace as necessary.
   C. Check all circuits for a dead short.

2. BATTERY EXPIRED
   A. Replace Battery.

CRACKED BATTERY CASING

---

1. BATTERY OVER CHARGED
   Replace battery.

2. FROZEN BATTERY
   Replace battery.

ELECTROLYTE RUNS OUT OF VENT PLUGS - WET CELL TYPE ONLY

---

1. OVERFULL BATTERY
   Check the electrolyte level of each cell. If overfull, drain all electrolyte and replace with new fluid.

2. BATTERY OVERCHARGING
   Check the output of the charging circuit. If output exceeds specifications, check operation of sensing circuit of voltage rectifier/regulator. Replace as required.

3. EXCESSIVE CURRENT DRAIN
   A. Check the following circuits for excessive current usage:
      (a) starter motor
      (b) master solenoid field circuit
      Determine the cause of the fault and repair or replace as necessary.
   B. Check that the starter motor solenoid is disengaging after start. Replace as necessary.
   C. Check all circuits for a dead short.

EXCESSIVE CORROSION ON BATTERY TERMINALS

---

1. LOOSE CONNECTION
   Check for a loose connection between the battery and the main power leads.

BATTERY FREEZES - WET CELL TYPE ONLY

---

1. WATER ADDED WITHOUT CHARGING BATTERY
   If fresh water is added to the battery, the battery should be briefly charged (approximately 1 hour), to prevent the added water from freezing in cold conditions.

BATTERY POLARITY REVERSED

---

1. BATTERY ALLOWED TO DRAIN COMPLETELY
   Check for cause of battery drain, refer discharged battery in this chapter. Replace battery.

2. BATTERY CHARGED WITH POLARITY REVERSED
   Check that the battery is connected to the charger or aircrafts with the correct polarity. Replace battery.

BATTERY CONSUMES EXCESSIVE WATER

---

1. BATTERY OVERHEATING
   A. Check the following circuits for excessive current usage:
      (a) starter motor
      (b) master solenoid field circuit.
      Determine the cause of the fault and repair or replace as necessary.
   B. Check that the starter motor solenoid is disengaging after start. Replace as necessary.
   C. Check all circuits for a dead short.
   D. Check that the charge current is not excessive and that the sensor circuit in the voltage regulator/rectifier is operating correctly.

24-30-00 DC GENERATION

The alternator is located in the flywheel at the rear of the engine and is driven by the crankshaft. The AC current produced by the alternator is converted to DC by the voltage regulator/rectifier.

There is one fuse/circuit breaker switch which controls the generating system. This switch marked "ALTERNATOR," is in the output circuit from the voltage regulator/rectifier and if switched off or self-switched off will result in a complete interruption to the charging current.

The voltmeter displays the electrical system voltage. An indication of alternator output in amperes is not given by the voltmeter. The voltmeter will indicate that the alternator is charging by an increase in voltage from engine idle to 3000RPM.

24-30-01 ALTERNATOR SYSTEM

24-30-02 DESCRIPTION OF ALTERNATOR

The integrated alternator is a permanent-exited 10 pole single phase generator with 250 Watt AC output. For further information, refer to the engine manufacturer's maintenance manual.

24-30-03 CHECKING OF ALTERNATOR SYSTEM

24-30-04 SERVICE PROCEDURES

For maintenance and servicing procedures, refer to the engine manufacturer's maintenance manual.

24-30-05 BATTERY

24-30-06 SERVICING BATTERY

The battery fitted at manufacture is a sealed battery. All connections must be clean and tight.

24-30-07 REMOVAL OF BATTERY

Remove the turtle deck. Ensure that the master switch is in the OFF position, then disconnect the battery cables and pull them free of the battery box. Disconnect the battery holding bar and remove from the battery box. Lift the battery up and out.

24-30-08 INSTALLATION OF BATTERY

The installation of the battery is the reverse of the removal procedure.

24-30-09 TESTING BATTERY

The specific gravity cannot be tested. If the alternator output is known to be correct, the question of battery capability can be more accurately determined with a load type tester or replace the battery.

24-30-10 CHARGING BATTERY

If the battery is not up to normal charge, remove it from the aircraft and charge, starting at 4 amperes and finishing at 2 amperes. A fast charge is not recommended.

24-30-14 REMOVAL OF VOLTAGE RECTIFIER / REGULATOR

Remove the top engine cowl from the aircraft, locate the voltage rectifier/regulator on the right side (cockpit side) of the firewall, and disconnect the electric wire connector from its base. Remove the four fixing bolts allowing the voltage rectifier/regulator to be removed from the aircraft.

24-30-15 INSTALLATION OF VOLTAGE RECTIFIER / REGULATOR

The installation of the voltage rectifier/regulator is the reverse of the removal procedures.

24-30-16 CHECKING VOLTAGE RECTIFIER / REGULATOR

For information regarding the testing of the voltage rectifier/regulator, refer to the engine manufacturer's maintenance manual.

24-30-17 VOLTMETER

The voltmeter indicates the aircraft system voltage and can easily be checked by placing a calibrated voltmeter or multimeter across the bus bar and earth. Both meters should read identically. The voltmeter is not a serviceable component and should be replaced if faulty.

24-50-00 ELECTRICAL SYSTEM COMPONENT LOADS

CHART 2401 ELECTRICAL LOAD DATA

ITEM	DESCRIPTION	AMPS
1	MASTER RELAY	0.75
2	OIL PRESSURE GAUGE	0.1
3	OIL TEMPERATURE GAUGE	0.1
4	CYLINDER HEAD TEMPERATURE GAUGE	0.1
5	TACHOMETER	0.1
6	VOLTMETER	0.1
7	HOURMETER	0.1
8	FUEL PUMP	1.0
9	VHF COM Tx	3.6
10	VHF COM Rx	0.7
11	INTERCOM	0.2
12	GYRO ARTIFICIAL HORIZON	0.6
13	DIRECTIONAL GYRO	0.6
14	GYRO TURN CO-ORDINATOR	0.5
15	STROBE LIGHTS	3.2
16	G.P.S. (Garmin)	0.45
17	LANDING LIGHT	8.5
18		
19		
	TOTAL	20.70

CHAPTER 25
EQUIPMENT FURNISHINGS

CHAPTER 25 EQUIPMENT FURNISHINGS
TABLE OF CONTENTS/EFFECTIVITY

25-00-00 GENERAL

In addition to the standard equipment, the aircraft may be fitted with a dry powder type fire extinguisher. This fire extinguisher is mounted to the top of the center console in the cabin.

25-10-00 SEAT

The seat is constructed in one piece from fiberglass with timber strengthening ribs. The safety harnesses are three-point aircraft harnesses and are attached directly to brackets provided on the fuselage.

25-10-01 REMOVAL AND INSTALLATION OF SEAT

To remove the fiberglass seat from the airframe, remove the seat cushion and then undo the self-tapping screws at the top of the back of the seat and at the front of the seat. The seat can now be removed from the aircraft. When installing the seat, ensure that the center seat belt buckles are fed through the center of the seat and that they are not twisted or tangled. The self-tapping screws may be re-used provided they are in good condition.

25-10-02 REMOVAL AND INSTALLATION OF CENTRE CONSOLE

Remove the fuel tap (single screw) then remove the two screws surrounding the fuel cock. Remove the two screws at each side of the center console and the two screws on the top. The center console may now be lifted away from the airframe in two pieces. When reinstalling the center console, ensure that the fuel cock placard plate is located correctly with the ON position at the most forward point. Also, check that no wires, cables, or hoses have been pinched during the installation.

CHAPTER 27
FLIGHT CONTROLS

CHAPTER 27 FLIGHT CONTROLS
TABLE OF CONTENTS/EFFECTIVITY

27-00-00 GENERAL

The aircraft is controlled in flight by the use of three standard primary control surfaces consisting of the ailerons, elevator, and rudder. Operation of these controls is through the movement of the dual control sticks and dual rudder pedals. The individual surfaces are connected to their control components by cables, push-pull, or torque tubes and bellcranks.

27-00-01 DESCRIPTION AND OPERATION

The aileron and elevator controls consist of two control sticks (dual control), located on the floor and between the legs of each occupant. These control sticks are linked to the control surfaces via a system of bellcranks, pushrods and rod ends. The aileron linkages are arranged in such a way as to allow the wings to fold without disconnecting the aileron controls.

The rudder is controlled by two cables which extend from the left pedal of the left side rudder pedals to the left rudder horn, and from the right pedal of the right-side rudder pedals to the right rudder horn. Both pairs of rudder pedals are able to operate the rudder left and right.

27-00-02 TROUBLESHOOTING

Troubles peculiar to the flight controls are listed in chart 2701 along with their probable causes and suggested remedies.

CHART 2701 TROUBLESHOOTING (SURFACE CONTROLS)

TROUBLE	**CAUSE**	**REMEDY**
Loss of motion between control stick and control surface	Failure of control component or incorrect assembly of control system	Inspect control system for failed component or incorrect assembly
Resistance to control input	Binding of control system bushing, control system fouling, lack of lubrication	Progressively disassemble control system to locate source of problem. Repair, replace or lubricate
Control sticks not synchronized	Failure or incorrect assembly of control column push rod assembly	Disassemble control column, replace faulty component and re-assemble

Incorrect aileron travel	Aileron limit stops worn or loosened	Re-adjust aileron limit stops and re-secure
Correct aileron travel cannot be obtained	Worn or damaged aileron control system	Adjust and/or replace aileron control components.
Control stick stops before control surface reaches full travel	Aileron and/or elevator pushrods out of adjustment or control system fouling	Re-adjust control system, inspect for control system fouling
Lost motion between rudder pedals and rudder	Component failure in rudder control system	Repair or replace failed component
Excessive resistance in rudder controls	Worn rudder cables, fairleads or bushes, lack of lubrication	Progressively disassemble rudder control system to locate fault. Repair, replace or lubricate.
Rudder pedals not at neutral when rudder is	Rudder cables not installed correctly or cable adjustment links uneven	Replace rudder cables or re-adjust rudder cable adjustment links
Incorrect rudder travel	Failure of rudder control component or binding of rudder cables	Replace faulty component, replace rudder cable fairleads.
Incorrect elevator travel	Failure of elevator control component, binding of control system, incorrect adjustment	Replace faulty component, lubricate control system, re-adjust control system.

27-05-00 CONTROL COLUMN ASSEMBLY

27-05-01 REMOVAL OF CONTROL COLUMN

To remove the control column, the seat and center console must first be removed from the aircraft (refer to chapter 25). Disconnect the elevator push rod and aileron bellcrank at the rod ends and disconnect the push to talk switch cables at the base of the control sticks. Remove the two clamping bolts attaching the nylon control column bearing to the floor and the castellated nut and split pin on the pivot bolt at the opposite end of the control column. Refer Figure 2701. The control column assembly may now be removed from the aircraft.

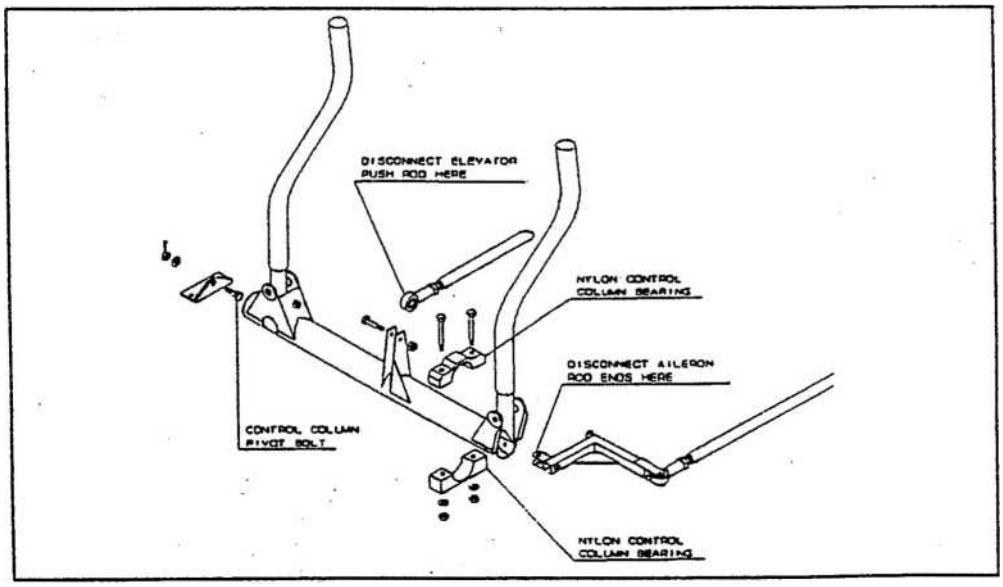


Figure 2701

27-05-02 INSPECTION AND ADJUSTMENT OF CONTROL COLUMN

Begin with the base of the control sticks at the pivot point. Wear can be measured at this point by lightly moving the stick fwd and aft.

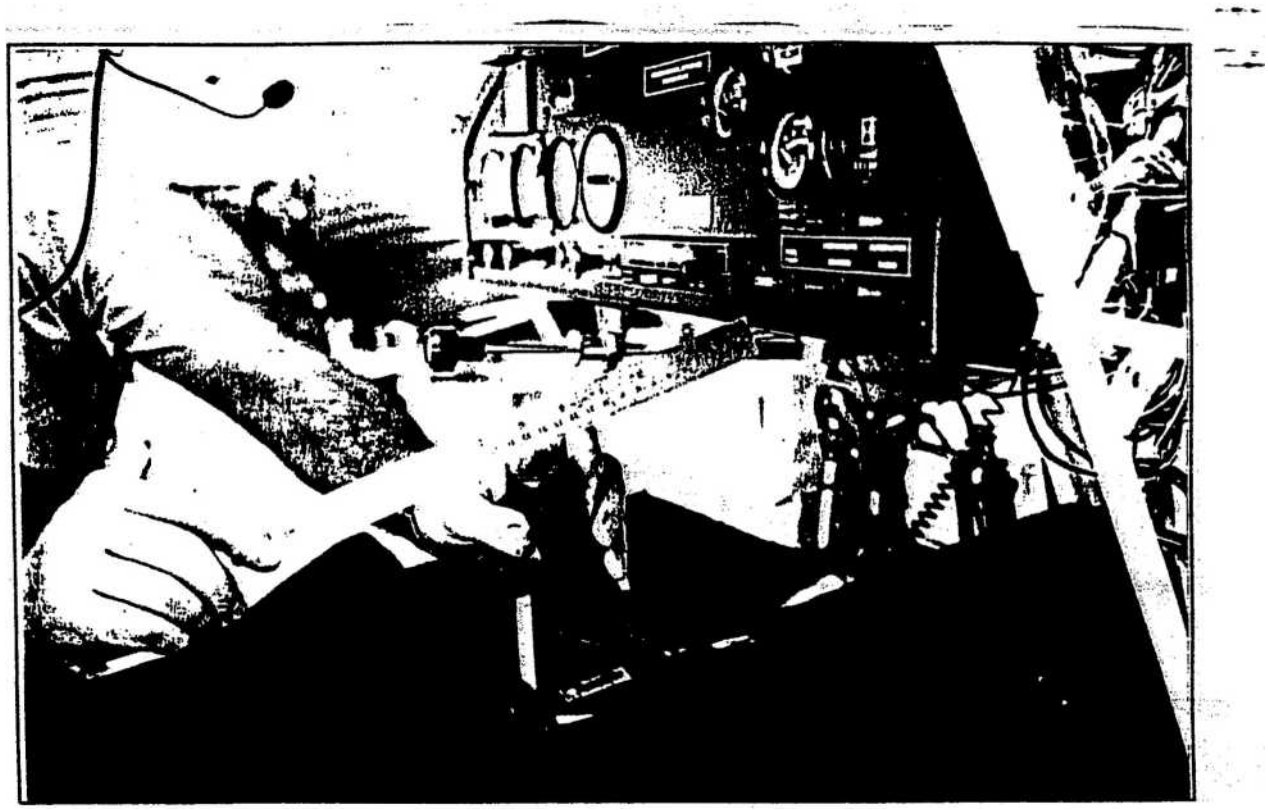


Figure 2702

Any wear will be noticeable by a degree of movement at the top of the control stick. Refer fig 2701. If this movement is more than 3mm$_z$ the pivot bolt should be tightened 1/6th of a turn and the wear measured again. This process is repeated until the movement at the top of the control stick is within limits. This check should be carried out on both control sticks. When completed, a check of aileron control friction should be carried out to ensure that an increase in friction has not developed. If an increase in friction is detected, the control stick pivot is worn beyond limits and should be replaced.

The control column pivot bolt on the right of the control column assembly and the nylon control column bearing are checked for wear by applying pressure to the control column in a fwd and aft fashion. If any movement is visible at the control column pivot bolt, this bolt should be tightened 1/6th of a turn until no visible movement exists.

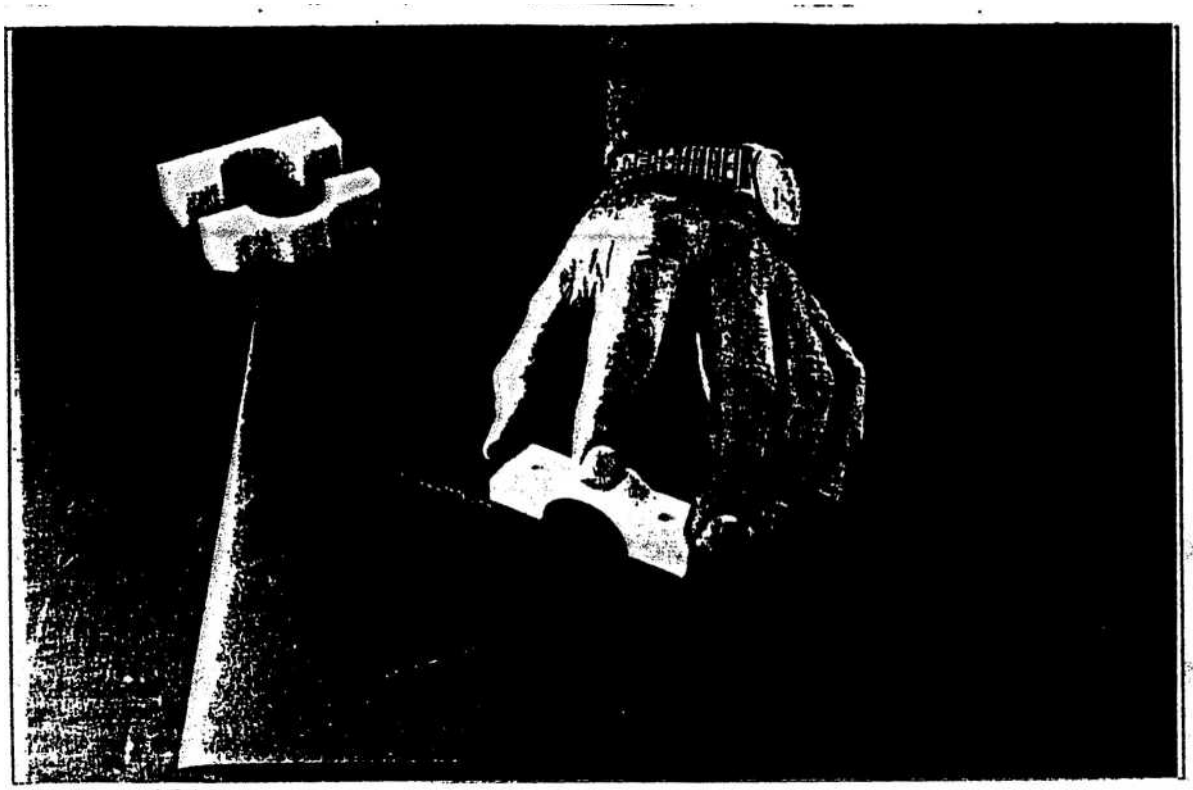


Figure 2703

When completed, a check of elevator control friction should be carried out to ensure that an increase in friction has not developed. If so, the control column pivot floor mount is worn beyond its limits and should be replaced. If movement is detected in the nylon control column bearing, this can be adjusted by sanding the mating surfaces of the top half of the bearing on a flat plate. Care must be taken to ensure that not too much material is removed causing elevator control system friction to increase. Refer fig 2703. The rod ends connected to the bottom of the control sticks are then checked for wear. This is achieved by fixing the control surfaces to prevent movement, and then measuring the amount of free play on the top of the control stick in both a fwd and aft movement and side to side. If the free play is in excess of 5mm fwd and aft, or 10mm side to side, the control system should be disassembled for closer examination. Each rod end should be checked with a dial indicator for wear. If movement of the ball within the rod end is above 0.015 inches, the rod end must be replaced. Refer Fig 2704.

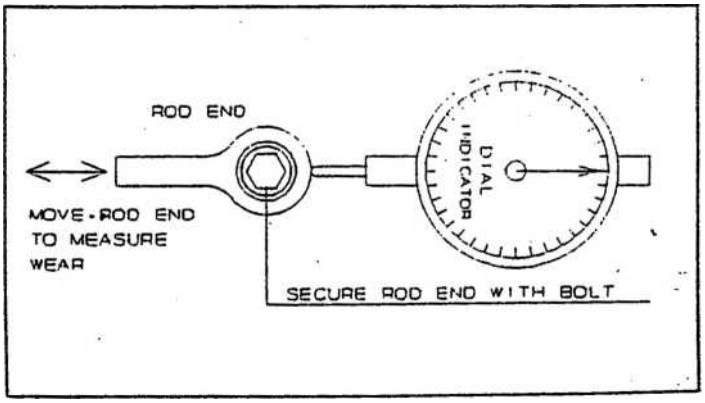


Figure 2704

27-05-03 INSTALLATION OF CONTROL COLUMN

To install the control column assembly, the removal procedures may be followed in reverse, paying particular attention to the following: -

(1) When installing the castellated pivot bolt nut, apply only enough tension to minimize any play in the operation of the control column without creating friction.
(2) Renew the split pin in the pivot bolt after adjustment.
(3) Do not over tighten the two clamping bolts which pass through the nylon control column bearing. Recommended torque = 10 inch/pounds, (1.77kg/cm).
(4) After connecting control pushrods, check for full and free movement of elevator, ailerons and control sticks.
(5) Check rigging of ailerons and elevator.

27-10-00 AILERON CONTROLS

27-10-01 REMOVAL OF AILERON CONTROLS

To remove the aileron controls, the seat cushion and seat must first be removed from the aircraft (refer chapter 25). Remove the turtle deck and disconnect the forward aileron bellcrank at the control column. Remove the forward aileron bellcrank pivot belt, the mid aileron bellcrank pivot bolt, and the rear aileron bellcrank pivot bolt. Disconnect the aileron push pull rods at the ailerons and remove the aileron control assembly from the aircraft through the top of the fuselage where the turtle deck was removed. Refer Figure 2706.

27-10-02 INSPECTION AND ADJUSTMENT OF AILERON CONTROLS

The removable turtle deck is fitted with a nylon bearing which supports the inboard end of the aileron torque tube. This bearing must be examined for wear or damage frequently as it is subject to wear if the turtle deck is being removed frequently. Check the rivet on the lower bearing half for security and elongation of the rivet hole. Also check that there is no more than 1mm of play between the bearing and the aileron torque tube when the turtle deck is fitted correctly. If excessive play exists, the lower bearing should be removed and new bearing fitted. Refer Figure 2705. The aileron lower bellcrank is checked by moving each end of the bellcrank fwd and aft in a rocking motion. The movement is measured and should not exceed 6mm total. If the movement is in excess of this tolerance, the pivot bolt must be tightened 1/6th of a turn until the movement is within tolerance. When completed, a check of aileron control friction should be carried out to ensure that an increase in friction has not developed. If an increase in friction is detected, the pivot bushes or the aileron bellcrank must be replaced.

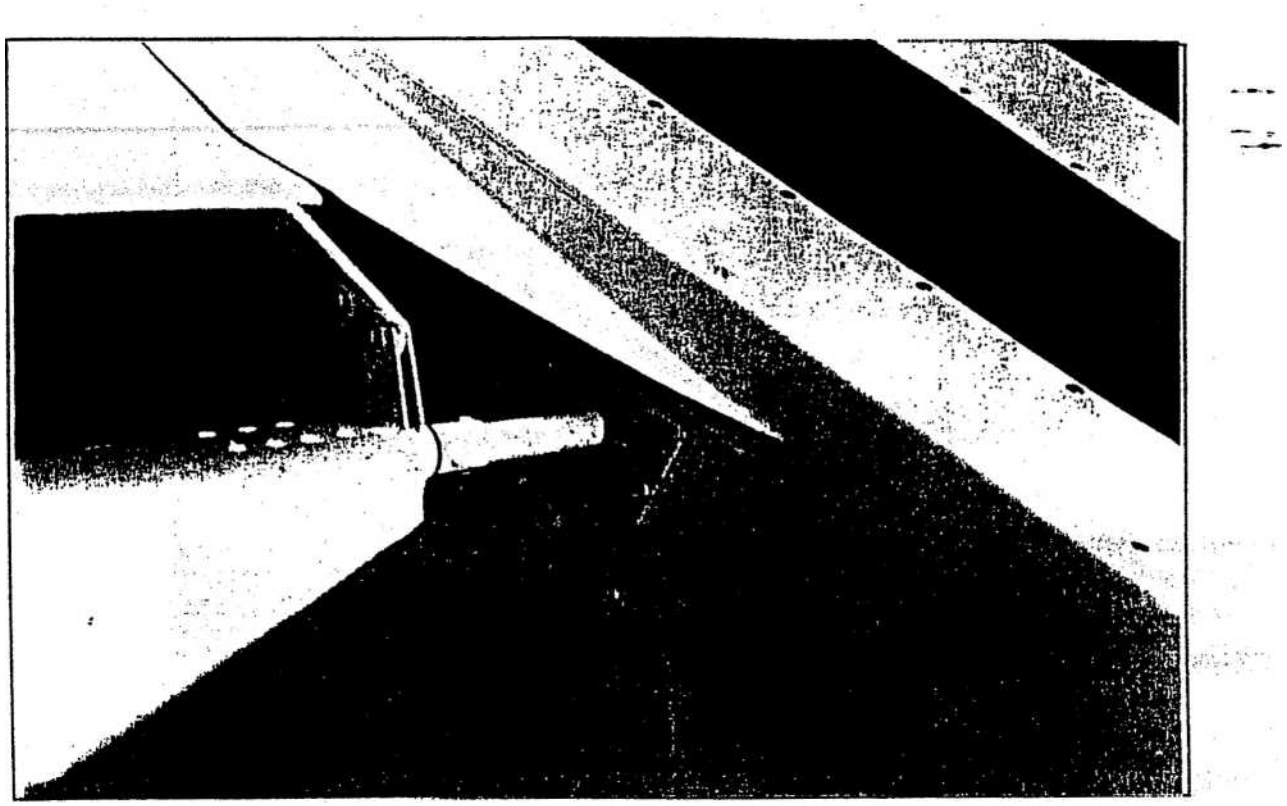


Figure 2705

27-10-03 INSTALLATION OF AILERON CONTROLS

When installing the aileron controls, the removal procedures may be followed in reverse, paying particular attention to the following:

1. When installing any bolt which is subject to rotation (i.e., forward, mid and rear bellcrank pivot arms), tighten those bolts just enough to remove excessive play without creating unwanted friction.
2. All bolts subject to rotation must be fitted with castellated nuts and new split pins.
3. Check that all push rods fitted with rod ends can be rotated through 10 degrees.
4. After re-installing the aileron control system, check for full and free movement of the control sticks and ailerons.
5. Check rigging of the aileron.

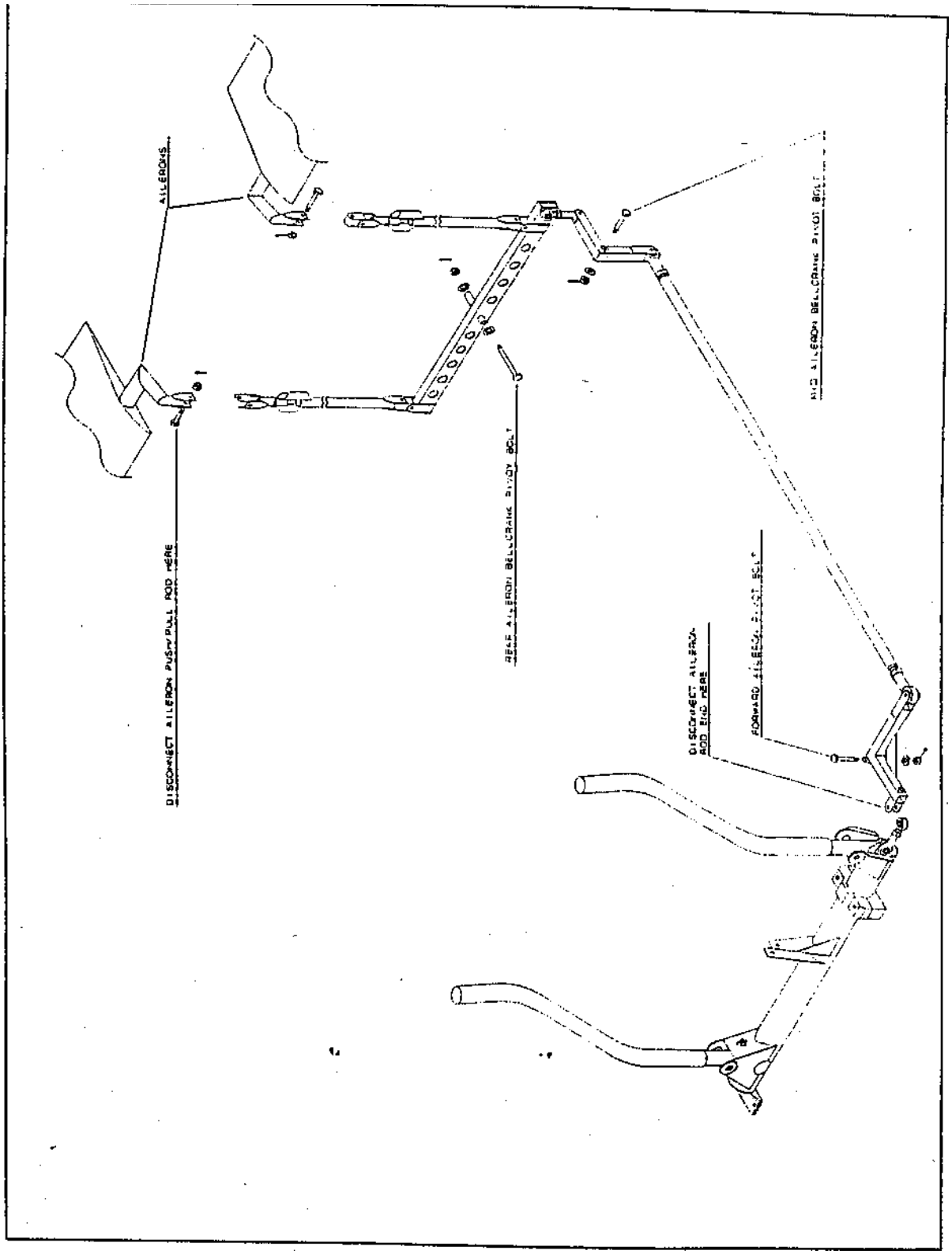

AILERONS
DISCONNECT AILERON PUSH/PULL ROD HERE
DISCONNECT AILERON ROD END HERE

Figure 2706

27-10-04 RIGGING AND ADJUSTMENT

To check and/or adjust the rigging of the ailerons, an aileron rigging jig will be required. This is available from Skyfox Aviation or an authorized dealer, Part No ARG-010.

The aileron rigging jigs are placed on the under surface of the wings, on the fourth rib from the root which is just outboard of the jury strut attachment points. Refer Figure 2707. Set the control column so that the base of the joy sticks are vertical and check that the trailing edge of each aileron is adjacent to the neutral position on the rigging jigs. If an error exists where one aileron is high and the other is low, the mid aileron push pull rod must be adjusted in length until both ailerons are at neutral, or both ailerons are either high or low of the neutral mark on the rigging jigs. If an error exists where both ailerons are either high or low of the neutral mark on the rigging jigs, the length of the vertical aileron push/pull rods must be adjusted by adding or removing washers from the swivel link assembly until both ailerons are neutral. Refer Figure 2708.

The maximum deflection of the ailerons is then adjusted by use of the aileron stop screws on the control column at the base of the right joystick until the trailing edge of the ailerons are adjacent to the corresponding maximum deflection marks on the rigging jigs. Refer Figure 2703.

The aileron deflections are: Up = 13° +/- 1°
Down = 17° +/- 1°

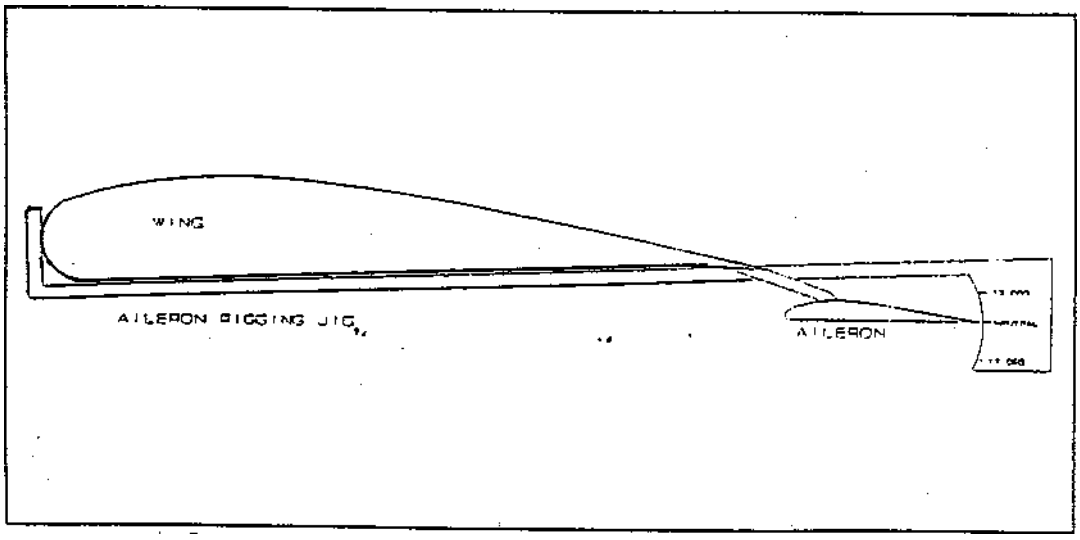


Figure 2707

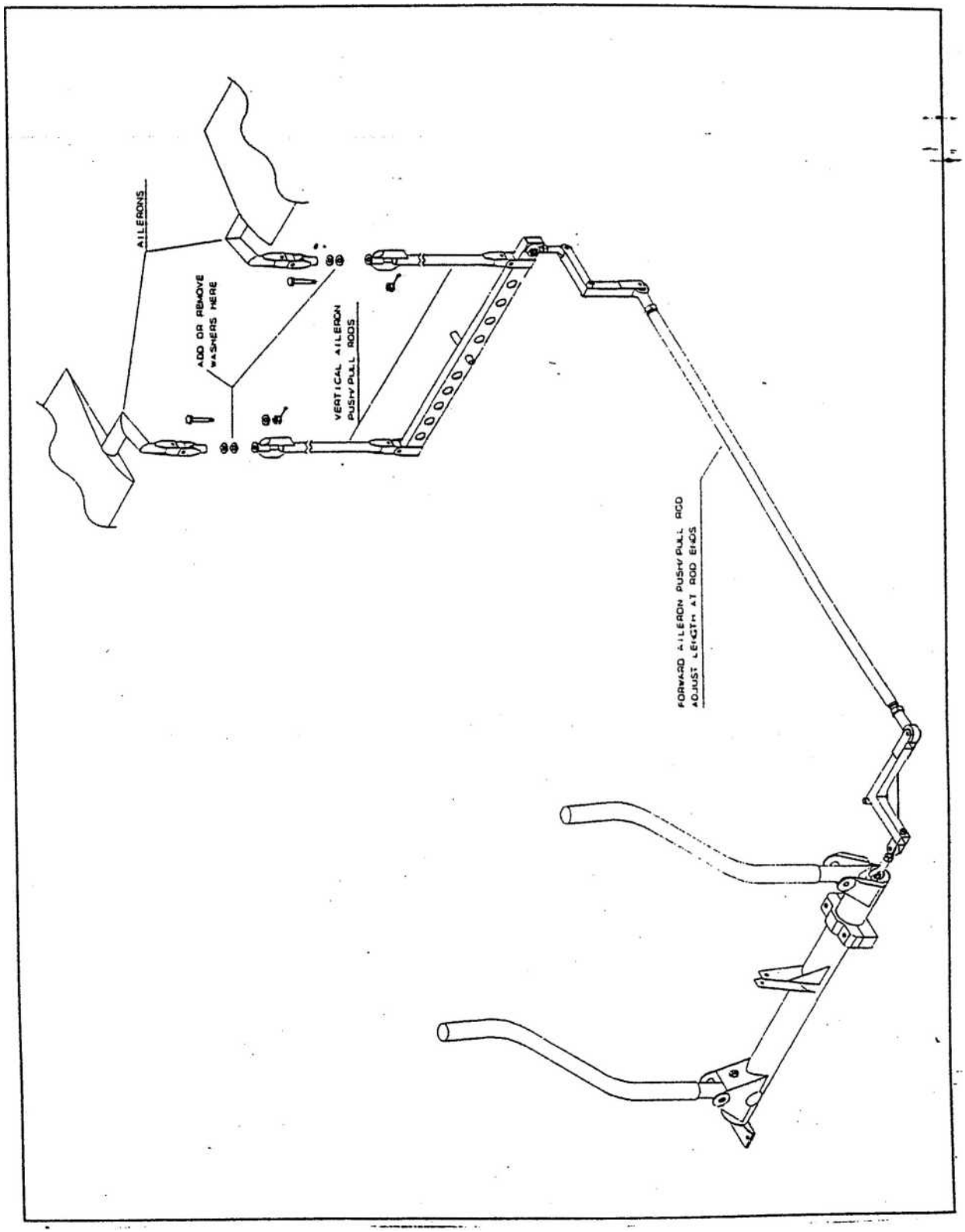

AILERONS
ADD OR REMOVE WASHERS HERE
VERTICAL AILERON PUSH/PULL RODS
FORWARD AILERON PUSH/PULL ROD
ADJUST LENGTH AT ROD ENDS

Figure 2708

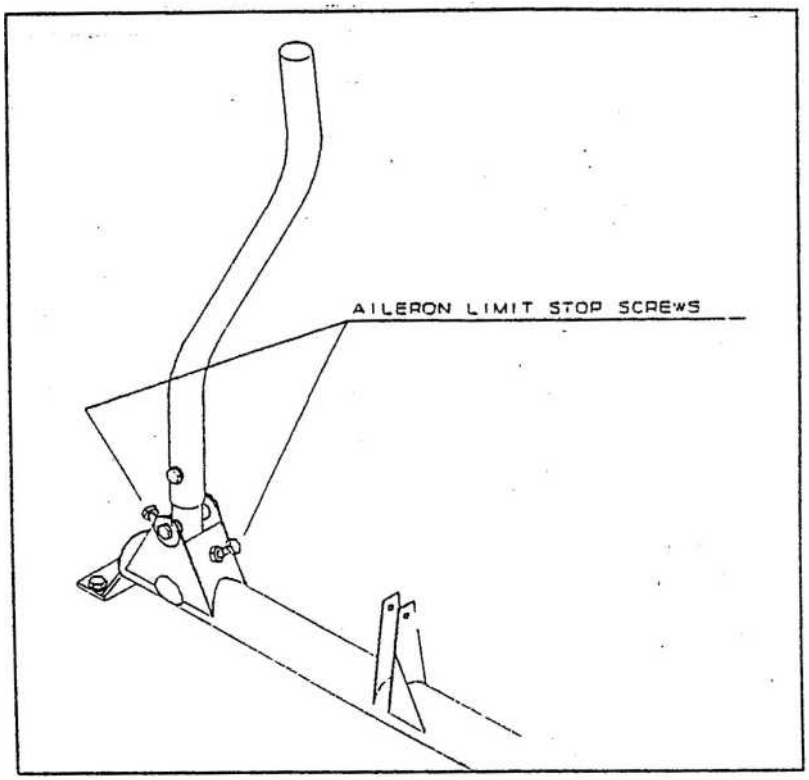


Figure 2709

27-20-00 RUDDER CONTROLS

27-20-01 REMOVAL OF REDDER PEDAL ASSEMBLY

Remove the top and bottom engine cowls and drain the braking system as described in Chapter 12 of this manual. Disconnect the brake lines from the master cylinders and the rudder cables from the rudder pedal assembly by disconnecting the "D" shackle at the end of the cable. Disconnect nose wheel steering linkages. Remove the eight retaining screws (four for each pedal assembly) and remove the rudder pedal assemblies from the aircraft. Refer Figure 2710.

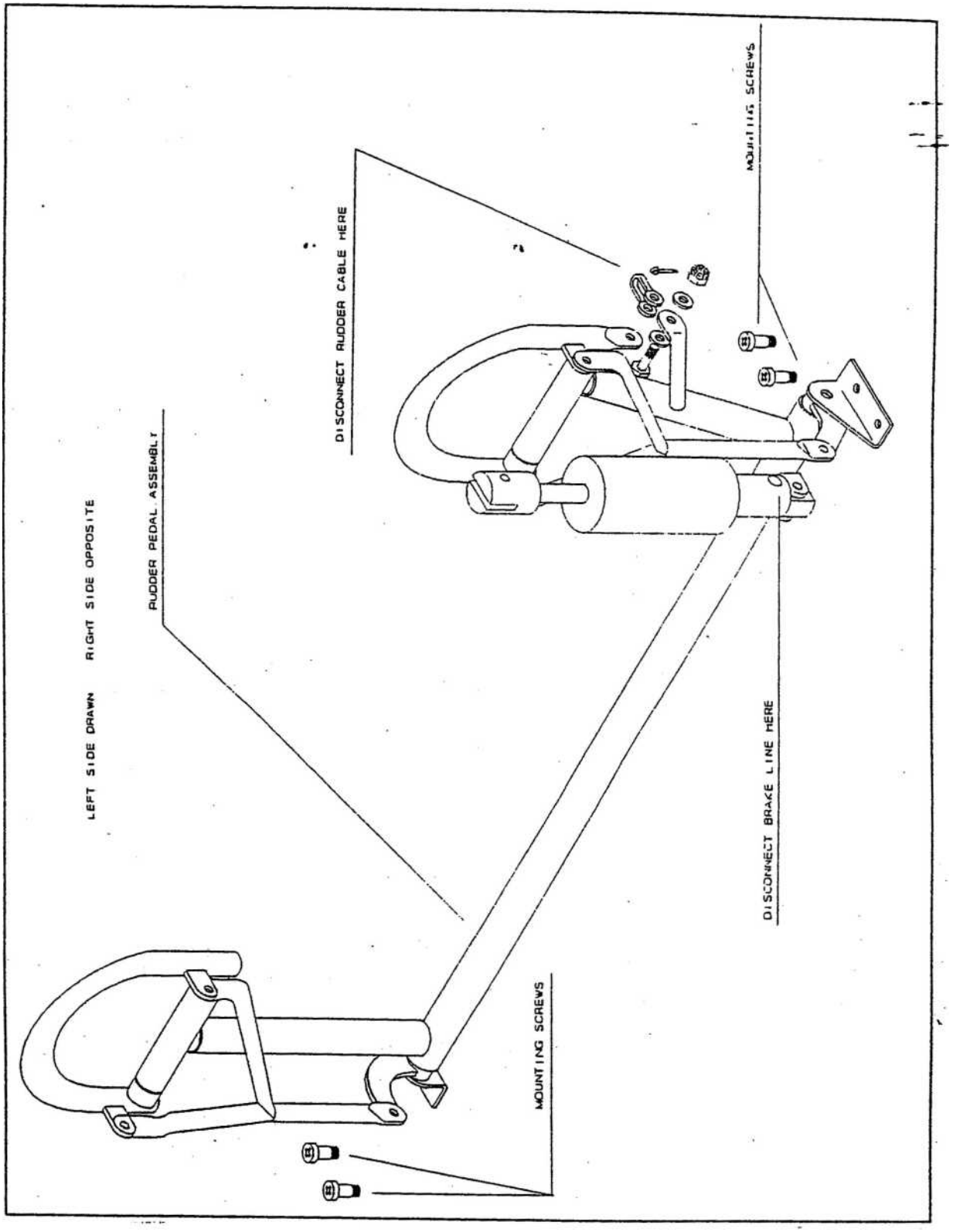

LEFT SIDE DRAWN RIGHT SIDE OPPOSITE
RUDDER PEDAL ASSEMBLY
DISCONNECT RUDDER CABLE HERE
MOUNTING SCREWS
DISCONNECT BRAKE LINE HERE
MOUNTING SCREWS

Figure 2710

27-20-02 INSPECTION AND ADJUSTMENT OF RUDDER PEDAL ASSEMBLY

Ensure that full and free rudder movement is available through operation of the rudder pedals and that excessive friction is not present. The rudder pedal floor mounts are checked for security
and wear. If more than 1mm wear is found between the rudder pedal bearings and the rudder pedal torque tube, the bearings must be replaced. Refer fig 2711.

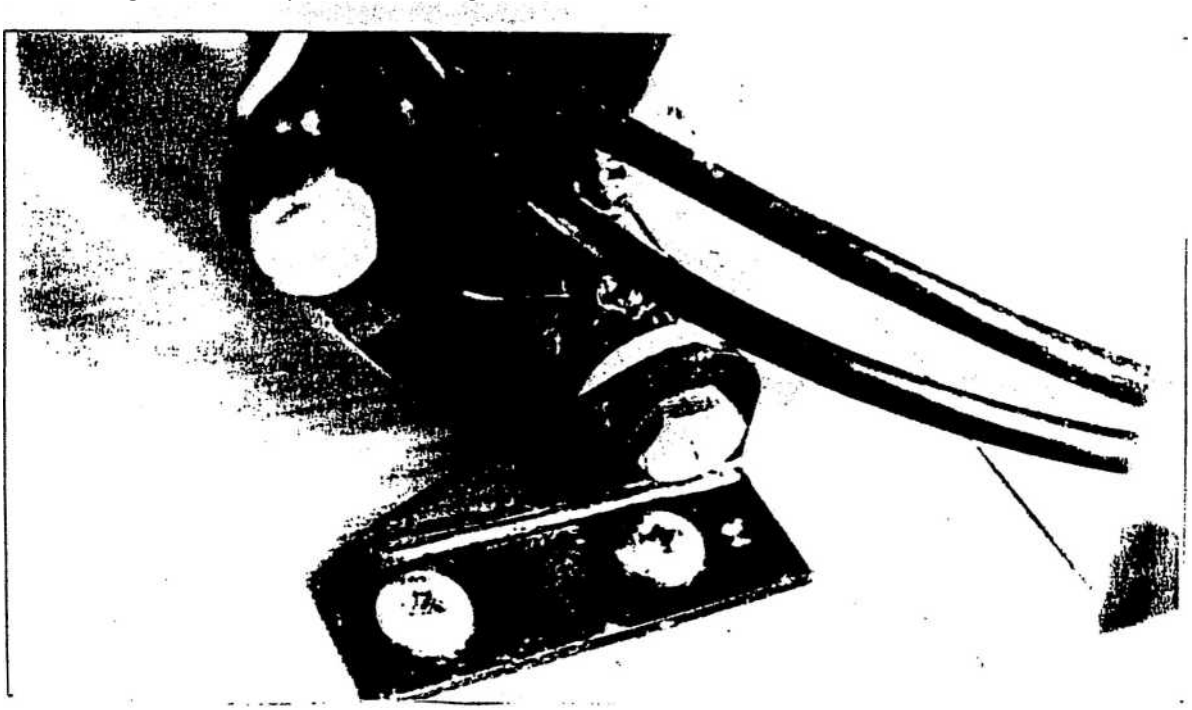


Figure 2711

27-20-03 INSTALLATION OF RUDDER PEDAL ASSEMBLY

When installing the rudder pedal assembly, the removal procedures may be followed in reverse, paying particular attention to the following: -

1. When installing any bolt which is subject to rotation (i.e., "D" shackle which retains the rudder cable), tighten those bolts just enough to remove excessive play without creating unwanted friction.
2. All bolts subject to rotation must be fitted with castellated
nuts and new split pins.
3. Check that both "D" shackles which retain the rudder cable can be rotated through 30 degrees.
4. After re-installing the rudder pedal assembly, check for full and free movement of the rudder control system.
5. Check rigging of the rudder.
6. The cable tension is "taut", i.e., no sag in cable, when rudder and nosewheel are straight.

