REMOS

REMOS GX

Maintenance Handbook

Revision 03

REMOS GX

Imprint

Maintenance Manual REMOS GX - Revision R03

prepared according to ASTM F2483-05

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List of Effective Pages

Total number of pages in this publication is 295 consisting of the following:

Section	Title	Page	Revision
	Title	Title	03
	List of Effective Pages	A	03
1	General Description	1-1 thru 1-8	03
2	Ground Handling	2-1 thru 2-16	03
3	Fuselage	3-1 thru 3-12	03
4	Wings-and-Empennage	4-1 thru 4-12	03
5	Landing Gear	5-1 thru 5-38	03
6	Aileron Control	6-1 thru 6-12	03
7	Wing Flap Control	7-1 thru 7-14	03
8	Elevator Control	8-1 thru 8-8	03
9	Trim Control	9-1 thru 9-6	03
10	Rudder Control	10-1 thru 10-8	03
11	Engine	11-1 thru 11-28	03
12	Fuel-System	12-1 thru 12-20	03
13	Propeller	13-1 thru 13-14	03
14	Utility Systems	14-1 thru 14-10	03
15	Instrument System	15-1 thru 15-40	03
16	Electrical Systems	16-1 thru 16-20	03
17	Structural-Repair	17-1 thru 17-14	03
18	Continuing Airworthiness and Inspection	18-1 thru 18-12	03
	Imprint		

Do not exchange pages. Replace the entire manual in case of update.

Section 1

General Description

Table of Contents **Section**

1.1 Aircraft Description

REMOS GX Series aircraft, described in this manual, are high wing monoplanes of all composite carbon fiber monocoque construction. These aircraft are equipped with a fixed tricycle landing gear. The aircraft is equipped either with composite (glass fiber) main landing gear struts, featuring fixed wheel fairings or with steel gear struts and removable wheel spats and a steerable nose gear. Two place seating is standard. Each aircraft is equipped with a 4-stroke, four cylinder, horizontally opposed, water cooled Rotax 912 UL/S aluminum alloy engine, driving a fixed pitch or ground adjustable propeller.

1.2 Aircraft Specifications

Primary specifications of the aircraft, with dimensions based on gross weight, are given in figure 1-1. If these dimensions are used for constructing a hangar or computing clearances, remember that such factors as tire pressure or load distributions may result in some dimensions that are somewhat different from those listed.

Figure 1-1

Gross Weight……..	1320 lb
Fuel Capacity……..	22 gal.
Oil Capacity……..	Min 2.1 qts.
	Max. 3.1 qts.
Engine Model (Refer to ROTAX Operators Manual)……	Rotax 912 UL-S2
Propeller (Fixed Pitch)……	66" F.lli Tonini 21.5 deg @ 19.7 in
	66" Woodcomp 21.5 deg @ 19.7 in
Propeller (Ground Adjustable)..……	70" Sensenich 23.0 deg @ 26.0 in
	65.0" Neuform 23.0 deg @ 24.4in
Main Wheel Tires……..	6.00 x 4, min 6PR
	15 x 6.00-6, min. 6PR
Pressure……..	29 - 34 psi
Nose Wheel Tire……	4.00 x 4, min 4PR
Pressure……	29 - 34 psi
Aileron Deflection	
Up……	21°, +/- 1°
Down……..	12°, +/- 1°
Wing Flap Deflection ……	0° to 40°, +0° / -1°

Rudder Deflection	
Right……	28°, +/- 2°
Left……..	28°, +/- 2°
Elevator Deflection	
Up……..	29°, +/- 1°
Down……	19°, +/- 1°
Elevator Trim Tab Deflection	
Up……...	15°, +/- 5°
Down……..	25°, +/- 5°
Principal Dimensions	
Wing Span……	30.7'
Length……..……..	21.7'
Vertical Stabilizer Height……	7.5'
Track Width..……..	6.9'
Tail Span……	9.1'

1.3 Equipment List

Factory installed equipment is listed in the Pilot Operating Handbook. Additional installed equipment and alterations have to be considered when performing weight and balance calculation and. If a ballistic recovery system is installed from the factory, this is already included in the factory weight and balance calculation form.

1.4 Sources to Purchase Parts

Spare parts may be ordered at

REMOS AG
Franzfelde 31
D-17309 Pasewalk
G E R M A NY
Phone: +49 (0) 3973 225519-0
E-mail: service@remos.com

Or at any REMOS Service Center. Have a frequent look at the REMOS website www.remos.com.