27-20-04 REMOVAL OF RUDDER CABLES

- CAUTION -

THE REMOVAL OF THE RUDDER CABLES REQUIRES THAT THE CABLES MUST BE CUT AND ARE THEN NO LONGER USABLE. IT IS THEREFORE IMPORTANT THAT RUDDER CABLE REPLACEMENT IS ANTICIPATED BEFORE REMOVAL OF EXISTING CABLES IS ATTEMPTED.

Remove the top and bottom engine cowls, seat and turtle deck cover. Disconnect the rudder cables from the rudder pedal assembly and rudder control horn at the "D" shackles. Refer Figure 2706. Cut the rudder cables near the cable swage at either end of the cable and pull the cable from the aircraft.

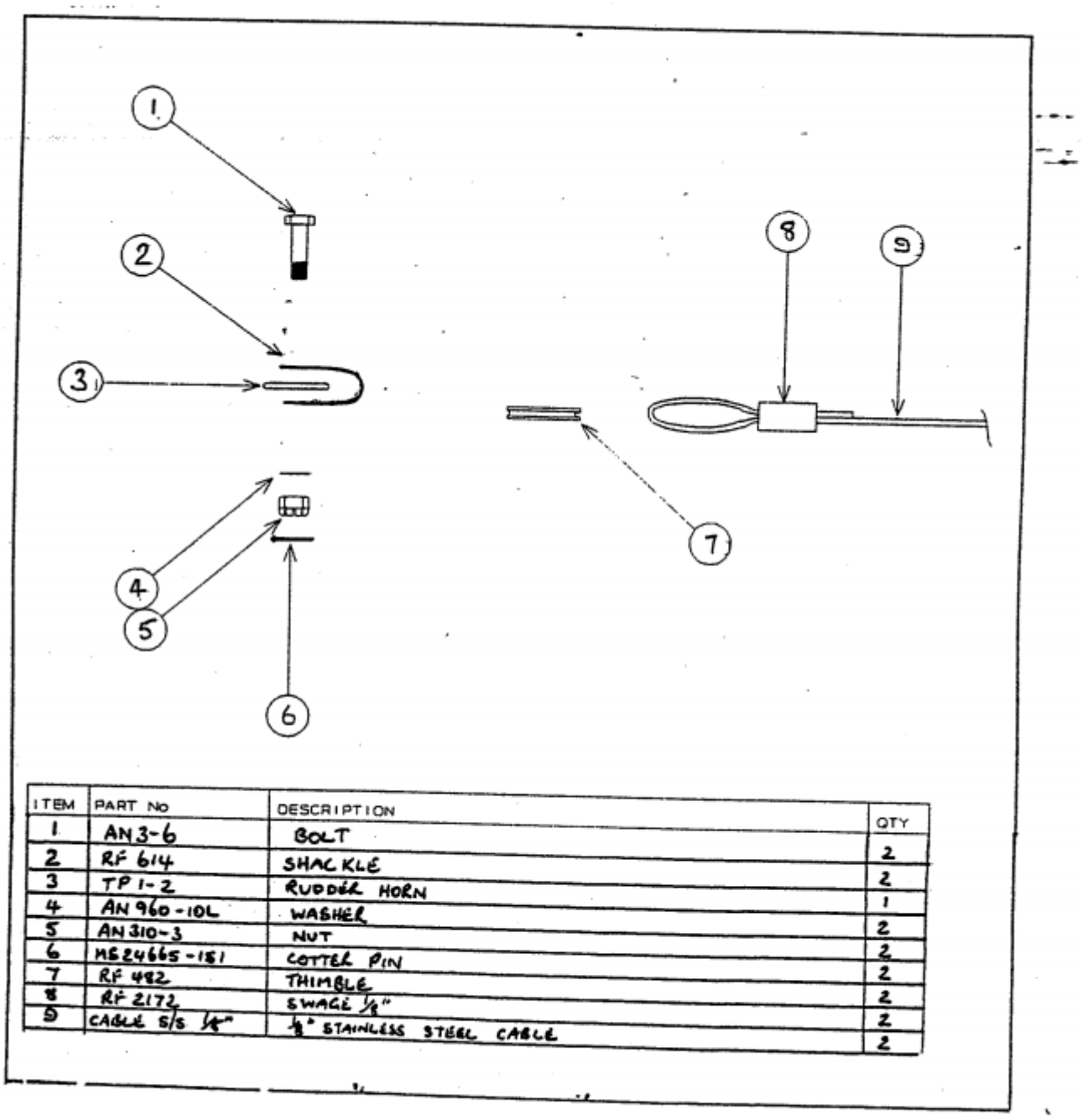
27-20-05 INSPECTION OF RUDDER CABLES

The rudder control cables are checked for wear, damage, and security of the swages. If the fairleads in the fuselage, through which the rudder cables run, are found to be worn, they must be replaced. The shackles at each end of both rudder cables are checked for wear by removing the retaining bolt and checking for elongation in both the bolt and corresponding mounting hole. If any elongation is found, the worn parts must be replaced.

27-20-06 INSTALLATION OF RUDDER CABLES

Replacement rudder cables will be fitted with a thimble and swaged at one end when supplied. Pass the un-swaged end through the four fairleads along the inside of the fuselage so that the pre-swaged end is toward the rudder pedals and the cable is free of kinks, loops, or binding against the airframe. The un-swaged end is passed through the fabric covering at the rudder cable fairing located at station 2650mm. Connect the swaged end to the rudder pedal with the D-Shackle. Set both rudder pedals so that the toe brake pivot tubes are 558mm forward of the front seat cross member. This dimension is from the centerline of each tube. Set the rudder at neutral by aligning the top of the rudder with the overhanging vertical stabilizer. Pull the rudder cable around the thimble held by the D-Shackle until all slack is removed and the cable is "tight-by-hand" (do not let the rudder move). Mark the position on the cable to enable swaging after removal from the D-shackle. Swage the cable then assemble to the "D"-shackle link at the rudder control horn. The Cable tension is then controlled by the rudder return springs. Refer Fig 2712.

NOTE: Reference to CAO 108.41 and AC 43 is required to replace rudder cables.



ITEM	PART No	DESCRIPTION	QTY
1	AN 3-6	BOLT	2
2	RF 614	SHACKLE	2
3	TP 1-2	RUDDER HORN	1
4	AN 960-10L	WASHER	2
5	AN 310-3	NUT	2
6	MS 24665-151	COTTER PIN	2
7	RF 482	THIMBLE	2
8	RF 2172	SWAGE 1/8"	2
9	CABLE S/S 1/8"	1/8" STAINLESS STEEL CABLE	2

Fig 2712

27-20-07 RIGGING AND ADJUSTMENT

To check the rigging of the rudder, place a protractor between the top of the rudder and the overhanging vertical stabilizer with the index in line with the centerline of the rudder hinges and the 90° mark in line with the axis of the overhanging vertical stabilizer. Operate the rudder pedals in both directions and check that there is 30° (+/-1°) of travel in both directions. Also check that the rudder control horn is contacting the rudder control stop when full rudder pedal deflection is applied.

If adjustment is required, metal must be added or removed from the rudder stop which operates against the rudder control horn. Metal is removed by grinding the mating surface of the rudder control stop and added by applying a bead of weld to the same surface and then dressing the weld until the correct deflection is obtained.

27-30-00 ELEVATOR CONTROLS

27-30-01 REMOVAL OF ELEVATOR CONTROLS

To remove the elevator controls, the tailplane, rear inspection panels, seat cushion and seat must first be removed from the aircraft (refer Chapter 25). Remove the turtle deck and disconnect the forward elevator pushrod at the control column. Remove the elevator idler arm pivot bolt and disconnect the rear elevator push rod from the idler arm. Disconnect the rear elevator push rod from the elevator control horn and remove the elevator from the aircraft. Remove the forward elevator control assembly from the aircraft. The rear elevator push rod may only be removed after the push rod guide bush is dislodged to the rear from its locating sleeve. Once this is achieved the rear elevator push rod may be removed through the cavity left by the removal of the tailplane. Refer Figure 2713.

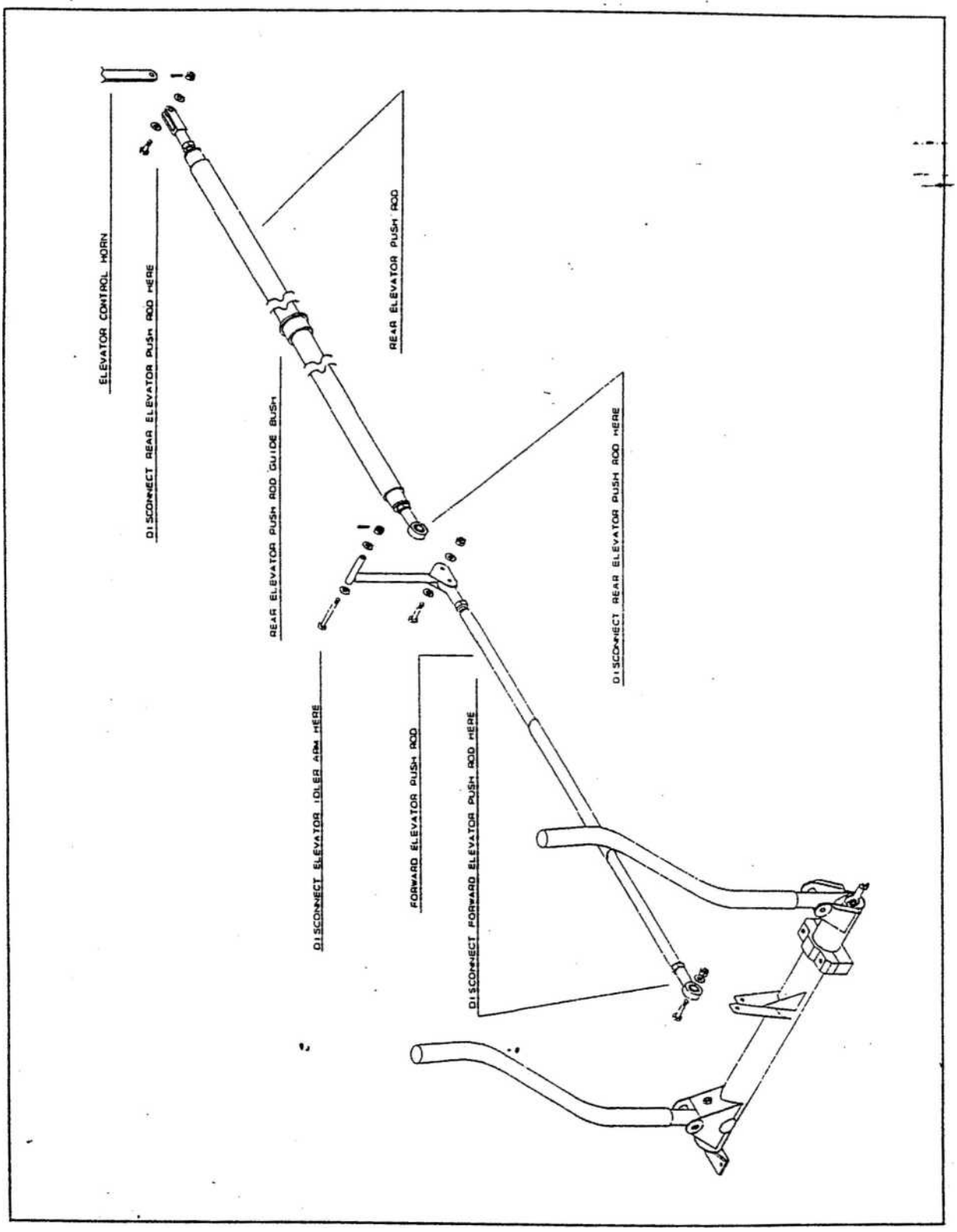

ELEVATOR CONTROL HORN
DISCONNECT REAR ELEVATOR PUSH ROD HERE
REAR ELEVATOR PUSH ROD GUIDE BUSH
REAR ELEVATOR PUSH ROD
DISCONNECT REAR ELEVATOR PUSH ROD HERE
DISCONNECT ELEVATOR IDLER ARM HERE
FORWARD ELEVATOR PUSH ROD
DISCONNECT FORWARD ELEVATOR PUSH ROD HERE

Figure 2713

27-30-02 INSPECTION AND ADJUSTMENT OF ELEVATOR CONTROLS

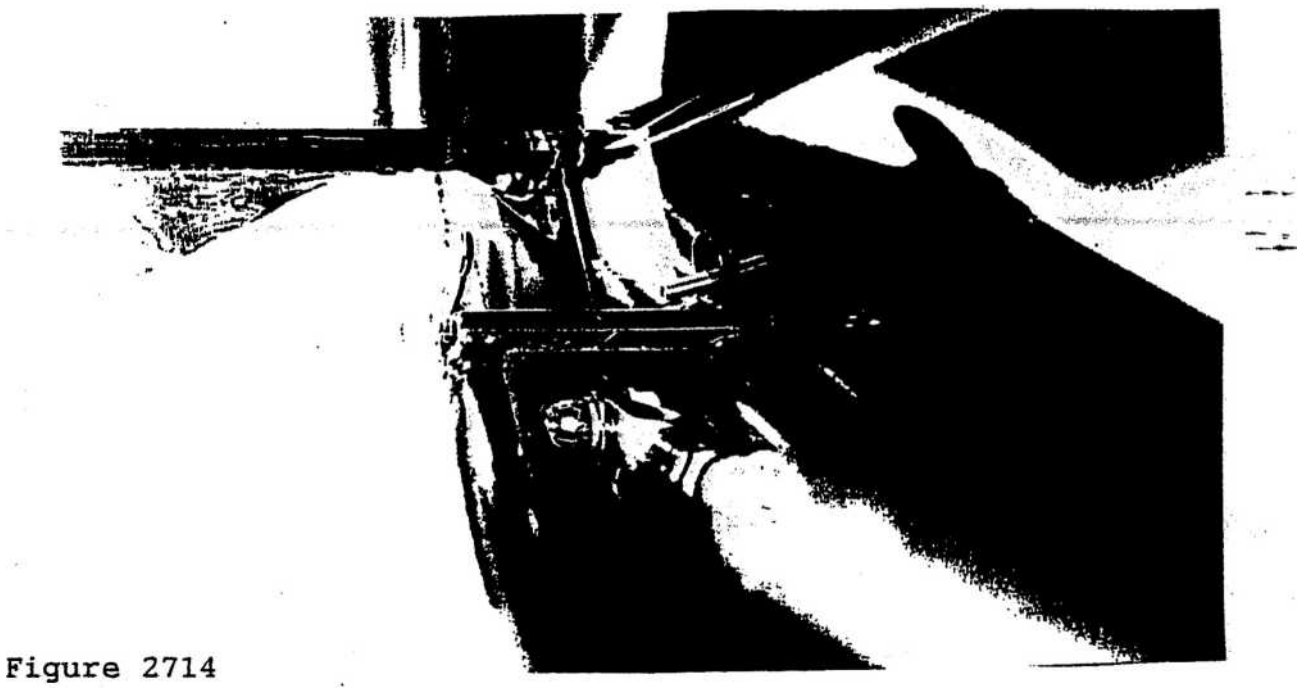


Figure 2714

The yoke on the rear end of the elevator push rod is visible through the rear access panel and should be checked for wear in the same manner as the rod ends. Refer fig 2714.

The elevator idler arm is checked for wear by moving the bottom of the arm side to side. If movement is visible, the pivot bolt should be tightened 1/16 of a turn until no visible movement exists. When completed, a check of elevator control friction should be carried out to ensure that an increase in friction has not developed. If an increase in friction is evident, then the idler arm should be replaced.

27-30-03 INSTALLATION OF ELEVATOR CONTROLS

When installing the elevator controls, the removal procedures be followed in reverse, paying particular attention to the following:

1. When installing any bolt which is subject to rotation (i.e.
elevator idler arm pivot bolt), tighten those bolts just enough to remove excessive play without creating unwanted friction.
2. All bolts subject to rotation must be fitted with castellated
nuts and new split pins.
3. Check that the forward elevator push rod can be rotated through 10 degrees.
4. After re-installing the elevator control system, check for full and free movement of the control sticks and control column.
5. Check rigging of the elevator.

27-30-04 RIGGING AND ADJUSTMENT

To check the rigging of the elevator, use an inclinometer to measure the amount of deflection of the elevator in relation to the horizontal stabilizer. All control surface movements should be measured when the control surface is operated from the cockpit.

The elevator control limits are: UP = 39° +/- 1°
DOWN = 21° +/- 1°

If adjustment becomes necessary, the UP travel can be adjusted by adding or removing metal from the base of the elevator control horn where it contacts the fin post, and DOWN travel can be adjusted by adding or removing metal from the down elevator stop where it meets the elevator control horn. To remove metal, grind the elevator control horn or the elevator down stop until the required travel is obtained. To add metal, apply a bead of weld to the elevator control horn or elevator down stop and then dress those welds until the required travel is achieved. In both cases, the elevator must be removed to carry out the adjustment.

27-35-00 ELEVATOR TRIM SYSTEM

27-35-01 REMOVAL OF TRIM SYSTEM

To remove the elevator trim system, it is necessary to remove the seat, centre console and turtle deck first. Disconnect the forward elevator trim spring from the control column and disconnect the rear elevator idler arm. Remove the rod end from the rear elevator push rod and then remove the swaged trim cable fitting from the push rod. Remove the pivot bolt from the elevator trim handle, then the pivot bolt from the trim cable pulley located under the rear elevator push rod. The elevator trim system can now be removed from the aircraft. Refer Figure 2715.

27-35-02 INSTALLATION OF TRIM SYSTEM

When installing the elevator trim system, the removal procedures may be followed in reverse, paying particular attention to the following:

1. All bolts subject to rotation must be fitted with castellated nuts and new split pins.

2. After installing the elevator trim system, check for full and free movement of the control sticks, control column and trim lever.

3. Check rigging of the trim system.

27-35-03 RIGGING AND ADJUSTMENT

To check the adjustment of the forward trim spring, place the trim lever and control column in the full forward position. Loosen the Adel clamps securing the forward trim spring mounting plate and slide the plate aft until no tension is applied to the spring. Re-tighten the Adel clamps.

To check the adjustment of the trim, place the trim lever in the full aft position and control stick in full aft position, loosen the turnbuckle to its maximum and allow the control column to fall forward as far as it will go. Tighten the turnbuckle until the elevator attains an angle of 27° UP ±1° in relation to the horizontal stabilizer. Lock and safety wire the turnbuckle in this position.

The friction applied to the trim lever should be enough to hold in the full aft position while the control column is moved to full forward. Adjustment is achieved by tightening or loosening the trim lever pivot bolt and nut.

27-35-04 ELEVATOR TRIM INSPECTION

The inspection of the trim system is simply checking that all parts are functional and the operation is applicable to the correct rigging of the system.

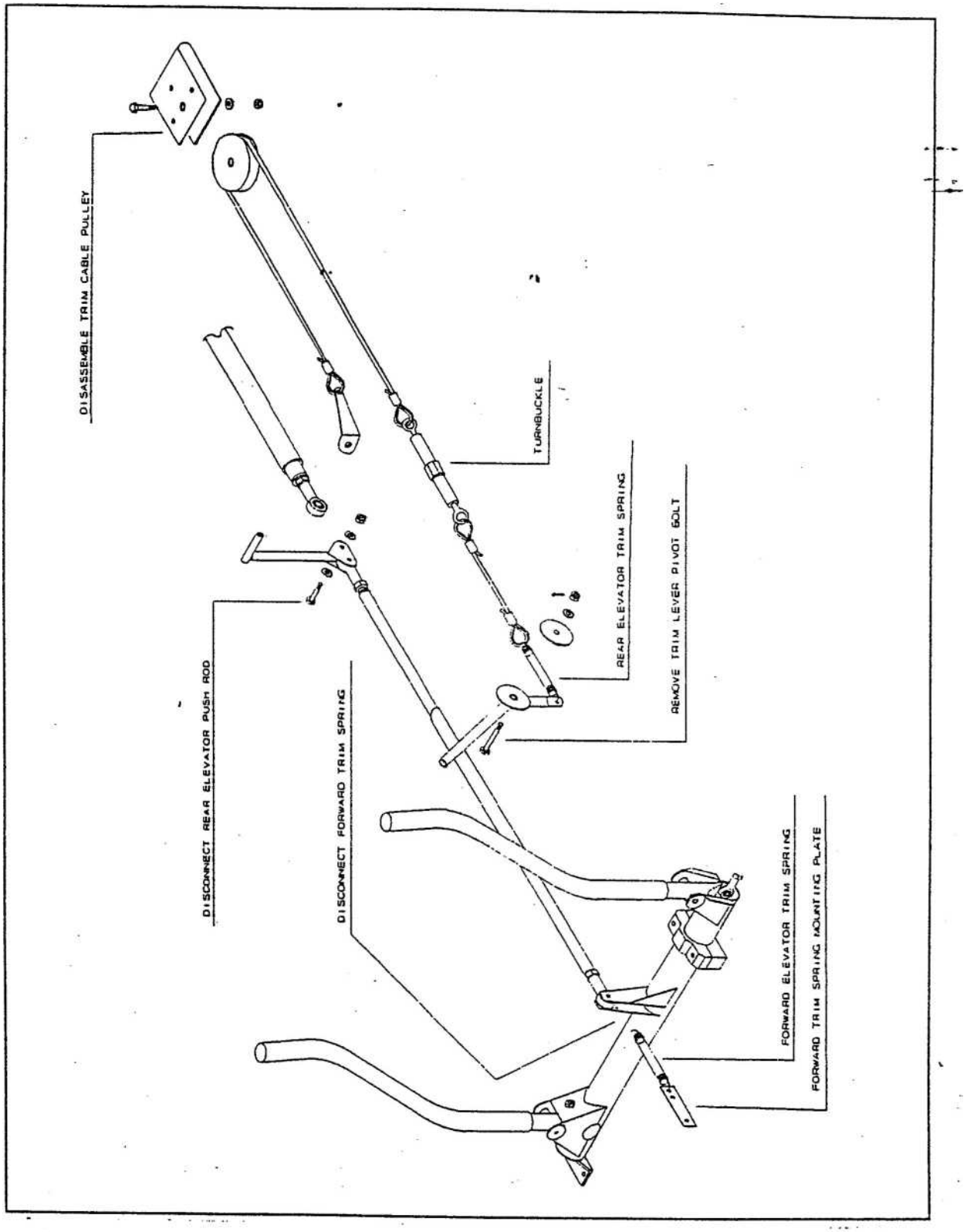

DISASSEMBLE TRIM CABLE PULLEY
TURNBUCKLE
REAR ELEVATOR TRIM SPRING
REMOVE TRIM LEVER PIVOT BOLT
DISCONNECT REAR ELEVATOR PUSH ROD
DISCONNECT FORWARD TRIM SPRING
FORWARD ELEVATOR TRIM SPRING
FORWARD TRIM SPRING MOUNTING PLATE

Figure 2715

27-90-00 STALL WARNING SYSTEM

27-90-01 REMOVAL OF STALL WARNING SYSTEM

The stall warning pressure head is located on the left front jury strut and can be removed by disassembling the jury struts. The pressure tube which runs between the pressure head and the stall warning transducer is routed from the pressure head through the wing ribs, to the tip of the wing and then back down the rear wing spar to the cabin, and then across the head rack and down the left windscreen pillar to the stall warning transducer. The pitot tube is also connected to the stall warning transducer and follows the same route as the tube from the pressure head, except that it is connected at the outer end to the pitot head. These tubes should not be removed from the wing unless it is positively established that a leak or blockage has occurred in a section of the tube which is inaccessible. To remove the stall arming transducer, the top tube and pitot tube are then disconnected and the bolts retaining the stall warning transducer can be removed.

27-90-02 INSTALLATION OF STALL WARNING SYSTEM

When installing the stall warning system, the removal procedures may be followed in reverse, paying particular attention to the following:

1. Ensure that the pressure and pitot tubes are a firm fit over the connection nipples on the pressure transducer.
2. Check the pressure and pitot system for leaks after installation.
3. Check calibration of the stall warning system.

27-90-03 ADJUSTMENT OF STALL WARNING SYSTEM

The tube on the jury strut has been factory set e.g., the lower end of the tube is forward by one degree off 90° using the bottom of the leading edge and the bottom of the trailing edge as a datum.

As the wing gets to a particular angle of attack, air will start to flow through the tube, and the buzzer is activated through a transducer and solid-state circuitry.

The circuit is switched on by an air switch in the pitot line which is set to 35 knots. This is to stop the system from activating on the ground from wind gusts and propeller wash deflecting off the ground.

27-90-04 SETTING STALL WARNING POTENTIOMETER

1. Using a flat screwdriver, turn the sensitivity on the air switch, located on the bottom of the stall warning control box, full clockwise. This will increase sensitivity.

2. Using a Phillips head screwdriver, wind the pressure switch, located on the top of the stall warning control box, to the halfway position.

3. Turn the stall warning test switch on the instrument panel to the ARM position.

4. Connect a 60ml syringe to the pitot pressure head and depress the plunger until the airspeed indicator shows 35 knots. If the stall warning sounds, wind the pressure switch out until the alarm stops. Then wind the pressure switch in until the alarm sounds.

5. Wind the air switch out until the alarm stops sounding and then wind it a further 1/8 of a turn out. The stall warning should now not sound with an indicated airspeed of less than 35 knots.

6. Remove the syringe from the pitot pressure head.

7. Move the stall warning test switch to the ON position and blow LIGHTLY into the stall warning pressure head. The alarm should NOT sound.

8. If the stall warning alarm is constantly sounding in flight, wind the sensitivity on the air switch anti-clockwise by 1/8 of a turn.

NOTE: A flight test is recommended to check that the stall warning sounds between 5 Kts and 10 Kts above the indicated stall speed and as close to the lower limit of 5 Kts as possible to avoid gusts causing warnings on climb.

CHAPTER 28

AIRCRAFT FUEL SYSTEM

CHAPTER 28 AIRCRAFT FUEL SYSTEM

TABLE OF CONTENTS/EFFECTIVITY

28-00-00 GENERAL

28-00-01 DESCRIPTION

The fuel system components covered in this section consist of the fuel tanks, non-return valves, collector tank, fuel cock, fuel filter bowl and screen, electric fuel pump, fuel quantity indicators, and low fuel pressure warning light.

28-00-02 TROUBLESHOOTING

Troubles peculiar to the fuel system are listed in Chart 2801 along with their probable causes and suggested remedies.

CHART 2801 TROUBLESHOOTING (FUEL)

TROUBLE	CAUSE	REMEDY
FAILURE OF FUEL TO FLOW	Blocked fuel filters or faulty fuel pump or valves, vents blocked, fuel tap off. No fuel in aircraft.	Clean fuel filters, replace fuel pump or clean valves, Clean vents. Turn on tap. Refuel aircraft
FUEL PRESSURE LIGHT ILLUMINATES	Faulty fuel pump(s) or pressure switch	Repair or replace as necessary.
UNIDENTIFIED LEAKS	Perished fuel lines	Pressure test and/or replace as necessary Refer AC 43.
FUEL COCK LEAKS	Faulty "0" ring seals	Replace "0"rings

28-10-00 STORAGE

When storage for extended periods is anticipated, the fuel system should be drained completely at the following drain points:

(1) Both drain valves located under the wing fuel tanks
(2) Collector tank drain valve located under right side of the fuselage at the wing strut attachment point
(3) At the gascolator drain valve located on the bottom right side of the firewall

When returning the aircraft to service, the fuel filters should be removed and cleaned before refueling the aircraft.

- NOTE -

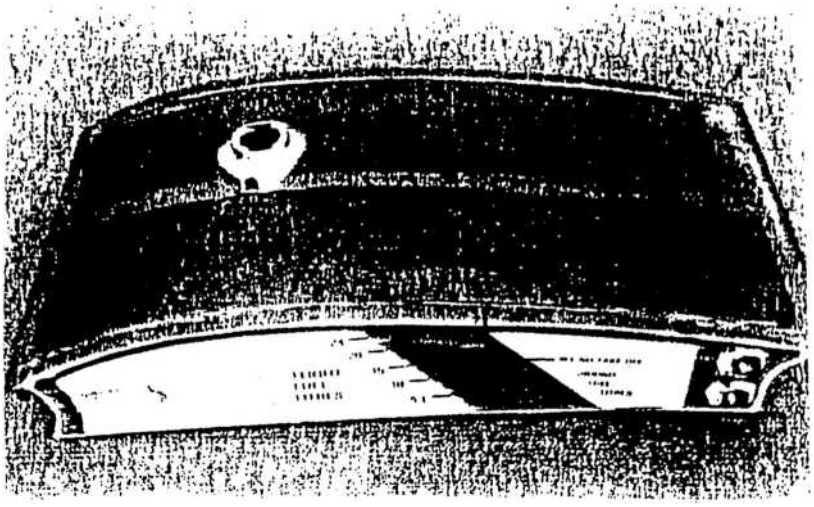
ALWAYS CHECK FOR WATER CONTAMINATION OF THE FUEL SYSTEM AFTER EXTENDED STORAGE.

28-10-01 INSPECTION OF FUEL TANKS

Each main wing fuel tank can be inspected for obvious defects, foreign particles, and damage by inserting a mirror through the fuel tank filler and with the aid of a small light. An inspection hole is provided in the baffle within the fuel tank to facilitate inspection of the area beyond the baffle. Fuel leaks will be detected by fuel stains occurring along the bottom inboard section of the trailing edge of the wing. Fuel stains occurring around and behind the fuel filler neck indicate a faulty fuel cap gasket.

28-10-02 REPAIR OF FUEL TANKS

If the fuel tank is found to be leaking, the tank must be drained of fuel, the fuel lines and fittings removed, and the fuel tank removed from the wing by cutting the fabric around the top of the tank. The fabric is cut between the ribs and the tank on both sides of the tank, between the front of the tank and the leading-edge spar and along the front of the trailing edge of the wing. This need only be done on the top surface. Cut through the silicon adhesive around the tank using a sharp knife, taking care not to damage the wing spars. Drill the rivets from the rear fuel tank retaining bracket with a 3.3mm drill and remove the bracket. Lift the rear of the fuel tank away from the front spar. Refer fig 2801. Plug the fitting holes with blank threaded plugs, fill the tank with fuel and pressurize the tank to 2.5Psi (4 Kpa). Any leaks will soon become apparent and then marked for repair.



Drain the fuel from the tank and thoroughly wash the exterior surface with acetone. If the fuel leak is due to damage, identified by white strands of fiberglass matting, the affected area should be ground away and exterior surface sanded around the damaged area for a radius of 50mm, with 150 grit sandpaper to remove the gloss from the surface. If the fuel leak emanates from a pin hole type flaw in the tank wall, then the exterior surface need only be sanded for a radius of 25mm with the 150-grit sandpaper. Mix an appropriate amount of vinylester resin and catalyst and patch the hole with l0oz woven fiberglass matting.

If the fuel leak is emanating from around one of the fuel line fittings, the fiberglass material must be dug out from around the fitting using a 2-3mm rotary file with a die grinder or dremel tool, and the cavity refilled with a mixture of epoxy resin, hardener, and cotton flox mixed to a sloppy consistency. Allow tenure and then repeat the pressure test as above. Once satisfied that no more leaks exist, the fuel tank can be reinstalled into the wing. Clean off all remaining silicon and sikaflex with a scraper and coat the front and rear of the tank with petroleum jelly. Apply a bead of sikaflex to the front and rear of the tank where it contacts the spars and lay the tank into position ensuring that the tank is separated from the spar by approximately 2mm of sikaflex. Also, fill the spaces between the wing ribs and the fuel tank with sikaflex and allow to set overnight. Apply a small bead of sikaflex to the rear fuel tank retaining bracket where it contacts the fuel tank and refit using 4-4 aluminium pop rivets, then replace the fabric covering, and reconnect the fuel lines and fittings.

28-10-03 INSPECTION OF COLLECTOR TANK

The aluminum collector tank is sheathed in a fiberglass wrap which allows any leaked fuel to drain overboard via a drain tube from the bottom of the collector tank through the bottom of the fuselage. A visual inspection for fuel draining from the drain tube and the integrity of the collector tank is all that is required.

28-20-00 DISTRIBUTION

28-20-01 REMOVAL OF FUEL COCK

To remove the fuel cock, drain both main fuel tanks and the collector tank and then remove the center console. Refer Chapter 25. The disconnection of the fuel lines from the fuel cock will allow the fuel cock to be removed from the aircraft.

28-20-02 INSPECTION OF FUEL COCK

By removing the screw from the center of the rotating shaft, the fuel cock handle may be pulled off the body, then the gland nut can be removed from the top of the cock to expose the inside.

28-20-03 INSTALLATION OF FUEL COCK

The installation procedures are the reverse of the removal procedures. After installation of the fuel cock, but before the installation of the center console, fill the fuel tanks with fuel and check for leaks. Ensure the fuel cock "ON-OFF" placard is facing with "OFF" at the aft (up) position.

28-20-04 FUEL FILTER BOWL AND SCREEN

28-20-05 REMOVAL OF FUEL FILTER BOWL AND SCREEN

The fuel filter bowl and screen is located on the bottom right of the firewall in the gascolator. To remove the bowl, turn the fuel cock to "OFF" and cut the safety wire securing the knurled retaining nut and loosen until the wire clamp can be rotated clear of the bowl. The bowl can now be removed along with the filter screen.

28-20-06 INSTALLATION OF FUEL FILTER BOWL AND SCREEN

The installation procedures are the reverse of the removal procedures. After installation, turn the fuel cock "ON" and check for fuel leaks.

28-20-07 CLEANING AND INSPECTION OF FILTER BOWL AND SCREEN

Check the fuel filter bowl for cracks or deformity, clean with solvent such as fuel, and wipe with a clean rag. Check the filter screen for foreign particles entangled in the screen, wash with solvent such as fuel, and allow to dry.

28-20-08 REMOVAL OF ELECTRIC FUEL PUMP

The electric fuel pump is located to the right of the collector tank, behind the seat which must be removed. Refer Chapter 25. Drain both main fuel tanks and collector tank, then disconnect the two wires and fuel lines from the electric fuel pump. Remove the two bolts retaining the fuel pump. The pump is now able to be removed from the aircraft.

28-20-09 INSTALLATION OF ELECTRIC FUEL PUMP

The installation procedures are the reverse of the removal procedures but with the following extra requirements:

(1) After installation, fill the fuel tanks and check for leaks.
(2) Carry out an operational check of the electric fuel pump.
(3) Carry out a fuel flow check at the carburetor with the electric fuel pump operating. Fuel flow should be a minimum of 30 liters per hour. See Para. 73-10-02 FUEL FLOW CHECKS

28-40-00 INDICATING

28-40-01 FUEL QUANTITY INDICATORS

The fuel quantity indicators in the aircraft are transfers which are applied directly to the fuel tank. The fuel tank is transparent so that the fuel quantity can be determined by reading the fuel level in the tank directly against the fuel quantity transfer.

28-40-02 REMOVAL OF FUEL QUANTITY INDICATORS

Drain both fuel tanks at the drain valves under each tank but leave the collector tank full. Fold the wings on the aircraft back and secure them to the fin using the tow struts supplied. Disconnect the fuel and vent lines from the fuel tanks, then remove the clear cover from the root rib using a sharp knife to cut the silicon sealer around the cover. The fuel quantity indicators can now be peeled from the fuel tank.

28-40-03 INSTALLATION OF FUEL QUANTITY INDICATORS

Place the aircraft in the level position. Refer Chapter 8. Clamp the fuel lines and pour a measured 10 liters of fuel into the fuel tank. Mark the 10 It level mark on the tank. Fold the wings, then place the new fuel quantity indicator onto the tank with the 10-liter mark aligned with the previously marked position on the tank. To avoid air bubbles under the transfer, start applying the transfer from the center of the tank and work out using a wiping action. Drain the fuel tanks through the drain valves under each tank and then disconnect the fuel lines. Replace the clear cover over the root rib using silicon sealant, then replace the fuel lines, fill both fuel tanks and check for leaks. If no leaks are detected, the wings can be unfolded.

28-40-04 FUEL PRESSURE CHECK

The fuel pressure indicator consists of a low fuel pressure warning light on the instrument panel which is activated by an adjustable pressure switch in the fuel system between the two carburetors. If the engine has not been started for some time, an initial check can be made by simply turning the master switch "ON," at which time the low fuel pressure light should illuminate. If not, remove and empty the float bowl from one of the carburetors, which will relieve any stored pressure in the fuel system. Replace the carburetor fuel bowl, then by turning the electric fuel pump switch "ON", the low fuel pressure warning light should go out.

If these checks are not successful, carry out the following checks:

(1) Check the electric fuel pump and instrument fuses.

(2) Remove the bulb from the warning light and check its

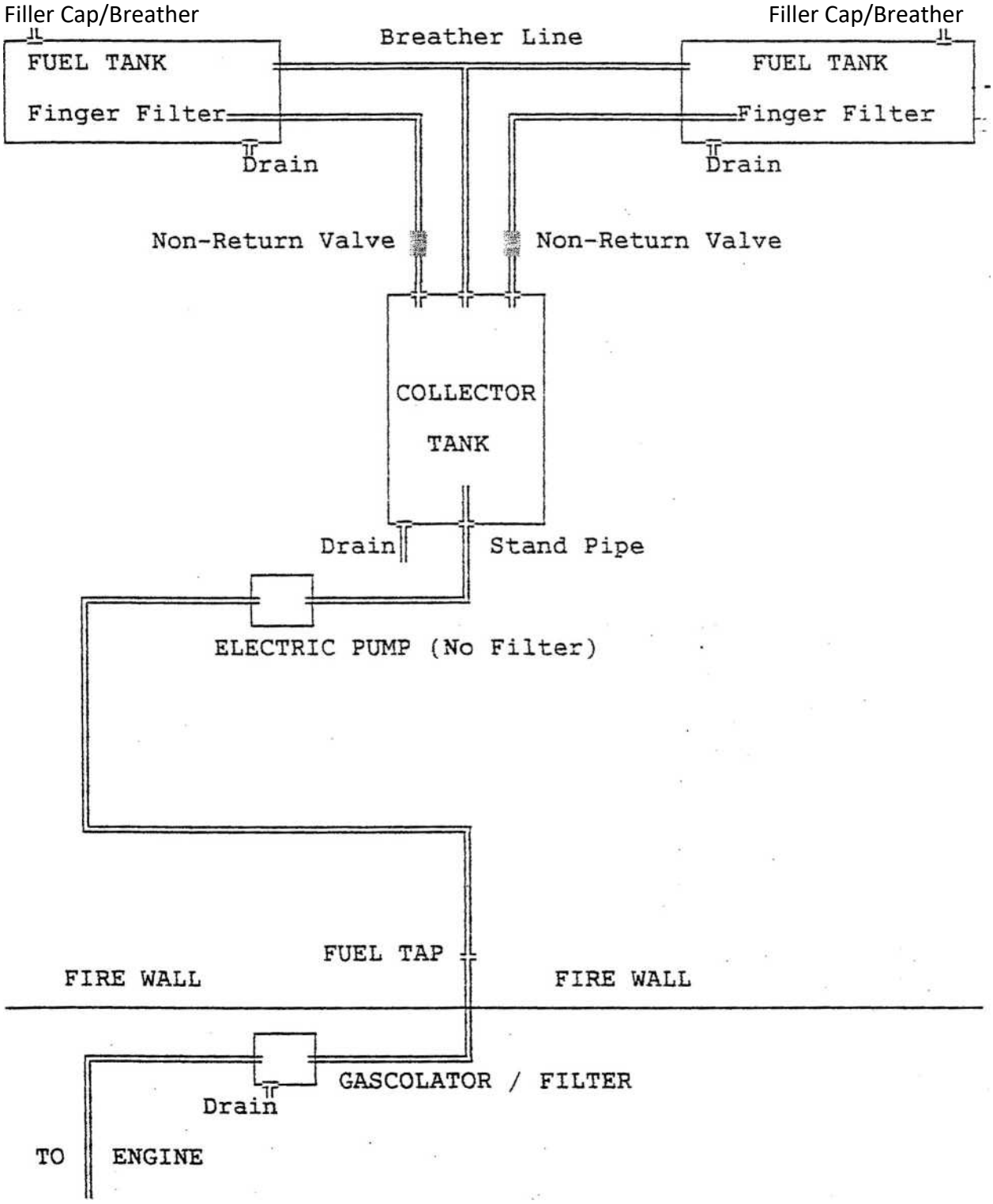
integrity with a separate 12-volt power source.
Replace if necessary.

(3) Place a calibrated pressure gauge in the fuel system at the "T" piece between the two carburetors. Turn "ON" the master switch and electric fuel pump and check for an increase in pressure to 27Kpa (4Psi). If this does not occur, the fuel pump is at fault.

cont…

(4) Remove and empty the float bowl from one of the carburetors, which will relieve any stored pressure in the fuel system. Replace the carburetor fuel bowl, turn the master switch "ON," then turn the adjustment screw in the fuel pressure switch clockwise until the low fuel pressure light illuminates. Now turn the electric fuel pump "ON" and check that the low fuel pressure warning light goes out.
The pressure switch is now set.

28-40-05 FUEL SYSTEM – SCHEMATIC



CHAPTER 32

LANDING GEAR

CHAPTER 32 LANDING GEAR

TABLE OF CONTENTS/EFFECTIVITY

32-00-00 GENERAL

32-00-01 DESCRIPTION & OPERATION

The main landing gear is a tubular steel structure which is pivoted on the fuselage to allow both vertical and horizontal travel of the wheel. Suspension is provided by bonded rubber cross members between the top of one leg to the bottom of the other.

The brakes are dual, independent, disc brakes operated by toe pedals on both rudder pedal assemblies. The brakes can be activated by either occupant. The master cylinders have self-contained reservoirs and are mounted to the left side rudder pedals. High pressure PVC brake lines carry the brake fluid to the calipers which are mounted to the undercarriage leg at the axle. The brake discs are bolted to the wheel in a manner which allows the caliper to operate on the inside circumference of the disc.

The nose wheel assembly includes a steerable, nose wheel via a scissor link attached to a movable outer leg. The suspension is a column of 10×16 mm rubber discs. The outer leg is connected to the rudder pedals via steering springs through the firewall.

32-00-02 TROUBLE SHOOTING

Troubles peculiar to the landing gear are listed in Chart 3201 along with their probable causes and suggested remedies.

CHART 3201 TROUBLE SHOOTING (LANDING GEAR)

TROUBLE	CAUSE	REMEDY
AIRCRAFT SITS TO ONE SIDE ON FLAT GROUND.	Incorrect pressure in main tires. Bonded rubber may have delaminated or stretched.	Check tire pressure Replace bonded struts as required
BRAKES INEFFICIENT	Insufficient brake fluid, brake pads worn, leak in hydraulic system	Locate fault & rectify.
BRAKES LOCKED ON	Foreign object between brake disc & brake pad brake caliper jammed on backing plate.	Remove disc and caliper, clean & reassemble.
NO BRAKE PRESSURE AT PEDAL	Insufficient brake fluid, leak in hydraulic system, faulty master cylinder.	Check for brake fluid quantity, leaks and master cylinder operation.
BRAKES NOISY DURING OPERATION	Foreign object between brake disc & brake pad, worn brake pads, moisture in pad.	Remove disc and caliper, clean and re-assemble. check brake pads for wear.

32-10-00 MAIN LANDING GEAR

32-10-01 REMOVAL OF MAIN GEAR

Jack the aeroplane as described in Section 7 of this manual, drain the braking system and remove the wheel and brake assemblies. The olive on the wheel cylinder end of the brake line must be cut off at the olive to allow enough line to refit a new olive without replacing the brake line. Remove the seat from the aeroplane and pull the brake line up through the landing gear leg. Remove the shock strut pivot bolt at the axle of the gear in question. The landing gear can now be'-removed from the aeroplane.

32-10-02 INSTALLATION OF MAIN GEAR

Apply MIL-G-81322A General Purpose Grease to the pivot bushes on the main landing gear, and fit to the aeroplane making sure that the shock strut with the "pass through" structure is connected to the left hand gear and the rubber bonding is on the lower end of both shock struts. Route the brake line through the landing gear leg and refit the wheel and brake assembly. Fit a new olive to the brake line and attach to the wheel cylinder. Re-install the seat, refill the braking system with brake fluid (MIL-H-5606E) and test the brakes.

32-10-03 INSPECTION OF MAIN GEAR

The landing gear is checked for damage, corrosion and distortion at each service. Remove the fairings on the shock struts and check for delamination. Up to 15% delamination is acceptable. Corrosion will be identifiable by blistering paint and brown stains emanating from cracks in the paint. This may also indicate a fracture in the steel. If mild corrosion is found, the affected surface must be stripped of paint, cleaned and repainted.
If corrosion is severe, replace component.
To check for distortion, place a straight edge along each tube of the landing gear. If more than 1/8" gap between the straight edge and the tube is found, the landing gear should be repaired or replaced. Refer to Figure 3201.

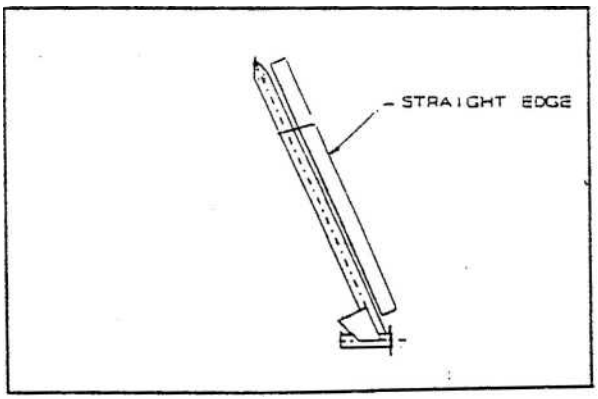


Figure 3201

32-40-00 WHEELS AND BRAKES

32-40-01 REMOVAL OF WHEELS

Jack the aeroplane in accordance with the instructions given in Chapter 7 of this manual. Remove wheel pants if fitted. Remove- the safety wire and alien head cap screws from the brake disc. Remove the dust cap from the wheel hub, remove the split pin from the axle and remove the 3/4" UNF wheel nut. The wheel can now be removed from the axle.

32-40-03 INSPECTION OF WHEELS

Check the wheels for dents and buckles by jacking the aeroplane in accordance with Chapter 7, spinning the wheel by hand and sighting the bead of the wheel. If a dent or buckle is visible, a dial indicator must be set to the wheel to measure the extent of the deformation. If the deformation exceeds 1/8" the wheel must be replaced. Replace the bearings if signs of skidding or pitting are visible. Pack bearings with MIL-G-81322A General Purpose Grease and reassemble.

32-40-03 INSTALLATION OF MAIN WHEELS

To install the main wheels, the installation procedures may be followed in reverse, paying particular attention to the following:

(1) Grease main wheel bearings with grease specified in Chapter 12 of this manual.

(2) Adjust the 3/4" UNF axle nut until no play exists and there is no unnecessary friction when rotating the wheel.

(3) Fit a new split pin through the castellations on the wheel nut and the wheel axle.

(4) Ensure that the three socket hear cap screws which hold the disc to the wheel are securely safety wired.

32-40-04 REMOVAL OF TIRES AND TUBES

The wheel assembly used on the aircraft is a Matco, part No. W600 assembly, which is of the split rim type.

TIRE MAIN CHENG SHIN or DELI 15×6.00 – 6

TIRE NOSE CHENG SHIN or DELI 15×5.00 – 6

To change the tire, remove the wheel assembly from the aeroplane and remove the valve from the tube. Undo the three bolts holding the two wheel halves together which allows the wheel halves to be removed from the tire.

32-40-05 INSTALLATION OF TIRES & TUBES

Fit the tube into the replacement tire and inflate the tube until it fills the shape of the tire. Fit the two wheel halves to the replacement tire, ensuring that the valve stem is located in- the notch in the wheel and that the tube is not pinched between, the wheel halves. Replace the three bolts and tighten to 50 In/Lbs.

Inflate the tire to the correct pressure as stated in Chapter 12 and check for leaks. The wheel may now be refitted to the aeroplane.

32-40-06 REMOVAL OF WHEEL BEARINGS

Place the wheel down on a flat surface and prize the seal from the wheel hub using a screwdriver or similar. The tapered roller bearing can now be removed from the wheel hub. Repeat this procedure with the other side of the wheel. To remove the outer shell of the bearing use a large pin punch and a small hammer to tap the bottom bearing shell from the hub. Ensure that the bearing remains true in the hub during this procedure by tapping one side of the bearing and then the other.

32-40-07 INSTALLATION OF WHEEL BEARINGS

To install the bearings, the removal procedures may be followed in reverse, paying particular attention to the following:

(1) Ensure that the outer shell of the bearing is fully seated in the wheel hub.

(2) Apply grease to the tapered roller bearing before installation. Refer Chapter 12 of this manual.

32-40-08 REMOVAL OF BRAKE DISC & CALIPER

Remove the wheel from the aircraft as described in this chapter. Drain the brake fluid and disconnect the brake line from the caliper and remove the four bolts and nuts which secure the caliper backing plate to the landing gear. The caliper and disc may now be removed from the landing gear.

32-40-09 REPLACING BRAKE PADS

Remove the brake pads from the calipers. Drill out the rivets which hold the brake pads to the aluminum brake pad mounting plate with a 1/8" drill and discard the old brake pad. Attach the replacement brake pad, #RA66-56, using 105-2 rivets. Reassemble the caliper assembly and refit the brake disc and wheel. Bleed the brake system as described in this chapter and replace the tie wire on the brake calipers.

32-40-10 INSTALLATION OF BRAKE DISC & CALIPER

To install the brake disc and calipers, the removal procedures may be followed in reverse. Refill the braking system after installation and check for leaks.

32-40-11 REMOVAL OF BRAKE MASTER CYLINDERS

Remove the top engine cowling, drain the brake fluid and disconnect the brake lines from the brake master cylinders. Remove the two split pins, nuts and bolts which allow the master cylinders to be removed from the aircraft.

32-40-12 INSTALLATION OF BRAKE MASTER CYLINDERS

The installation procedures are the reverse of the removal procedures. Refill the braking system after installation and check for leaks.

32-40-14 LEAK CHECK

Apply maximum braking pressure to the toe brakes and check for leaking fluid. If a leak is detected, trace the leak and repair or replace as necessary.

32-50-00 STEERING

The steering is achieved by linking the steerable nose wheel to the rudder pedals via springs through the firewall to the steering arm on the nose leg.

32-50-01 REMOVAL OF STEERING CONTROL

Remove the fire protection boots from the steering springs. Disconnect the springs from the rudder pedals and steering arm. The nose wheel is free to caster as required.

32-50-02 INSTALLATION OF STEERING CONTROL

The installation procedures are the reverse of the removal procedures. Carry out a functional check after installation.

32-70-00 NOSEWHEEL ASSEMBLY

32-70-01 REMOVAL OF NOSEWHEEL ASSEMBLY

Lower the tail of the aircraft down to the ground on the tail skid. Attach a weight to the tail lift handle so as to prevent the nose falling. Complete access is now available to the nose wheel assembly.

Remove the split pin at the top of the outer leg to enable the removal of the "inner leg safety pin". Remove the center bolt in the steering scissor link. With the "inner safety pin" removed and the scissor bolt removed, the inner leg can be taken out downwards. The inner leg comprises of a fork, scissor links, wheel and tire, rubber suspension discs and spat if fitted.

The rest of the nose leg assembly is attached to the aircraft by three bolts. Two bolts at the end of each stay at the fuselage connection points, and one center bolt inside the leg at the top. The center bolt can be accessed by inserting an extension socket spanner, 1/2" NF, up inside the tube to hold the bolt head whilst removing the 1/2" metal lock nut on the top of the leg. The complete nose wheel assembly can now be removed from the aircraft.

32-70-02 CLEANING AND INSPECTION OF NOSEWHEEL ASSEMBLY

A check of the rubber suspension discs may be required if the nose leg extension is less than 50mm.(Aircraft should be level and empty) If the discs are worn or broken then they all must be replaced.
The correct number of discs to be inserted is 10.

32-70-03 INSTALLATION OF NOSEWHEEL ASSEMBLY

The installation procedures are the reverse of the removal procedures. Carry out a functional check after installation.

NOTE: The bush at the top of the leg is a "stepped bush" for alignment purposes. The large part of the bush must be facing downwards.

CHAPTER 33

LIGHTS

CHAPTER 33 LIGHTS

TABLE OF CONTENTS/EFFECTIVITY

33-00-00 GENERAL

The lighting system components covered in this section consist of strobe lights and a recognition light. These lights are optional equipment and, as such, they may not be fitted to all aircraft.

33-00-01 DESCRIPTION AND OPERATION

The strobe lights used are manufactured by Whelan and are installed in accordance with the manufacturer's recommendations. Aircraft may be fitted with two strobe lights, one on each wing tip. The power supplies are located inside each wing tip. The strobe lights are activated by a toggle switch mounted on the instrument panel.

The recognition light is mounted on the nose leg (in the front of the lower engine cowling in earlier models) and is activated by a toggle switch mounted on the instrument panel.

33-00-02 TROUBLE SHOOTING

Troubles peculiar to the lighting system are listed in Chart 3301 along with their probable causes and suggested remedies.

CHART 3301 TROUBLE SHOOTING (LIGHTING SYSTEM)

TROUBLE	CAUSE	REMEDY
STROBE(S) DO NOT ILLUMINATE	Interruption of power to power supply or strobe lights, faulty power supply or strobe lights.	Check strobe fuse connections, output of power supply, integrity of strobe lights.
IRREGULAR FLASHING STROBE(S)	Low supply current to power supply, faulty power supply.	Check current to power supply.
RECOGNITION LIGHT DOES NOT ILLUMINATE	Interruption of power to switch or light, faulty globe.	Check current to light, integrity of globe.
DIM RECOGNITION LIGHT	Low current supply to switch or globe, resistance in earth line.	Check current to light, resistance in earth line.
GLOBE BLOWS OFTEN	Excessive current to light.	Check output of voltage regulator.

33-40-00 STROBE LIGHTS

All strobe lights fitted to the Gazelle are of the same type, so. removal and installation instructions are identical.

33-40-01 REMOVAL OF STROBE LIGHTS

Ensure that the strobe toggle switch and master switch are in the "OFF" position. Remove the two screws at the base of the strobe' light and withdraw the light assembly from the wing tip until thee, connector plug and socket are through the mounting hole. Disconnect the power lead and remove strobe light.

33-40-02 INSTALLATION-OF STROBE LIGHTS

The installation procedures are the reverse of the removal procedures. Carry out a functional check after installation.

33-40-03 REMOVAL OF POWER SUPPLY

Ensure that the strobe toggle switch and the master switch are in the "OFF" position. Remove the wing tips and disconnect the power and output leads from the strobe light power supply located on the outboard wing rib. Remove the mounting screws which attach the power supply to the wing rib and remove the power supply from the aircraft.

33-40-04 INSTALLATION OF POWER SUPPLY

The installation procedures are the reverse of the removal procedures. Carry out a functional check after installation.

33-40-05 RECOGNITION LIGHT

33-40-06 REMOVAL OF RECOGNITION LIGHT GLOBE

Ensure that the recognition light toggle switch and master switch are in the "OFF" position.
On nose leg installations, remove screw from housing clamp then separate assembly. Remove globe retaining screw and disconnect wire. Remove globe.
On engine cowling installations remove the top and bottom engine, cowlings, remove the three clamping screws which hold the light in place. Remove the light globe from the cowling.

33-40-07 INSTALLATION OF RECOGNITION LIGHT GLOBE

The installation procedures are the reverse of the removal procedures. Carry out a functional check after installation.

CHAPTER 34
NAVIGATION AND PITOT STATIC

CHAPTER 34 NAVIGATION AND PITOT STATIC

TABLE OF CONTENTS/EFFECTIVITY

34-00-00 GENERAL

34-00-01 REMOVAL AND INSTALLATION OF FACE MOUNTED INSTRUMENTS

Removal of the top engine cowl allows access to the rear of the instrument panel where any static or pitot lines or electrical cables should be disconnected from the instrument to be removed. All instruments are fixed to the instrument panel via three or four screws which are accessible from the cockpit side of the panel. Remove these screws which are accessible from the cockpit side of the panel. Remove these screws and the instrument may be taken our of the aircraft.

When replacing instruments, take particular care not to cross thread the mounting screws, and be sure to use brass or aluminum screws or those provided by the instrument manufacturer. Carry out a functional check of the instruments. Refer Figure 3401.

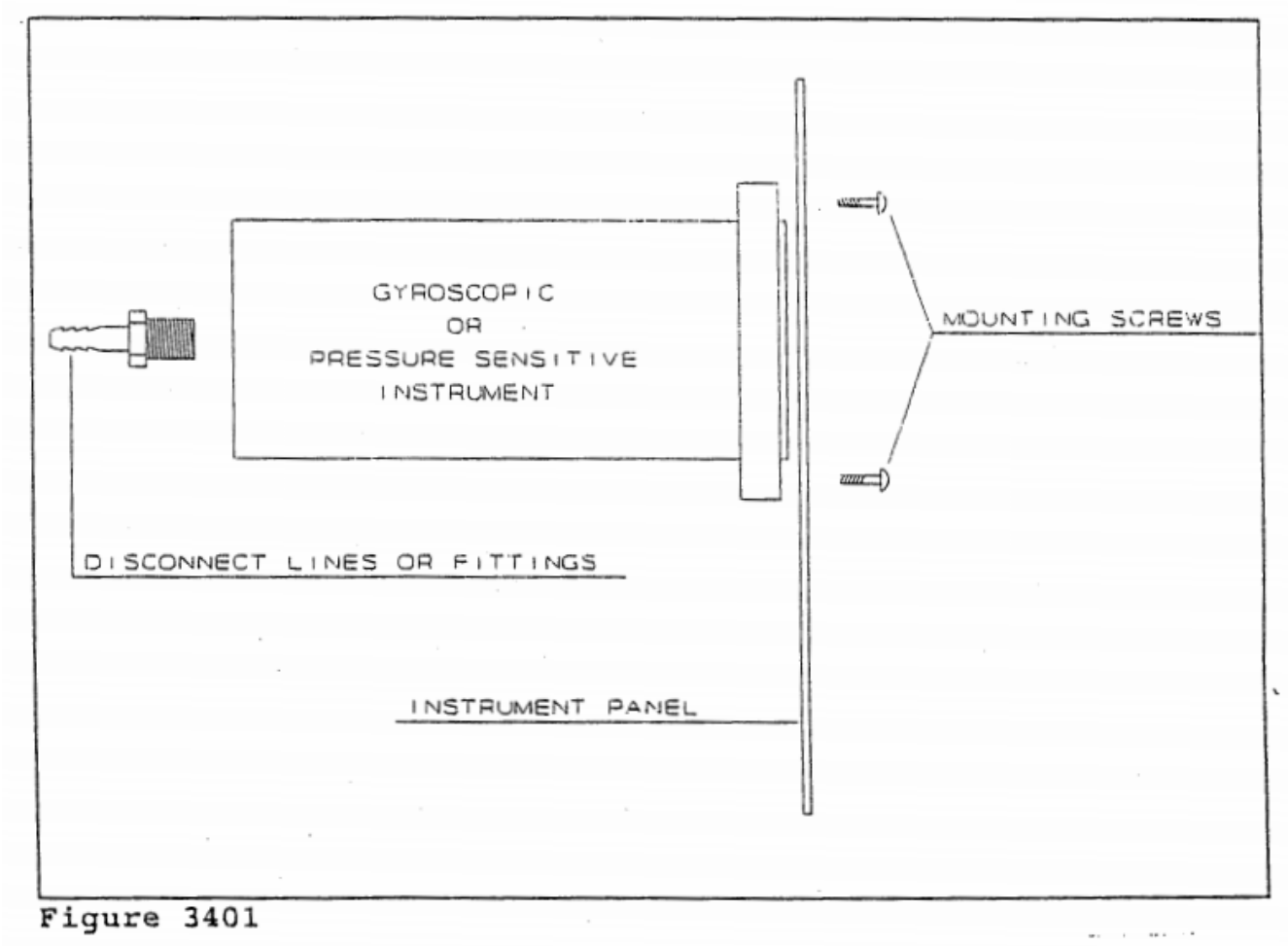


Figure 3401

34-10-00 FLIGHT

34-10-01 PITOT STATIC SYSTEM

The pitot system consists of a pressure head located under the left wing, just outboard of the wing strut attachment point. Air pressure is transferred from here to the pressure sensitive instruments via a clear plastic tube which is routed from the pressure head, through the wing ribs to the wing tip and then through the rear wing spar to the cabin. The airspeed indicator and stall warning device are both fed by the pitot line. There is a drain fitted into the pitot line behind the instrument panel for draining accumulated condensation. Refer Figure 3402.

The static system consists of two static vents, one located on each side of the fuselage at station 2170mm. A clear plastic tube is routed from the two static vents to the "T" piece and the up to the top of the head rack and then down to behind the instrument panel. The airspeed indicator, altimeter and vertical speed indicator are all fed by the static line. There is a drain fitted into the static line behind the instrument panel for draining accumulated condensation. Refer Figure 3402.

34-10-02 TESTING OF PITOT STATIC SYSTEM

The pitot system shall be tested for leaks by applying a pressure at the pitot head sufficient to cause the airspeed indicator to read 100 knots. There should be no sign of restrictions in the piping during application of the pressure and no decrease in the reading when the system is sealed for at least 10 seconds.

- CAUTION -

Do not allow a negative pressure to occur, as this may damage the airspeed indicator.

- END -

The static system shall be tested for leaks by applying sufficient suction to the system to cause the airspeed indicator to read 85 knots. The system shall then be sealed. The reading of the airspeed should not decrease by more than 4 knots within 10 seconds.

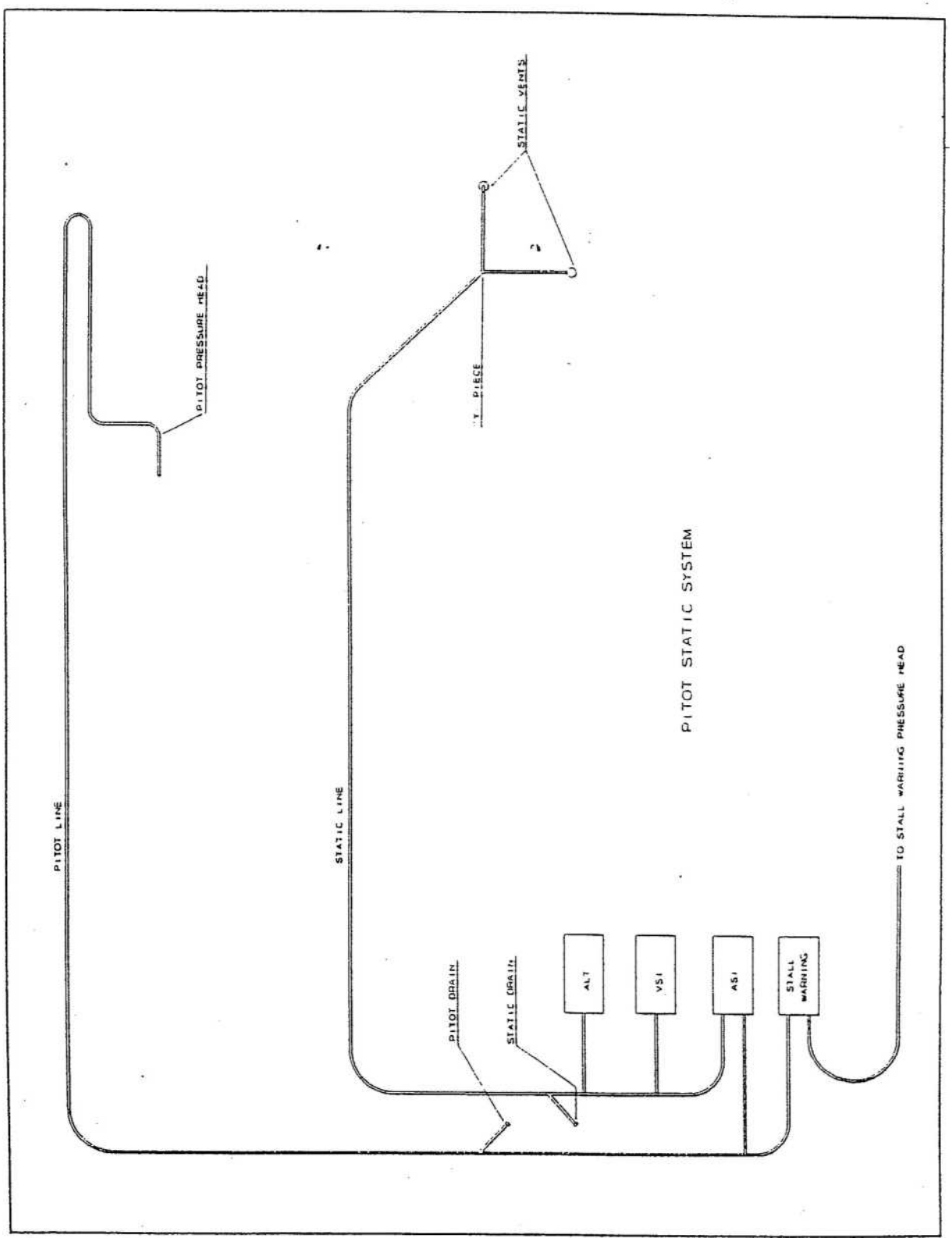

PITOT PRESSURE HEAD
STATIC VENTS
T PIECE
PITOT STATIC SYSTEM
PITOT LINE
STATIC LINE
TO STALL WARNING PRESSURE HEAD
PITOT DRAIN
STATIC DRAIN
ALT
VSI
ASI
STALL WARNING

Figure 3402

34-10-06 ALTIMETER

The altimeter indicates pressure altitude in feet above sea level. The indicator has three pointers and a dial scale, the long pointer is read in hundreds of feet, the middle pointer in thousands of feet, and the short pointer in ten thousands of feet. A barometric pressure window is located on the right side of the indicator dial and is set by the knob located on the lower left corner of -the instrument. The altimeter consists of a sealed diaphragm that "is connected to the pointer through a mechanical linkage. The instrument case is vented to the static air system and as static air pressure decreases, the diaphragm expands, causing the pointers to move through the mechanical linkage.

Troubles peculiar to the altimeter are listed in Chart 3401 along with their probable causes and suggested remedies.

CHART 3401 TROUBLE SHOOTING (ALTIMETER)

TROUBLE	**CAUSE**	**REMEDY**
EXCESSIVE SCALE ERROR	Improper calibration adjustment.	Recalibrate instrument.
EXCESSIVE POINTER OSCILLATION	Defective mechanism.	Replace altimeter.
ALTIMETER STICKS ON ONE ALTITUDE	Water or restriction in static air line.	Clear the static air line of water or obstructions.
ALTIMETER READING' CHANGES DURING BANKING	Water in static air line.	Clear the static air line of water, or obstructions.
ALTIMETER REQUIRES RESETTING FREQUENTLY	Temperature compensator inoperative.	Replace altimeter.
ALTIMETER READS HIGH OR LOW	Improper venting.	Check static air system for leaks, instrument case for cracks.

Cont…

ALTIMETER REQUIRES RESETTING FREQUENTLY	Temperature compensator inoperative.	Replace altimeter.
ALTIMETER READS HIGH OR LOW	Improper venting.	Check static air system for leaks, instrument case for cracks.
SETTING KNOB IS HARD TO TURN	Wrong lubricant used in altimeter.	Have instrument serviced.
INNER REFERENCE FAILS TO MOVE	Out of engagement.	Replace altimeter.

34-10-07 ALTIMETER CALIBRATION CHECK

The altimeter shall be tested for diaphragm errors against an appropriate test instrument from sea level to maximum operating height of altimeter or to 21,000 feet. Errors shall not exceed +/- 100 feet.

34-10-08 AIRSPEED INDICATOR

The airspeed indicator provides a means of indicating the speed of the aircraft passing through the air. The airspeed indication is the differential pressure reading between the pitot air pressure and the static air pressure. This instrument has a diaphragm vented to the pitot air source and the case is vented to the static air system. As the aircraft increases speed, the pitot air pressure increases causing the diaphragm to expand. A mechanical linkage picks up the motion and moves the instrument pointer to the indicated speed. The instrument dial is calibrated in knots and also has the necessary operating range markings for safe operation of the aircraft.

Troubles peculiar to the airspeed indicator are listed in Chart 3402 along with their probable causes and suggested remedies.

CHART 3402 TROUBLE SHOOTING (AIRSPEED INDICATOR)

TROUBLE	**CAUSE**	**REMEDY**
POINTERS OF STATIC INSTRUMENTS DO NOT INDICATE PROPERLY	Leak in instrument case or line.	Trace leak and repair or replace.
POINTER OSCILLATES	Defective mechanism.	Replace instrument.
ASI READS HIGH	Pointer not on 0, leaking static.	Reset to 0, repair leak.
AS I READS LOW	Pointer not on 0, leaking static, pitot head not aligned.	Reset to 0, repair leak, align pitot.
AIRSPEED CHANGES DURING BANKING	Water in pitot or static line.	Drain water.

34-10-09 AIRSPEED INDICATOR CALIBRATION CHECK

Airspeed indicators shall be tested against an appropriate test instrument. The scale errors at the major graduations of the scale shall not exceed +/- 4 knots up to 95 knots, when tested first with the pressure increasing and then with the pressure decreasing. Operation shall be smooth and continuous.

The calibration error in Skyfox aircraft is approx 2.5 knots throughout the entire range. CAS is 2.5 knots higher than IAS.

34-10-10 VERTICAL SPEED INDICATOR

The vertical speed indicator measures the rate of change in static pressure when the aircraft is climbing or descending. By means of a pointer and dial, this instrument will indicate the rate of ascent or descent of the aircraft in feet per minute. But due to the lag of the instrument, the aircraft will be climbing--or descending before the instrument starts to read and the instrument will continue to read after the aircraft has assumed level flight. In rough air this should not be considered a malfunction.

Troubles peculiar to the vertical speed indicator are listed in Chart 3403 along with their probable causes and suggested remedies.

CHART 3403 TROUBLE SHOOTING (VERTICAL SPEED INDICATOR)

TROUBLE	**CAUSE**	**REMEDY**
POINTER DOES NOT SET ON 0	Ageing of diaphragm.	Reset pointer.
POINTER FAILS TO RESPOND	Blocked static system.	Remove blockage.
POINTER OSCILLATES	Leak in static system.	Repair leak.
RATE OF CLIMB INDICATES WHEN AIRCRAFT IS BANKED	Water in static line.	Drain water.
POINTER CANNOT BE RESET TO 0	Diaphragm distorted.	Replace instrument.
READS VERY LOW DURING CLIMB OR DESCENT	Broken case.	Replace instrument.

34-20-00 GYRO HORIZON

The gyro horizon is essentially an electrically driven gyroscope rotating in a horizontal plane and is operated by the same principal as the directional gyro. Due to the gyroscopic inertia, the spin axis continues to point in a vertical direction, providing a constant visual reference to the attitude of the aircraft relative to the pitch and roll axis. A bar across the face of-the indicator represents the horizon and aligning the miniature aircraft to the horizon bar simulates the alignment of the aircraft to the actual horizon. Any deviation simulates the deviation of the aircraft from the true horizon. The gyro horizon is marked for different degrees of bank.

For trouble shooting, refer to Chart 3404.

CHART 3404 TROUBLE SHOOTING (GYRO HORIZON)

TROUBLE	CAUSE	REMEDY
BAR FAILS TO RESPOND	Insufficient power.	Check instrument fuses, system voltage.
BAR OSCILLATES OR SHIMMIES	Instrument loose in panel or defective.	Check security of instrument, replace instrument.
INSTRUMENT DOES NOT INDICATE LEVEL FLIGHT	Instrument not level in panel, aircraft out of trim.	Check level of instrument, trim of aircraft.
BAR HIGH AFTER 180 DEG TURN	Normal if within 1/16".	Replace instrument if error is greater than 1/16".
INSTRUMENT TUMBLES IN FLIGHT	Insufficient power.	Check instrument fuses, system voltage.
BAR DOES NOT SETTLE	Insufficient power, defective instrument.	Check instrument fuses, system voltage.

34-20-02 DIRECTIONAL GYRO

The directional gyro is a flight instrument incorporating an electrically driven gyro stabilized in the vertical plane, due to gyroscopic inertia, the spin axis continues to point in the same direction even though the aircraft yaws to the right or left. This relative motion between the gyro and the instrument case is shown on the instrument dial which is similar to a compass card. The dial, when set to agree with the aircraft magnetic compass, provides a positive indication free swing and turning error. However, the directional gyro has no sense of direction and must be set to the magnetic compass. Since the magnetic compass is subject to errors due to magnetic fields, electrical instruments, etc, the directional gyro is only accurate for the heading it has been set for. If the gyro is set on 270 deg, for instance, and the aircraft is turned to some other heading, there can be a large error between the directional gyro and the magnetic compass due to the error in compass compensation, this will appear as gyro precession. The gyro should only be checked in the heading it was first set, also due to internal friction, spin axis error. For trouble shooting, refer to Chart 3405.

CHART 3405 TROUBLE SHOOTING (DIRECTIONAL GYRO)

TROUBLE	**CAUSE**	**REMEDY**
EXCESSIVE DRIFT	Setting error, defective instrument, insufficient power.	Reset instrument, replace instrument, check instrument fuses and system voltage.
DIAL SPINS DURING TURNS	Limits of 55 deg of gimbal exceeded.	Replace instrument.
DIAL SPINS CONTINUOUSLY	Defective instrument.	Replace instrument.

34-20-04 GYRO TURN CO-ORDINATOR

The turn co-ordinator is an electric instrument. The turn portion of the indicator is driven by a permanent magnet, DC governor controlled gyro motor. Dampening action is provided by a precision air dashpot. The indicator is designed to indicate the rate, of turn and roll, which means if the aircraft is turned right and left rapidly, the indicator will move, indicating a turn, but if the aircraft is held in a bank by applying rudder, the indicator will come back to zero indicating no turn. The slip/skid portion of the indicator is a ball sealed in a curved glass tube filled with dampening fluid. In an improperly coordinated turn the ball is forced from the center of the tube, thus indicating attitude error. For trouble shooting, refer to Chart 3406.

CHART 3406 TROUBLE SHOOTING (TURN CO-ORDINATOR)

TROUBLE	**CAUSE**	**REMEDY**
POINTER FAILS TO RESPOND	Foreign matter in mechanism	Replace instrument.
INCORRECT SENSITIVITY	Out of calibration	Recalibrate instrument.
INCORRECT TURN RATE	Out of calibration, aircraft not coordinated	Recalibrate instrument, check aircraft attitude.
INSTRUMENT WILL NOT RUN	No power, malfunction in instrument	Check instrument fuses, system voltage, replace instrument.

34-20-06 MAGNETIC COMPASS

The magnetic compass is a self contained instrument. The compass correction card is located in the correction card holder mounted on the instrument. The compass should be swung whenever instruments or radios are changed and at once every 3 years.

34-20-07 CALIBRATION OF MAGNETIC COMPASS

NOTE: Refer AC 43.13 and CAO 108.6 for details.

When a magnetic direction indicator does not provide satisfactory directional indications, it can be adjusted by the "ground swinging" technique to compensate for errors.

The ground swinging technique is as follows:

(a) Move the aircraft to a location free from influence of steel structures, underground pipes and cables, reinforced concrete, or other aircraft.

(b) Place the aircraft in a level flying position.

(c) Check indicator for fluid level and cleanliness. If fluid is required, the compass is defective.

(d) Reset the fixed compensating magnets to neutral positions.

(e) Check the pivot friction of the indicator by deflecting the card with a small magnet. The card should rotate freely in a horizontal plane.

(f) Align the aircraft with the north magnet heading and compensate with compensating magnets. Repeat for the east magnet heading. Then place on south and west magnetic headings and remove half of. the indicated error by adjusting the compensators. The engine should be running and all normal flight electrical services on.

(g) Turn the aircraft on successive 30 deg headings through 360 deg. Prepare a correct card to show the correction to be applied at each of these headings. When significant errors are introduced by operation of electrical equipment or systems, the correction card should also be marked at each 30 deg heading showing the correction to be applied when such equipment or systems are turned on or energized.

CHAPTER 39

ELECTRICAL

CHAPTER 39 ELECTRICAL

TABLE OF CONTENTS/EFFECTIVITY

39-00-00 GENERAL

All Skyfox, CA20 series aircraft, first registered in Australia are fitted with fuses except where customers have specifically requested circuit breakers.

The switches are of the toggle type and are mounted on the lower part of the instrument panel. The circuit breakers (if fitted) are single hole mounting, push button type with manual reset. They, must be reset by the pilot whenever tripped. They are located on the lower right part of the instrument panel. The fuses are square hole mounted, twin spade connector type and must be replaced by the pilot when blown. The fuses are mounted in the same location as the circuit breakers.

NOTE: Ensure that the battery is disconnected before working on the electrical system if it is likely that live wires may be grounded.

39-40-00 ELECTRICAL SWITCHES, FUSES AND CIRCUIT BREAKERS

39-40-01 REMOVAL OF ELECTRICAL SWITCHES

Remove the top engine cowl. Disconnect the two wires from the back of the switch, undo the mounting nut from the front of the switch and remove the switch from the aircraft. Locate disconnected wires to facilitate installation.

39-40-02 INSTALLATION OF ELECTRICAL SWITCHES

Locate switch in panel and install mounting nut, ensuring that the orientation of the ON OFF positions is correct. (Closed circuit is when the toggle switch is pointing to the same end as the terminals). Reconnect the wire cables to the switch and check operation. UP is usually ON in Skyfox, CA20 series aircraft.

39-40-03 REMOVAL OF CIRCUIT BREAKERS

Remove the top engine cowl. Disconnect the two wires from the back of the circuit breaker, undo the mounting nut from the front of the circuit breaker and remove the circuit breaker from the aircraft. Locate disconnected wires to facilitate installation.

39-40-04 INSTALLATION OF CIRCUIT BREAKERS

Locate circuit breaker in panel and install mounting nut, ensuring that the operating current is correct. Reconnect the wire cables to the circuit breaker and check operation.

39-40-05 REMOVAL OF FUSES

Simply pull on the coloured portion of the fuse until it dislodges from the fuse holder.

39-40-06 INSTALLATION OF FUSES

Check that the fuse rating of the replacement fuse is of the correct rating and type. Locate the fuse in the fuse holder and push until the fuse is firmly held by the fuse holder. Check the operation of the circuit for which the replaced fuse controls.

- NOTE -

Replacement fuses are located in the map pocket located over the shoulder of the pilot. Ensure that there are sufficient spare fuses of all ratings used to replace each and every fuse.

39-40-07 REMOVAL OF OIL PRESSURE SENSOR

The oil pressure sensor is located at the front, right hand side of the engine. Disconnect the wire cable from the sensor and, using a 17mm open ended spanner, remove the sensor from the "T" adapter.

39-40-08 INSTALLATION OF OIL PRESSURE SENSOR

Check that the replacement sensor is of the correct rating (supplied by Rotax). Use a small amount of PVC thread sealing tape on the sensor before installation. Reconnect the wire cable and test the pressure gauge.

39-40-09 REMOVAL OF FUEL PRESSURE SWITCH

Ensure that the master and fuel pump switches are turned OFF. Remove the top engine cowling and disconnect the fuel pressure switch wire cables. Remove the pressure switch using a 24mm open ended spanner.

39-40-10 INSTALLATION OF FUEL PRESSURE SWITCH

Ensure that the replacement switch is of the correct rating and type (ie. normally closed). Clean the threaded end of the switch and apply a small amount of PVC thread tape before installation. Reconnect the wire cables and carry out a fuel pressure warning light calibration in accordance with Chapter 28.

CHAPTER 51

STRUCTURES GENERAL

CHAPTER 51 STRUCTURES GENERAL
TABLE OF CONTENTS/EFFECTIVITY

51-00-00 GENERAL

51-00-01 DESCRIPTION

The fuselage is constructed of 4130 steel tube of various diameters and wall thicknesses. The whole assembly is welded together using the MIG and TIG process. Each wing contains two aluminium spars of tubular extrusion with internal vertical web. The front spar forms the leading edge of the wing. The wing ribs are constructed from aircraft grade plywood. The trailing edge is aluminium angle section and is bonded to each rib. Both wings are fitted with fibreglass 26 litre fuel tanks which are located between the first and second rib at the wing root. The elevator, tail plane and rudder are all constructed from 4130 steel tube. The aircraft frame is covered with synthetic polyfibre fabric, then primed and painted. The engine cowls are two piece and of fibreglass construction with a fire retardant additive added to the resin.

51-10-00 STRUCTURAL REPAIRS

The fuselage, being a steel tubular structure, is relatively easily repaired providing the damage is not too extensive. Skyfox Aviation should be consulted for repair of damage to the fuselage structure itself, and for all repairs, reference must be made to FAA publications, "Acceptable Methods A/C 43.13-1A".

51-10-01 RE-OILING FUSELAGE TUBES

Use a 3/32" drill to remove the 10 rivets for oiling the fuselage tubes. Using a syringe, and a mixture of 50% fisholene and 50% linseed oil or Ensis Fluid, inject 100ml of mixture into each of the 10 tubes. Using a compressed air spray gun, spray sufficient mixture through both of the head rack tubes to give an even and full coverage to the inside of the tubes. Reseal the 10 oiling points with 3-4, aluminium pop rivets sealed with non-corrosive, oil resistant sealant. Change the attitude of the aircraft to sufficiently distribute the oil. Refer Figure 5101.

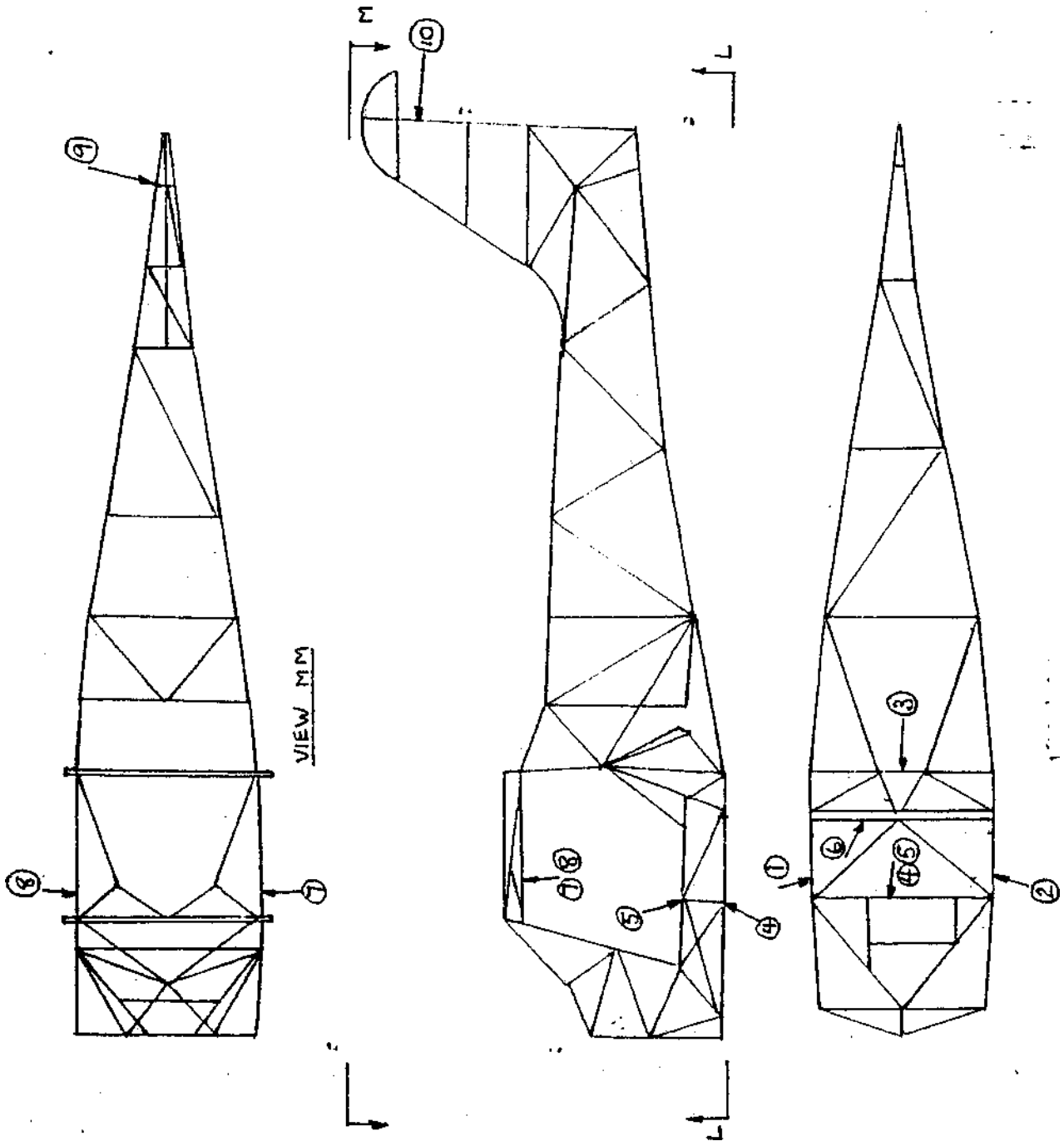


Figure 5101

51-10-03 FABRIC REPAIRS

Very small holes (up to 5mm Diameter) in fabric surfaces may be repaired, when the backside is accessible, by installing a small patch on the backside of the fabric with Poly-Tak.

A soldering iron, or other hot tool, may be used to trim and smooth any jagged edges of the hole before the patch is applied.... The coating buildup is then carefully applied only inside the hole with a small brush, sanded smooth and the finish coat applied.

Holes up to 8" in diameter may be patched by first trimming the hole to a uniform round, elliptical, square, or rectangular shape and crease 1/4" of the edge to the inside to avoid a sharp interface line showing around the edge. Mask-the repair area to prevent damage to the adjacent surface, then sand with 280 grit wet or dry sandpaper. Clean off the sanding residue then wipe with M.E.K.

The fabric patch is sized to allow a minimum 2" overlap around the edge and bonded in place with Poly-Tak Fabric Cement.

A patch cut to a square or rectangular shape will look more finished than a round patch cut to fit exactly to the contour of a round or elliptical hole, and will be easier to trim with finishing tape.

After the Poly-Tak cement has dried a minimum of 15 minutes, smooth the patch edges with an iron at 225 degrees C.,then use the iron at a 350 degrees final temperature to heat taut the patch. Radiant heat from the iron surface held close over the edge will thermosoften and release the Poly-Tak bond, therefore a patch overlap area must be protected with a cardboard ring heat barrier taped in place during the heat shrinking operation.

Installing a finishing tape centered on the edge of a small patch is optional, except on wing top surfaces.

Patches to cover damage over 8" diameter will overlap the old fabric surface a minimum 2" on all sides. A 2" finishing tape will be installed with Poly-brush centering on the edge of the patch on all sides.

Seal the repair area with Poly-brush fabric sealant. At least two coats are to be brushed or sprayed on to the repair area.

Spray or brush two coats of Poly-spray on to the repair area. Allow to dry for approx, six hours, lightly sand, then paint.

51-10-03 MATERIALS FOR SMALL REPAIRS

The following materials may be needed for small repairs to the fabric, fibreglass, windows or structure. All these materials are available from Skyfox Aviation.

Fabric	Stits POLY-FIBER ACFT. P-106 F.A.A. P.M.A. 94 x 94 Threads 1.7 oz./sq.yd. Over 70 lbs./in.
Fibre glass	Mat (woven) Resin / Fire retardant
Lexan	1.5 mm clear sheet 3.0 mm tinted sheet
Acylic	2.0 mm clear moulded
Steel	Chrome / Molybdenum steel tubing (various sizes)

CHAPTER 52

DOORS

CHAPTER 52 DOORS

TABLE OF CONTENTS/EFFECTIVITY

52-00-00 GENERAL

This aircraft has two doors. One on each side of the cockpit. Each door has an individual main latching mechanism and holder device to hold the door full open.

52-10-00 PASSENGER CREW

52-10-01 REMOVAL OF DOORS

Unlatch the doors and remove the piano hinge pin from the top of the door by pulling the pin forward. Ensure that the door is supported during this operation to prevent it from falling from the aircraft when the hinge pin is removed.

52-10-02 INSTALLATION OF DOORS

Ensure the doors are unlatched, align the piano hinge at the top of the door with the piano hinge at the top of the door opening of the fuselage. Insert the hinge pin into the piano hinge from the front. Check that the doors operate freely.

52-10-03 REMOVAL OF DOOR LATCH

Remove the door from the aircraft as described in this chapter. Using a 3mm pin punch, remove the roll pin from the external door handle and remove the handle. Using a 1/2" open ended spanner, remove the retaining nut from between the internal door handle mounting plate and the door skin. The internal door handle and the two locking pins can now be removed.

52-10-04 INSTALLATION OF DOOR LATCH

Locate the four spacers and lexan rub washer on the internal door handle shaft and fit to the door and using a 1/2" open ended spanner, fit the retaining nut onto the door handle shaft between the internal door handle mounting plate arid the door skin. Before tightening the retaining nut, locate the locking pins into the door pin guides and internal door handle, then tighten the retaining nut until a small amount of friction is present when turning the door handle. Locate the external door handle onto the internal door handle shaft and fit the roll pin. Ensure that the internal handle operates in a downward arc and the external handle operates in an upward swinging arc.

52-10-05 ADJUSTMENT OF DOORS

To rectify small gaps which may be present between the doors and the fuselage, the doors may be bent slightly where required. The recommended procedure is to re-shape the door starting from the top and working down the door. Only small adjustments can be made in this way, (3/16" or 5mm), and always check the door locking mechanism for operation after any adjustment. Where it is not possible to achieve a good fit, the gap may be filled by applying an extra layer of foam sealing tape.

CHAPTER 55

STABILIZERS

CHAPTER 55 STABILIZERS

TABLE OF CONTENTS/EFFECTIVITY

55-00-00 GENERAL

The elevator, horizontal stabilizer, fin and rudder are all constructed from 4130 steel tube and welded using the MIG process. The elevator and tail plane contain four plywood intercostal ribs each which are bonded to the steel tube. The hinges are formed by 4130 steel tube welded to the structure and sleeved with Teflon tube.

55-00-01 ELEVATOR AND RUDDER HINGE BUSH REPLACEMENT

The elevator and rudder hinges are checked for excessive wear by applying fwd and aft pressure to the elevator/rudder and watching closely for displacement between the elevator/rudder hinge tubes and the tail plane/fin hinge tubes. If any displacement is detected, the teflon bushes in the hinge tubes must be replaced. Remove the old bushes with a 7mm pin punch. Cut the replacement bush material into 20mm lengths with a sharp knife and remove sharp edges from both ends. Insert the replacement bush until the bush protrudes from both ends of the hinge tube. Trim the bush flush with the hinge tube. A 3/16" bolt (slightly longer than the bush) inserted into the bush, enables the bush to be inserted into the hinge, using a hammer. Refer Figure 5501.

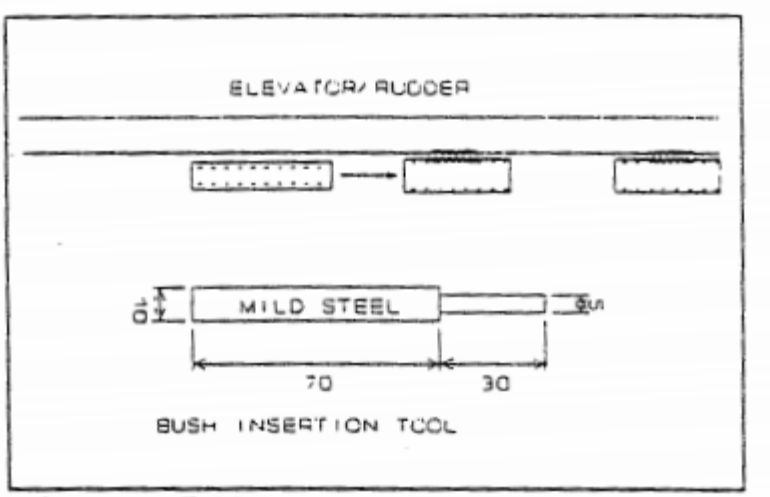


Figure 5501

55-10-00 HORIZONTAL STABILIZER

55-10-01 REMOVAL OF HORIZONTAL STABILIZER

Remove the inspection panels from beneath the horizontal stabilizer and drill the 3/32" rivets from the fin fairing above the horizontal stabilizer. Refer fig 5502. Remove the hinge pins, from the elevator and stabilizer and disconnect the stabilizer struts at the outboard end. Remove the two stabilizer locating bolts at the center, top and remove the stabilizer from the aircraft. Take note of the number and location of washers used on the stabilizer locating bolts as they vary between aircraft.