1.5 Disposable Replacement Parts

Disposable parts are not defined for the REMOS GX in general. All parts may be used on condition. Only following parts shall be used after disassembly: Cu rings, safety wire, self locking nuts, cotter pins.

If parts need to be exchanged during maintenance, they are defined in the maintenance checklist.

1.6 Engine Specifications

The ROTAX 912 Series engines are 4-stroke, 4 cylinder horizontally opposed, spark ignition engines, featuring one central camshaft with push rods – OHV. Cylinder heads are liquid cooled. Lubrication system is a dry sump forced type. It is equipped with dual breakerless capacitor discharge ignition and two constant velocity carburetors. Prop drive is via reduction gear with integrated shock absorber and overload clutch. Specific engine data are given in the latest ROTAX operator's manual.

Manufacturer		Bombardier-Rotax
Engine type		912 UL-S2
Max. Power	take-off	73.6 kW / 100 HP @ 5,800min-1 for max. 5 min.
	Max. cont.	69.9 kW / 95 HP @ 5,500min-1
Fuel qualities		EN225 Super Plus, min. RON95 ASTM D4814, min. AKI91 ASTM D910 AVGAS100LL ASTM D7547 UL91 HJELMCO AVGAS 91/96UL HJELMCO AVGAS 91/98UL up to 10% permitted in accordance with REMOS NOT-001
Usable fuel quantity		21 US gallons
Total fuel quantity		22 US gallons
Fuel pressure		max. 2.2 psi min. 5.8 psi
Engine oil		Synthetic or semi-synthetic motorcycle oil with gearbox additives. Do not use aircraft oil.
Oil rating		API-SG or higher ,see ROTAX SI-912-016
Oil viscosity		chose viscosity according to climate conditions, preferable 10W-40, 5W-40 or 5W-50, see ROTAX SI-912-016
Engine oil capacity		min. 2.1 qts max. 3.1 qts
Recommended oil		AEROSHELL Sport PLUS 4 10W-40
Oil pressure		max. 102 psi (cold start) min. 12 psi (below 3,500min-1) 29 … 73 psi (above 3,500min-1)
Oil temperature		max. 266°F min. 120°F
Coolant		BASF Glysantin Protect Plus/G48
Mixing ratio		1:1 (Glysantin : Water)
Temperature		max. 275°F

1.7 Weight and Balance Information

To perform a successful weight and balance calculation, the center of gravity "C.G." has to be determined with all installed equipment, including engine oil, cooling liquid, but without fuel. Figure 1-4 shows how to conduct the C.G. determination. All measurements including a listing of all installed equipment have to be noted in the separate weight and balance calculation form (an example is given in figure 1-5.). This form has to be placed in the aircraft, so every pilot will be able to conduct his specific weight and balance calculation prior to each flight.

1.7.1 Center of gravity determination

- **Required Tools:** Weighing scales, flexible clear hose, plummet, ruler
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

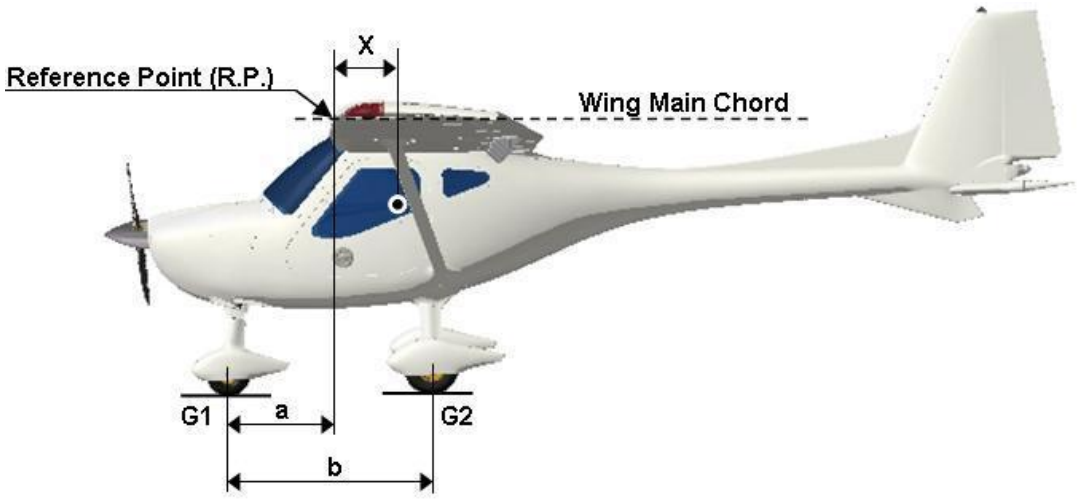
To determine “CG”, put the aircraft on 3 weighing scales, positioned on a level surface. Before weighing, a level wing main chord has to be established (use pads underneath scales). A check-mark reference point (R.P.) on the leading edge of the left wing, adjacent to the wing root, is provided to ease examination. To level the wing main chord, use a flexible clear hose, filled with water, as a spirit level. The total weight G = G1 + G2, has to be used for calculating “CG”, located at the distance “X” behind R.P.