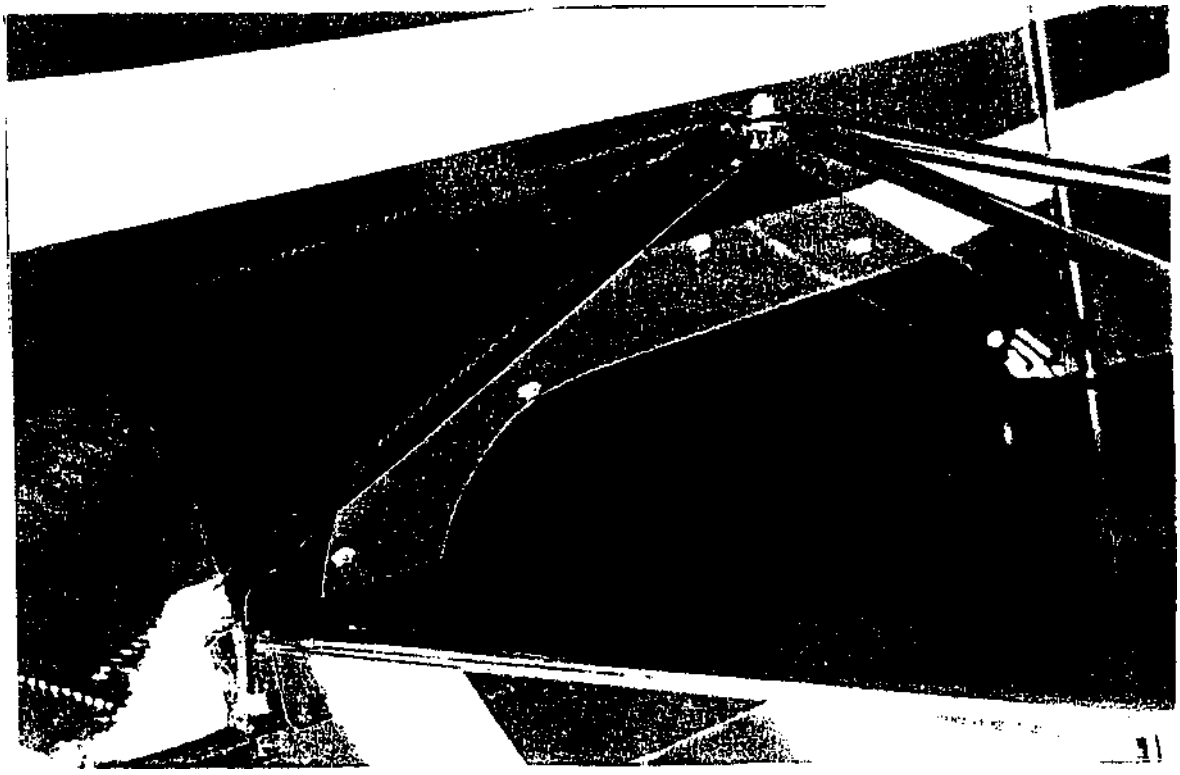


Figure 5502

55-10-02 INSTALLATION OF HORIZONTAL STABILIZER

The removal procedures may be followed in reverse paying particular attention to the following:

(a) When installing the stabilizer locating bolts, ensure that the washers are fitted in the same position from which they were removed. There should be no strain placed on the stabilizer when the bolts are tightened.
(b) Use new split pins in the elevator hinge pins.
(c) After installation, check elevator rigging. Refer chapter 27.

55-20-00 ELEVATOR

55-20-01 REMOVAL OF ELEVATOR

FIRST remove the horizontal stabilizer as shown in this chapter. Disconnect the elevator control horn from the elevator push rod and remove the elevator from the aircraft. Refer fig 5503.

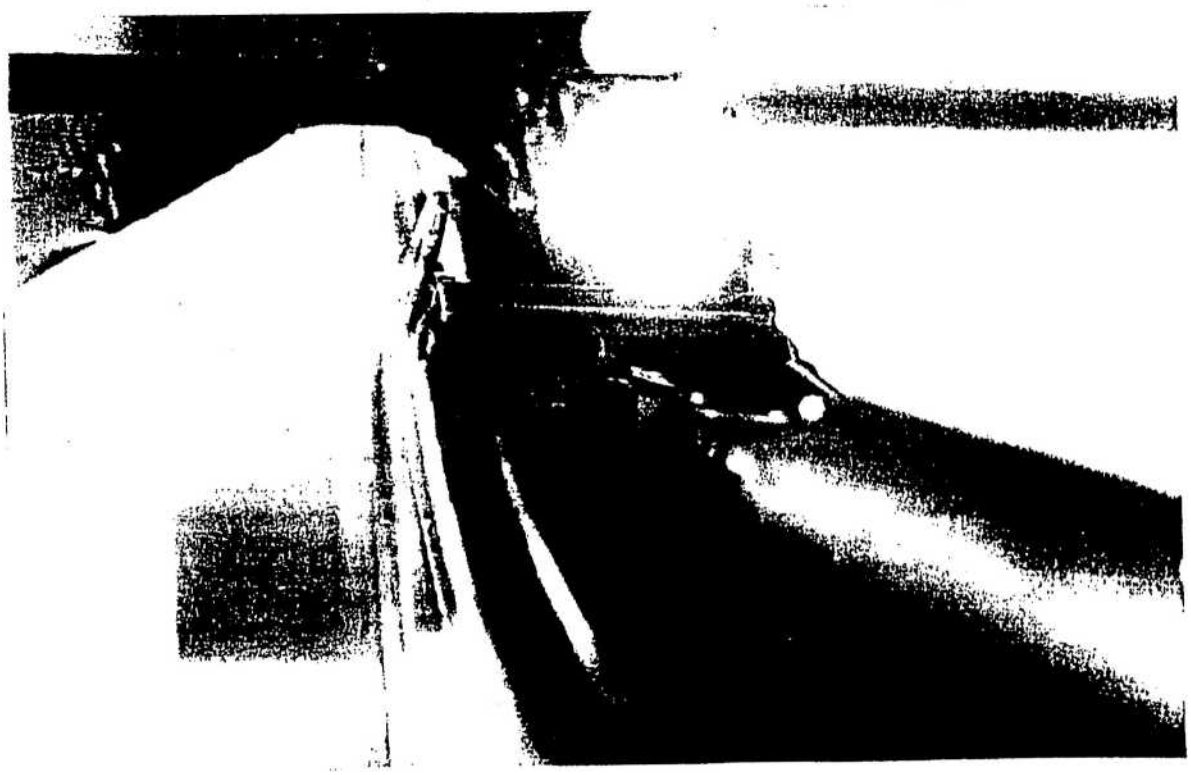


Figure 5503

55-20-02 INSTALLATION OF ELEVATOR

The removal procedures may be followed in reverse paying particular attention to the following:

(a) When installing the stabilizer locating bolts, ensure that the washers are fitted in the same position from which they were removed. There should be no strain placed on the stabilizer when the bolts are tightened.

(b) Use new split pins in the elevator hinge pins.

(c) After installation, check elevator rigging. Refer Chapter 27.

55-30-00 FIN

The fin is a steel tube structure and is an integral part of the fuselage. Removal of the fin is not possible and no other servicing procedures apply.

55-40-00 RUDDER

55-40-01 REMOVAL OF RUDDER

Disconnect the rudder cables from the rudder as described in Chapter 27. Remove the rudder hinge pins starting at the bottom first. The rudder can now be removed from the aircraft.

55-40-02 INSTALLATION OF RUDDER

The removal procedures may be followed in reverse paying particular attention to the following:

(a) Use new split pins in the rudder hinge pins.

(b) After installation, check rudder rigging. Refer Chapter 27.

CHAPTER 56

WINDOWS

CHAPTER 56 WINDOWS

TABLE OF CONTENTS/EFFECTIVITY

56-00-00 GENERAL

All windows are made from lexan sheet which is cold formed when it is fitted to the aircraft. Care must be taken to minimize stresses in the lexan during installation.

56-10-00 FLIGHT COMPARTMENT

56-10-01 REMOVAL AND INSTALLATION OF WINDSCREEN

The windscreen in the CA-25N is molded acrylic plastic.

To remove the windscreen, remove the top engine cowling, and remove screws from upper retaining strip and vertical windscreen trims. Remove windscreen.

Place new windscreen in position, with upper cowling fitted, lightly clamping with upper retaining strip and small spring clamps on vertical tubes. Fit windscreen in place installing vertical windscreen trims and upper retaining strips.

For aircraft S/N CA25N019 and below, when a new windscreen is required and ordered from Skyfox Aviation, side retaining fittings will be sent with the windscreen. This new system enables the molded windscreen to be installed without drilling holes through the plastic.

56-10-02 REMOVAL AND INSTALLATION OF SKYLIGHT

Remove screws from upper retaining strip, drill out rivets from butt ribs and trailing edge of skylight. Remove skylight and use as a template on a piece of 3mm tinted lexan for shape and rivet layout. Rivet skylight in position using CHERRY 73 ASL 4-6 rivets with fibre washers. Trim excess from butt ribs with an angle grinder fitted with a sanding disc. Refit retaining strip.

56-10-03 REMOVAL AND INSTALLATION OF DOOR WINDOWS

Remove the door and door handles as described in chapter 52 of this manual. Drill the rivets along the door trim strips to allow removal of the lexan.

Lay the old window over the new and mark and drill the holes.

Refit the window to the door using CHERRY 73AS4-3 rivets.

Refit the door to the aircraft.

56-10-04 REMOVAL AND INSTALLATION OF QUARTER WINDOWS

Drill out all the rivets holding the lexan quarter window with a 3.3mm drill. Replace the lexan window and drill rivet holes into the new window using the window frame as a template.

Two different types of rivets are used.

Rivet the window into place with CHERRY 72AS4-2 rivets (Flush Rivets) along the top edge where the turtle deck overlaps the window frame and CHERRY 73AS4-2 rivets for all others.

56-10-05 REMOVAL AND INSTALLATION OF TURTLE DECK WINDOWS

Drill out all the rivets holding the lexan windows with a 3.3mm drill. Remove the lexan window and drill rivet holes into the new window using the old window as a template. Rivet the window into place with CHERRY 73AS4-2 rivets.

NOTE: All holes drilled in lexan for riveting purposes, must be enlarged to at least 1 1/2 times the diameter of the rivet to allow for thermal expansion.

CHAPTER 57

WINGS

CHAPTER 57 WINGS

TABLE OF CONTENTS/EFFECTIVITY

57-10-00 MAIN FRAME

Each wing contains two spars of tubular extrusion with internal vertical web. The front spar forms the leading edge of the wing and is attached to the fuselage head rack at the root end by a clevis pin. The rear spar is stationed approximately 60% of the chord and is attached to the fuselage at the root end by a 5/16" bolt and also acts as a pivot when the wings are folded. Wing strut attachment brackets of 4130 steel are riveted and glued to both spars.

The wing ribs are constructed from, aircraft grade plywood and have a plywood cap strip stapled and glued to the top and bottom of the rib. Each wing has five ribs which have aileron hinge mounts extending from the trailing edge. The other five ribs in each wing have lightening holes and do not extend past the trailing edge. The wing ribs are attached to the front spar using a hand formed aluminium angle (Shear Clips) which is riveted and bonded to both spar and rib. The wing ribs are bonded to the rear spar, however a sheer clip is used on the root rib only. The trailing edge is aluminium angle section and is bonded to each rib.

Four aluminium diagonal braces are riveted and bonded to both front and rear spars and form a "zigzag" between both spars. Where a diagonal brace passes through a rib, the two parts are bonded together. The first and second diagonal braces are attached via a steel doubler plate to the spar.

The left wing contains an aluminium pitot tube and a stall warning tube which is extended through to the fuselage via two separate plastic tubes. Both wings are. fitted with fibreglass 26 litre fuel tanks which are located between the first and second rib at the wing root.

57-10-01 REMOVAL AND INSTALLATION OF WINGS

Drain all fuel from the aircraft as per chapter 28 and disconnect the fuel feed and vent lines from the wing to be removed. Disconnect the pitot and stall warning pressure tubes at the headrack. Disconnect strobe light cables (if fitted) at the wing entry point cut any nylon ties which locate the cables and tubes. Place the aircraft in a level attitude and place supports under the wing tips. Remove the turtle deck and disconnect the ailerons. Remove the bottom wing strut attachment bolt, front spar wing pin, and then the rear spar bolt allowing the wing and strut assembly to be removed.

NOTE: - THE WING AND FUSELAGE MAY BECOME UNSTABLE DURING THIS PROCEDURE SO ASSISTANCE IS RECOMMENDED. USE ONE OTHER PERSON TO HOLD THE OTHER WING TIP TO SUPPORT THE AIRCRAFT.

(Cont..)

Place the wing on the ground in a vertical position with the leading edge down. Remove the two jury strut attachment bolts and the two wing strut attachment bolts form the wing and remove the wing strut assembly.

When installing the wings, fit the main strut to each wing. 2×6.5mm bushes on the leading edge and one 6.5mm bush and one black bush at rear spar. Fit wings to fuselage with 1/4" pins or screwdrivers to locate everything temporarily, ensuring that the wing tip is well supported. Fit strut bolts then rear spar bolt then front spar pins. Fit jury struts and pitot plumbing. Connect ailerons. Fold wings back checking for possible interference to fuel lines. Connect fuel lines and strobe wiring. Place the plug for strobe wire inside black foam tube (handitube). Connect the ailerons as described in this chapter. Check that ailerons work freely and correct travel. Refer chapter 27. Carry out a dual inspection on all safety and split pins. Fuel up tanks and check for leak at wing connection. Carry out pitot leak check and check calibration of stall warning system. Refer chapter 27.

57-10-02 REPAIR OF WING STRUT ATTACHMENT

If excessive wear is detected in the bottom wing strut attachment fitting, a repair may be carried out as follows. Support the wing tip while the bottom wing strut attachment bolt is removed. Drill and ream the fuselage wing strut attachment point and the bottom wing strut attachment to 1/2" and fit replacement bush, part no WI-10 into hole. Refit the bottom wing strut attachment bolt. Refer fig 5701.

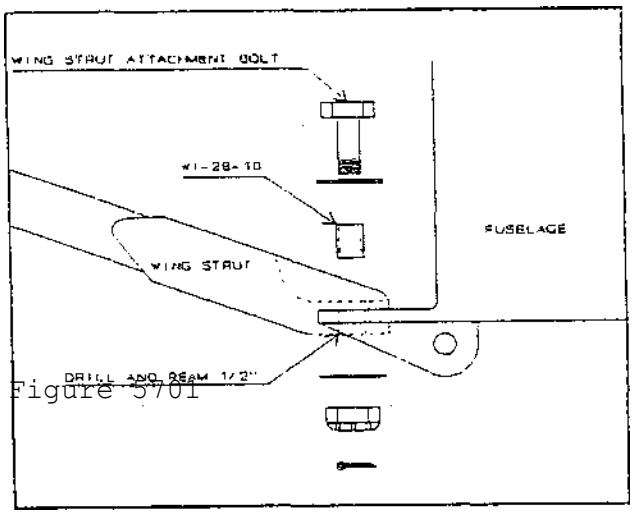


Figure 5701

57-10-03 REMOVAL AND INSTALLATION OF WING TIPS

Drill out rivets, using 1/8" drill bit. Drive out rivet tails if necessary and then remove wing tip.

Re-install using 1/8" rivets.

NOTE: If rivet holes become enlarged through miss-use, then use larger size rivet.

57-10-04 REMOVAL AND INSTALLATION OF AILERONS

Remove the turtle deck and disconnect the aileron control horns from the vertical aileron push/pull rods as shown in figure 5702 Remove the two hinge retaining bolts from each of the five hinges leaving the center hinge until last, then remove the aileron from the aircraft.

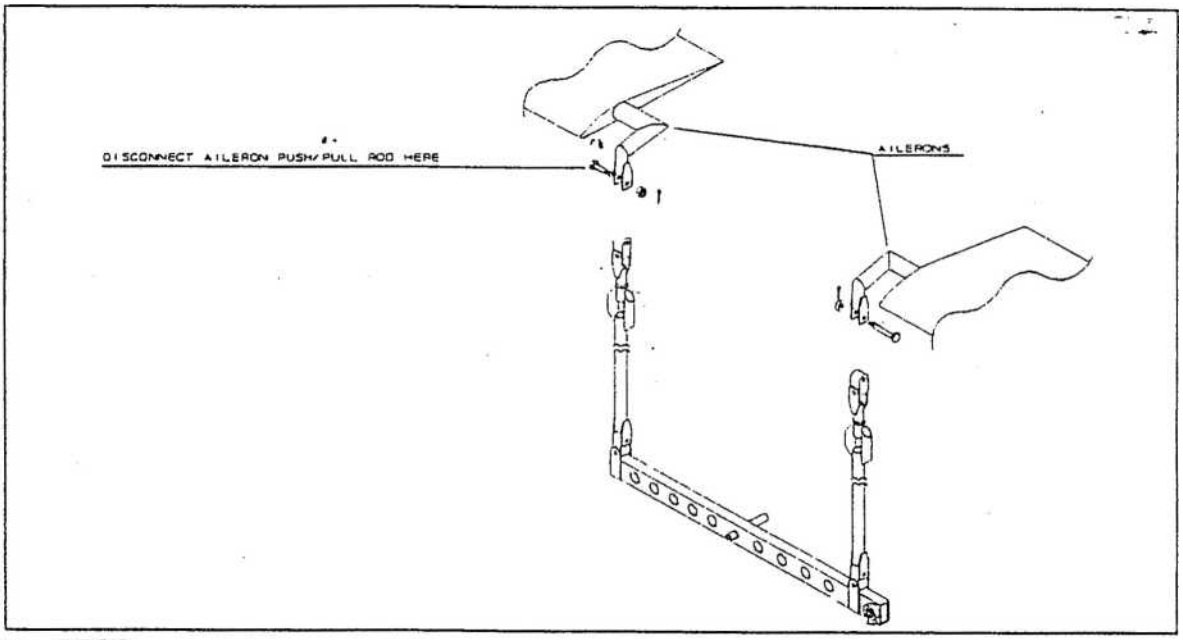


Figure 5702

The installation procedures are the reverse of the removal procedures. Check rigging of ailerons and use new split pins or bolts subject to rotation.

57-10-05 AILERON BALANCING

The static balance of the ailerons is vitally important as unbalanced ailerons may cause control surface flutter which may have catastrophic results. The ailerons should be balanced each time a repair or modification is carried out, or when paint is added or removed.

57-10-06 BALANCING PROCEDURE

With the ailerons removed from the aircraft, place a straight edge under the second and fourth hinge points so that the aileron may pivot on the hinges. The bottom surface of the ailerons should be level, (± 2°). If not, hollow out either end of the aileron profile and insert lead shot (or small pieces of lead) until balance is achieved.
The total weight of the lead being applied should not exceed 200 grams, (7 ounces).

CHAPTER 61

PROPELLER

CHAPTER 61 PROPELLER

TABLE OF CONTENTS/EFFECTIVITY

61-00-00 GENERAL

The propeller fitted, by Skyfox Aviation is a fixed pitch wooden propeller. Reference should be made to the propeller manufacturers instruction manual when removing, installing or repairing the propeller. Also refer AD107/PFP/1 (Wooden Propellers – Inspection).

61-00-01 REMOVAL OF PROPELLER

Remove the ten screws which hold the spinner cone to the back plate. Take note of which way the spinner was removed so that it will can be installed in the same position. Cut the safety wires from the propeller bolts and remove the bolts and propeller in accordance with the propeller owner instruction manual.

61-00-02 CLEANING, INSPECTION AND REPAIR

Refer to propeller owners instruction manual for cleaning, inspection and repair of the propeller. FAA publication AC43.13- 1A may be used as a reference for acceptable repair methods.

61-00-03 INSTALLATION OF PROPELLER

Install the propeller in accordance with the propeller owners instruction manual. Ensure that the propeller bolts are safety wired correctly. Replace the spinner in the same position that it was removed, (ie. not rotated 180°), and tighten the ten screws which hold the spinner in place. The Skyfox Aviation factory recommended torque for the propeller bolts is 60 inch pounds.

61-00-04 CHECKING AND ADJUSTING BLADE TRACKING

Place a straight edge from the left main landing gear strut and clamp it into position so that the end of the straight edge is near the tip of the propeller. (Approximately 3mm, 1/8" clearance). Turn the propeller by hand, to check that both blades pass the straight edge with the same clearance. (Max. 3mm difference).

If adjustment of tracking is required further torque appropriate bolts to maximum of 70 inch pounds.

CAUTION: Check that the Ignition Switches are OFF before turning the propeller.

CHAPTER 71

POWERPLANT

CHAPTER 71 POWERPLANT

TABLE OF CONTENTS/EFFECTIVITY

71-00-00 GENERAL DESCRIPTION

The Rotax 912A engine is manufactured in Austria and certificated to the Joint Aviation Requirements – 22H standard. A brief description of the engine is as follows:

4-stroke, 4-cylinder horizontally opposed, spark ignition engine, one central camshaft – pushrods – OHV.

Liquid cooled cylinder heads – ram air cooled cylinders.

Dry tank forced lubrication.

Dual breakerless, capacitor discharge ignition.

Prop drive via reduction gear with integrated shock absorber and overload protection.

Integrated AC generator.

Electric starter.

Mechanical fuel pump.

71-00-01 TROUBLE SHOOTING

For trouble shooting of the engine and its accessories, refer to the engine manufacturers operators manual. See list of vendor publications in this manual.

71-00-02 REMOVAL OF ENGINE

(1) Remove the engine cowls, (refer this chapter), and propeller, (refer chapter 61).

(2) Disconnect battery – negative terminal and turn off fuel at fuel cock.

(3) Disconnect the muffler supporting strap from muffler. Disconnect retaining springs, (exhaust pipes to mufflers) and remove muffler. Remove both rear exhaust pipes from the engine.

(4) Drain coolant, (refer chapter 12), and disconnect the lower radiator hose at the water pump.

(5) Disconnect the top radiator hose and coolant overflow hose from expansion tank.

(6) Disconnect fuel line from gascolator at the engine driven fuel pump.

(7) Disconnect sensor wires from sensors. (Oil temperature sensor, oil pressure sensor, oil pressure switch, fuel pressure switch, cylinder head temperature sensor).

(8) Disconnect ignition switch wires from ignition coils if the coils are to be removed.

- CAUTION -

THE IGNITION IS NOW LIVE. IT IS RECOMMENDED TO DISCONNECT THE COILS BY USING THE QUICK RELEASE CONNECTORS IN THE LEAD TO THE ENGINE.

(9) Disconnect the plugs to the ignition coils at the firewall.

(10) Disconnect generator wires at the voltage rectifier /regulator. These are marked with the symbol "G" on the voltage rectifier/regulator.

(11) Disconnect the tachometer sensor wires from the engine. The connector is located on the right hand side of the engine near the coolant radiator. Remove any nylon ties which hold the wires to the engine mount.

(12) Carburettors are best removed from the engine at the manifold and left attached to the aircraft with the throttle and starting carburettor cables still intact.

(13) Disconnect the carburettor air induction hoses at the airfilter box. The tubes can remain attached to the engine mount.

(14) Disconnect the cabin heat scat hose from the heat exchanger on the right, front exhaust.

(15) Disconnect the carburettor heat control cable from the air filter box and remove the cable clamp to free the control cable.

(16) Disconnect the power cable from the starter motor. Disconnect the earth lead from number three cylinder head.

(17) Disconnect the oil line from the oil pump at the front of the engine, and the oil return line at the banjo fitting on the bottom of the crankcase.

(18) Support the engine with a suitable crane or jack at the propeller flange and the engine mount cross tube located above the flywheel. Remove the four mounting bolts at the rubber dynafocal mounts and slowly move the engine forward, check that all hoses, wires and cables are clear and free. The ignition coils must be removed with the engine.

71-00-03 INSTALLATION OF ENGINE

The removal procedures may be followed in reverse paying particular attention to the following:

(1) Check the condition of the rubber inserts in the dynafocal mounts and replace if necessary.

(2) Pre-fill the oil lines and oil cooler with engine oil before connecting to engine.

(3) Ensure that the carburettor air induction hoses air well sealed to the filter box.

(4) When refilling the coolant system, air locks may occur in the top radiator and cylinder head hoses. To remove the air locks, fill the coolant system as full as possible, then rock the aircraft from side to side. Check the coolant level in the expansion tank before fitting the pressure cap.

(5) Check the adjustment of the carburettor heat control. Refer chapter 76.

(6) All bolts requiring steel lock nuts should be fitted with new nuts.

(7) Check the adjustment of the throttle and starting carburettor controls. Refer chapter 76.

(8) Check for correct safety wiring of engine mounting bolts and coolant system drain.

(9) Ground run the engine and check for leaks in the oil system, coolant system, exhaust system, and fuel system and check for normal operating parameters of engine.

71-10-00 ENGINE COWLS

The engine cowls are two piece and of fibreglass construction with a fire retardant additive added to the resin. The bottom cowl is attached to the fuselage by four screws on each side. The top cowl is then fitted to the bottom cowl with five camloc fasteners on each side and then attached to the fuselage by two camloc fasteners on each side and one camloc fastener at the top and centre of the cowl.

71-10-01 REMOVAL OF ENGINE COWLS

Open both cabin doors and undo the five camloc fasteners along the cowl join each side of the cowls, and the two camloc fasteners on each side of the top cowl, then undo the camloc fastener at the top and centre of the cowl. The top cowl can now be removed. Undo the four screws on each side and remove the bottom cowl.

71-10-02 CLEANING AND INSPECTION

Use a solvent such as kerosene or fuel to clean any dirt, oil or coolant from inside the engine cowls. Rinse with fresh water and dry off with a clean dry cloth. Inspect the cowls for cracks, deformity or heat degradation and repair as necessary. Refer FAA publication AC 43.13-1A. Check the condition of the rubber seal which contacts the windscreen and replace as necessary.

71-10-03 INSTALLATION OF ENGINE COWLS

The removal procedures may be followed in reverse ensuring that after installation, the engine cowl clears all engine components such as exhaust system and airfilter box.

CHAPTER 73

ENGINE FUEL SYSTEM

CHAPTER 73 ENGINE FUEL SYSTEM

TABLE OF CONTENTS/EFFECTIVITY

73-00-00 GENERAL

This chapter describes removal, installation and servicing procedures for those components not covered by the data in the engine manufacturers operations and maintenance manuals. Refer to list of vendor publications in this manual.

73-10-00 DISTRIBUTION

73-10-01 REMOVAL AND INSTALLATION OF FUEL LINES

The fuel line from the gascolator to. the engine driven fuel pump has a swivel fitting on the gascolator end. Turn the fuel cock OFF and undo the swivel fitting. The end attached to the engine driven fuel pump is a "push on" fitting. Loosen the hose clamp and remove the fuel line.

The fuel line from the engine driven fuel pump to the carburetors has a "T" piece fitted where the single fuel line is divided into two, and also another "T" piece provides a mount for the fuel pressure switch. The fuel lines between the "T" piece and the carburetors are covered with fire sleeve. The fitting to the engine driven fuel pump is a "push on" fitting as are the two fuel lines attached to the carburetors. Disconnect the two wire cables from the fuel pressure switch. Loosen the hose clamp on the fuel pump; and pull the fuel line free, then loosen the hose clamps at the carburetors and pull free.

When installing the fuel lines, pay particular attention when pushing the fuel line onto the "push on" fittings so that the fuel line is not damaged and foreign particles do not enter the fuel line. Turn ON the fuel cock.

73-10-02 FUEL FLOW CHECKS

Drain both main fuel tanks (fuel remains in the collector tank). Remove both carburetor bowls, and place under them a calibrated measuring container of approximately 500ml capacity. Turn the fuel cock OFF, then turn the master and electric fuel pump switches ON. Using a wristwatch or other time piece with second indications, turn the fuel cock ON for 30 seconds. Turn the master and electric fuel pump switches OFF, then measure the quantity of fuel in the containers. Multiply the quantity of fuel by two. The minimum quantity of fuel over a thirty second period must not be less than 250ml (total of both bowls), i.e. fuel flow 30 It/hour. Expect 300 ml in test.
If the minimum is not met, check all fuel filters, fuel cock and lines for blockages. Replace the fuel line onto the carburetor.

CHAPTER 74

IGNITION

CHAPTER 74 IGNITION

TABLE OF CONTENTS/EFFECTIVITY

74-00-00 GENERAL

This chapter describes removal, installation and servicing procedures for those components not covered by the data in the engine manufacturers operations and maintenance manuals. Refer to list of vendor publications in this manual.

74-30-00 SWITCHING

The dual ignition circuits are controlled by two toggle switches fitted at the lower left section of the instrument panel. These switches, when in the OFF position, ground the ignition circuit to earth and disable that ignition system. Removal and installation of those switches is described in chapter 39 of this manual.

CHAPTER 76

ENGINE CONTROLS

CHAPTER 76 ENGINE CONTROLS

TABLE OF CONTENTS/EFFECTIVITY

76-00-00 GENERAL

For information regarding the adjustment of the engine controls, refer to the engine manufacturers operations and maintenance manual. Refer to the list of vendor publications in this manual. The engine controls are described below.

76-00-01 DESCRIPTION

The engine throttle is controlled by a push pull control located at the bottom and centre of the instrument panel. This single control divides into two pushrod cables via a splitter box behind the instrument panel before routing to each of the two carburetors on the engine.

The choke control, (starting carburetor), is located on the left of the instrument panel next to the RIGHT CDI switch. This single control divides into two Bowden cables behind the instrument panel before routing to each of the two carburetors on the engine.

The carburetor heat control is located above the throttle control on the instrument panel. This control is a pushrod cable which routes to the carburetor heat selector box located under the engine. When carburetor heat is selected, fresh air is heated by the engine exhaust before being drawn into the engine.

76-10-00 SERVICING

All engine controls are "Bowden Cables" and must have free movement at all times. If the movement is restricted, the inner cable can be removed from the outer cable and lubricated with "Anti-Seize".

If the Throttle Friction nut cannot be adjusted to achieve the appropriate friction for the pilot, then it must be replaced.

Diagrams are provided in Chapter 91.

CHAPTER 7 7

ENGINE INDICATING

CHAPTER 77 ENGINE INDICATING

TABLE OF CONTENTS/EFFECTIVITY

77-00-00 GENERAL

All engine instruments in the CA25N are sealed and cannot be serviced. If incorrect readings are evident and it is found to be instrument error, then the instrument must be replaced.

77-00-01 REPLACEMENT OF ENGINE INSTRUMENTS

Remove the top engine cowl. Disconnect wire cables from the back of the instrument and arrange in such a way so as to facilitate installation. Undo the two retaining nuts from the back of the instrument and remove the retaining clamp. Pull the instrument out of the instrument panel from the cockpit side.

When installing a replacement instrument, ensure that the instrument face operating range markings are correct. Place the instrument in the panel and rotate the instrument until it is level. Replace the retaining clamp and nuts and reconnect the wire cables. Carry out a functional check of the instruments.

77-00-02 TROUBLE SHOOTING

Troubles peculiar to the engine indicating system are listed in chart 7701 along with their probable causes and suggested remedies.

CHART 7701 TROUBLE SHOOTING (ENGINE INDICATING)

TROUBLE	PROBABLE CAUSE	REMEDY
POINTER DOES NOT MOVE	Instrument fuse blown, low system voltage, sensor disconnected, faulty instrument, faulty engine.	Check fuse, system voltage at instrument, replace sensor, instrument, repair engine.
INACCURATE READINGS	Incorrect system voltage, faulty sensor, faulty instrument, out of calibration, engine faulty.	Check system voltage at instrument, replace sensor or instrument, repair engine.
POINTER FLUCTUATES RAPIDLY	Faulty voltage rect/regulator, loose connection faulty sensor or instrument.	Replace rect/regulator, check connections, replace sensor or instrument.
INSTRUMENT INDICATE EXTREME READINGS	Faulty rect/regulator, sensor disconnected, faulty sensor, instrument or engine.	Replace rect/regulator, check sensor connection, replace sensor or instrument, repair engine.

77-10-00 POWER

77-10-01 TACHOMETER

The tachometer is an electric instrument which reads the frequency of pulses from a dedicated sensor mounted near the flywheel of the engine. The frequency of these pulses is converted into RPM arid displayed to the pilot via a pointer over a circular face which*.is marked with yellow and green arcs and a radial red line as well as numerical figures indicating the safe operating range. The tachometer has DIP switches on the back of the instrument which must be switched as follows:

1. CLOSED — DOWN
2. OPEN — UP
3. OPEN — UP
4. OPEN -- UP
5. OPEN — UP

77-20-00 TEMPERATURE

77-20-01 OIL TEMPERATURE

The oil temperature is indicated via an electric instrument and sensor. The sensor changes resistance with changes in temperature which causes the instrument pointer to move. The instrument face is marked in degrees Celsius and has yellow, green and red arcs indicating the safe operating range.

77-20-02 CYLINDER HEAD TEMPERATURE

The method used for indicating the cylinder head temperature is identical to that of the oil temperature. The CHT probe is located in Cylinder No 3 head (underneath).

77-40-00 PRESSURE

77-40-01 OIL PRESSURE

The oil pressure indicating system operates in the same manner as the oil temperature and cylinder head temperature except that the sensor changes resistance with variation in pressure.

77-50-00 INSTRUMENT FACE MARKINGS

TACHOMETER			RPM
0	-	1600	No Colour
1600	-	5500	Green Band
5500	-	5800	Yellow Band
5800			Red Radial

OIL PRESSURE			kPa
0	-	125	
125	-	500	Red Band Green Band
500	-	1000	Red Band

OIL TEMPERATURE °C			
50	-	140	Green Band Red Band
140	-	150	

C.H.T.			°C
50	-	150	Green Band
150			Red Radial

VOLTMETER			Volts
10	-	12	
12	-	14	Red Band Green Band
14	-	16	Red Band

CHAPTER 79

OIL SYSTEM

TABLE OF CONTENTS/EFFECTIVITY

79-00-00 GENERAL

79-00-01 DESCRIPTION

The oil is drawn from the oil tank, through the oil cooler to the oil pump where it is forced through a full flow oil filter and then to the engine components. The engine has a dry sump, forced lubrication oil system which consists of an oil tank, which has oil returned to it, using crankcase pressure. While the engine is not operating, the oil is stored in the tank which is fitted with a drain plug.

79-00-02 OIL FILTER REPLACEMENT

Remove both engine cowls. Loosen the oil filter clamp, (hose clamp), while leaving the lock wire intact, then remove the oil filter from the engine. Before installing the replacement filter, cut the oil filter apart and examine for foreign particle and metal filings. If found, the source of the particles should be investigated further before allowing the engine back into service. When installing the new filter, tighten the filter to the engine and then rotate the oil filter clamp in an anti-clockwise direction and tighten the clamp. The oil filter should now be prevented from unscrewing.

79-00-03 OIL COOLER REMOVAL

Remove both engine cowls. Refer chapter 71. Disconnect both oil lines from the cooler by removing the centre bolts from the "banjo" fittings on the oil cooler. Undo the two 20mm securing nuts from the oil cooler and remove the cooler from the engine mount brackets.

79-00-04 OIL COOLER INSTALLATION

The removal procedures may be followed in reverse paying particular attention to the following:

(1) Renew the copper gaskets on the "banjo" fittings.
(2) Maximum torque to be applied to the 20mm securing nuts is 30 inch/pounds, (3.4Nm).
(3) Fill oil lines and cooler with engine oil before reconnection.
(4) Ground run engine and check for correct oil pressure and oil leaks.

79-00-05 DRAINING OIL TANK

To drain the oil tank, provide a suitable container with a minimum capacity of that required to fill the tank, (at least 2.5Lt) Remove the engine cowls and centre console then remove the oil tank box base plate. Open the oil drain valve or drain plug located at the base of the oil tank on the inside of the tank box. It is recommended that the engine be warmed to operating temperatures to ensure complete draining of the old oil.

NOTE: On aircraft fitted with oil "Quick Drain", this procedure is simplified. Locate quick drain plug, located on lower surface of aircraft, behind firewall. Remove lockwire. Use TWO spanners, one to hold the mounting nut and the other to undo the oil plug. Drain contents into a suitable container, then re-fit oil plug. Relock wire plug.

79-00-06 OIL SCREENS

The oil screen is located in the base of the oil tank and can only be serviced by removing the oil tank from the oil box. Once the oil tank has been removed from the oil box, the tank is disassembled, and the oil strainer removed. Cleaning of the oil strainer should be carried out at engine overhaul. When cleaning the strainer, take notice of any foreign particles or metal filings which may indicate damage occurring in the engine. After reassembling the oil tank, pressurize to 14Kpa, (2psi), and check for leaks around the lid seal. Reinstall the oil tank into the oil box and attach to firewall then reconnect all hoses.

NOTE: The Rotax Parts Manual refers to the screen as a baffle.

79-00-07 OIL TANK REMOVAL

Remove both engine cowls. Refer chapter 71. Drain oil from oil tank. Remove lid from oil box. Disconnect oil lines. Disconnect quick drain system if fitted. Remove nylon retaining blocks from inside oil box. Disconnect oil tank housing clamp from oil box. Remove oil tank from box.

79-00-08 OIL TANK INSTALLATION

The removal procedures may be followed in reverse playing particular attention to the following:

(1) Fill oil lines and cooler with engine oil before reconnection.
(2) Ground run engine and check for correct oil pressure and oil leaks.

CHAPTER 80

STARTING

CHAPTER 80 STARTING

TABLE OF CONTENTS/EFFECTIVITY

80-00-00 GENERAL

80-00-01 DESCRIPTION AND OPERATION

The engine is fitted with an electric starter which is operated by a push button switch located under the master switch on -the instrument panel. This switch activates a solenoid located on the firewall (cockpit side) which connects the starting battery directly to the starter via a heavy-duty electric cable. The starter can only be activated when the master switch is ON.

80-00-02 TROUBLE SHOOTING

Troubles peculiar to the starting system are listed in chart 8001 along with their probable causes and suggested remedies.

CHART 8001 TROUBLE SHOOTING (STARTING SYSTEM)

TROUBLE	CAUSE	REMEDY
NOTHING HAPPENS WHEN START BUTTON IS PUSHED	Flat battery, loose connection, master switch not ON, faulty starter switch, solenoid or starter.	Turn master ON, check battery charge, loose connections, replace starter, solenoid or switch.
A CLICKING SOUND IS HEARD BUT ENGINE DOES NOT CRANK	Flat battery, loose connection, faulty solenoid or starter.	Check for loose connections, battery charge, replace solenoid or starter.
ENGINE CRANKS SLOWLY	Flat battery, loose connection, faulty starter.	Check battery charge, loose connections, replace starter.
ENGINE CRANKS NORMALLY BUT WON'T START	Ignition switches not ON, refer to engine operators manual.	Turn ignition ON, refer to engine operators manual for trouble shooting.

Check the Rotax Operator's Manual for further starting problems.

CHAPTER 91

CHARTS AND WIRING DIAGRAMS

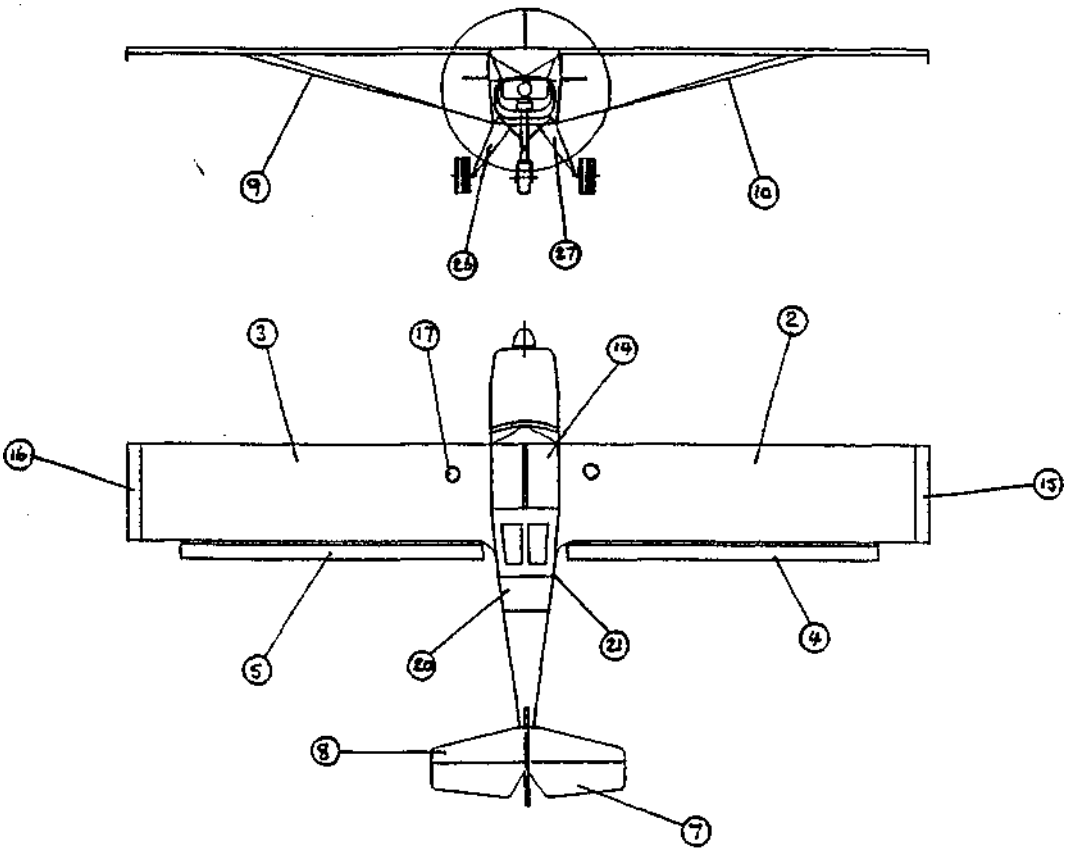
CHAPTER 91 CHARTS AND WIRING DIAGRAMS

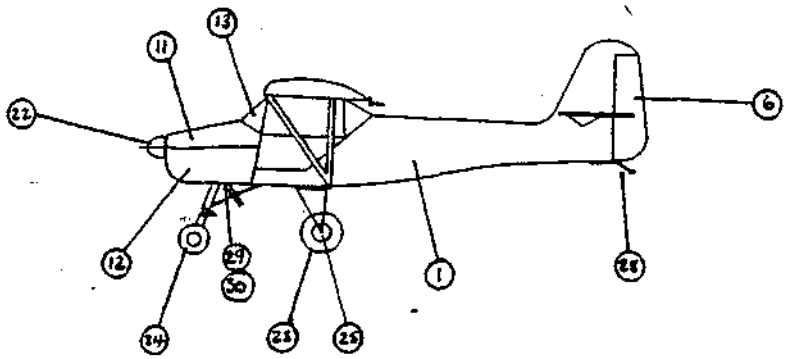
TABLE OF CONTENTS/EFFECTIVITY

TABLE OF CONTENTS/EFFECTIVITY (cont.)

SKYFOX CA-25N Gazelle

THREE VIEW DIAGRAMS

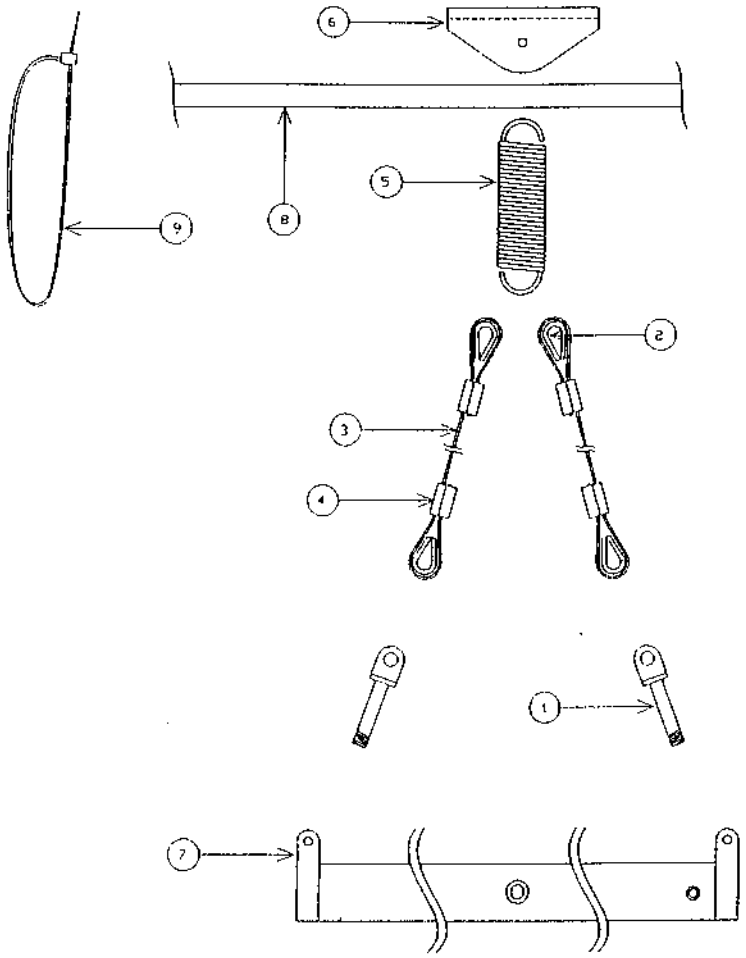




THREE VIEW DRAWING (MAIN PARTS LIST)

No.	DESCRIPTION	PART No.
1.	FUSELAGE	FU-1
2.	WING R/H	WI-l-R
3.	WING L/H	WI-l-L
4.	AILERON R/H	57-1-R
5.	AILERON L/H	57-1-L
6.	RUDDER	VLA-FRI
7.	ELEVATOR	TPI-E
8.	HORIZONTAL STABILISER	TPI-S
9.	WING LIFT STRUT R/H	WI-28-10-R
10.	WING LIFT STRUT L/H	WI-28-10-L
11.	UPPER ENGINE COWLING	CD-033-U
12.	LOWER ENGINE COWLING	CD-033-L
13.	WINDSCREEN	PT-CA22
14.	SKYLIGHT	SL-3
15.	WING TIP R/H	WING-T-R
16.	WING TIP L/H	WING-T-L
17.	FUEL CAP	91-034
18.	DOOR R/H	MISS-6-3-R
19.	DOOR L/H	MISS-6-3-L
20.	BAGGAGE COMPARTMENT DOOR	FBH-1
21.	TURTLE DECK COVER	FTD-1
22	SPINNER CONE	AEP-5-C
23.	TYRE MAIN	15 x 6.00 x 6
24.	TYRE NOSE	13 x 5.00 x 6
25.	WHEEL	AA60
26	ASSEM. U/C MAIN R/H	10813210-01-R
27	ASSEM. U/C MAIN L/H	10813210-01-L
28.	TAIL SKID	10813250-01
29.	MUFFLER R/H	MA-2
30.	MUFFLER L/H	MA-3

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



ITEM	PART No	DESCRIPTION	QTY
1	AN42B10	EYE BOLT	2
2	RF481	3/32" S/S THIMBLE	4
3	?	1/16" S/S MARINE CABLE, GRADE G304	2
4	2170	SWAGE	4
5	C-191	CENTURY SPRING	1
6	CD-029-2	SPRING MOUNTING PLATE	1
7	CS-22	AILERON BELLCRANK REAR	1
8	RH-2	TUBE, REFER DVG No FU-8	1
9	CT373x7.6	NYLON TIE	1

SUPPLIMENTAL DRAWING

REFER DVG No CS-1 FOR REMAINING CONTROL ASS'Y
APPLICABLE CA22010 ONWARDS

NOTE: THIMBLES TO BE FITTED TO SPRING AND EYEBOLTS BEFORE SWAGING CABLES.

TO LOCATE HOLE IN SPRING MOUNTING PLATE, ASSEMBLY MUST FIRST BE MOUNTED IN AIRFRAME, THEN SPRING PRE-TENSIONED TO 14KG +/- 1 AND THEN LOCATION OF HOLE MARKED AND DRILLED 5mm.

PLASTIC INSULATION TAPE TO BE APPLIED TO FUSELAGE TUBE RH-2 BEFORE FITTING SPRING MOUNTING PLATE

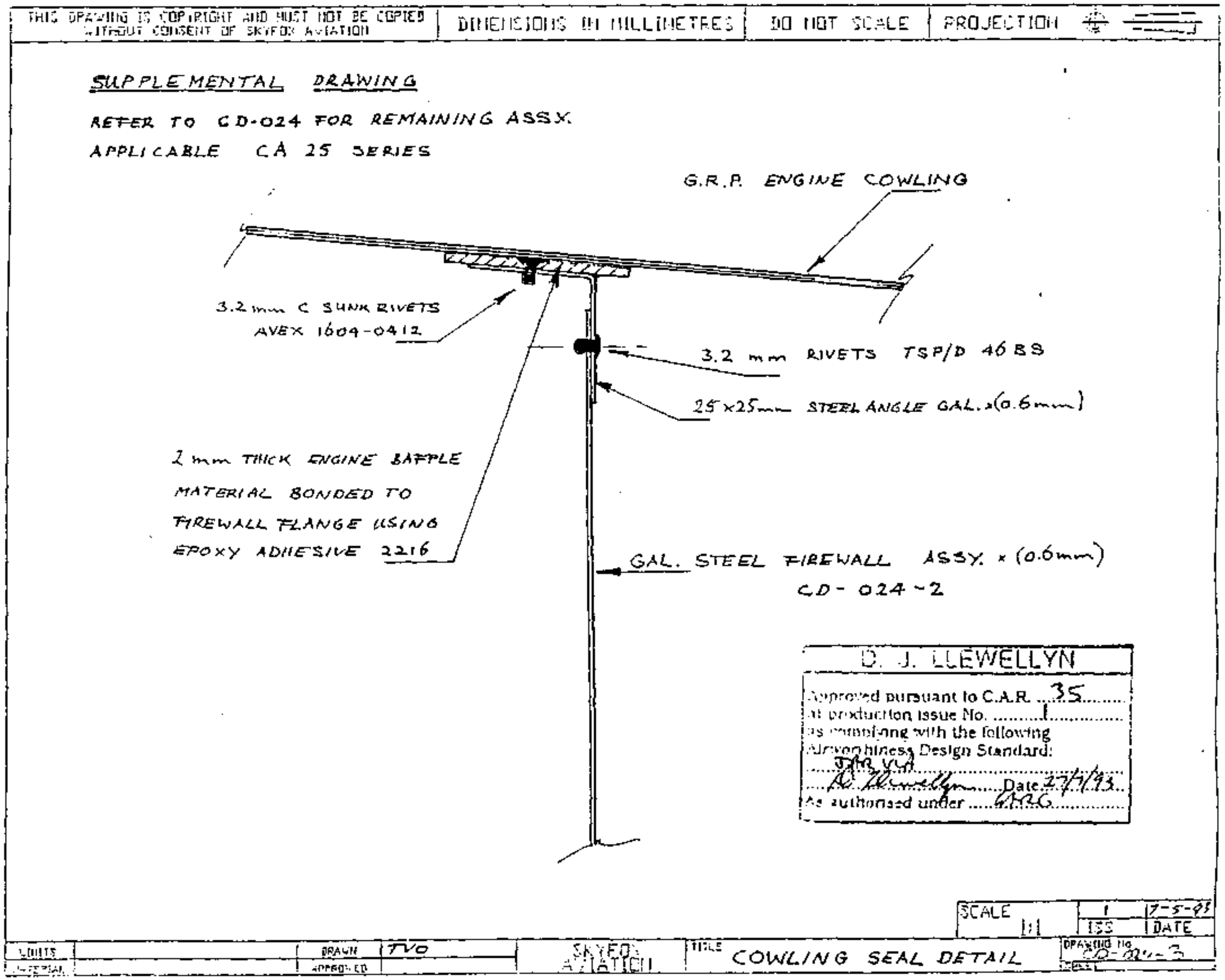
AN3-10 BOLT SHOWN ON DVG No CS-1 IS REPLACED WITH AN 42B10 EYEBOLT SHOWN ON THIS DRAWING.

CABLE LENGTH AFTER SWAGING IS 415 mm MEASURED BETWEEN THIMBLES AT I.D. UNSWAGED CABLE LENGTH IS 515 mm.

NYLON TIE IS LOOPED OVER FUSELAGE TUBE RH-2 AND THROUGH TOP THIMBLES OF BOTH CABLES. NYLON TIE MUST BE LEFT LOOSE ENOUGH TO ALLOW SPRING TO EXTEND FREELY.

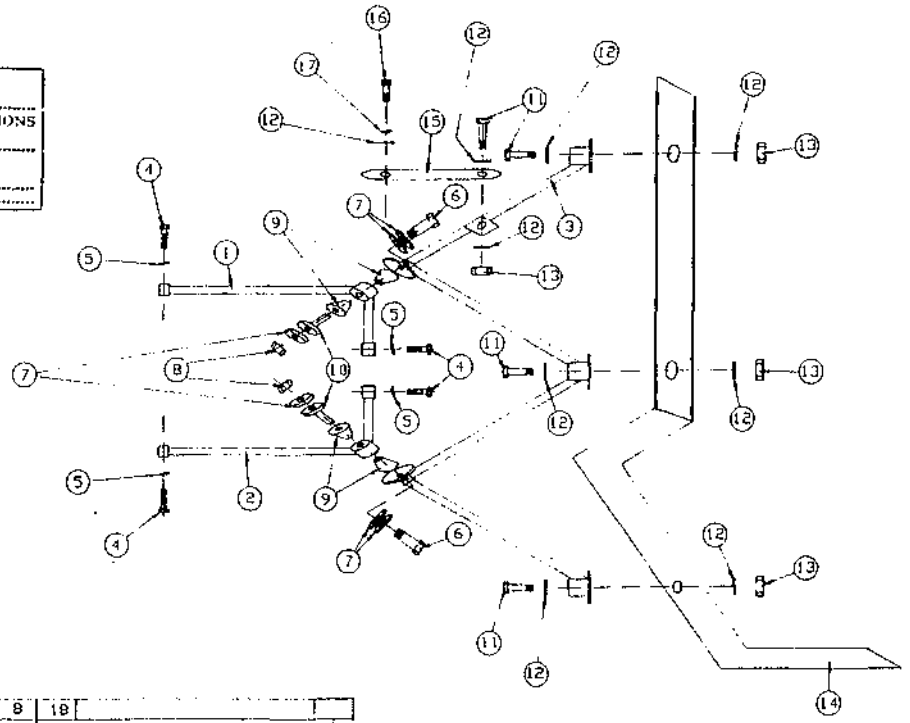
APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED .....
(ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE .....

SCALE 1:2						1 ISS	25/06/92 DATE
LIMITS	+/- 1	DRAWN	C DALBY	SKYFOX AVIATION	TITLE AILERON CENTRING DVC ASSY	DRAWING No CD-029-1	
MATERIAL	AS DETAILED	APPROVED				SHEET 1 OF 1	


THIS DRAWING IS COPYRIGHT AND MUST NOT BE COPIED WITHOUT CONSENT OF SKYFOX AVIATION
DIMENSIONS IN MILLIMETRES
DO NOT SCALE
PROJECTION
SUPPLEMENTAL DRAWING
REFER TO CD-024 FOR REMAINING ASSY.
APPLICABLE CA 25 SERIES
G.R.P. ENGINE COWLING
3.2 mm C SUNK RIVETS
AVEX 1604-0412
3.2 mm RIVETS TSP/D 46 BS
25×25mm STEEL ANGLE GAL. x(0.6mm)
2 mm THICK ENGINE BAFFLE
MATERIAL BONDED TO
FIREWALL FLANGE USING
EPOXY ADHESIVE 2216
GAL. STEEL FIREWALL ASSY. x (0.6mm)
CD - 024 - 2
D. J. LLEWELLYN
Approved pursuant to C.A.R. 35
at production issue No. 1
as complying with the following
Airworthiness Design Standard:
JAR VLA
Date 27/7/93
As authorised under
SCALE 1:1
ISS 1
DATE 17-5-93
DRAWN TVO
APPROVED
SKYFOX AVIATION
TITLE COWLING SEAL DETAIL
DRAWING No.

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

APPROVED PURSUANT TO
REGULATION 33
OF THE CIVIL AVIATION REGULATIONS
SIGNED ..... (ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE .....



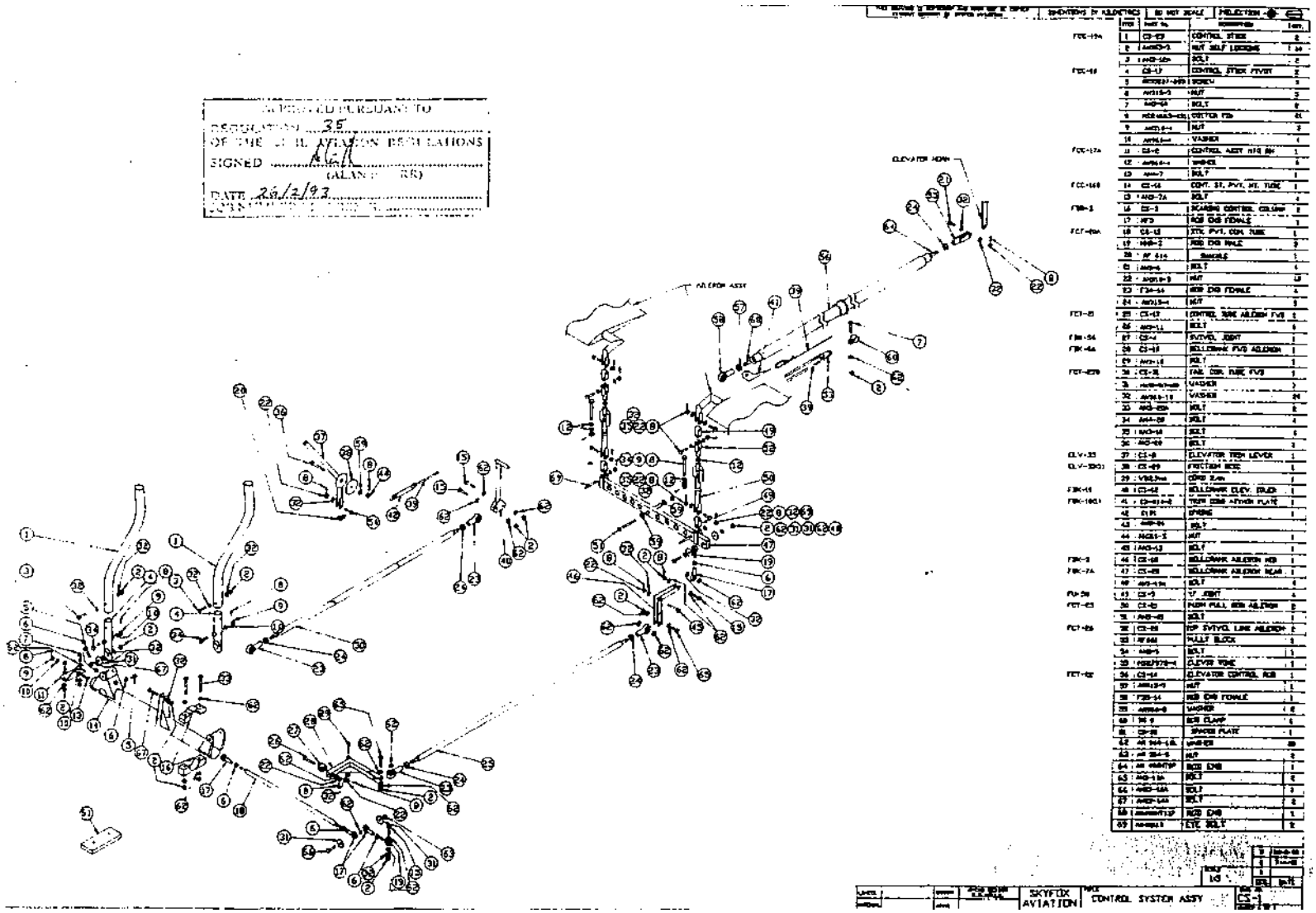
No	ITEM	QTY
9	71032 MOUNTING RUBBER	8
8	AN363-624 NUT	4
7	AN960-6 WASHER	12
6	AN6-40A BOLT	4
5	MS35333-42 LOCK WASHER	8
4	M10 x 40mm BOLT	7
3		1
2		1
1	DC-005-1 MOUNTING	1

No	ITEM	QTY
18		1
17	MS35333-40 LOCK WASHER	1
16	M6 x 16mm SET SCREW	1
15	EARTH STRAP	1
14	CD-024-2	1
13	AN365-428 NUT	6
12	AN960-416 WASHER	15
11	AN4-15A BOLT	6
10	CD-005-3 INNER MOUNT	4

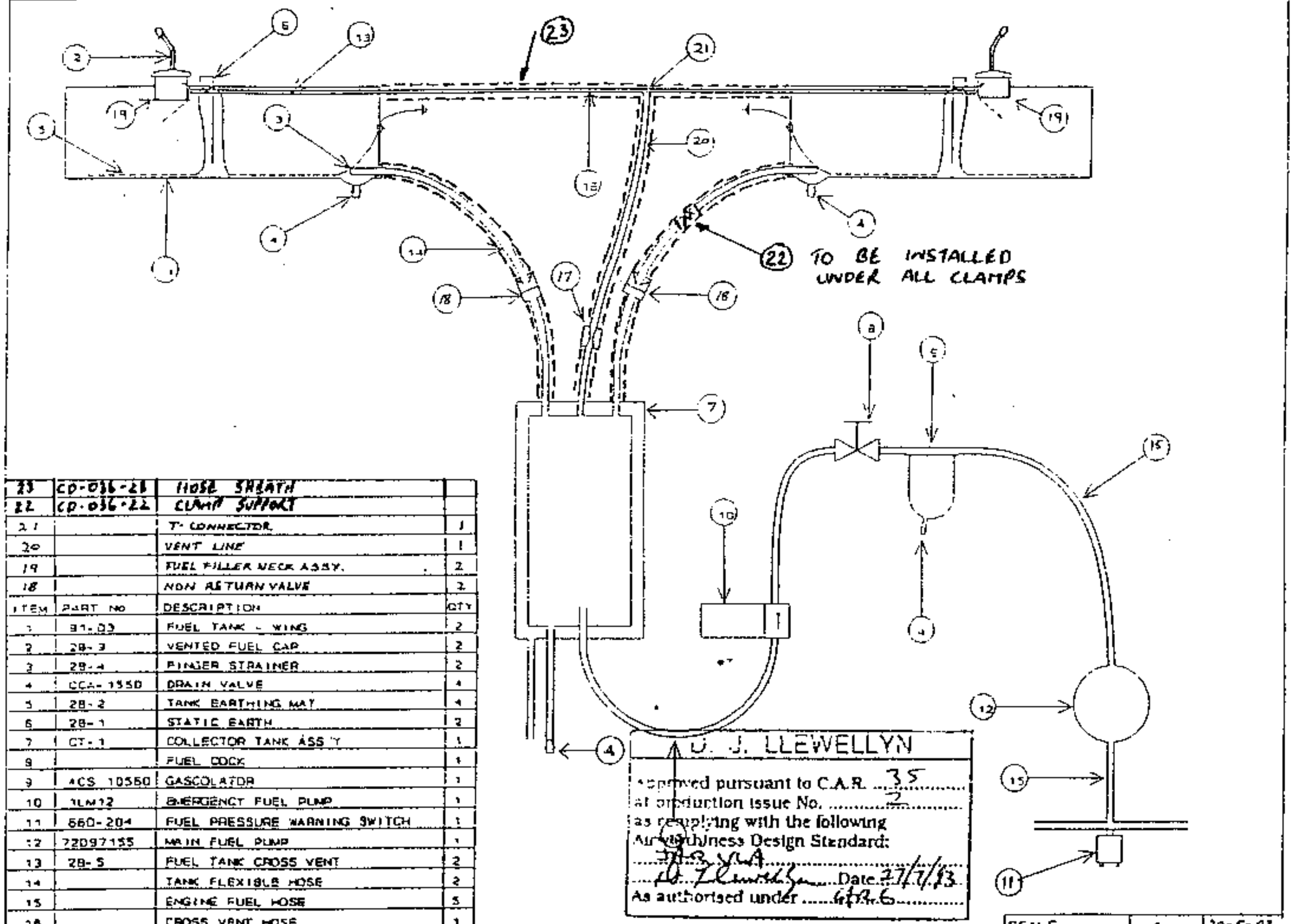
LIMITS +/-1.0 | DRAWN K-CAD DESIGN K.G.MILLS | SKYFOX AVIATION | TITLE ENGINE MOUNT ASSEMBLY

MATERIAL | APPROVED

SCALE 1:1 | ISS 1 | DATE 18:1:93 | DRAWING No CD-005 | SHEET 1 OF 1


APPROVED PURSUANT TO
REGULATION 35
OF THE U.K. CIVIL AVIATION REGULATIONS
SIGNED
(ALAN [illegible] RR)
DATE 26/2/93
AILERON ASSY
ELEVATOR HORN
SKYFOX AVIATION
CONTROL SYSTEM ASSY

THIS DRAWING IS COPYRIGHT AND MUST NOT BE COPIED WITHOUT CONSENT OF SKYFOX AVIATION	DIMENSIONS IN MILLIMETRES	DO NOT SCALE	PROJECTION

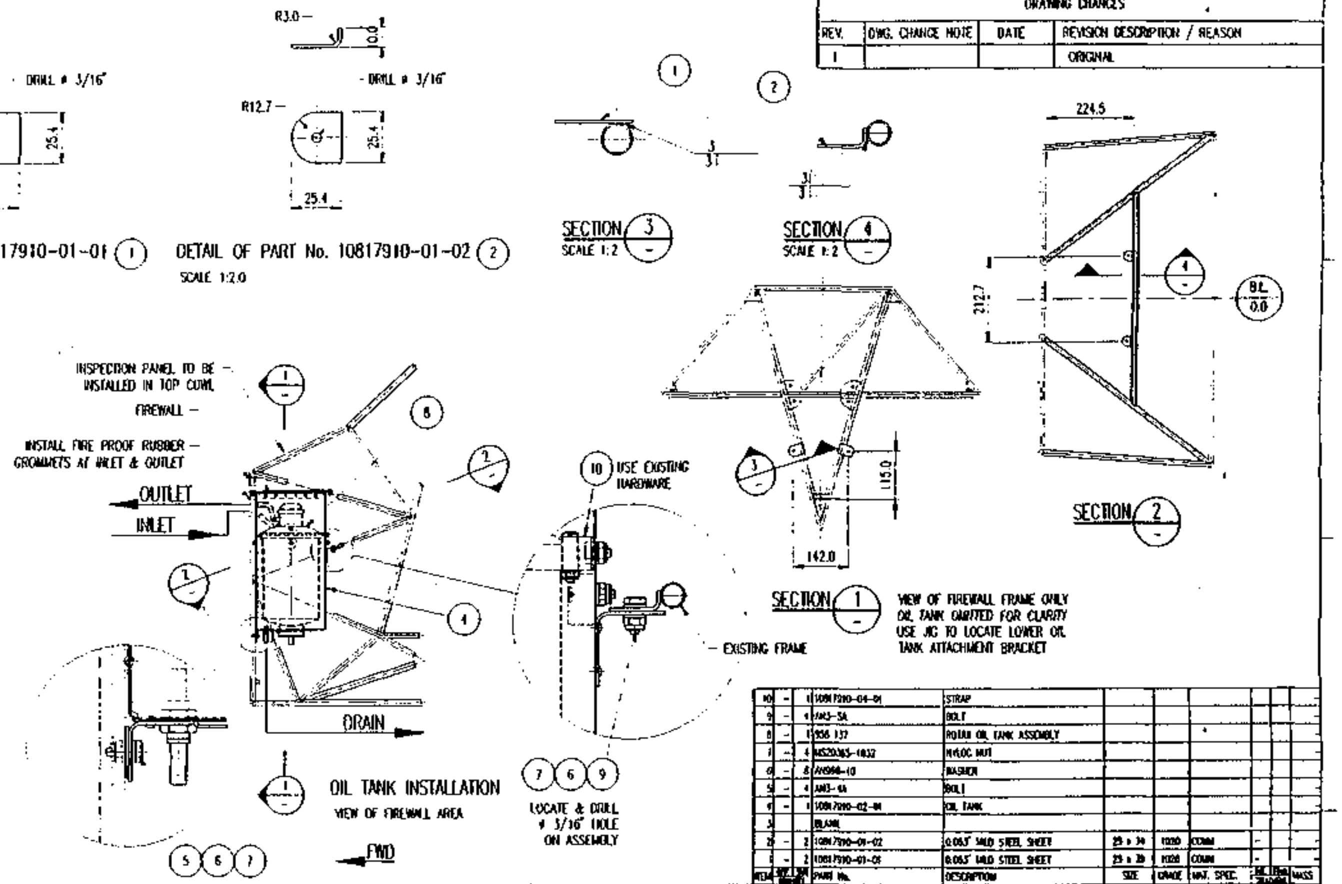


23	CD-036-23	HOSE SHEATH	
22	CD-036-22	CLAMP SUPPORT	
21		T-CONNECTOR	1
20		VENT LINE	1
19		FUEL FILLER NECK ASSY.	2
18		NON RETURN VALVE	2
ITEM	PART No	DESCRIPTION	QTY
1	31-03	FUEL TANK - WING	2
2	28-3	VENTED FUEL CAP	2
3	28-4	FINGER STRAINER	2
4	CCA-155D	DRAIN VALVE	4
5	28-2	TANK EARTHING MAT	4
6	28-1	STATIC EARTH	2
7	CT-1	COLLECTOR TANK ASS'Y	1
8		FUEL COCK	1
9	ACS 10560	GASCOLATOR	1
10	1LM12	EMERGENCY FUEL PUMP	1
11	660-204	FUEL PRESSURE WARNING SWITCH	1
12	72097155	MAIN FUEL PUMP	1
13	28-5	FUEL TANK CROSS VENT	2
14		TANK FLEXIBLE HOSE	2
15		ENGINE FUEL HOSE	5
16		CROSS VENT HOSE	1
17		RESTRICTOR	1

SCALE 1:6.4	ISS 1	DATE 20-5-93	
LIMITS	DRAWN	C DALST T.W.C.	
MATERIAL AS DETAILED	APPROVED		
SKYFOX AVIATION	TITLE FUEL SYSTEM SCHEMATIC	DRAWING No CD-C...	SHEET 1 OF 1

REV.	DWG. CHANGE NOTE	DATE	REVISION DESCRIPTION / REASON
1			ORIGINAL

DRAWING CHANGES



MANUFACTURING OPERATIONS	
Tolerence (Except where otherwise stated)	
Between	Tolerence
0-6mm (0-0.25")	±0.1 (0.0039")
6-30mm (0.25-1.25")	±0.2 (0.0078")
30-120mm (1.25-5")	±0.3 (0.0118")
OVER 120mm (5")	±0.5 (0.0196")
ANGULAR TOLERANCE (U.N.O.) ±0.5°	
BEND RADIUS	3 x THICKNESS
CORNERS AND FILLETS	R 0.125" (3mm)
MARK PART No IN REGION MARKED	☒
ALL DIMENSIONS TO BE MET AFTER PLATING. REMOVE ALL BURRS. BREAK ALL SHARP EDGES 0.4mm-0.8mm	
SURFACE ROUGHNESS INCLUDING REAMED HOLES	N6
SURFACE ROUGHNESS FOR DRILLED HOLES U.N.O.	N9
WELDING	
REFER SKYFOX WELDING PROCEDURES SA-1	
MATERIAL	

MATERIAL

TREATMENT
REFER ADA-P-100 CORROSION TREATMENT
SECTION 3 - EXT. STEEL SURFACES
SECTION 4 - INT. STEEL SURFACES
SECTION 5 - EXT. ALUMINIUM SURFACES
SECTION 6 - INT. ALUMINIUM SURFACES

ITEM	REF.	QTY	PART No.	DESCRIPTION	SIZE	GRADE	MAT. SPEC.			MASS
10	-	1	10817910-04-01	STRAP						
9	-	4	AN3-5A	BOLT						
8	-	1	956 137	ROTAX OIL TANK ASSEMBLY						
7	-	4	MS20365-1032	NYLOC NUT						
6	-	8	AN960-10	WASHER						
5	-	4	AN3-4A	BOLT						
4	-	1	10817910-02-01	OIL TANK						
3			BLANK							
2	-	2	10817910-01-02	0.063" MILD STEEL SHEET	25 x 34	1020	COMM	-		
1	-	2	10817910-01-01	0.063" MILD STEEL SHEET	25 x 39	1020	COMM	-		

DIMENSIONS IN INCHES U.N.O.

APPROVAL STAMP
APPROVED pursuant to a direction given by regulation ___ of The Civil Aviation Regulations.
For and on behalf of AERONAUTICAL DESIGNS AUSTRALIA PTY LTD.

AERONAUTICAL DESIGNS AUSTRALIA PTY. LTD.
UNIT 2 / 672 SHERWOOD Rd. SHERWOOD
Incorporated in Queensland.
PHONE (07) 379 1899
FAX (07) 379 1732
AS 1100

THIRD ANGLE PROJECTION

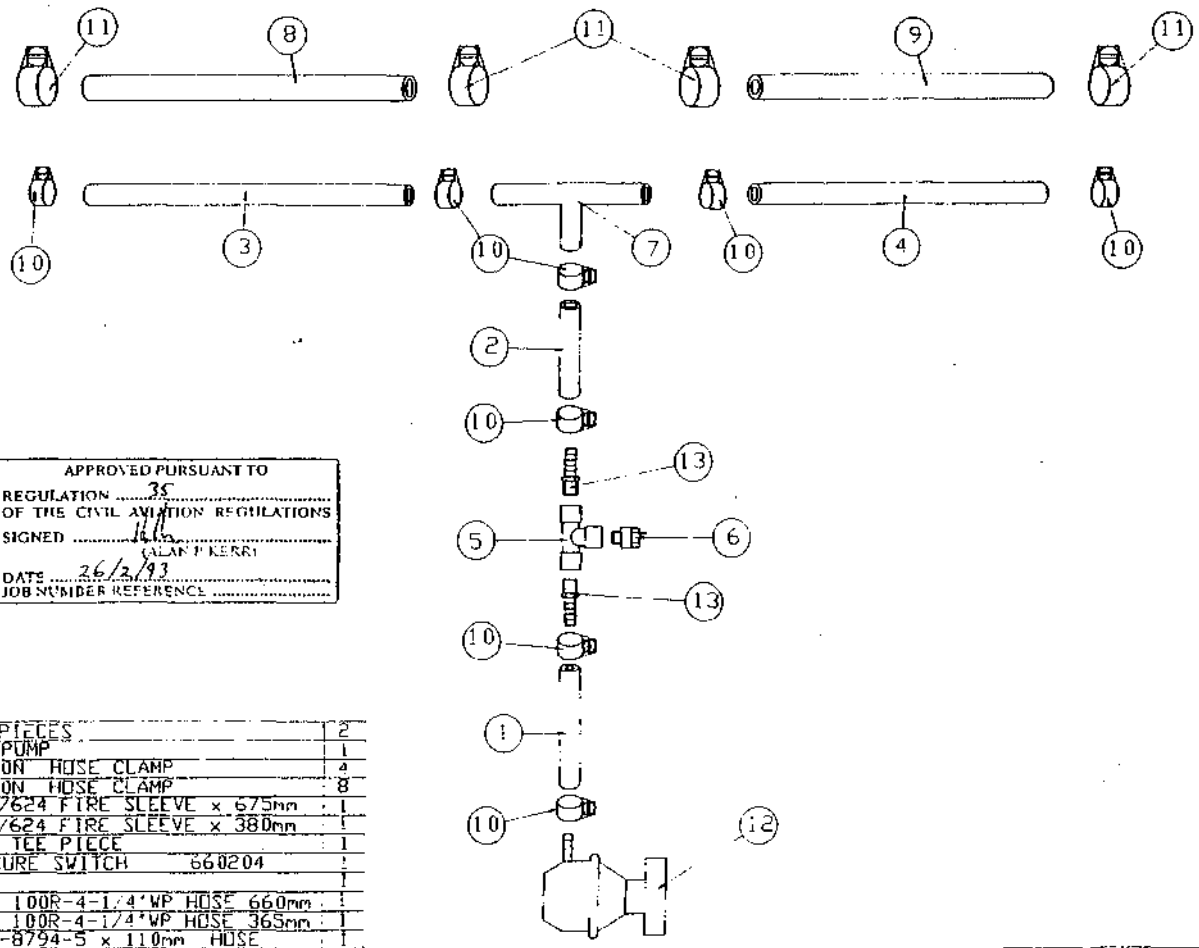
DRAWN	MATTHEW THOMSON
DATE	03-04-95
SCALE	1:10
CHECKED	
APPROVED	04-05-95

Client
SKYFOX AVIATION

Title
SKYFOX CA-25N GAZELLE
OIL TANK INSTALLATION
INSTALLATION DETAILS

Drawing Number: 10817910-01
Revision: 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



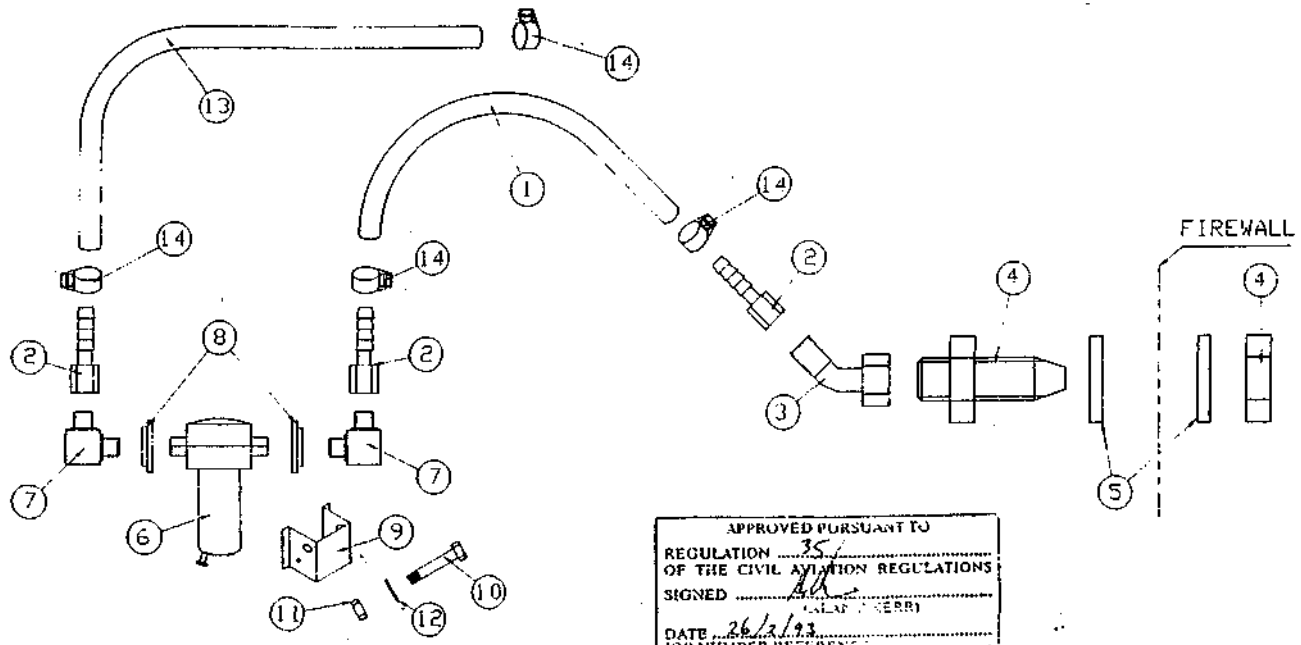
APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
ALAN P KERR
DATE 26/2/93
JOB NUMBER REFERENCE

No	ITEM	QTY
13	TAIL PIECES	2
12	FUEL PUMP	1
11	MS0300N HOSE CLAMP	4
10	MS0200N HOSE CLAMP	8
9	AET027624 FIRE SLEEVE x 675mm	1
8	AET02/624 FIRE SLEEVE x 380mm	1
7	TFP14 TEE PIECE	1
6	PRESSURE SWITCH 660204	1
5	TEE	1
4	ENZED 100R-4-1/4"WP HOSE 660mm	1
3	ENZED 100R-4-1/4"WP HOSE 365mm	1
2	MIL-H-8794-5 x 110mm HOSE	1
1	MIL-H-8794-5 x 170mm HOSE	1

SCALE N.T.S | ISS 1 | DATE 21·1·93

UNITS	+/-1.0	DRAWN	K-CAD DESIGN K.G.HILLS	SKYFOX AVIATION	TITLE ENGINE FUEL SYSTEM ASSEMBLY
MATERIAL		APPROVED			DRAWING No CD-035-2 SHEET 1 OF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
DATE 26/2/93
JOB NUMBER REFERENCE

FS 3

No	ITEM	QTY
14	MS0300N HOSE CLAMP	2
2	A0653A058 SWIVEL TAIL	1
13	MIL-H-8794-6 HOSE 840mm	1

FS 1

No	ITEM	QTY
14	MS 0300N HOSE CLAMP	2
5	AN 970-816 WASHER	2
4	P/N A50510808 BULKHEAD	1
3	C50530808 45° ELBOW	1
2	A063A058 SWIVEL TAIL	1
1	MIL-H-8794-6 HOSE 310mm	1

FS 2

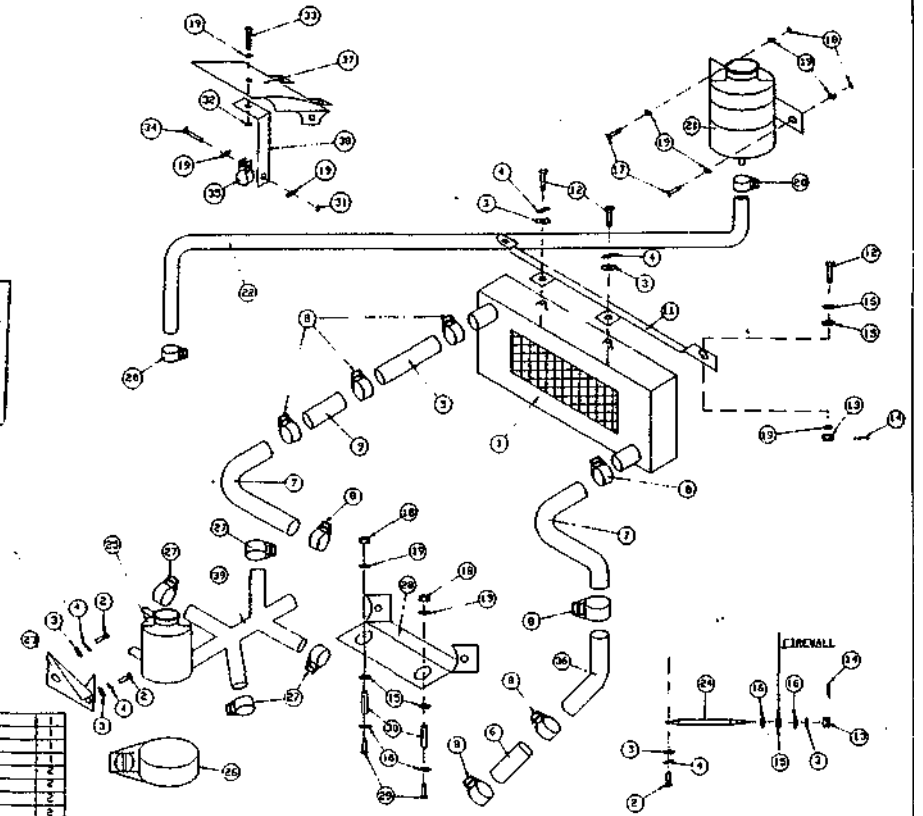
No.	ITEM	QTY
12	AN960-10 WASHER	1
11	AN364-3 NUT	1
10	AN3-26 BOLT	1
9	FFA GAS BRACKET	1
8	SF-GASC-1 RING RETAIN	2
7	B34500408 90° ELBOW	2
6	K1023 GASCOLATOR	1

SCALE N.T.S. | ISS 1 | DATE 20.1.93

LIMITS	+/-1.0	DRAWN	K-CAD DESIGN K.G.MILLS	SKYFOX AVIATION	DRAWING No CD-035
MATERIAL		APPROVED		TITLE FUEL SYSTEM	SHEET 1 OF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

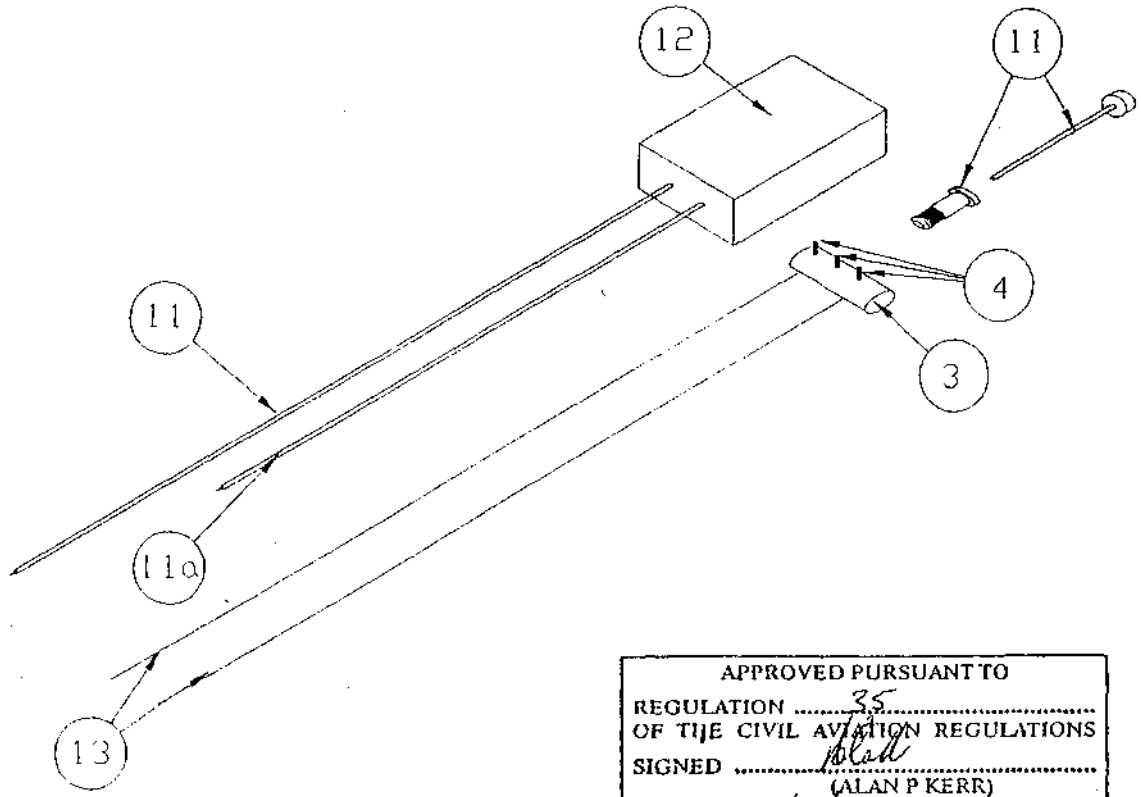
APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE



No	ITEM	QTY	No	ITEM	QTY
21	922-320 BOTTLE	1			
20	MS9200M CLAMP	2			
19	AN960-1032 WASHER	10			
18	AN365-1032 NUTS	4	39	CD-005-22	1
17	AN3-4A BOLT	2	38	CD-005-20	1
16	AN970-3 WASHER	4	37	CD-005-17	1
15	RIP 9084 GROMET	5	36	CD-009-29	1
14	MS24665-151 S/PIN	1	35	MS21919WDG-8 CLAMP	2
13	AN316-4 NUT	3	34	MS35207-263 SCREW	2
12	AN4-7 BOLT	2	33	149 x 16 SCREW	2
11	CD-005-10 BRACKET	1	32	9698-0816 RIVNUT	2
10	125 x 80 x 100 ALUM ELBOW	1	31	E.1042-3 NUT	1
9	125 x 70 ALUMINIUM TUBE	1	30	6.6 BUSH	2
8	MS51600M 1 1/2" CLAMP	9	29	AN3-7A BOLT	2
7	CH901 HOSE	2	28	R/H BAFFLE	1
6	SHS 25 x 95 HOSE	1	27	MS1000M CLAMP	4
5	SHS 25 x 320 HOSE	1	26	MS4000M CLAMP	1
4	MS35333-10 LOCK WASHER	6	25	922-312 EXP (FOAM) TANK	1
3	AN960-416 WASHER	6	24	CD-005-16 MOUNT BRACKET	1
2	6 x 4mm SET SCREW	5	23	CD-005-18 BRACKET	1
1	998-697 RADIATOR	1	22	10086-5 #5/16" x 80 HOSE	1

UNITS	+/-1.0	DRAWN	K-CAB DESIGN K.G.MILLS.	SKYFOX AVIATION	TITLE COOLING SYSTEM ASSEMBLY	SCALE 1	28:1:93
MATERIAL		APPROVED				ISS	DATE
						DRAWING No CD-005-30	
						SHEET 1 OF 1	

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

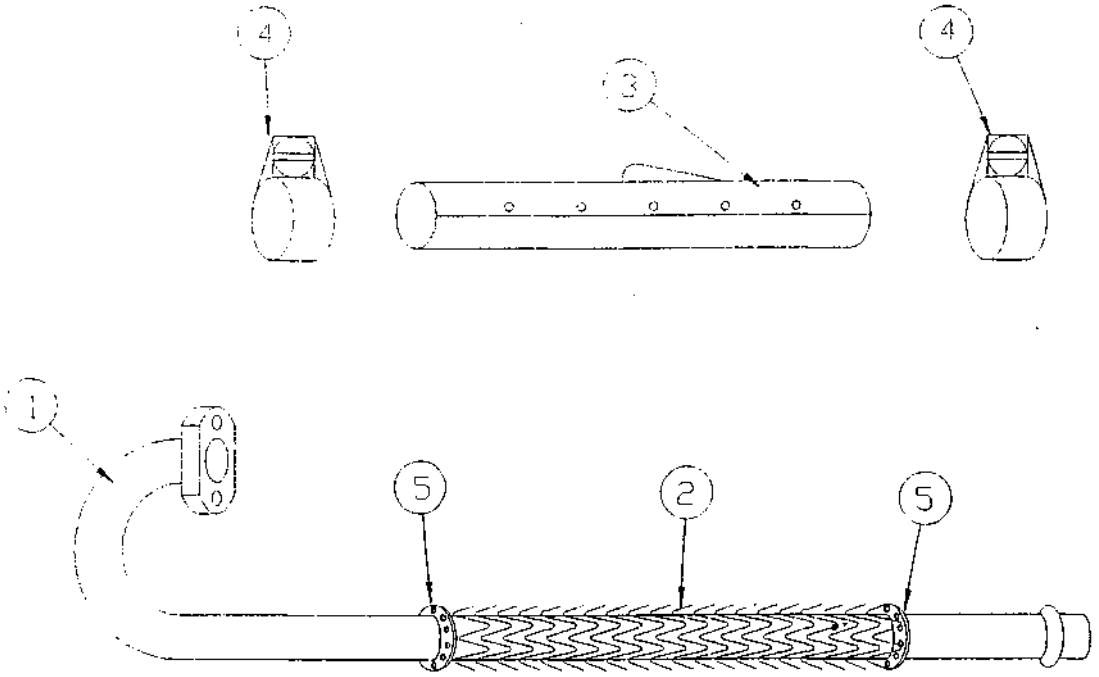


APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE

No	ITEM	QTY
13	BIKE BRAKE CABLE	2
12	SPLITTER BOX	1
11a	A4500 x 650mm CABLE	1
11	A4500 x 900mm CABLE	1
4	1/8" WHITWORTH SET SCREWS	3
3	2818 SPLITTER CLAMP	1

LIMITS	+/-1.0	DRAWN	K-CAD DESIGN K.G.MILLS	SKYFOX AVIATION	TITLE CHOKE CABLE ASSEMBLY	SCALE N.T.S. / ISS 1 / DATE 21:1:93 / DRAWING No CD-012-6 / SHEET 1 OF 1
MATERIAL		APPROVED				

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



No	ITEM	QTY
5	FLANG	2
4	CLAMP	2
3	SHROUD	1
2	HEAT SPRINGS	2
1	EXHAUST PIPE	1

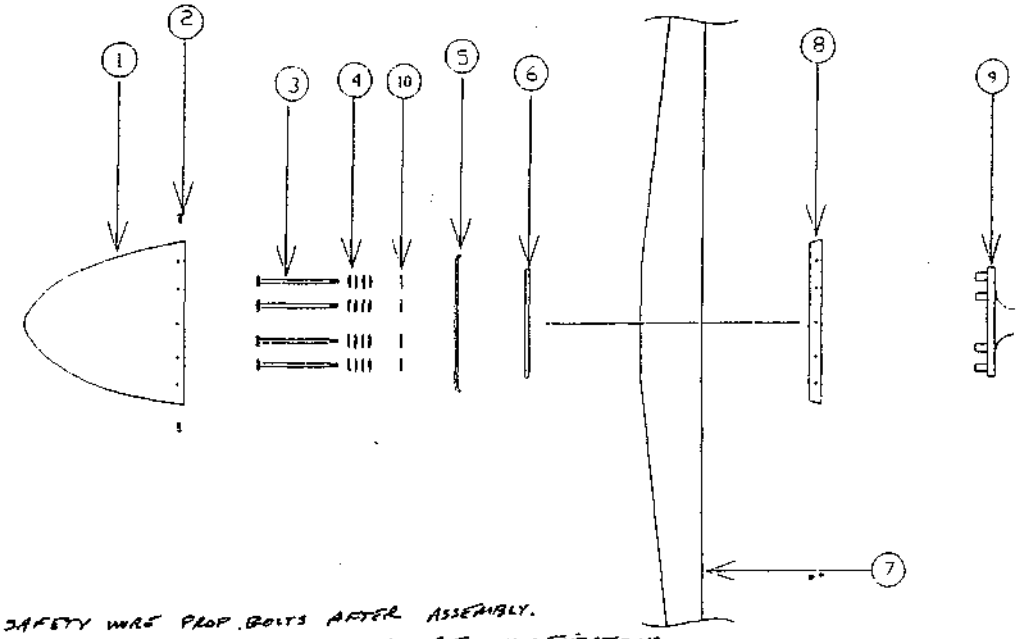
UNLESS +/- 1.0 | DRAWN K-CAB DESIGN K.G.MILLS | SKYFOX AVIATION | TITLE CARB/CAB EXCHANGE ASSEMBLY

MATERIAL | APPROVED

SCALE N.T.S. | ISS 1 | DATE 23:1:93

DRAWING NO CD-010 | SHEET 1 OF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



NOTE: SAFETY WIRE PROP BOLTS AFTER ASSEMBLY.
TORQUE BOLTS TO MANUFACTURERS RECOMMENDATIONS.