1.7.2 CG-Calculation

A specific C.G.-calculation recommendation which has to be carried out prior to each flight is provided in the Pilot Operating Handbook.

♦ **NOTE**	For information only! Actual table may differ in values and layout.

Figure 1-4



The template for the weight and balance report including equipment list as shown in Fig. 1-5 is available on request at REMOS AG.

Figure 1-5

Weight & Balance and Equipment List — N xxxxx

REMOS AIRCRAFT

Type of Aircraft: REMOS GX

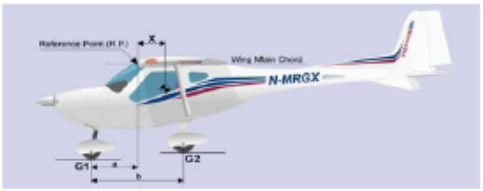
Serial Number: xxx

Technical Data	
1. Reference Point R.P.	Wing Leading Edge Fuselage
2. Reference Line R.L.	Wing Main Chord

Compontent Weights		[kg]	[lb]
Wing	right	28,2	62,1
Wing	left	28,6	63,0
Fuselage		258,8	569,9
Stabilizer		6,8	15,0
Wing Struts		8,2	18,1
Total Empty Weight		**330,6**	**728,1**
Useful Load		**289,6**	**591,9**
Gross Weight		**600,0**	**1.320,0**

Partial Weight		[kg]	[lb]
Nosegear	G1	70,3	154,7
Maingear	G2	260,3	573,3
Total Weight		**330,6**	**728,1**

Leverarm		[mm]	[in]
R.P. to Nosewheel	a	734	28,9
Nose- to Mainwheel	b	1375	54,1



Center of Gravity $x = \frac{G2 \times b}{G1 + G2} - a$

Center of Gravity	mm	Inch
empty C.G.	349	13,7
aft limit	245	9,6
front limit	415	16,3

Date of Weighing	24. Feb. 2012
Date of Equipment List	24. Feb. 2012
Date of Preparation of this Document	24. Feb. 2012

Signature/Stamp Inspector

Minimum Equipment List

Description	Type	location [mm/inch]	
Magnetic Compass	C2400 or equivalent	-250	-9,8
Airspeed Indicator	REMOS specification	-250	-9,8
Altude Indicator	4FGH40 or equivalent	-250	-9,8
SkyView (primary screen)	SV-D700	-250	-9,8
SkyView (EMS module)	SV-EMS-220	-150	-5,9
Engine	R912 UL-S, SNxxxxxxx	-1010	-39,8
Propeller	CR3-65	-1350	-53,1
Airbox w/ carb preheat	REMOS	-660	-26,0
ELT	Artex ME406	900	35,4
Position Lights w/ ACL	AeroLEDS NG90	40	1,6
Taillight w/ ACL	AeroLEDs Guntail	4700	185,0
Main Landing Gear Steel 4.00-6	REMOS	950	37,4
Nose Landing Gear Steel 4.00-4	REMOS	-660	-26,0
Safety Belts LH	8-2520M0M0N22-88	340	13,4
Safety Belts RH	8-2620M0M0N22-88	340	13,4
Recovery System	BRS 6-1350, SNxxxxx	1240	48,8