ITEM	PART No	DESCRIPTION	QTY
1	AEP-5/ALP-5C	SPINNER CONE	1
2	AN526C1032R8	SCREW	10
3	8X100X1.25	BOLT	6
4	JW414	WASHER BELLEVILLE	24
5	AEP-6	ALIGNING PLATE	1
6	AEP-7	SPACER	1
7	FPV-1	PROPELLER	1
8	AEP-8	SPINNER BACK PLATE	1
9	???????	ENGINE PROPELLER FLANGE	1
10	AN960-5	WASHER	6

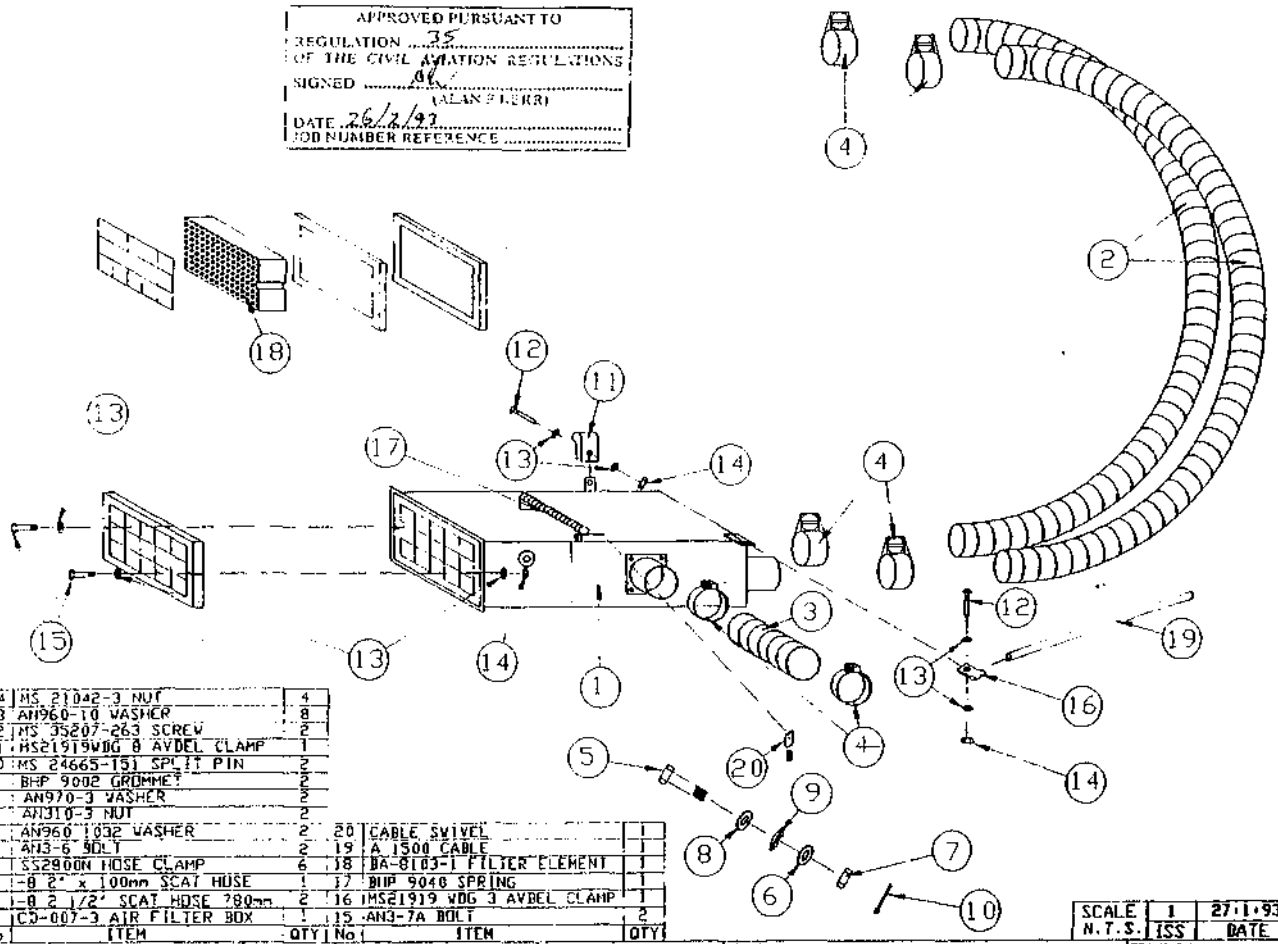
LOCK WIRE PROP BOLTS IAW AC. 43.13-1A.

APPROVED PURSUANT TO
REGULATION 25
OF THE CIVIL AVIATION REGULATIONS
SIGNED (ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE

SCALE 1:6.2	1	ISS	30/9/92 DATE
LIMITS +/- 1	DRAWN C DALBY	SKYFOX AVIATION	TITLE CA25 PROPELLER ASSEMBLY
MATERIAL AS DETAILED	APPROVED		DRAWING No RPA-2
			SHEET 1 OF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

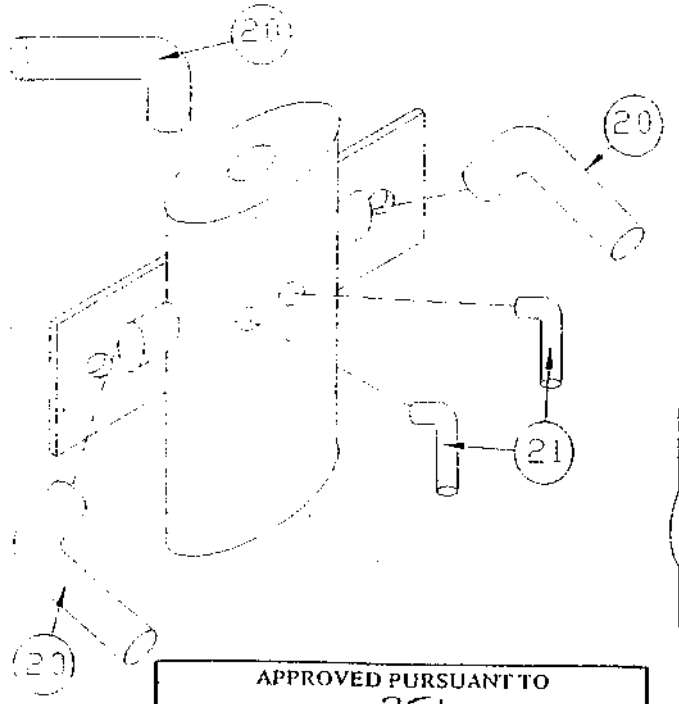
APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN PERRI)
DATE 26/2/93
JOD NUMBER REFERENCE



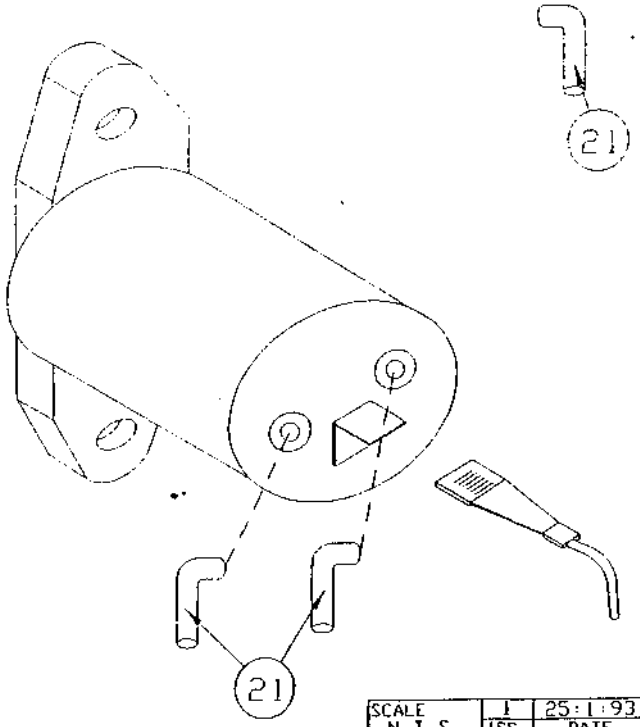
No	ITEM	QTY	No	ITEM	QTY
14	MS 21042-3 NUT	4			
13	AN960-10 WASHER	8			
12	MS 35207-263 SCREW	2			
11	MS21919WDG 8 AVDEL CLAMP	1			
10	MS 24665-151 SPLIT PIN	2			
9	BHP 9002 GROMMET	2			
8	AN970-3 WASHER	2			
7	AN310-3 NUT	2			
6	AN960 1032 WASHER	2	20	CABLE SWIVEL	1
5	AN3-6 BOLT	2	19	A 1500 CABLE	1
4	SS2800N HOSE CLAMP	6	18	BA-8103-1 FILTER ELEMENT	1
3	-8 2" x 100mm SCAT HOSE	1	17	BHP 9048 SPRING	1
2	-8 2 1/2" SCAT HOSE 780mm	2	16	MS21919 WDG 3 AVDEL CLAMP	1
1	CD-007-3 AIR FILTER BOX	1	15	AN3-7A BOLT	2

LIMITS	+/-1.0	DRAWN	X-CAD DESIGN K.G.HILLS.	SKYFOX AVIATION	TITLE INDUCTION SYSTEM ASSEMBLY	SCALE N.T.S. / ISS / DATE 27·1·93
MATERIAL		APPROVED				DRAWING No CD-007 / SHEET 1 OFF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



STARTER



APPROVED PURSUANT TO
REGULATION 85
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE

No	ITEM	QTY
21	MS25171-15 NIPPLE	5
20	MS25171-45 NIPPLE	3

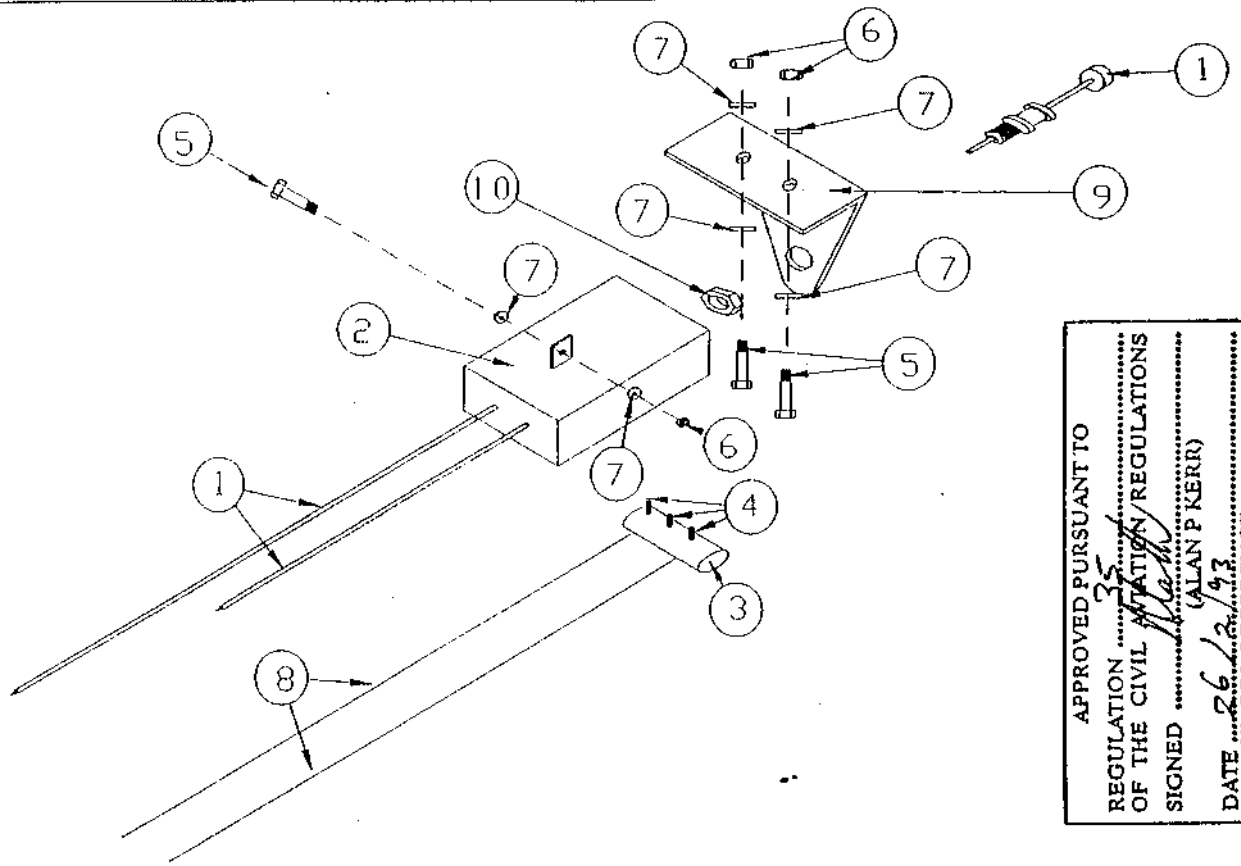
LIMITS	+/-1 0	DRAWN	K-CAD DESIGN K.G MILLS
MATERIAL		APPROVED	

SKYFOX AVIATION

TITLE SOLENOID ASSEMBLY

SCALE N.T.S.	1
ISS	DATE 25:1:93
DRAWING No	CD-015-2
SHEET	1 OF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



APPROVED PURSUANT TO REGULATION 35 OF THE CIVIL AVIATION /REGULATIONS
SIGNED ..... (ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE .....

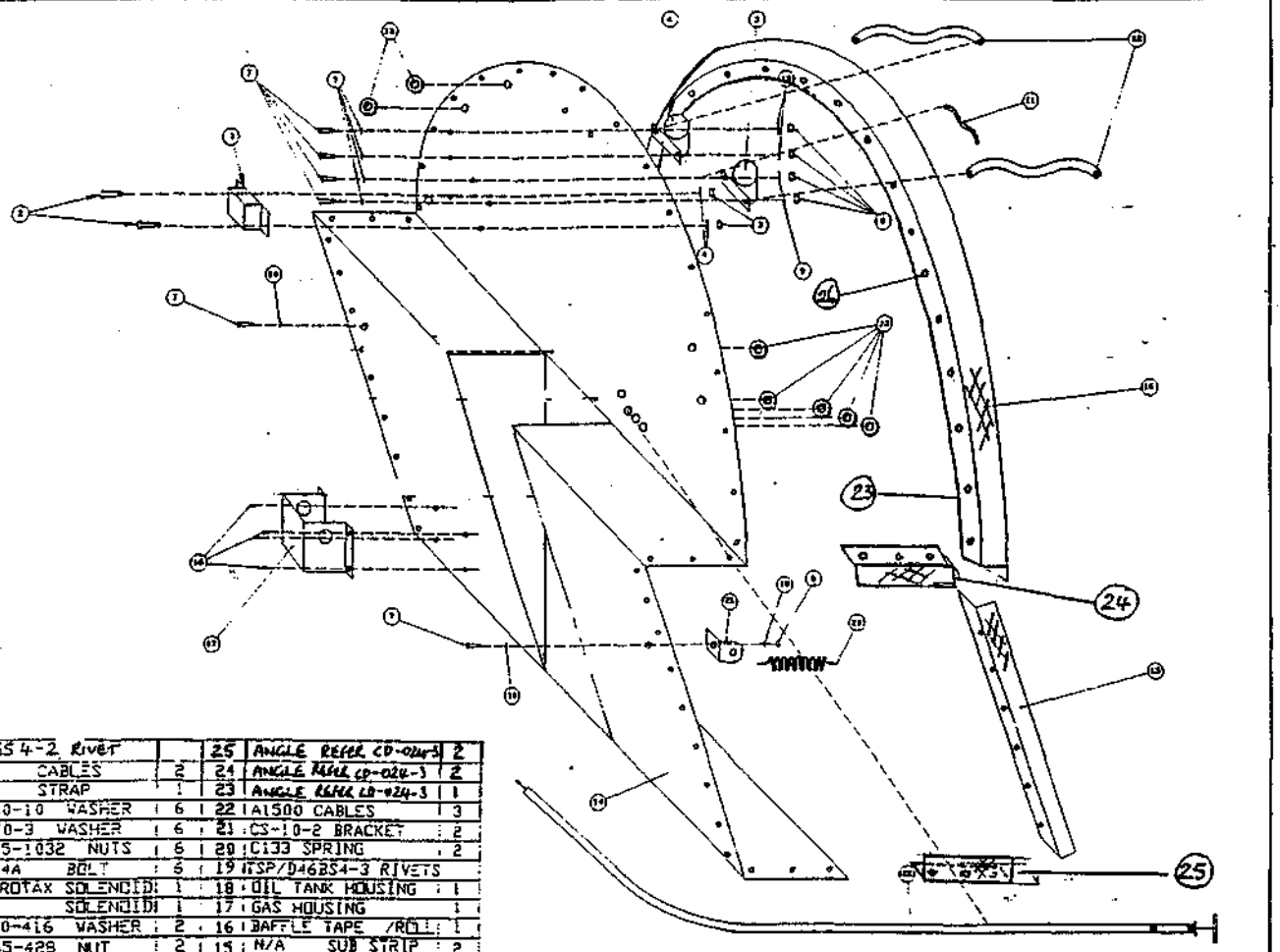
No	ITEM	QTY	No	ITEM	QTY
5	MS35207-263 SCREWS	3	10	1/2" UNF LOCK NUT	1
4	1/8" WHITWORTH SET SCREWS	3	9	BRACKET	1
3	2818 SPLITTER CLAMP	1	8	1100mm INNER CABLE	2
2	CD-012-1 SPLITTER BOX	1	7	AN960-10L WASHER	6
1	AB20-72 6' CABLE	1	6	AN365-3 NUTS	3

SCALE N.T.S. | ISS 1 | DATE 21:1:93

LIMITS +/-1.0 | DRAWN | K-CAD DESIGN K.G.HILLS | SKYFOX AVIATION | TITLE THROTTLE CABLE ASSEMBLY | DRAWING No CD-012

MATERIAL | APPROVED | SHEET 1 OF 1

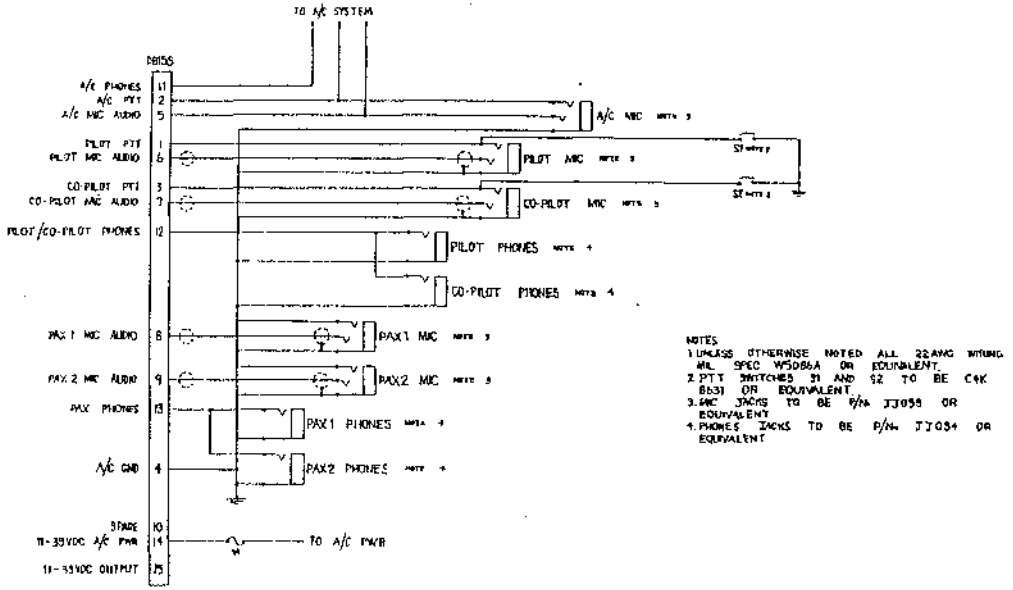
DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



No	ITEM	QTY	No	ITEM	QTY
26	.73 SS 4-2 RIVET		25	ANGLE REFER CD-024-5	2
12	N/A CABLES	2	24	ANGLE REFER CD-024-3	2
11	N/A STRAP	1	23	ANGLE REFER CD-024-3	1
10	AN960-10 WASHER	6	22	A1500 CABLES	3
9	AN970-3 WASHER	6	21	CS-10-2 BRACKET	2
8	AN365-1032 NUTS	6	20	C133 SPRING	2
7	AN3-4A BOLT	6	19	MSP/D46BS4-3 RIVETS	
6	N/A ROTAX SOLENOID	1	18	OIL TANK HOUSING	1
5	ST85 SOLENOID	1	17	GAS HOUSING	1
4	AN960-416 WASHER	2	16	BAFFLE TAPE /RO	1
3	AN365-428 NUT	2	15	N/A SUB STRIP	2
2	AN4-5A BOLT	2	14	N/A FIREWALL	1
1	965-345 RECTIFIER	1	13	C903 1/2" GROMETS	7

LIMITS	+/- 1	DRAWN	K-CAD DESIGN E.G.MILLS.	SKYFOX AVIATION	TITLE FIRE WALL ASSEMBLY J/VLA	SCALE N.T.S.	ISS 1 DATE
MATERIAL	AS DETAILED	APPROVED				DRAWING No CD-024-4	SHEET 1 OF 1

ISSUE	REVISION	DRN	C'KD	STR.	APP'D	DATE



NOTES
1 UNLESS OTHERWISE NOTED ALL 22AWG WIRING MIL SPEC W5086A OR EQUIVALENT.
2 PTT SWITCHES S1 AND S2 TO BE C4K 8631 OR EQUIVALENT.
3 MIC JACKS TO BE P/No JJ059 OR EQUIVALENT
4 PHONES JACKS TO BE P/No JJ034 OR EQUIVALENT

AIRCRAFT ENGINE TYPE	ITEM	PART No	QTY	DESCRIPTION	MATERIAL	SIZE	MATERIAL SPEC	PROT.TREAT FINISH	SHT ZONE
VARIOUS									

APPROVAL STAMP

APPROVED PURSUANT TO REGULATIONS
CAR 35/CAR 35 OF THE CIVIL AVIATION REGULATIONS

AUTHORISED PERSON

28-7-92

Dimensions in
Tolerance Unless Noted.
Angles ±
Break All Sharp Edges
Dimensions To Be Met After Plating
Bend Radius
Relief Radius
Corners & Fillets
Mark Part No Where Shown

ORGANISATION
CHAPMAN AVIONICS

MATERIAL TREATMENT

Interchangeable / Supersedes Part No

DEPARTMENT OF TRANSPORT

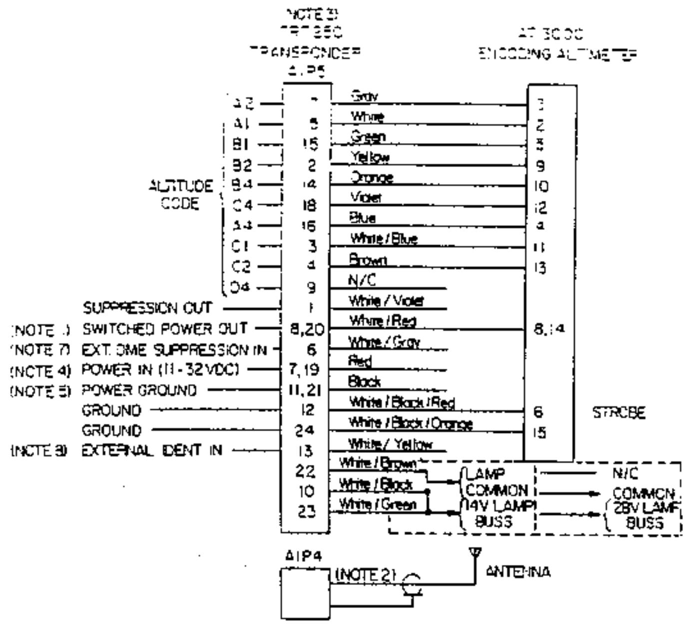
DACOM ICS41 INTERCOM INTERWIRING

SCALE THIRD ANGLE PROJECTION

SIZE A3 | DRAWING No. CA 315 | SHT 1 | OF 1

CA 315

D.o.T 3424



NOTES:

1. 5 AMPS MAX.
2. SELECT EACH TYPE CABLE AND CONNECTOR FROM THOSE LISTED
   CABLE LENGTHS:
   RG-58/U 9 FT. MAX
   RG-8/U 17 FT. MAX
   CONNECTORS:
   RG-58/U: UG-88C, UG-88D, UG-88E, AMPHENOL 31-320, 31-357, 36775
   RG-8/U: UG-959, AMPHENOL 6775
3. CONNECTOR - 25 PIN "D" TYPE (ITT CANNON TYPE DB-25S OR EQUIVALENT)
4. PINS 7,19 MUST BOTH BE CONNECTED THROUGH A COMMON 2 AMP CIRCUIT BREAKER
5. PINS 11,21 MUST BOTH BE GROUNDED
6. WIRE SIZE: 20 AWG FOR POWER INPUT AND POWER GROUND
   24 AWG FOR ALL OTHERS MIL SPEC W5086A.
7. MUST BE CONNECTED TO APPROPRIATE PIN ON DME IF USED.
8. USE ONLY MOMENTARY SWITCH TO GROUND TO ENABLE IDENT FUNCTION

AIRCRAFT / ENGINE TYPE	ITEM	PART No.	QTY	DESCRIPTION	MATERIAL	SIZE	MATERIAL SPEC.	PROT. TREAT.	FINISH	SHT ZONE
VARIOUS										

APPROVAL STAMP

CHAPMAN AVIONICS PTY. LTD.
APPROVED PURSUANT TO REGULATIONS CAR 35/CAR 36 OF THE CIVIL AVIATION REGULATIONS.
AUTHORISED PERSON
DATE 1-2-93

Dimensions in
Tolerance Unless Noted.
Angles
Break All Sharp Edges
Dimensions To Be Met After Plating
Bend Radius
Relief Radius
Corners & Fillets
Mark Part No Where Shown

ORGANISATION: CHAPMAN AVIONICS

MATERIAL, TREATMENT

Interchangeable / Supersedes Part No

DEPARTMENT OF TRANSPORT

TERRA TRT250 WITH AT3000 INTERWIRING

SCALE: THIRD ANGLE PROJECTION

SIZE	DRAWING No.	SHT	OF
A 3	CA 333	1	1

DRAWING No. CA 333 SHT 1 OF 1

D.o.T 2424

DEPARTMENT OF CIVIL AVIATION

STANDARD DRAWING SHEET FOR AIRCRAFT PART*

APPROVAL STAMP	HEAT TREATMENT	PROTECTIVE TREATMENT	MATERIAL SPEC. when one part only	ORGANISATION	TITLE	DRAWING NUMBER
COMMONWEALTH OF AUSTRALIA DEPARTMENT OF TRANSPORT APPROVED pursuant to regulation 4.C of the Air Navigational Regulations [signature] delegate of the Secretary to the Department of Transport Date 2 NOV 1979				CHAPMAN AVIONICS	KING KR86 ADF	CA 32 Sheet 1 of 1

LIMITS WHERE NOT STATED		SURFACE FINISH	REPLACING PART No.	AIRCRAFT OR ENGINE TYPE	No. REQ'D PER A/C	NEXT ASSEMBLY No.
Fractional	±			VARIOUS		
Decimal	±					
Angular	±					
BREAK SHARP EDGES .010 to .015		BEND RADII	BEND RELIEF	SCALE	WEIGHT CHANGE	
STAMP PART No. WHERE SHOWN ☒					DIST. FROM A/c DATUM	

SCHEDULE OF ISSUES

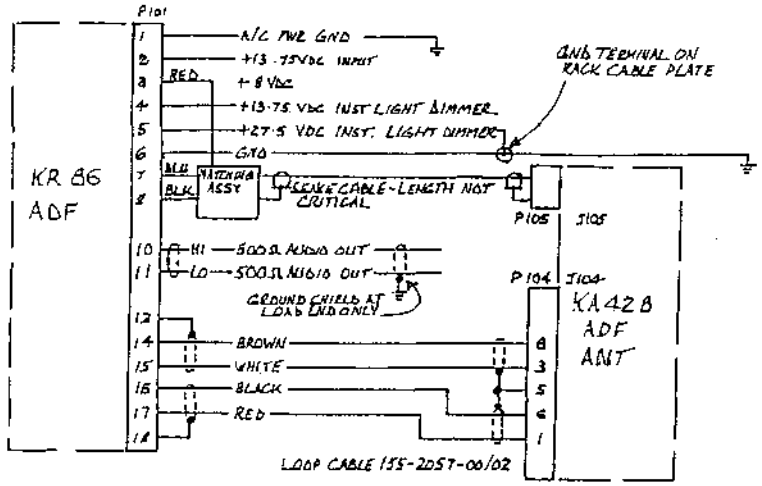
Issue	Alteration	Drawn	Ch'k'd	Auth'd	DATE
1		RC	RC	RC	31.10.79

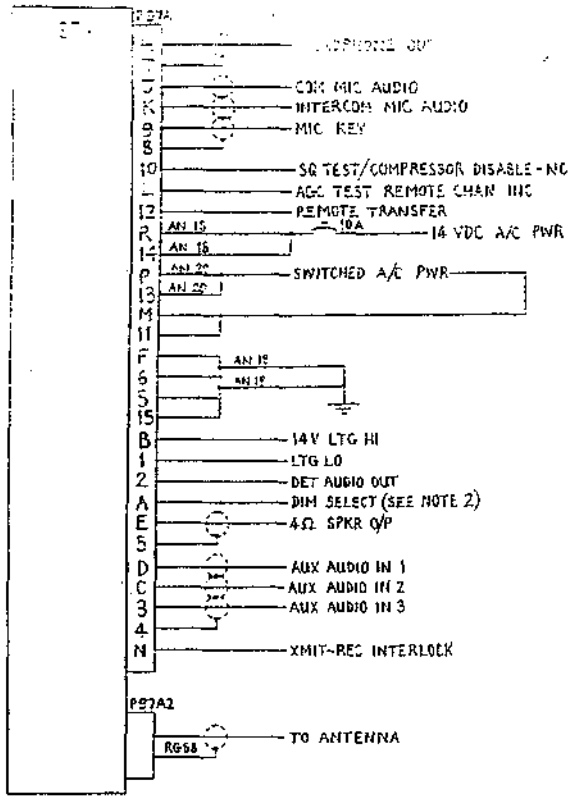
SCHEDULE OF PARTS

ITEM REF.	Description of Part	NUMBER OFF As Drawn	NUMBER OFF Opp. Hand	Material	Part No. or Spec.

NOTES

1. ANTENNA INSTALLATION SHOWN FOR BOTTOM MOUNTED ANTENNA
2. LOOP CABLE LENGTHS MUST NOT BE ALTERED
3. AUDIO CABLE MUST BE SHIELDED PAIR WITH INSULATION JACKET OVER ALL
4. WIRE SIZE — ALL WIRE MUST BE #22 AWG MIL SPEC. W5086A OR EQUIVALENT
5. +27·5V OPERATION
   A. RECEIVER REQUIRES +27·5V DC. INSTALLATION KIT KPN 050-1308-17/19
   B. PANEL LIGHTS — CONNECT TERMINAL 45 OF P101 TO +27·5V DC DIMMER CONTROL AND NO CONNECTION MADE TO TERMINAL #4
6. FOR SENSE CABLE USE RG58A/U OR OTHER EQUIVALENT 50 Ω COAXIAL CABLE. SENSE CABLE LENGTH NOT CRITICAL
7. MATCHING ASSEMBLY IS TO BE MOUNTED ON RACK CABLE ASSEMBLY.





ISSUE	REVISION	BY	CHK	CTRL	APP'D	DATE

NOTES:
1. UNLESS OTHERWISE NOTED ALL WIRING AN22 MIL SPEC W5086A OR EQUIVALENT.
2. FOR 14V LTG PIN A IS LEFT OPEN, FOR 28V LTG PIN A IS GROUNDED.

AIRCRAFT / ENGINE TYPE	ITEM	PART No.	QTY	DESCRIPTION	MATERIAL	SIZE	MATERIAL SPEC.	PROT. TREAT. FINISH	SHT / ZONE
VARIOUS									

APPROVAL STAMP

15 MAR '89

Dimensions in
Tolerance Unless Noted. ±
Angles ±
Break All Sharp Edges
Dimensions To Be Met After Plating
Bend Radius
Rivet Radius
Corners & Fillets
Stock Part No
Where Shown
Interchangeable / Supersedes Part No.

ORGANISATION
CHAPMAN AVIONICS PTY. LTD.

MATERIAL TREATMENT

DEPARTMENT OF TRANSPORT

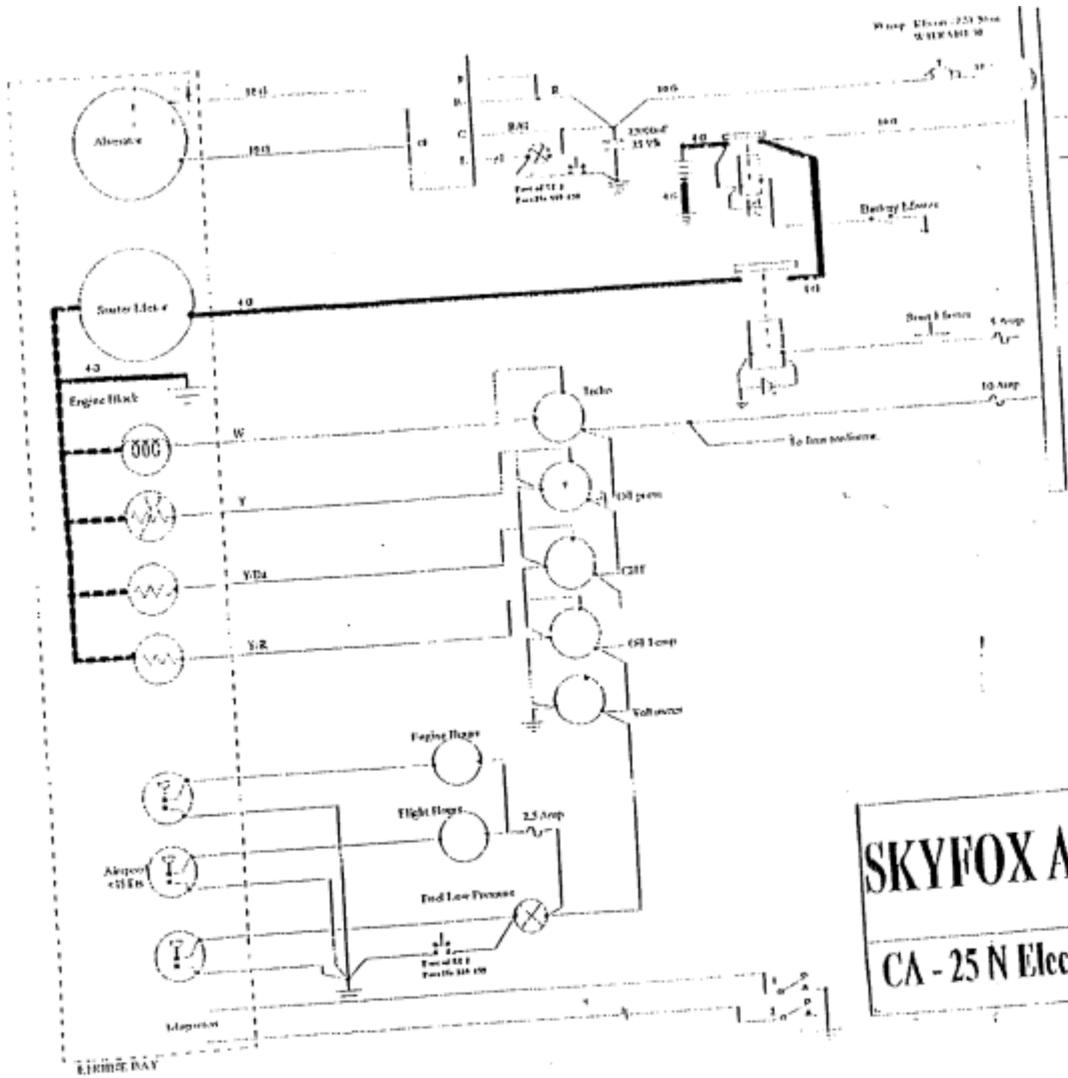
KING KY 97A VHF INTERWIRING

SCALE | THIRD ANGLE PROJECTION

SIZE A3 | DRAWING No. CA 214 | CHT | OF

DRAWING No. CA 214

SHT 1 OF 1

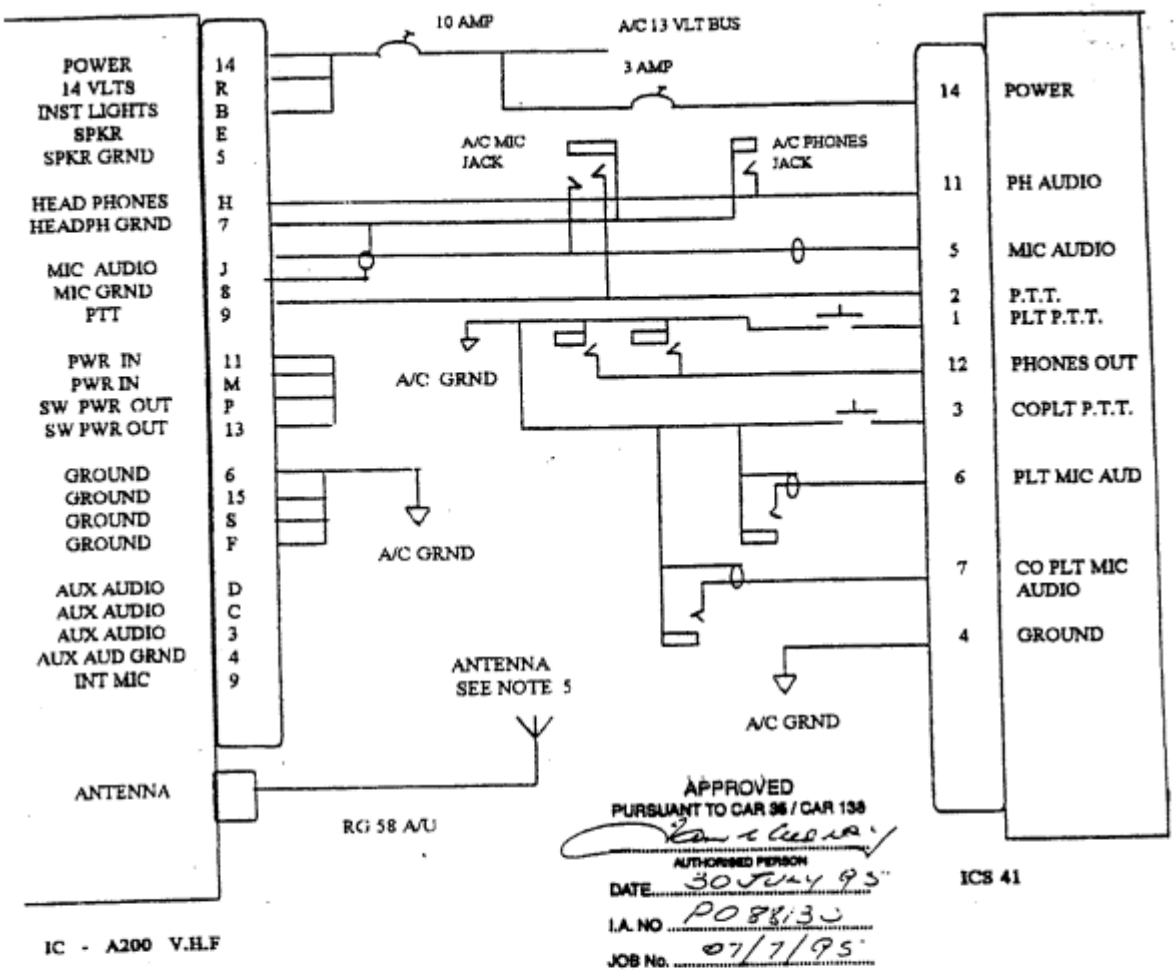


NOTES

1 All wiring M22759/16 [illegible] unless stated
2 For all engine components [illegible] engine installation drawings
3 [illegible] CURRENT RATINGS AS SHOWN
4 [illegible] as short as possible [illegible]
5 [illegible] Alternator Switch [illegible]
6 [illegible] warning light [illegible] switch [illegible]
Green button 310 623

IAN MURRAY
CASA Authorised Person
I.A. No. P000150
APPROVED PURSUANT TO CAR 35
SIGNATORY [signature]
DATE 29/12/96 JOB No. 18129C

SKYFOX AVIATION	DRAWN TCAD	CHECKED IM
	29 December 1996	
	Sheet 1 of 1	
CA - 25 N Electrical wiring	DRAWING NUMBER CD - 015-2	4



APPROVED
PURSUANT TO CAR 95 / CAR 138
AUTHORISED PERSON
DATE 30 JULY 95
I.A. NO PO8830
JOB No. 07/7/95

NOTES

1. All wiring 24 Guage minimum to meet or exceed Mil Spec W5086A.
2. All wiring to be in accordance with Mil W5088 , EA - AC 43.13 1A & 2A and C.A.O. 108.32.
3. Connector s as supplied with manufacturers installation kit.
4. Circuit breaker type as per aircraft manufacturers parts list.
5. Antenna location and mounting data as per aircraft manufacturers airframe structures drawings.
6. Antenna part No as per aircraft manufacture parts list.
7. Phone & Microphone jacks part No as per aircraft manufacturers parts list.
8. P.T.T. switch part No as per aircraft manufacturers parts list

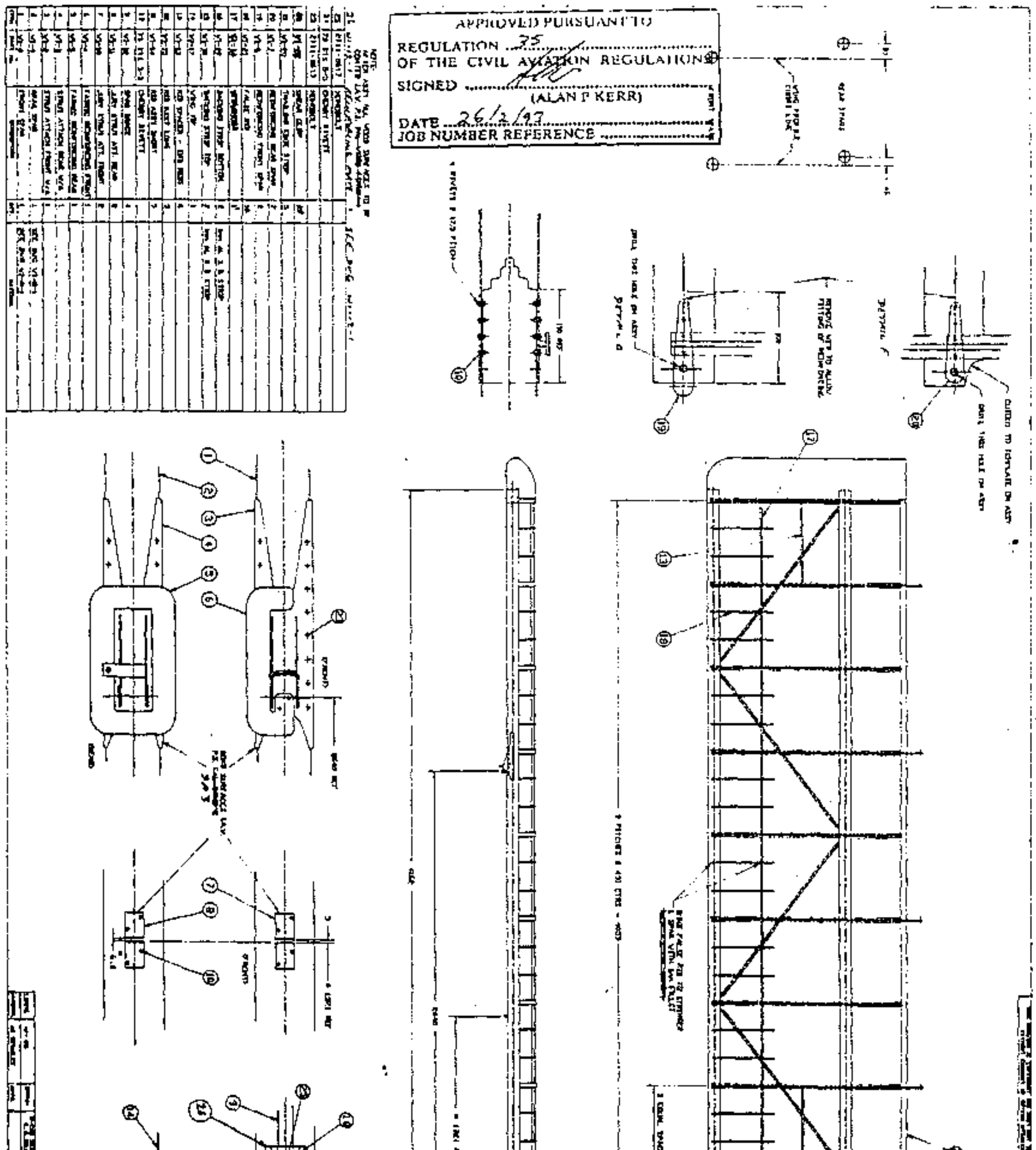
DATE 27 July 1995
Issue One
Drawn I Murray

V.H.F. ICOM, IC - A200. & DACOM ICS - 41 INTERCOM

INSTALLATION FOR SKYFOX AIRCRAFT.

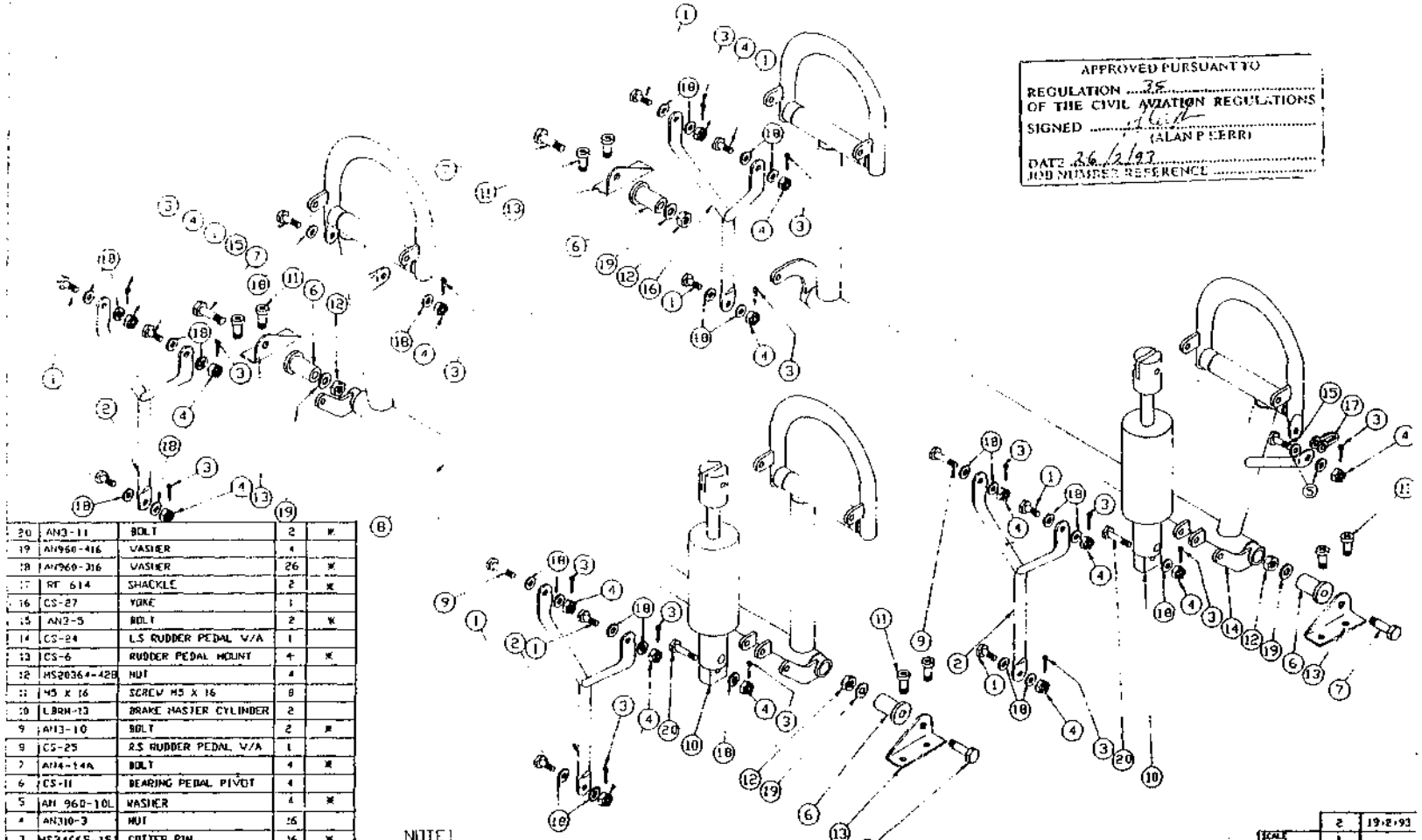
SKYFOX DRAWING SKY 200

APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN P KERR)
DATE 26/2/97
JOB NUMBER REFERENCE



DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED .....
(ALAN PERRY)
DATE 26/2/93
JOB NUMBER REFERENCE .....



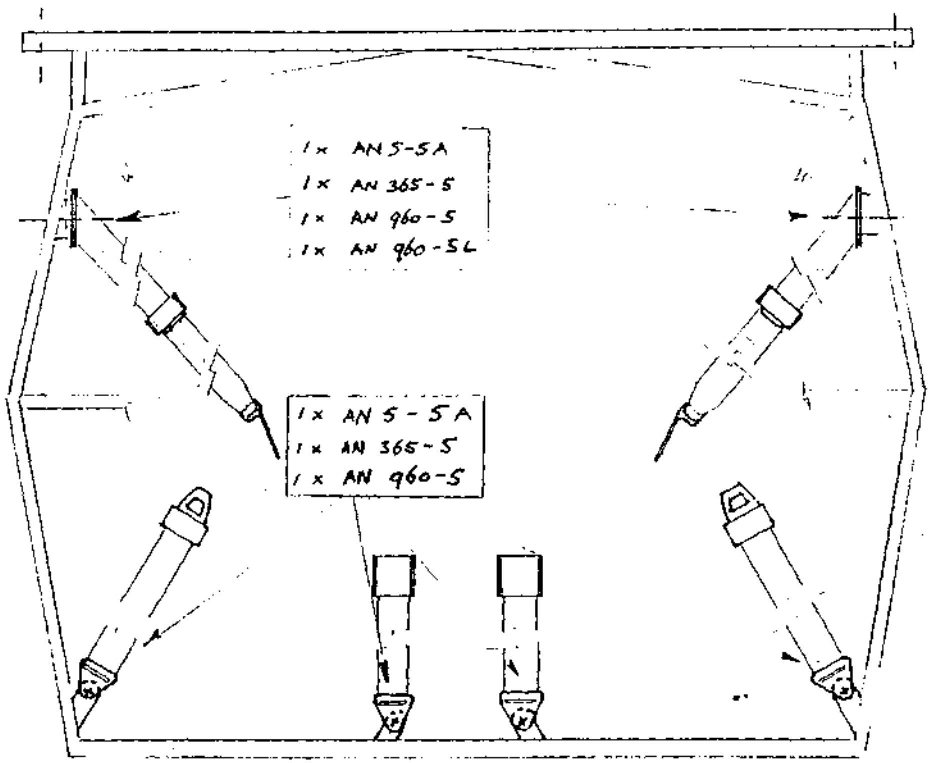
ITEM	PART No.	DESCRIPTION	QTY	ISSUE
20	AN3-11	BOLT	2	*
19	AN960-416	WASHER	4	
18	AN960-316	WASHER	26	*
17	RT 614	SHACKLE	2	*
16	CS-27	YOKE	1	
15	AN3-5	BOLT	2	*
14	CS-24	L.S RUDDER PEDAL W/A	1	
13	CS-6	RUDDER PEDAL MOUNT	4	*
12	MS20364-428	NUT	4	
11	M5 X 16	SCREW M5 X 16	8	
10	LBRH-13	BRAKE MASTER CYLINDER	2	
9	AN3-10	BOLT	2	*
8	CS-25	R.S RUDDER PEDAL W/A	1	
7	AN4-14A	BOLT	4	*
6	CS-11	BEARING PEDAL PIVOT	4	
5	AN 960-10L	WASHER	4	*
4	AN310-3	NUT	26	
3	MS24665-151	COTTER PIN	16	*
2	CS-26	YOKE	3	
1	AN3-5	BOLT	10	*

NOTE!
* DENOTES ISSUE CHANGE

SCALE 1:2.5		2	19-2-93		
		1			
		ISS.	DATE		

LIMITS		DRAWN	K-CAD MISSION C.G.H.I.S.	SKYFOX AVIATION	TITLE ASSY RUDDER PEDALS
MATERIAL	AS DETAILED	APPR.			DWG NO. CS-28
					SHEET 1 OF 1

THIS DRAWING IS COPYRIGHT AND MUST NOT BE COPIED WITHOUT CONSENT OF SKYFOX AVIATION | DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



HARNESS: 1x N202-A-L-1 Dominion
1x N202-A-R-1 Dominion

APPROVED PURSUANT TO
REGULATION ....31....
OF THE CIVIL AVIATION REGULATIONS
SIGNED ....
(ALAN P KERR)
DATE ....3 Dec 97....
JOB NUMBER REFERENCE ....366....

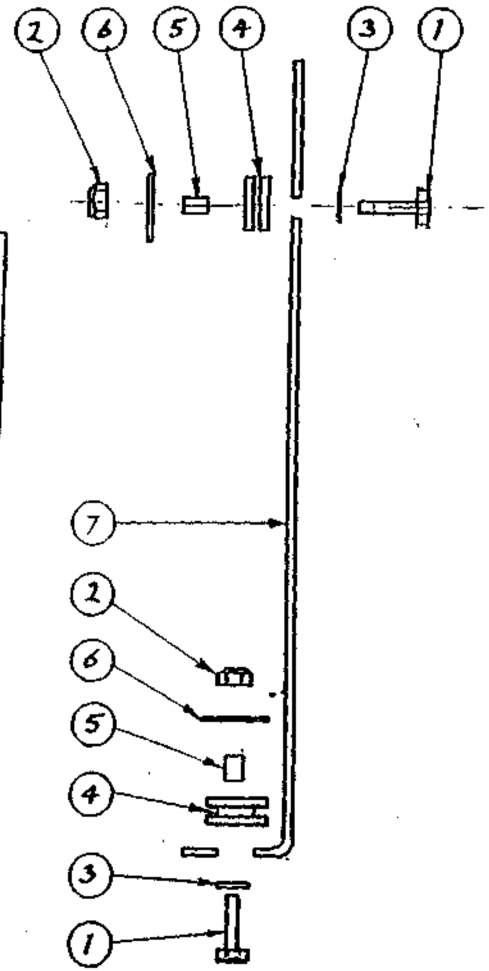
LIMITS		DRAWN	C BALBY / TVO.	SKYFOX AVIATION	TITLE HARNESS HARDWARE
MATERIAL		APPROVED			

SCALE	ISS	DATE
1:1	1	9-3-97

DRAWING No. CD-041-2

SHEET

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



APPROVED PURSUANT TO
REGULATION ......35......
OF THE CIVIL AVIATION REGULATIONS
SIGNED ....
(ALAN P KERR)
DATE .....26/2/93.....
JOB NUMBER REFERENCE ....

ITEM	P/N	DESCR.	QTY
7		PANEL	1
6	AN970-3	WASHER	4
5	9.5mm × 9/16	BUSH 3/16 ID	4
4	CWG-4	GROMMET	4
3	AN960-10L	WASHER	4
2	AN365-3	NUT	4
1	AN3-7A	BOLT	4

SCALE 1:1 | ISS 1 | DATE 9-11-92

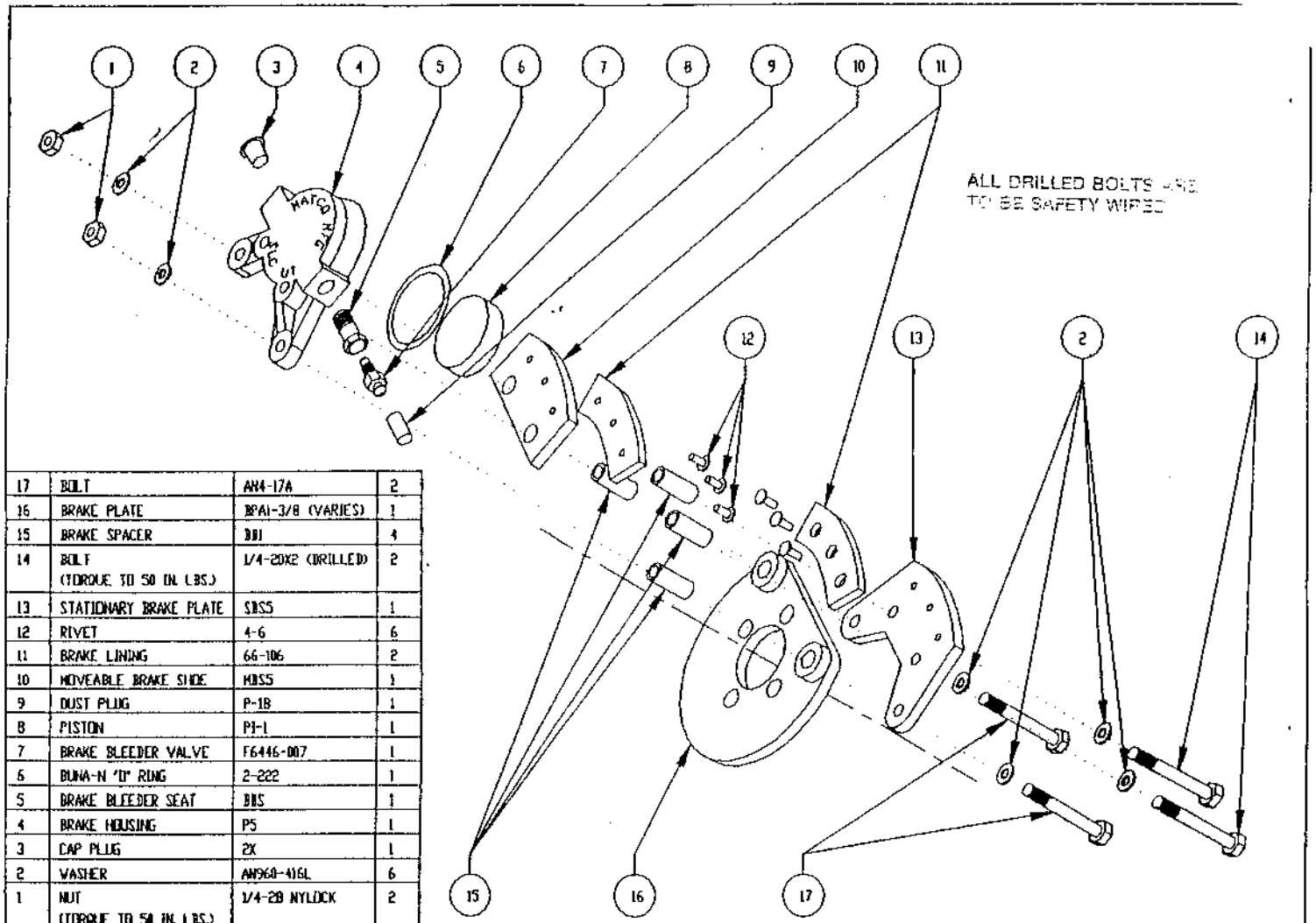
LIMITS | MATERIAL | DRAWN C DALZY TVO | APPROVED

SKYFOX AVIATION

TITLE INSTRUMENT PANEL ASSY.

DRAWING No CD-018

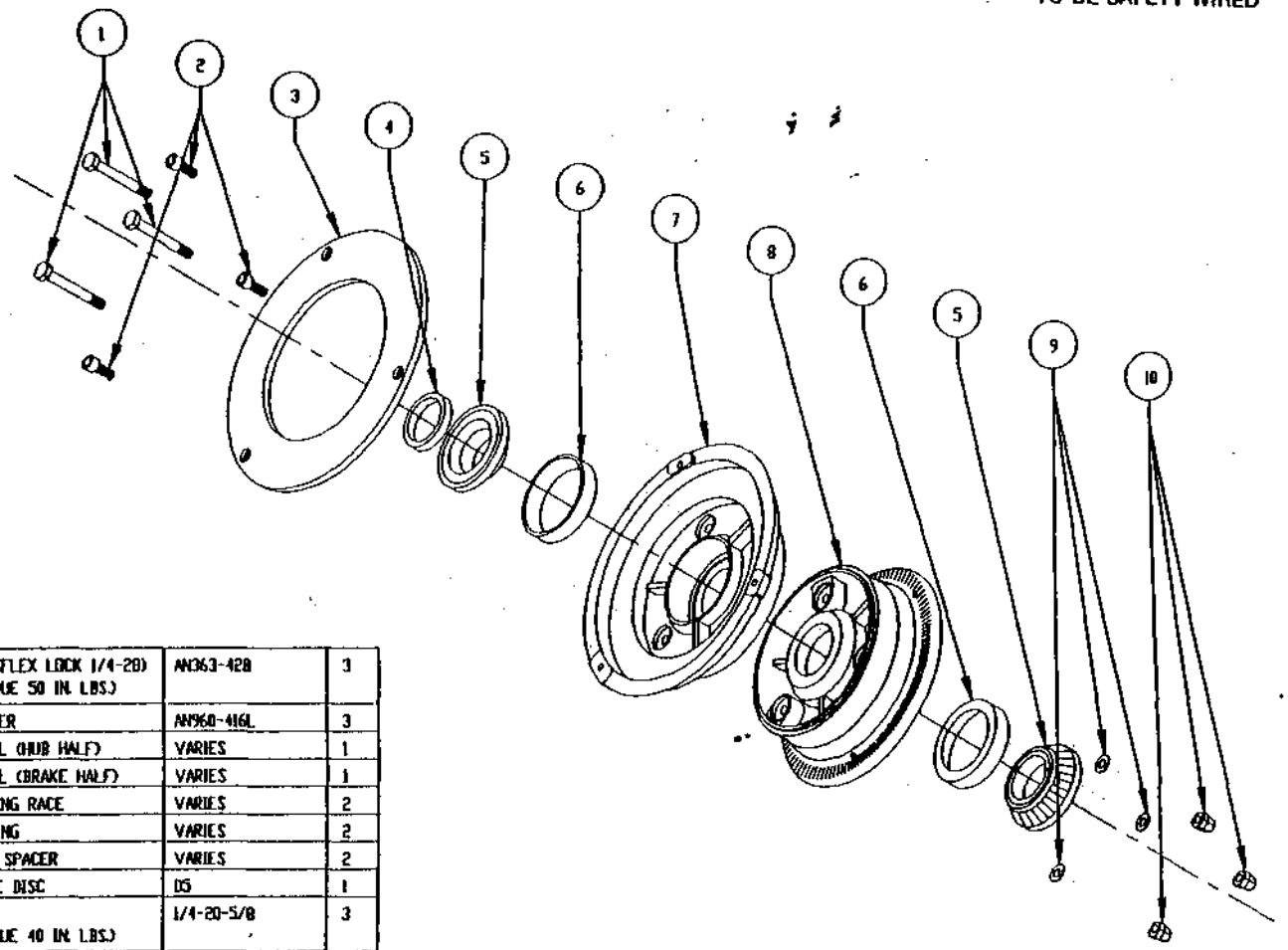
SHEET



17	BOLT	AN4-17A	2
16	BRAKE PLATE	BPAI-3/8 (VARIES)	1
15	BRAKE SPACER	BBI	4
14	BOLT (TORQUE TO 50 IN. LBS.)	1/4-20X2 (DRILLED)	2
13	STATIONARY BRAKE PLATE	SBS5	1
12	RIVET	4-6	6
11	BRAKE LINING	66-106	2
10	MOVEABLE BRAKE SHOE	MBS5	1
9	DUST PLUG	P-1B	1
8	PISTON	PI-1	1
7	BRAKE BLEEDER VALVE	F6446-007	1
6	BUNA-N "O" RING	2-222	1
5	BRAKE BLEEDER SEAT	BBS	1
4	BRAKE HOUSING	P5	1
3	CAP PLUG	2X	1
2	WASHER	AN960-416L	6
1	NUT (TORQUE TO 50 IN. LBS.)	1/4-28 NYLOCK	2
NO.	PART NAME	INVENTORY NO.	REQ'D

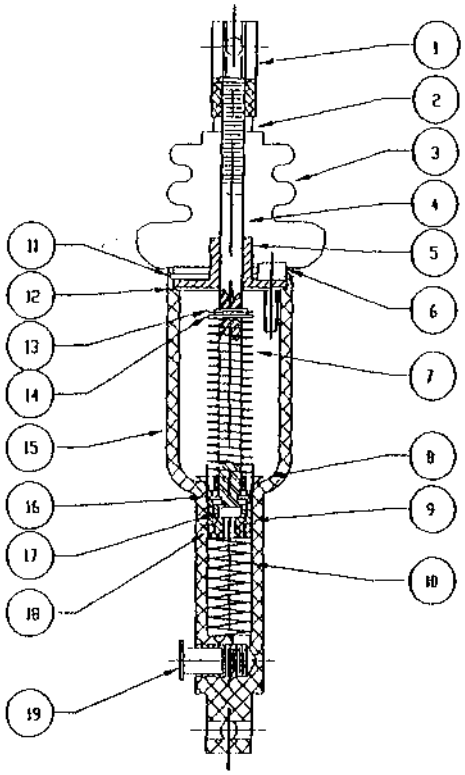
3DSBRAKE	HATCH mfg 65 East Kensington Ave SALT LAKE CITY, UT 84115 (801) 486-7574	3D FIVE / SIX INCH BRAKE ASSEMBLY	DRAWN BY: GARY P. LANGFORD CHECKED BY:	SCALE: NONE DATE: DEC. 3, 1990	1 OF 1

ALL DRILLED BOLTS ARE
TO BE SAFETY WIRED



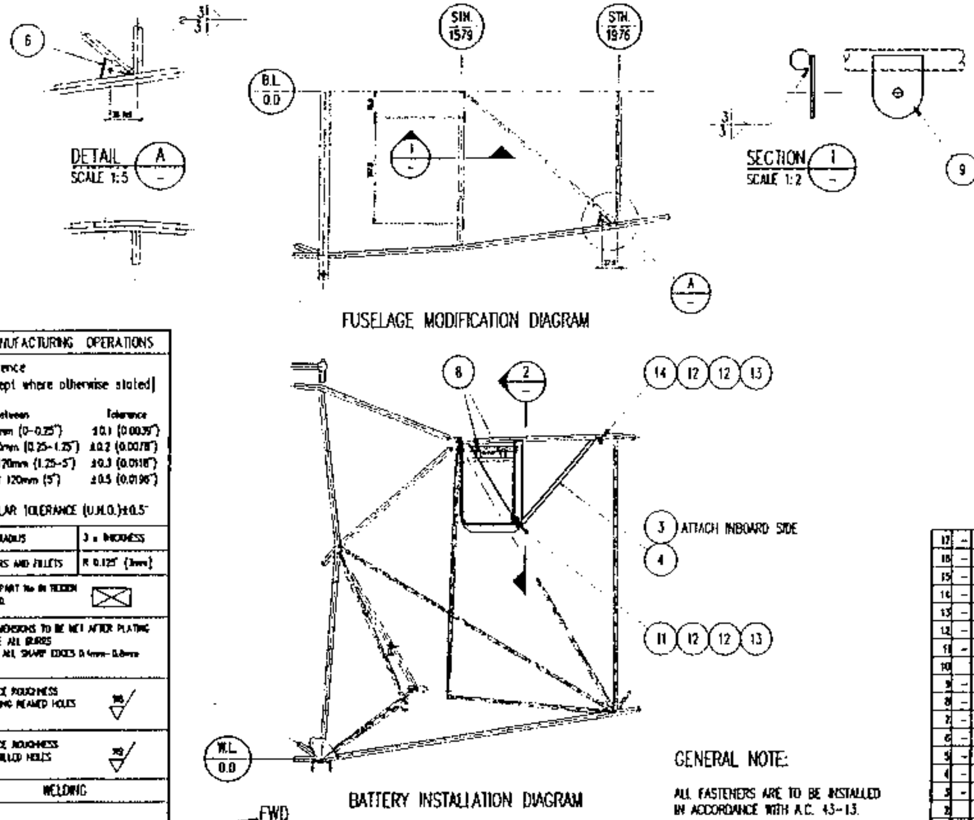
NO.	PART NAME	INVENTORY NO.	REQ'D
10	NUT (FLEX LOCK 1/4-28) (TORQUE 50 IN. LBS.)	AN363-428	3
9	WASHER	AN960-416L	3
8	WHEEL (HUB HALF)	VARIES	1
7	WHEEL (BRAKE HALF)	VARIES	1
6	BEARING RACE	VARIES	2
5	BEARING	VARIES	2
4	AXLE SPACER	VARIES	2
3	BRAKE DISC	DS	1
2	SHCS (TORQUE 40 IN. LBS.)	1/4-20-5/8	3
1	BOLT	AN4-20A (5" WHEEL) AN4-16A (6" WHEEL)	3

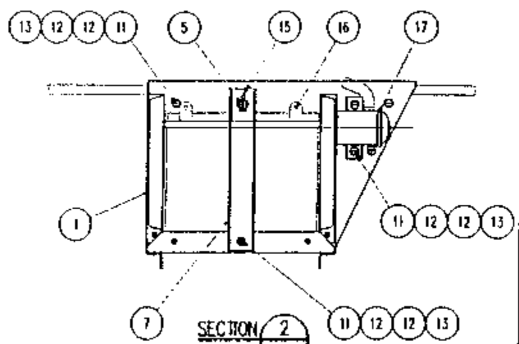
30-WHEEL	HATCH mfg 65 East Kensington Ave SALT LAKE CITY, UT 84115 (801) 486-7574	WHEEL ASSEMBLY	DRAWN BY: GARY P. LANGFORD CHECKED BY:	SCALE: NONE DATE: NOV. 29, 1990	1 OF 1



NO	PART NAME	INVENTORY NO	REQD
19	CAP PLUG	2X	1
18	"O" RING BUNA N	2-012	1
17	PLUG BUNA N	MC1-15	1
16	SNAP RING	3000-X37	1
15	CYLINDER	MC1-17	1
14	WASHER	AN960-416L	1
13	ROLL PIN	1/16 X 7/16	1
12	"O" RING BUNA N	2-024	1
11	SNAP RING	3000-X125	1
10	SPRING (BOTTOM)	LC-038G-7	1
9	PISTON	MC1P	1
8	PASSAGE BUTTON	MC-13	1
7	SPRING (SHAFT)	LC-042F-9	1
6	SHCS	10-24XS/16	1
5	RESERVIOR COVER	MC-C	1
4	SHAFT	1/4-20X4 1/2 SHCS	1
3	BOOT	MC-12300	1
2	JAM NUT	1/4-20	1
1	CLEVIS	MC-CF	1

ACAD MC13	MATCO mfg [illegible]	MASTER CYLINDER ASSEMBLY	DRAWN BY: GARY P. LANGFORD CHECKED BY:	SCALE: 1" = [illegible] DATE: 10/90	3 OF 3





EXTRANEOUS TUBE WORK OMITTED
VIEW LOOKING FORWARD

GENERAL NOTE:

ALL FASTENERS ARE TO BE INSTALLED IN ACCORDANCE WITH A.C. 43-13.

DRAWING CHANGES

REV.	DWG. CHANGE NOTE	DATE	REVISION DESCRIPTION / REASON
1			ORIGINAL

ITEM	REF	QTY	PART No.	DESCRIPTION	SIZE	GRADE	MAT. SPEC.	[illegible]	MASS
17	-	1	51 05	COLUN STARTER SOLENOID					
16	-	1	397 19	DRYFIT BATTERY					
15	-	2	MS24665-353	COTTER PIN					
14	-	1	AN3-4A	BOLT					
13	-	8	MS20365-1032	NYLOC NUT					
12	-	16	AN960-10	WASHER					
11	-	7	AN3-3A	BOLT					
10			BLANK						
9	-	2	10813900-03-07	FWD FUSELAGE ATTACHMENT BRACKET					
8	-	2	10813900-03-06	NYLON PACKER					
7	-	1	10813900-03-05	SECURING BRACKET					
6	-	1	10813900-03-04	AFT FUSELAGE ATTACHMENT BRACKET					
5	-	1	10813900-03-03	SECURING TUBE					
4	-	1	10813900-03-02	ATTACHMENT TUBE					
3	-	1	10813900-03-01	ATTACHMENT TUBE					
2			BLANK						
1	-	1	10813900-02-01	BATTERY BOX ASSEMBLY					

MANUFACTURING OPERATIONS

Tolerance
[Except where otherwise stated]

Between	Tolerance
0-6mm (0-0.25")	±0.1 (0.0039")
6-30mm (0.25-1.25")	±0.2 (0.0078")
30-120mm (1.25-5")	±0.3 (0.0118")
OVER 120mm (5")	±0.5 (0.0196")

ANGULAR TOLERANCE (U.N.O.) ±0.5°

BEND RADIUS	3 x THICKNESS
CORNERS AND FILLETS	R 0.125" (3mm)

MARK PART No IN HIDDEN MARKED

ALL DIMENSIONS TO BE MET AFTER PLATING
REMOVE ALL BURRS
BREAK ALL SHARP EDGES 0.4mm-0.8mm

SURFACE ROUGHNESS INCLUDING REAMED HOLES

SURFACE ROUGHNESS FOR DRILLED HOLES U.N.O.

WELDING

REFER SKYFOX WELDING PROCEDURES SA-1

MATERIAL

MATERIAL

TREATMENT
REFER ADA-P-100 CORROSION TREATMENT
SECTION 3 - EXT. STEEL SURFACES
SECTION 4 - INT. STEEL SURFACES
SECTION 5 - EXT. ALUMINIUM SURFACES
SECTION 6 - INT. ALUMINIUM SURFACES

DIMENSIONS IN INCHES U.N.O.

APPROVAL STAMP
APPROVED pursuant to a direction given by regulation ___ of the Civil Aviation Regulations.
For and on behalf of [signature]
Date 3-5-95

AERONAUTICAL DESIGNS AUSTRALIA PTY. LTD.

UNIT 2 / 872 SHERWOOD RD. SHERWOOD
Incorporated in Queensland.

PHONE (07) 379 1095
FAX (07) 379 1732

AS 1100
THIRD ANGLE PROJECTION

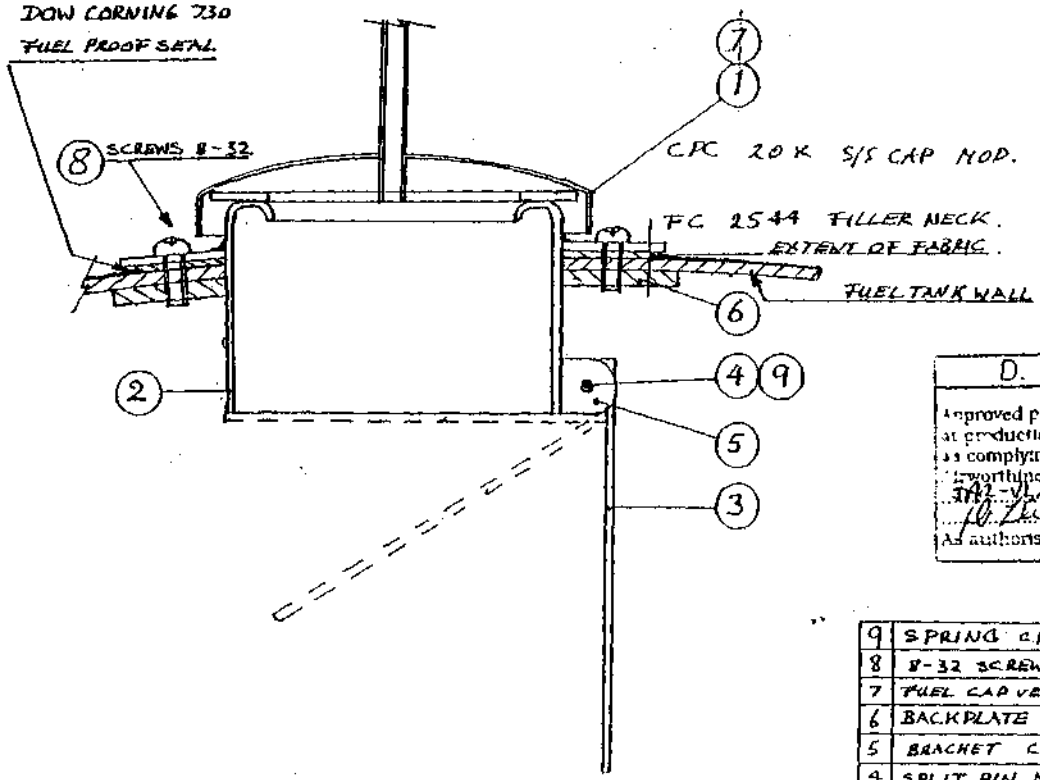
DRAWN	MATHER BIDGOOD	
DATE	03-04-95	
SCALE	F.M.B	
CHECKED		
APPROVED	04-05-95	

Client
SKYFOX AVIATION

Title
SKYFOX CA-25N GAZELLE
BATTERY INSTALLATION
INSTALLATION DETAILS

Weight	Area	Drawing Number	Revision
		10813900-01	1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



D. J. LLEWELLYN

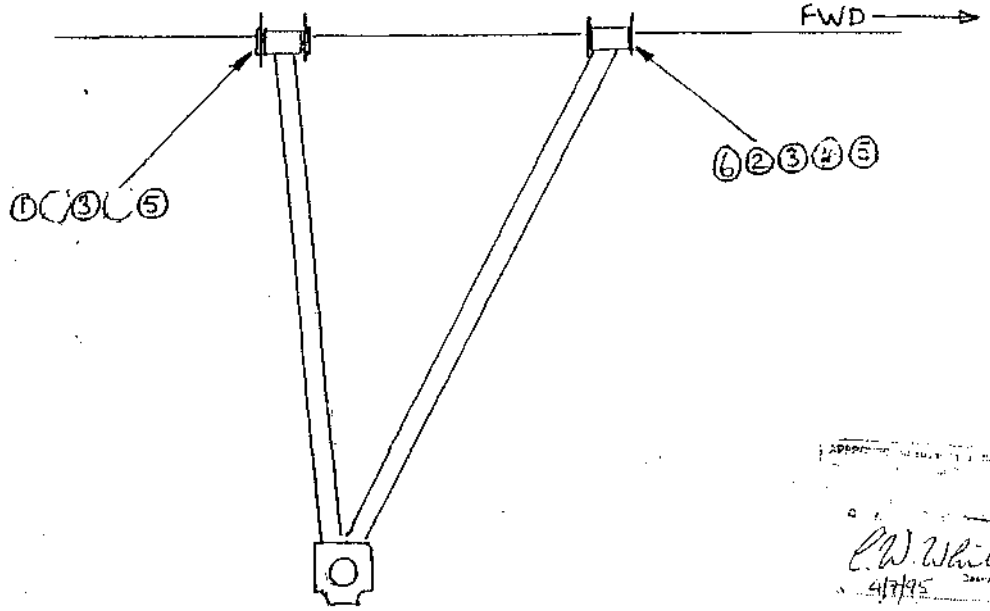
Approved pursuant to C.A.R. 35
at production issue No. 1
as complying with the following
Airworthiness Design Standard:
JAR-VLA
Date 27/1/93
As authorised under JAA

9	SPRING CD 037-06
8	8-32 SCREWS INSTALLED WITH LOCTITE 569
7	FUEL CAP VENT ASSY. 91-034
6	BACKPLATE CD 037-03
5	BRACKET CD 037-06
4	SPLIT PIN MS 24665-302.
3	FLAP CD-037-04
2	FC 2544 FILLER NECK
1	FUEL CAP FC 2646

LIMITS		DRAWN	TWD	SKYFOX AVIATION	TITLE FILLER NECK VALVE ASSY.
		APPROVED			DRAWING NO CD-037-00

SCALE 1:1 | ISS 1 | DATE 19-5-93

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



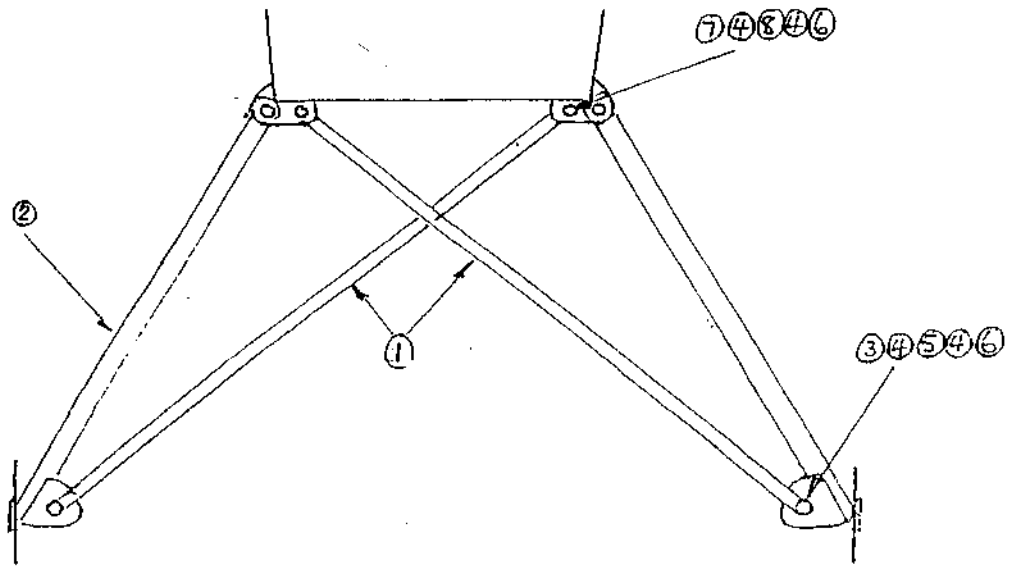
C.W. Whitney
4/7/95

6	BOLT	AN5-17A
5	NUT	AN365-524
4	WASHER	AN960-5
3	BUSH	A8-2-1
2	WASHER	AN960-5L
1	BOLT	AN5-20A

SCALE 1:1 | ISS 1 | DATE 25/5/95

LOUTS | DRAWN | SKYFOX | TITLE MAIN U/C ASSEMBLY PARTS LIST | DRAWING No UCA-1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



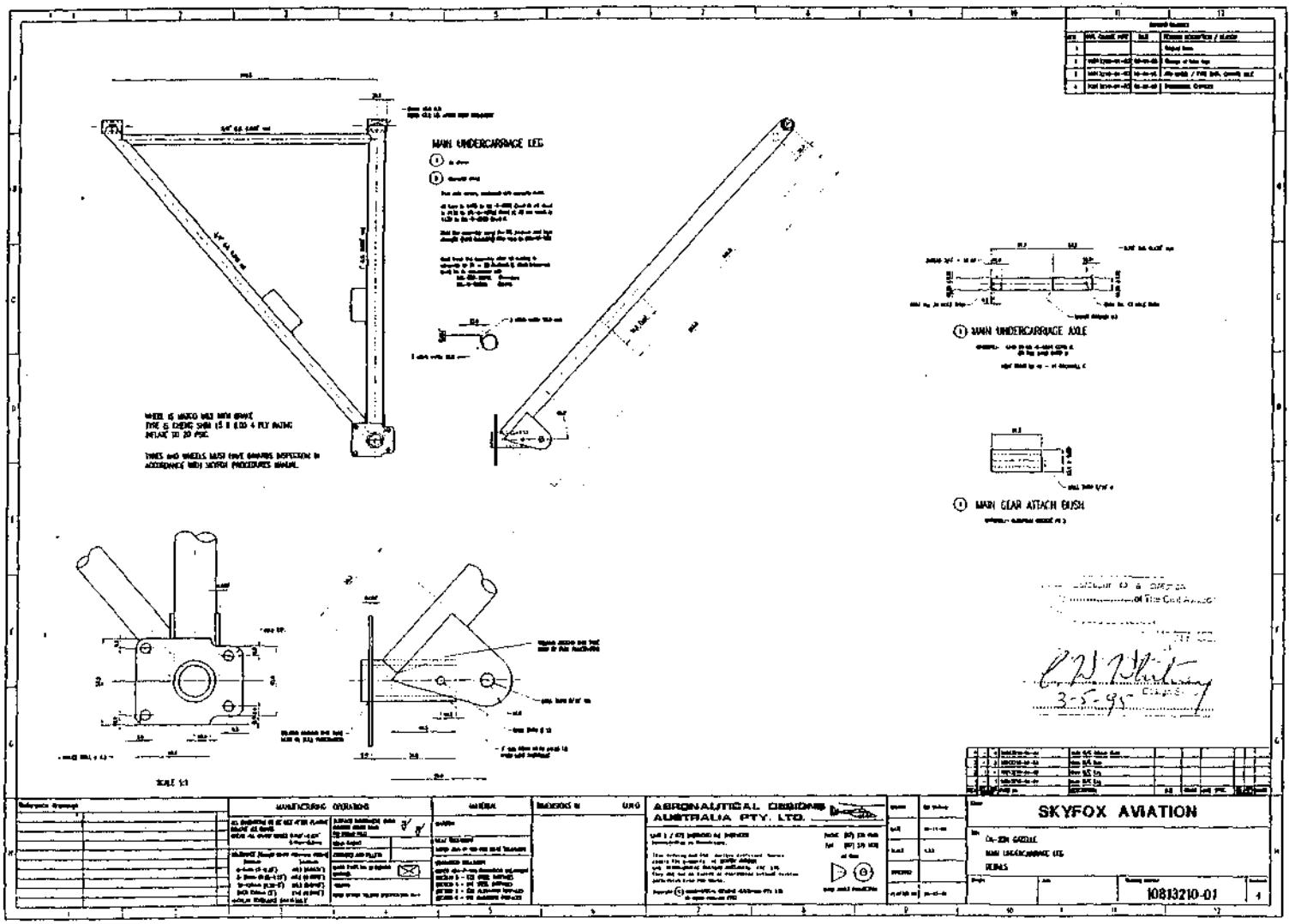
8	BUSH	AB-2-1
7	BOLT	AN5-17A
6	NUT	AN365-524
5	BUSH	AB-2-2
4	WASHER	AN960-5
3	BOLT	AN5-15A
2	U/C LEG	AUL-2
1	CROSS MEMBER	MSS-1

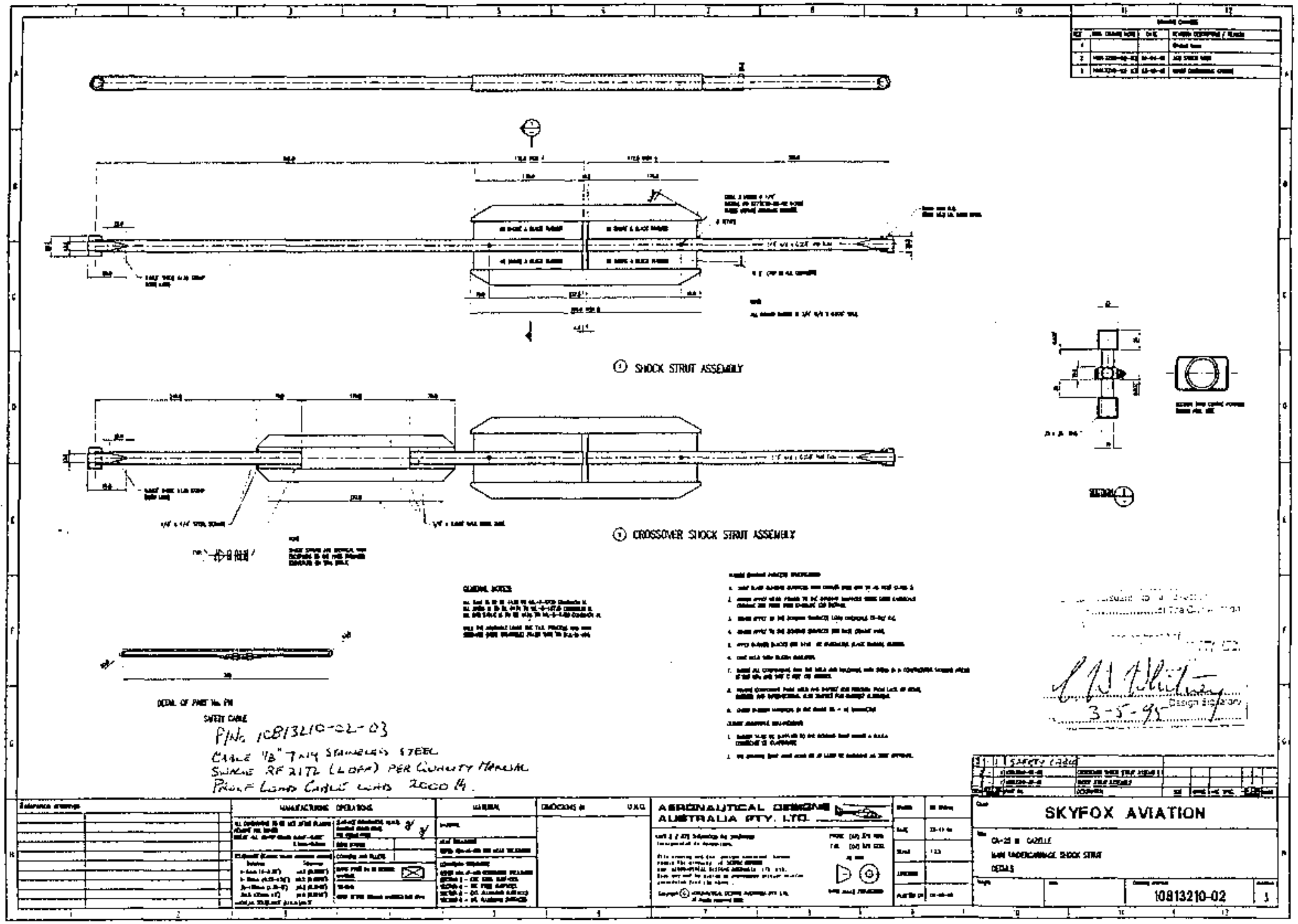
4/7/95

SCALE 1:1 | ISS 1 | DATE 26/5/95

UNITS mm | DRAWN AC | SKYFOX AVIATION | TITLE MAIN U/C ASSEMBLY PARTS LIST | DRAWING NO UCA-1

MATERIAL | APPROVED

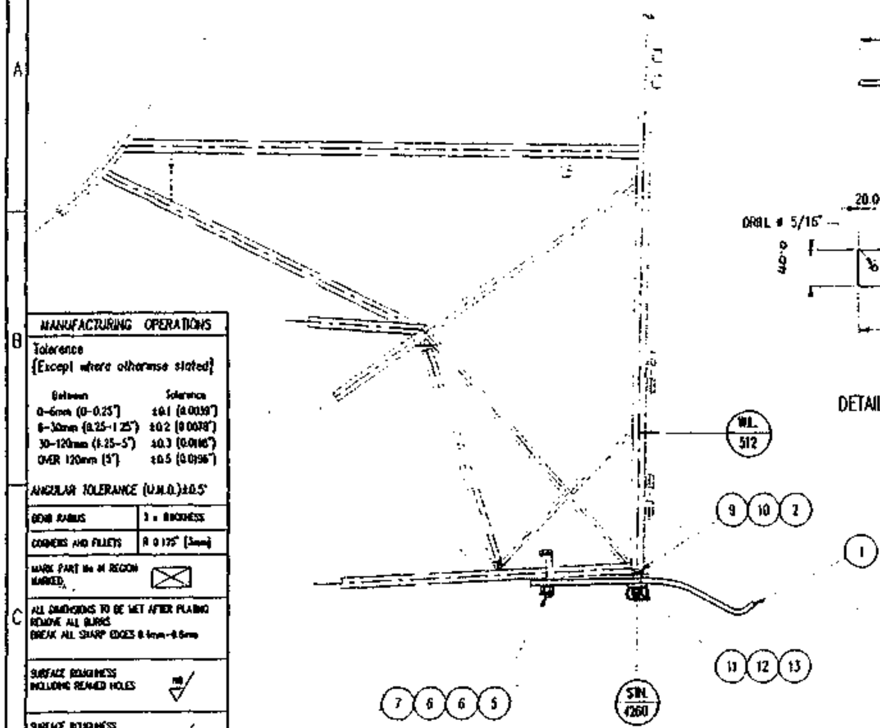

MAIN UNDERCARRIAGE LEG
MAIN UNDERCARRIAGE AXLE
MAIN GEAR ATTACH BUSH
SCALE 1:1
AERONAUTICAL DESIGNS AUSTRALIA PTY. LTD.
SKYFOX AVIATION
10813210-01

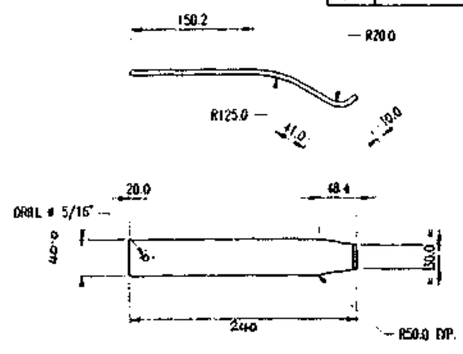


\ADRAWINGS\AB13210?2 Mon May 8 10:02:46 1995

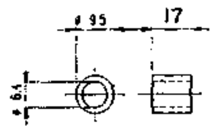
REV.	DWG. CHANGE NOTE	DATE	REVISION DESCRIPTION / REASON
1			ORIGINAL

DRAWING CHANGES





DETAIL OF PART No. 10813250-01-01 (1)



DETAIL OF PART No. 10813250-01-02 (2)
SCALE 1:1

ITEM	SEC.	QTY	PART No.	DESCRIPTION	SIZE	GRADE	MAT. SPEC.			MASS
13	-	2	MS20365-428	NYLOC NUT						
12	-	1	24226	HOSE	45					
11	-	1	F02-26	TAIL SPRING GUIDE						
10	-	2	AN960-416	WASHER						
9	-	1	AN5-12A	BOLT						
8	-	1								
7	-	1	AN 365-624	NUT						
6	-	2	AN960-516	WASHER						
5	-	1	AN5-16A	BOLT						
4			BLANK							
3			BLANK							
2	-	2	10813250-01-02	3/8" o.d. x 0.035" WALL STEEL TUBE	10.0	4130	MIL-T-6736	N		0.0
1	-	1	10813250-01-01	B&P 6.0mm THICK THICK SPRING STEEL	45 x 297	AISI				0.0

MANUFACTURING OPERATIONS

Tolerance
(Except where otherwise stated)

Between	Tolerance
0-6mm (0-0.25")	±0.1 (0.0039")
6-30mm (0.25-1.25")	±0.2 (0.0078")
30-120mm (1.25-5")	±0.3 (0.0118")
OVER 120mm (5")	±0.5 (0.0196")

ANGULAR TOLERANCE (U.N.O.) ±0.5°

BEND RADIUS	3 x THICKNESS
CORNERS AND FILLETS	R 0.125" (3mm)

MARK PART No. IN REGION MARKED

ALL DIMENSIONS TO BE MET AFTER PLATING
REMOVE ALL BURRS
BREAK ALL SHARP EDGES 0.1mm-0.5mm

SURFACE ROUGHNESS INCLUDING REAMED HOLES

SURFACE ROUGHNESS FOR DRILLED HOLES U.N.O.