Equipment - Options

Description	Type	location [mm/inch]	
SkyView (ADAHRS module)	DYNON SV-ADAHRS-200	-250	-9,8
SkyView (backup battery No.1)	DYNON SV-BAT-320	-350	-13,8
SkyView (GPS module)	DYNON SV-GPS-250	1350	53,1
SkyView (remote transponder)	DYNON SV-XPNDR-261	-350	-13,8
Blind Encoder	SSD120-RS232	-490	-19,3
Intercom	GARMIN GMA240	-250	-9,8
COM	GARMIN SL40	-250	-9,8
GPS	GARMIN aera500	-250	-9,8
ELT	ARTEX ME406	950	37,4
el. Fuel Pump	Pierburg or equivalent	950	37,4
Cabin Heating System	REMOS	-860	-33,9
Oil Vent.	REMOS	-1260	-49,6
Dual Throttle	REMOS	-250	-9,8
Jetstick	G303	0	0,0
12V Receptacle	REMOS	-250	-9,8
Taillight incl. ACL	AeroLEDs Guntail	4700	185,0
Wingtip Pos. Lights incl. ACL	AeroLEDs NG90	40	1,6
Landing Light	AEROSUN 1600	40	1,6
Instrument Lights	REMOS	-250	-9,8
Door Vents	REMOS	-40	-1,6
Door Gas Springs	REMOS	590	23,2
Door Fairings and Pockets	REMOS	0	0,0
Luggage Comp.	REMOS	960	37,8
Luggage Pocket Net	REMOS	710	28,0
Luggage Pocket Mats	REMOS	710	28,0
Leather/Fabric Seats	REMOS	500	19,7
Floor Mats	REMOS	-350	-13,8
Wing Strut Fairings	REMOS	500	19,7
Nose Landing Gear Fairing	REMOS	-750	-29,5
Main Landing Gear Fairings	REMOS	650	25,6
Wing Folding Mechanism	REMOS	980	38,6
Ventilation System	REMOS	40	1,6
Sun Visors	REMOS	40	1,6
Recovery System	BRS 6-1350, SNxxxxx	1240	48,8

1.8 Tire Inflation Pressure

Maintain tire pressure at the air pressure specified in figure 1-1. When checking tire pressure, examine tires for wear, cuts, bruises and spillage. Remove oil, grease and mud from tires with soap and water.

1.9 Approved Oils and Capacities

In general we recommend referring to the latest ROTAX 912 Series engine operator's manual to check for suitable engine oil. Nevertheless may be obtained from ROTAX Service Instructions SI-912-016 in its actual revision.

CAUTION	If engine is mainly run on AVGAS more frequent oil changes will be required. See ROTAX Service Information SI-912-016, latest edition. At the selection of suitable lubricants also refer to the ROTAX Service Information SI-912-016 latest edition. The use of multi-grade oils is recommended. Multi-viscosity grade oils are less sensitive to temperature variations than single-grade oils. They are suitable for use in all seasons, ensure rapid lubrication of all engine components at cold start and multi-viscosity oils get less fluid at higher temperatures.

1.10 Torque Values

A Chart of recommended nut torque values is shown in figure 1-7. These torque values are recommended for all installation procedures contained in this manual, except where other values are stipulated. They are not to be used for checking tightness of installed parts during service.

Figure 1-7

M4…….	4 Nm / 35 in.lb.
M5…….	6 Nm / 53 in.lb.
M6…….	10 Nm / 88 in.lb.
M8…….	24 Nm / 212 in.lb.
M10……..	35 Nm / 310 in.lb.

CAUTION	DO NOT REUSE SELF-LOCKING NUTS.

1.11 General Safety Information

- This aircraft shall never be operated at locations, airspeeds, altitudes or other circumstances from which a successful no-power landing cannot be made after sudden engine stoppage.
- Aerobatics are prohibited.
- Whether you are a qualified pilot or a novice, complete knowledge of the aircraft, its controls and operation is mandatory before venturing solo. Flying any type of aircraft involves a certain amount of risk. Be informed and prepared for any potentially hazardous situation associated with flying.
- A recognized training program and continued education for piloting an aircraft is absolutely necessary for all aircraft pilots. Make sure you also obtain as much information as possible about your aircraft, its maintenance and operation from your dealer.
- Respect all government or local rules pertaining to flight operation in your flying area. Fly only when and where conditions, topography and airspeeds are safest.
- Select and use proper aircraft instrumentation -- only approved instrumentation may be installed.
- Before flight, ensure that all engine controls are operative. Make sure all controls can be easily reached in case of emergency.
- Unless in a run up area, never run the engine with the propeller turning while on the ground. Do not operate engine if bystanders are close.
- In the interest of safety, the aircraft must not be left unattended while the engine is running.
- Keep an aircraft log and respect engine and aircraft maintenance schedules. Keep the engine in top operating condition at all the times. Do not operate any aircraft which is not properly maintained or has engine operating irregularities which have not been corrected.
- Since special tools, equipment and certification may be required, servicing shall only be performed by repairmen specified in this manual.
- To eliminate possible injury or damage, ensure any loose equipment or tools are properly secured before starting the engine.
- When in storage, protect the engine and fuel system from contamination and exposure.
- Certain areas, altitudes and conditions present greater risk than others. The engine may require carburetor recalibration or humidity or dust/sand preventive equipment, or additional maintenance may be required.
- Never operate the engine and gearbox without sufficient quantities of lubricating oil.
- Periodically verify level of coolant.
- Never exceed maximum rated rpm. Allow the engine to cool at idle for several minutes before turning off.

Section 2

Ground Handling, Servicing, Cleaning, Lubrication and Inspection

Table of Contents **Section**

2.1 Ground Handling

2.1.1 Towing

Moving the aircraft by hand is accomplished by using the wing struts, prop roots and the fixed part of the horizontal tail as push points. Since there is no tow bar applicable at the nose gear, you have to press down the tail cone adjacent to the fin to raise the nose wheel off the ground. With the nose wheel clear of ground, the aircraft can be turned by pivoting it about the main wheels.

2.1.2 Hoisting

The aircraft may be lifted with a hoist of at least 1000 lb (0.5 tons) capacity by using suitable slings. To apply the slings, the wings have to be folded back first (refer to Pilot Operating Handbook). Now the wing main bolt brackets at the fuselage are accessible. Using a suitable securing bolt the slings can be hooked in at those brackets.

2.1.3 Jacking

Refer to paragraph 2.3. The aircraft does not feature further jacking points except for changing main wheels on the steel main gear. Jacking with the composite gear installed requires one person to lift the aircraft by pushing up the wing at the wing tip, while a second person has to put a jack beneath the main wheel strut adjacent to the fuselage. A piece of foam must be inserted between jack and fuselage so that no damage will occur to the paint.

2.1.4 Parking

Parking precautions depend principally on local conditions. As a general precaution, set parking brake or chock the wheels and lock the controls. In severe weather and high wind conditions, tie down the aircraft as outlined in paragraph 2.1.5 if a hangar is not available.

CAUTION	Do not set parking brakes during cold weather (when accumulated moisture may freeze the brakes) or when brakes are overheated.

2.1.5 Tie-Down

When parking the aircraft in the open, head into the wind if possible. Secure control surfaces by using the seat belts and set brakes. After completing the preceding, proceed as follows:

2.1.5.1 Wing Tie Down

A special tie down ring is installed at the strut. Later versions of the GX are equipped with a thread in the outer portion of the wing, rings are provided to be screwed into these threads. Apply a rope to the upper end of the struts or to the rings. You may even use a chain when using rings.

Apply the lower end to a fixation point on the ground. Use tires filled with concrete, rings in the apron or at least solid anchors. Take care for correct angles of the ropes or chains. They shall point vertically downward from the wing to the ground, an angle of not more than 20deg outward is recommended. Never tolerate the strings to point inward. Make sure the rope is straight, tight and without slack.

on strut **correct tie-down** on wingtip

NEVER

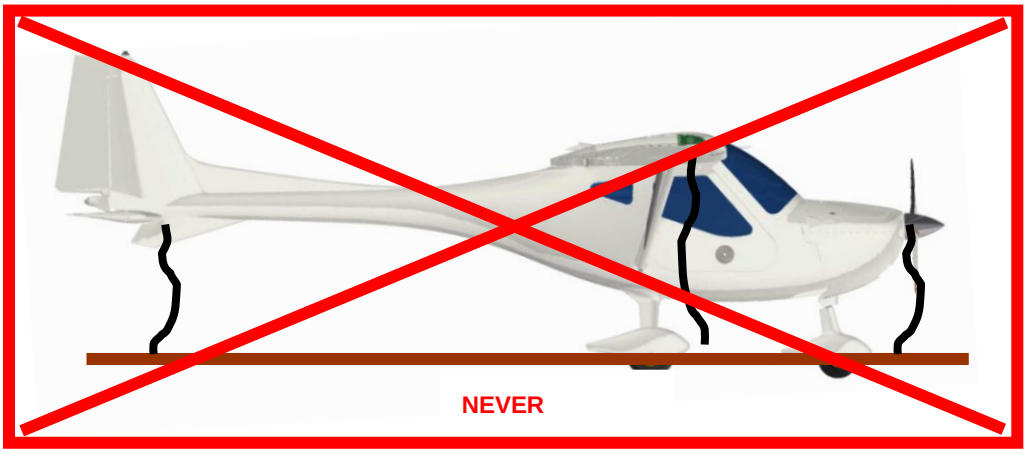
2.1.5.2 Propeller Tie Down

Wrap a rope around the propeller spacer, just in the gap between cowling and spinner. Apply the lower end to a fixation point on the ground. Use tires filled with concrete, rings in the apron or at least solid anchors. Take care for correct angles of the ropes or chains. They shall point vertically downward from the nose to the ground; an angle forward of not more than 20 deg is recommended. Never wrap the rope around the propeller spinner in order to avoid damages and scratches.