WELDING

GENERAL NOTES:

REFER ADA-P-100 FOR SURFACE PROTECTION
REFER ADA-H-100 FOR HEAT TREATMENT SPECIFICATIONS.
ALL FASTENERS MUST BE INSTALLED IN ACCORDANCE WITH A.C. 43-13.

MATERIAL

MATERIAL

TREATMENT
REFER ADA-P-100 CORROSION TREATMENT
SECTION 3 - EXT. STEEL SURFACES
SECTION 4 - INT. STEEL SURFACES
SECTION 5 - EXT. ALUMINIUM SURFACES
SECTION 6 - INT. ALUMINIUM SURFACES

DIMENSIONS IN INCHES U.N.O.

APPROVAL STAMP
APPROVED pursuant to a regulation given by regulation ___ of the Civil Aviation Regulations.
for and on behalf of AERONAUTICAL DESIGNS AUSTRALIA PTY LTD.

AERONAUTICAL DESIGNS AUSTRALIA PTY. LTD.
UNIT 2 / 672 SHERWOOD Rd. SHERWOOD
Incorporated in Queensland.
PHONE (07) 379 1859
FAX (07) 379 1332

AS 1100
THIRD ANGLE PROJECTION

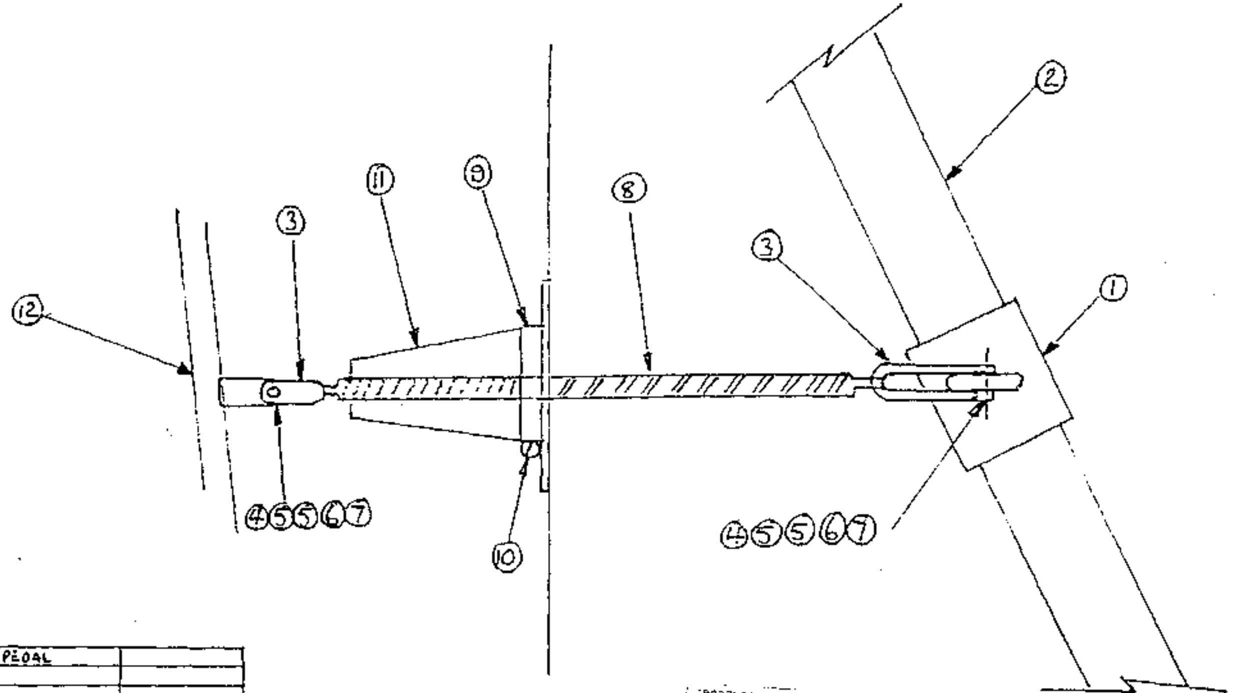
DRAWN	MATTHEW DICKSON
DATE	07-04-95
SCALE	1:5
CHECKED	
APPROVED	04-05-95

Client: **SKYFOX AVIATION**

Title: SKYFOX CA-25N GAZELLE
TAIL SKID
GENERAL DETAILS

Drawing Number: 10813250-01
Revision: 1

THIS DRAWING IS COPYRIGHT AND MUST NOT BE COPIED WITHOUT CONSENT OF SKYFOX AVIATION | DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



12	RUDDER PEDAL	
11	BOOT	
10	CLAMP	
9	FLANGE	SLF-1
8	SPRING	C191
7	SPLIT PIN	MS24665-151
6	NUT	AN 310-3
5	WASHER	AN 960-10
4	BOLT	AN 3-5
3	SHACKLE	RF 614
2	NOSE LEG	
1	STEERING ARM	

APPROVED

4/7/95

SCALE 1:1 | ISSUE 1 | DATE 25/5/95

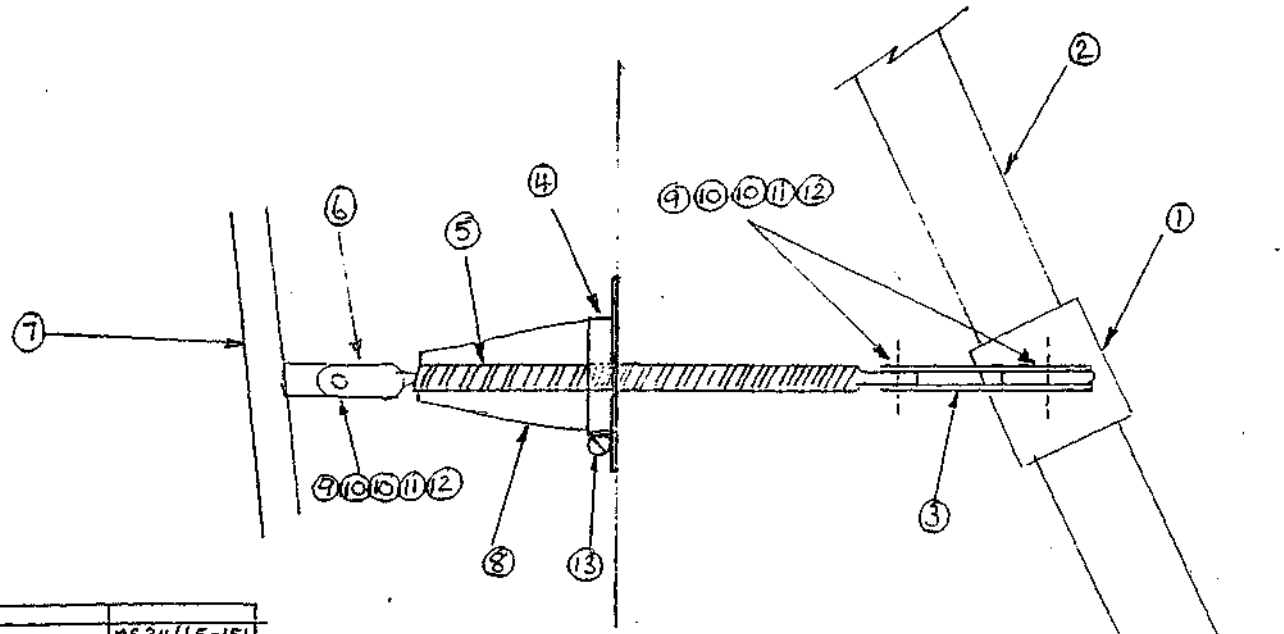
DRAWN P.G.

SKYFOX AVIATION

TITLE STEERING ASSEMBLY L/H

DRAWING NO S.A-3

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



13	CLAMP	
12	SPLIT PIN	MS24665-151
11	NUT	AN 310-3
10	WASHER	AN 960-10
9	BOLT	AN 3-5
8	HEAT SLEEVE	
7	RUDDER PEDAL ASSEMBLY	
6	SHACKLE	RF 614
5	SPRING	C191
4	FLANGE	SLF-1
3	LINKAGE	TAL-1
2	NOSE LEG	
1	STEERING ARM	

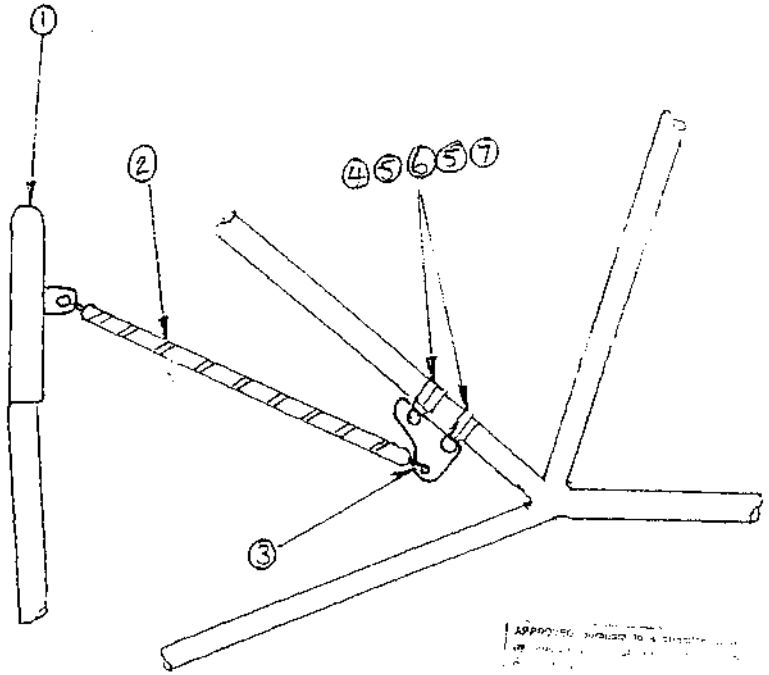
APPROVED ... C.W. Whitney ... 4/7/95

SCALE 1:1 | ISS 1 | DATE 14/5/95

UNITS | DRAWN P.G. | SKYFOX AVIATION | TITLE STEERING ASSEMBLY RH | DRAWING NO SA-2

MATERIAL | APPROVED

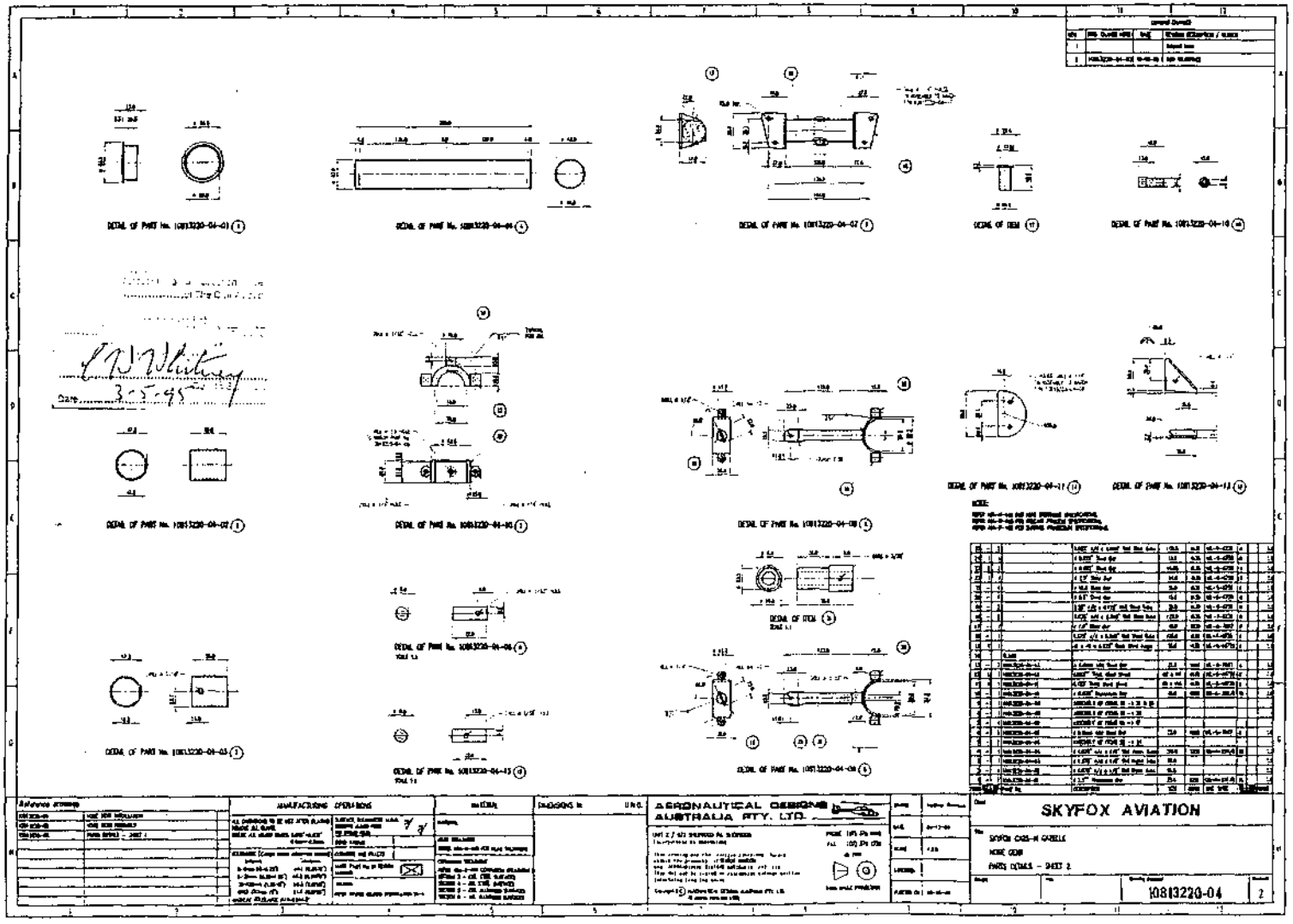
DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION



7	NUT	AN 365-3
6	CLAMP	
5	WASHER	AN 960-10
4	BOLT	AN 3-4A
3	BRACKET	
2	SPRING	T 234
1	RUDDER PEDAL	

4/7/95

UNITS | DRAWN PG | SKYFOX AVIATION | TITLE RUDDER RETURN L/H | SCALE 1 | DATE 6/7/95 | DRAWING No RR-2



SKYFOX AVIATION

SKYFOX CASE-H CABELLE

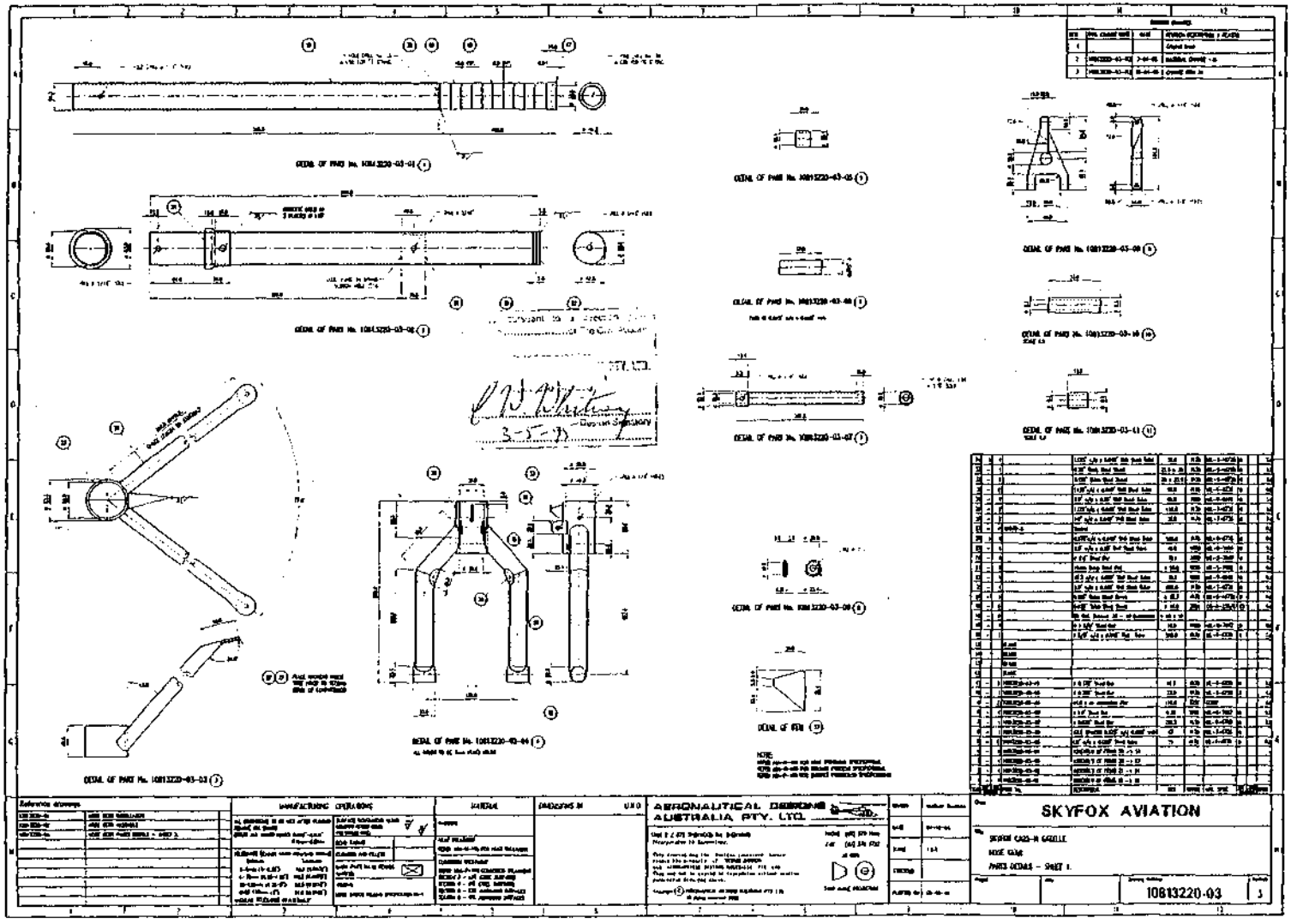
NOSE GEAR

PARTS DETAILS - SHEET 2

10813220-04

2

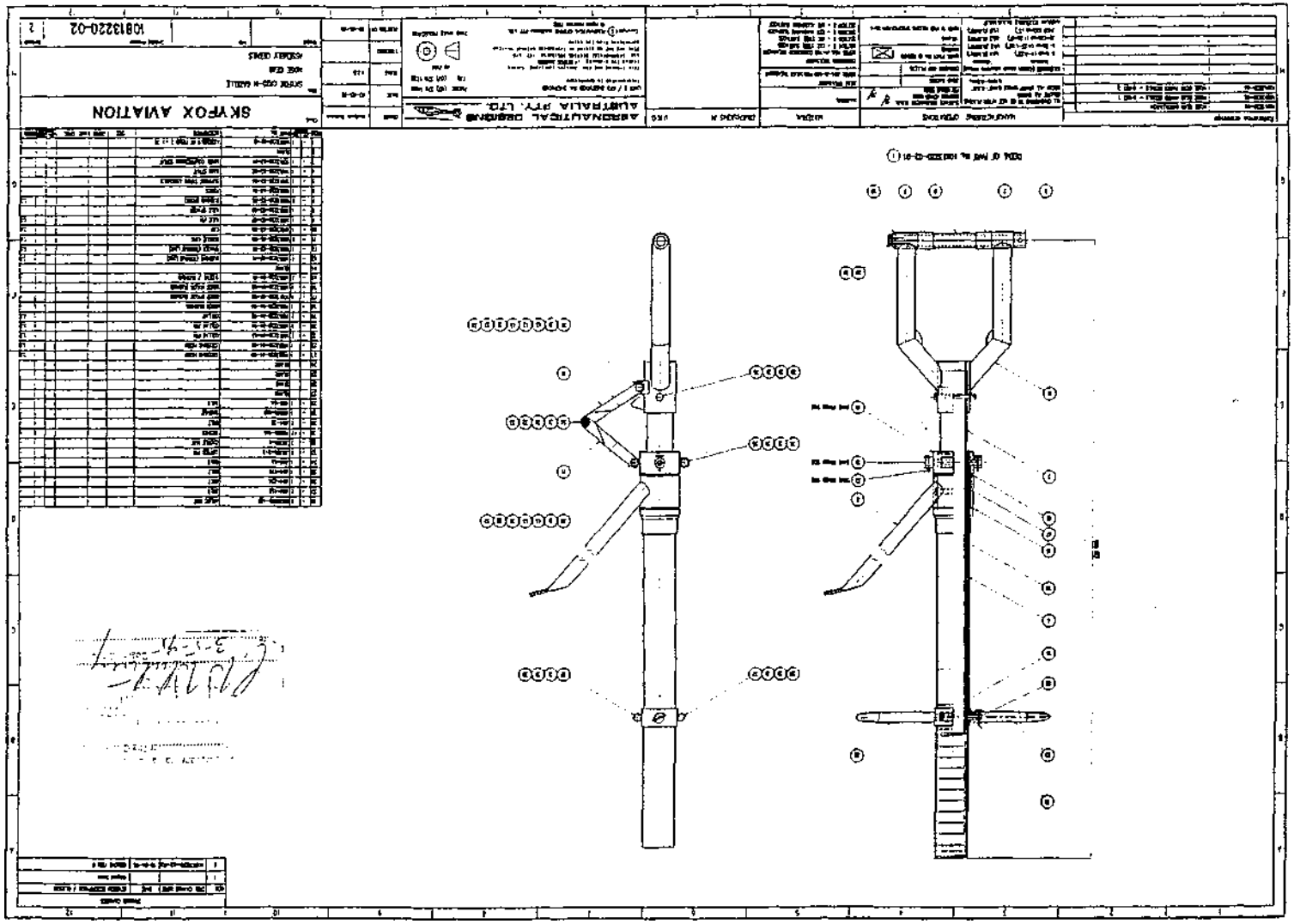
AERONAUTICAL DESIGNS AUSTRALIA PTY. LTD.

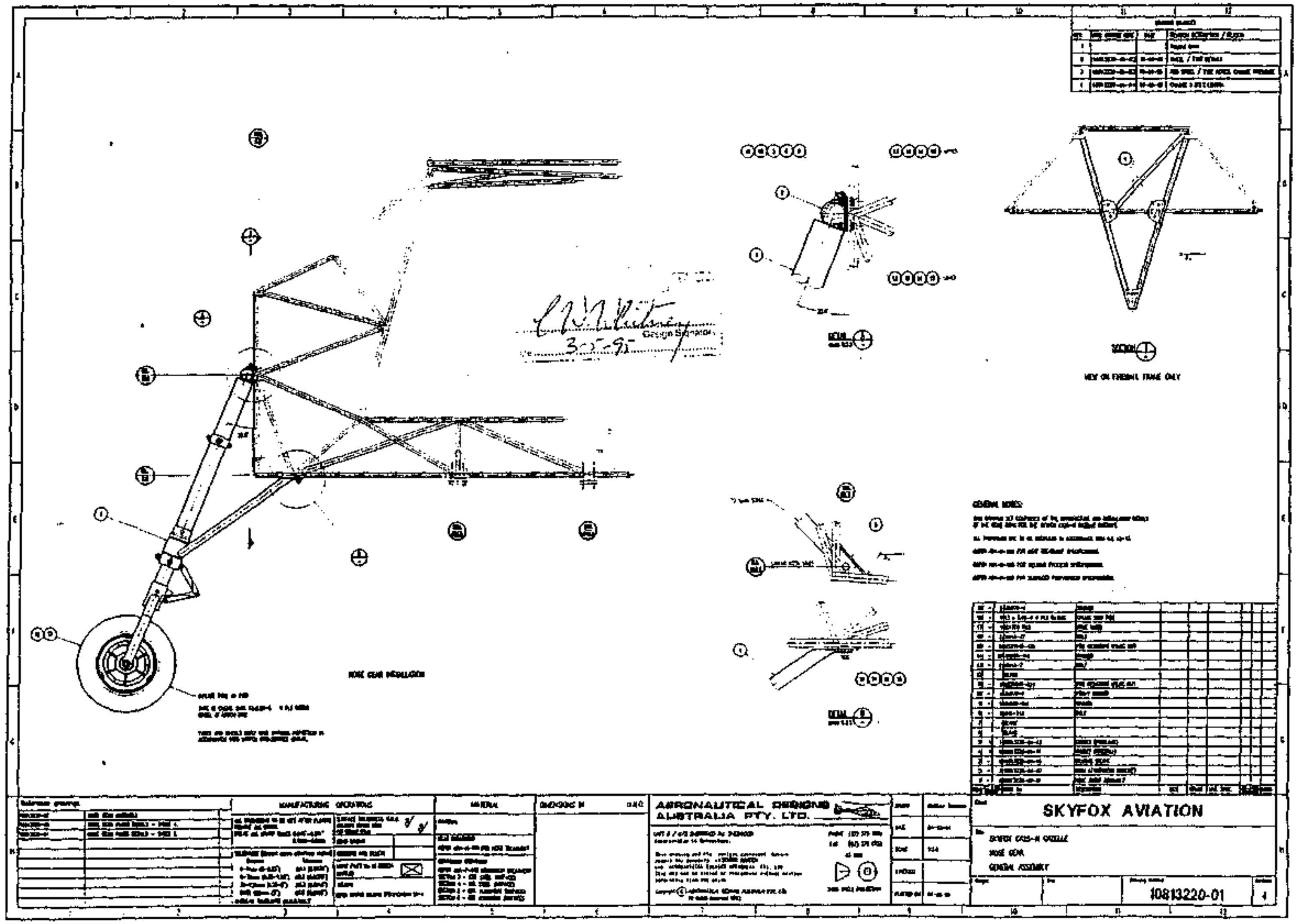


SKYFOX AVIATION

10813220-03

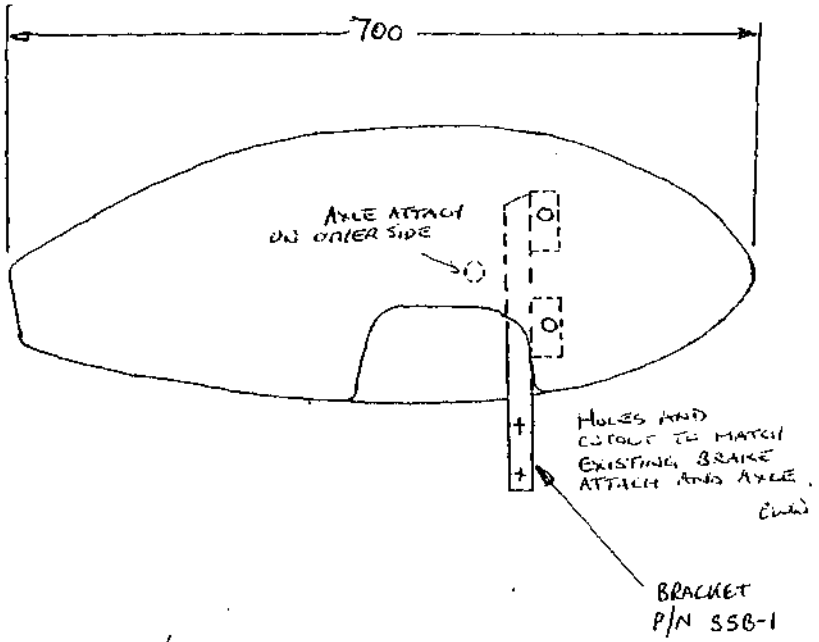
3



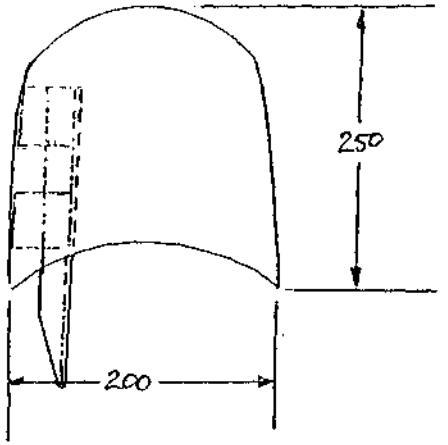

Design Signatory
3-5-95
AERONAUTICAL DESIGNS AUSTRALIA PTY. LTD.
SKYFOX AVIATION
10813220-01

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

APPROVED pursuant to a direction given by regulation 31 of The Air Navigation Regulations.
for and on behalf of
C. W. WHITNEY PTY. LTD.
Design Signatory
Date 1-6-95



NOTE: R/H OPPOSITE



FIBREGLASS LAYUP + SPEC SAME AS NOSE SPAT

AFTER INSTALLATION CHECK THAT TYRE, WHEEL AND BRAKE DISC CLEAR SPAT BY AT LEAST 1/2".

MAT: AS PER DRAWING NO. NWS-1

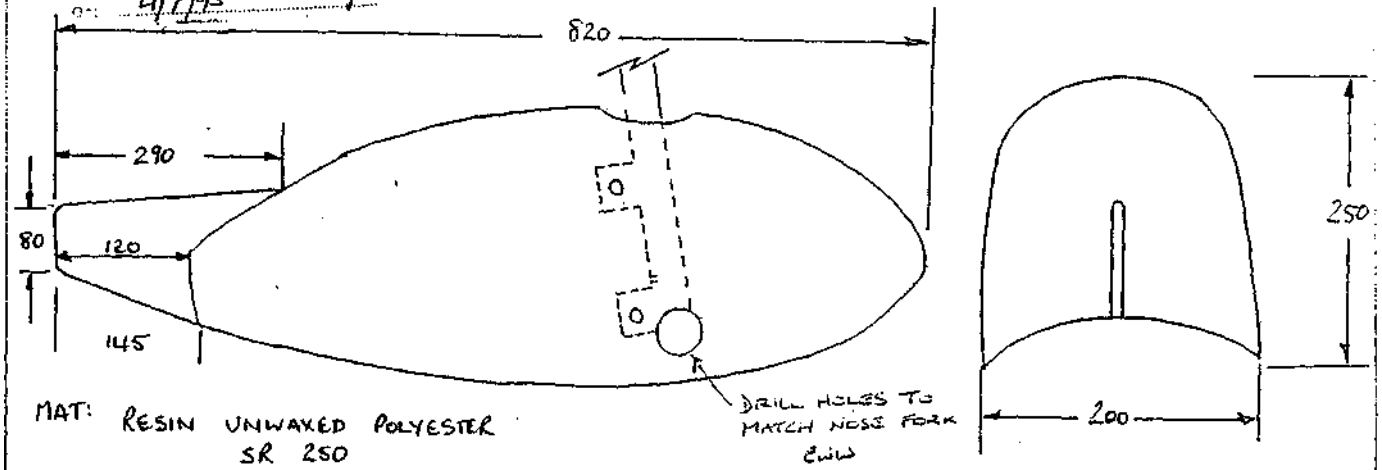
LIMITS +/- 1.0	DRAWN RC	SKYFOX AVIATION	TITLE MAIN WHEEL SPAT L/H	SCALE 1:1	ISS 1 DATE 29/5/95
MATERIAL FIBRE GLASS 1.5mm				DRAWING NO NWS-1	

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

APPROVED pursuant to a direction given ... of the Air Navigation ... on behalf of ...

P.W. Whitney
Design Staff
4/7/95

CHANGE 2 - ADDITION OF FIN



MAT: RESIN UNWAXED POLYESTER SR 250

GLASS CLOTH CHOPPED STRAND 450 grams/m²

2ND LAYER ON EDGES 250 grams/m²

WEIGHT : 1·0 KG ± 100 grams

FIBREGLASS WORK TO SKYFOX SPEC 24

MANUFACTURE ON SKYFOX MOLDS WS 1/WS 2/WS 3/W

AFTER INSTALLATION ON AIRCRAFT CHECK THAT WHEEL CLEARS SPAT BY AT LEAST ½" ALL ROUND (BY WHEEL - WHEEL + TYRE IS MEANT)

SCALE	2	6/7/95
	ISS	DATE

UNITS	DRAWN	SKYFOX AVIATION	TITLE: NOSE WHEEL SPAT	DRAWING NO NWS-1
HORIZONTAL	APPROVED			

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

RIVETS USED:

CHERRY -

AVDEL: 1/8" 1661 - 0414

WASHERS: 1/8" x 3/8" x 21 G

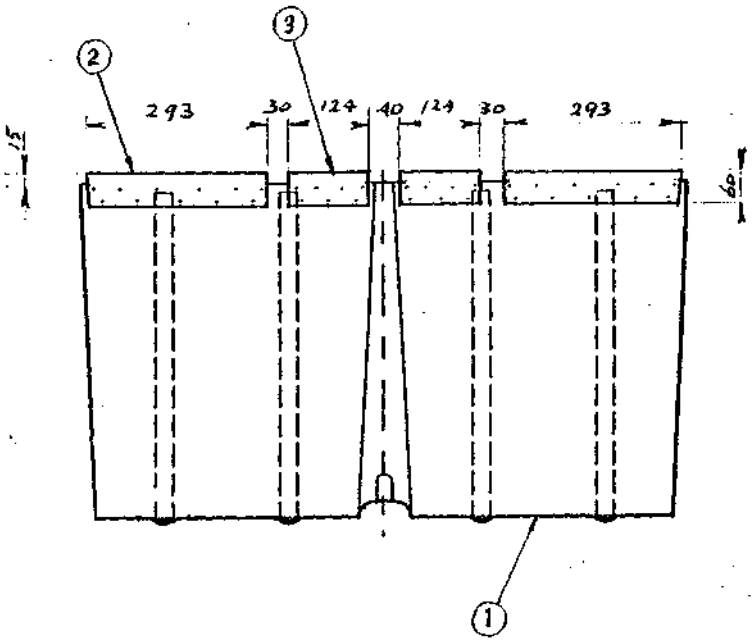
ADHESIVE: 2216 B/A EPOXY.

APPROVED PURSUANT TO REGULATION 35 OF THE CIVIL AVIATION REGULATIONS

SIGNED ..... (ALAN PARKER)

DATE 26/2/97

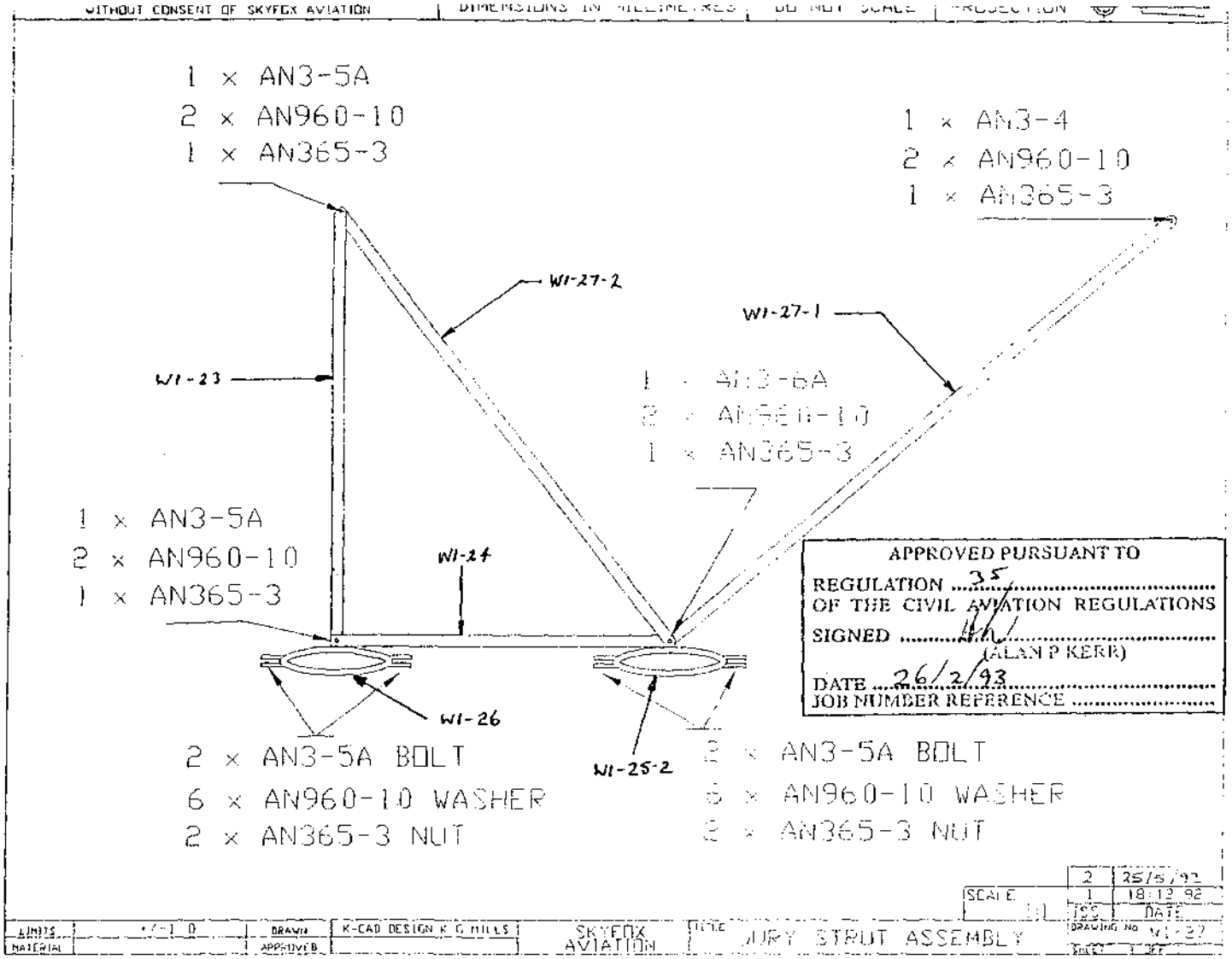
JOB NUMBER REFERENCE .....



ITEM	PART NO	DESCRIPTION	QTY
1	91-05	SEAT	1
2	91-05-2	SEAT FWD/AFT BRACKET	2
3	91-05-3	SEAT FWD/AFT BRACKET	2

NOTE: REFER TO SKYFOX PROCESS SPEC SA3 FOR BONDING PROCEDURE.

LIMITS		DRAWN	C DALBITUO	SKYFOX AVIATION	TITLE SEAT ASSY.	SCALE 1:1
MATERIAL		APPROVED				ISS 1
						DATE 1-11-96
						DRAWING NO 91-05-1
						SHEET



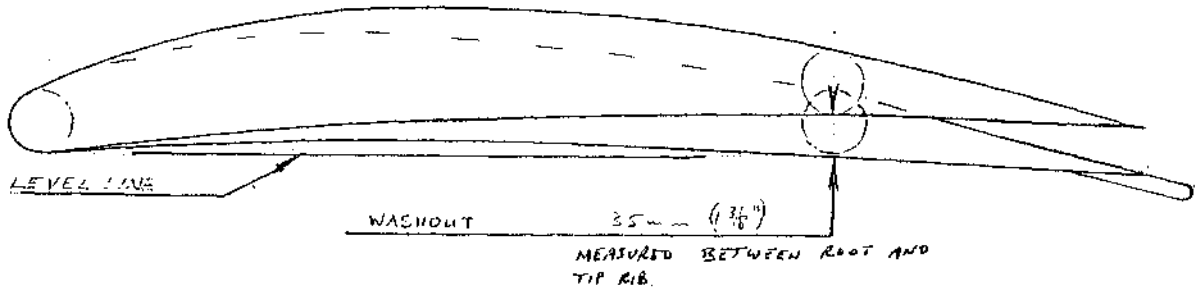
APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE

UNITS	+/-1.0	DRAWN	K-CAD DESIGN K G MILLS	SKYFOX AVIATION	TITLE	JURY STRUT ASSEMBLY
MATERIAL		APPROVED				DRAWING No WI-27

SCALE 1:1 | 2 | 25/6/92 | 1 | 18:12:92 | DRG | DATE | SHT 1 OF 1

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

WASHOUT DETAIL A

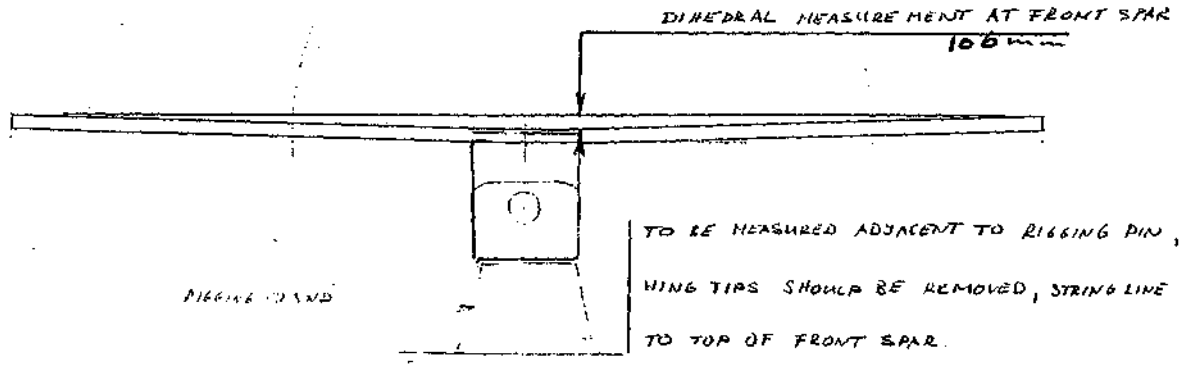


APPROVED PURSUANT TO
REGULATION 35
OF THE CIVIL AVIATION REGULATIONS
SIGNED .....
(ALAN P KERR)
DATE 26/2/99
JOB NUMBER REFERENCE .....

UNITS | DRAWN | SHEET TWO | SKYFOX AVIATION | TITLE WASHOUT DETAIL A | DRAWING NO W 1-324
MATERIAL | PASSED | ISS | DATE

DIMENSIONS IN MILLIMETRES | DO NOT SCALE | PROJECTION

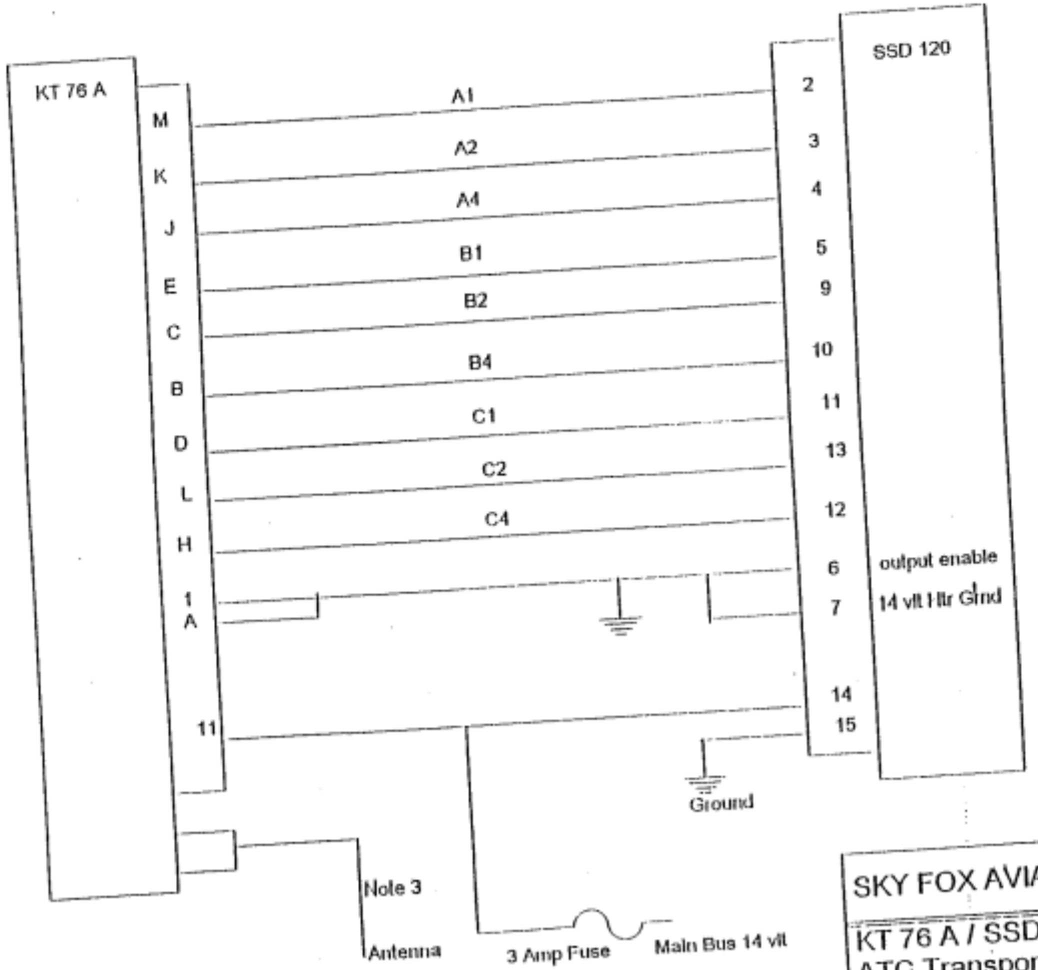
DIHEDRAL DETAIL B



APPROVED PURSUANT TO
REGULATION 35.1
OF THE CIVIL AVIATION REGULATIONS
SIGNED
(ALAN P KERR)
DATE 26/2/93
JOB NUMBER REFERENCE

NOT TO SCALE | SCALE | ISS 1 | DATE 25-10-93

LIMITS | MATERIAL | DRAWN | APPROVED | DALBY | SKYFOX AVIATION | TITLE DIHEDRAL DETAIL B | DRAWING No WI-32-2 | SHEET 1 OF 1



NOTES

1 Power wiring & grounds are 22 Guage
2 All other wiring is 24 Guage.
3 Antenna Co-ax is RG58 or higher spec
4 All wiring to C.A.O. 108.32 requirements
5 Wiring Spec M 27500 minimum
6 Encoder Instrument connections as per Trans- Cal Industries installation manual

APPROVED
PURSUANT TO CAR 35 / CAR 138

AUTHORISED PERSON
DATE 5 JAN 96
I.A. NO P088130
JOB No. 01/01/96

SKY FOX AVIATION	DRAWING NUMBER SKY - 76
KT 76 A / SSD 120 Installation drawing ATC Transponder Altitude Encoder	
Issue ONE Dated 1 January 1995	Drawn TURBO CAD Drwn IM