2.1.5.3 Tail Tie Down

The GX is equipped with a tie-down point in the tail skid. Apply the upper end of a rope to that tie-down and the lower end to a fixation point on the ground. Use tires filled with concrete, rings in the apron or at least solid anchors. Take care for correct angles of the ropes or chains. They shall point vertically downward from the tail to the ground, an angle backward of not more than 20deg is recommended.

Correct tie-down



NEVER

2.1.6 Flyable Storage

Flyable storage is defined as a maximum of 30 days non-operational storage and/or the first 20 hours of intermittent engine operation.

During the 30 day non-operational storage or the first 20 hours of intermittent engine operation, every seventh day the propeller shall be rotated through 10 revolutions, without running the engine. If the aircraft is stored outside, tie-down in accordance with paragraph 2.1.5. In addition, the Pitot tube, static air vents, air vents, openings in the engine cowling, and or similar openings shall have protective covers installed to prevent entry of foreign material. After 30 days, aircraft should be flown for 30 minutes or ground run-up until oil has reached operating temperature of at least 215°F for at least 15 minutes.

2.1.6.1 Returning Aircraft to Service

After flyable storage, returning the aircraft to service is accomplished by performing a thorough pre-flight inspection. At the end of the first 20 hours of engine operation, drain engine oil and replace external oil filter element. Service the engine with correct grade and quantity of engine oil. Refer to figure 1-3 and paragraph 1.5 for correct grade of engine oil.

2.1.7 Temporary Storage

Temporary storage is defined as aircraft in a non-operational status for a maximum of 90 days. The aircraft is made from composite materials and epoxy resin. This construction will allow storing the aircraft for long periods without damage to the airframe. Regardless we recommend storing the aircraft in a dry hanger to keep paintwork and metal parts in good condition. For storage periods not to exceed 90 days, the following methods of treatment are suggested:

a. Fill fuel tank with correct grade of gasoline.

b. Clean and wax aircraft thoroughly.

c. Clean any oil or grease from tires and coat tires with a tire preservative. Cover tires to protect against grease and oil.

d. Rotate wheels every 30 days to change supporting points and prevent flat spotting the tires.

e. Seal or cover all openings which could allow moisture and/or dust to enter.

f. Remove battery and store in a cool dry place, charge battery as required.

g. Seal all engine openings exposed to the atmosphere using suitable plugs or none-hygroscopic tape. Attach a red streamer at each point that a plug or tape is installed.

h. If the aircraft is to be stored outside, perform the procedures outlined in paragraph 2.1.5. In addition, the Pitot tube, static ports, air vents, opening in the engine cowling and other similar openings should have protective covers installed to prevent entry of foreign material.

i. Attach a warning placard to the propeller to the effect that the propeller shall not be moved while the engine is in storage.

2.1.7.1 Inspection during Storage

Remove dust accumulations as frequently as possible, clean and wax as required.

2.1.7.2 Returning Aircraft to Service

After temporary storage, use the following procedures to return aircraft to service:

a. Check tires for proper inflation.

b. Check battery and install.

c. Check the oil sump has proper quantity of engine oil (Refer to Pilot Operating Handbook and/or Rotax Operator´s Manual for instructions).

d. Service induction air filter and remove warning placard from propeller.

e. Remove materials used to cover openings.

f. Check fuel tank and fuel lines for moisture and sediment. Drain enough fuel to eliminate moisture and sediment.

g. Perform a thorough pre-flight inspection, then start and warm-up engine.

2.2 Servicing

Maintenance interval is 100h for all REMOS aircraft, except of the first maintenance event that is due after 25h. In case of prevailing use of AVGAS 100LL oil change interval is reduced to 50h. Refer to ROTAX SI-912-016. In that case only an oil change is required, but no further maintenance.

2.2.1 Fuel

Fuel tank should be filled immediately after flight to lessen moisture condensation. Tank capacity is listed in Section 1. The recommended fuel grade to be used is given in figure 1-6.

2.2.2 Fuel Drains

A fuel drain is located is located at the bottom of the fuel tank. The drain valve is accessed from beneath the fuselage adjacent to the main landing gear. To activate: push up the white plastic tube. To drain all fuel from the tank without holding the valve depressed a lock mechanism is built in. To activate the lock mechanism, push up the white plastic tube and rotate it until it locks.

2.2.3 Engine Oil (Refer to Section 1-7)

Check engine lubrication oil with the oil dipstick located in the oil tank, located on the right hand side of the firewall, immediately after engine has been stopped. To check the oil level, it is important to turn the propeller a few times in operating direction until you can hear some kind of bubbling noise coming out of the oil expansion tank. Please be sure to remove the key from the ignition switch before turning the propeller. This is the only way to check the engine oil level correctly. (Refer also to the ROTAX Engine Operator's Manual).

Engine oil should be drained while the engine is still hot so that more positive draining is obtained. Refer to the inspection charts for required intervals for oil and filter changes. Change oil at least every 12 months even if less than the specified hours have accumulated. Reduce this period for prolonged operation in dusty areas, in cold climates where sludgy conditions exist, or where short flights and long idle periods are encountered, which cause sludgy conditions.

CAUTION	Do not operate with less than the minimum engine oil level on dipstick marking.

2.2.4 Engine Induction Air Filter (Refer to Figure 2-1)

The induction air filter keeps dust and dirt from entering the induction system. The value of maintaining the air filter in a good clean condition can never be overstressed. More engine wear is caused through the use of dirty or damaged air filter than is generally believed. The frequency with which the filter should be removed, inspected and cleaned will be determined primarily by aircraft operating conditions. A good general rule however, is to remove, inspect and clean the filter at least every 50 hours of engine operating time and more frequently if warranted by operating conditions. Due to reasons of flight safety the filter should be replaced or cleaned according to the manufacturer's instruction every 100 hours of engine operation time or one year, whichever should occur first.

♦ **NOTE**	The aircraft is equipped with an oiled K&N Pre-Charger Filter Element, which can be cleaned and re-oiled when necessary. Its special design provides extended servicing intervals. For proper cleaning and re-oiling the use of K&N air filter cleaner is recommended and K&N air filter oil is required.

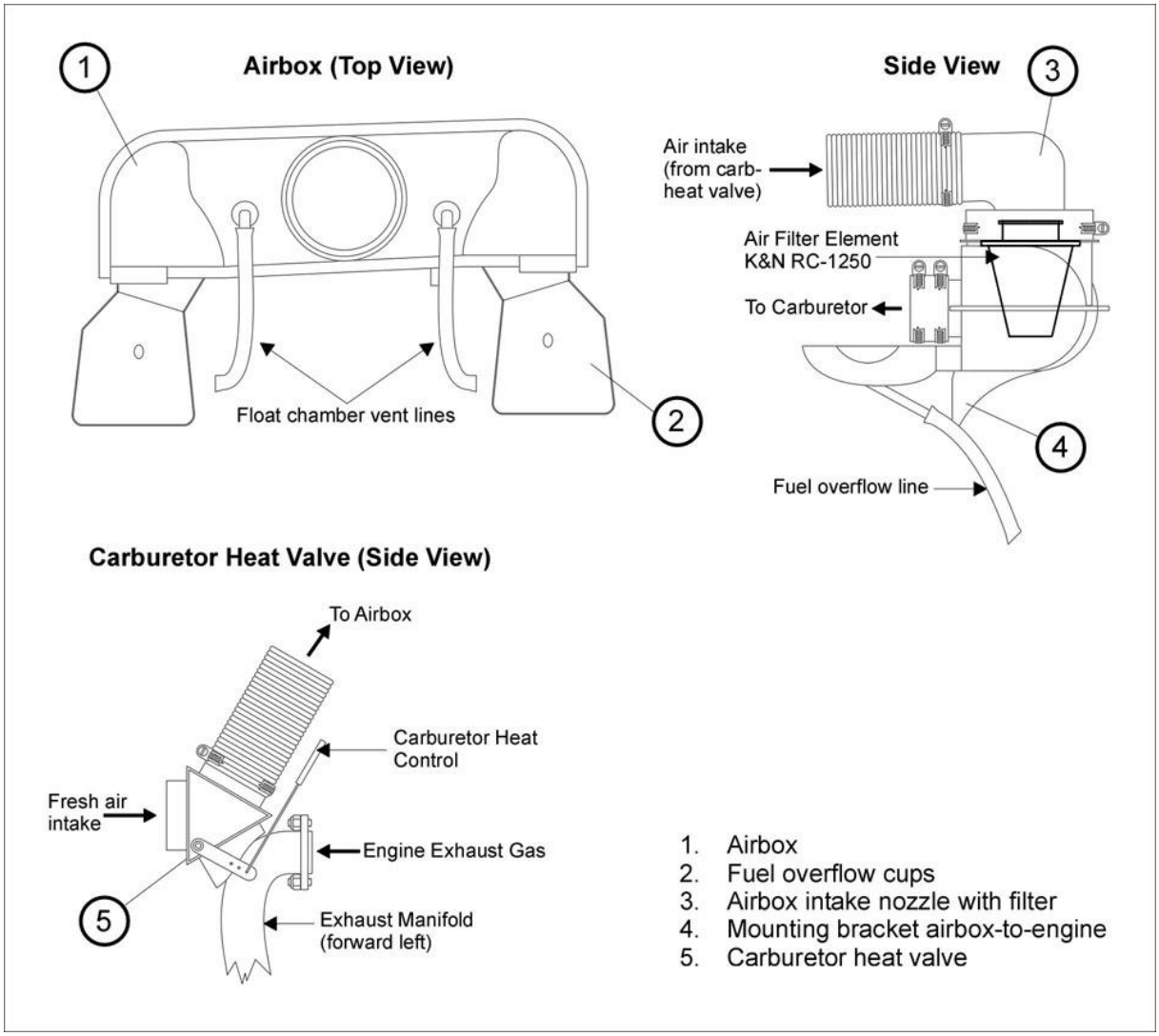
CAUTION	The filter has to be replaced if damaged, if in doubt filter has to be replaced as a precaution to flight safety. Be sure air box is clean before installing a new filter.

2.2.5 Battery

The installed battery needs no further servicing, except checking cable connections. It is important to check battery voltage when the aircraft is out of service for more than two weeks. Battery voltage has to maintain at least 12.0 volts without engine running and all equipment switched off, master switch in "off" position (regular voltage 12.5 volts). If voltage does indicate 12.2 volts or less it has to be charged and maintained.

Lead batteries may be charged with conventional battery charger suitable for this type of batteries. Newer aircraft are equipped with LiFePo4 batteries. This type of battery needs a special type of charger. Those chargers are mostly sold for RC-airplanes. To avoid damage to the battery, do not use inappropriate or inexpensive chargers. Contact REMOS for recommendations of appropriate charging systems.

Figure 2-1



2.2.6 Tires

Maintain tire pressure at the air pressure specified in figure 1-1. When checking tire pressure, examine tires for wear, cuts, bruises and spillage. Remove oil, grease and mud from tires with soap and water.

♦ **NOTE**	Recommended tire pressures should be maintained. Especially in cold weather, remember that any drop in temperature of the air inside a tire causes a corresponding drop in air pressure.

2.2.7 Hydraulic Brake System

Check brake master cylinder and refill with correct grade of brake fluid. To refill, DOT 4 automobile brake fluid is required, as specified in the inspection chart, and no aircraft hydraulic fluid must ever be used! Bleed the brake system to remove entrapped air whenever there is a spongy response to the brake lever. Refer to paragraph 5.2.5 for filling and bleeding the brake system.

2.3 Cleaning

Keeping the aircraft clean is important. Besides maintaining the appearance of the aircraft, cleaning makes inspection and maintenance easier.

2.3.1 Windshield and Windows

Windows should be cleaned carefully with plenty of fresh water and a mild detergent, using the palm of the hand to feel and dislodge any caked dirt or mud. A sponge, soft cloth, or chamois may be used, but only as a means of carrying water to the acrylic. Rinse thoroughly, and then dry with a clean moist chamois. Do not rub the acrylic with a dry cloth as this builds up an electrostatic charge which attracts dust. Oil and grease may be removed by rubbing lightly with a soft cloth moistened with a suitable solvent.

CAUTION	When cleaning the windshields, do NOT use gasoline, alcohol, benzene, acetone, carbon tetrachloride, fire extinguisher fluid, deicer fluid, lacquer thinner, or glass window cleaning spray. These solvents will soften and craze the acrylic windows.

CAUTION	Before using any cleaner, read the instructions on the container and test it on an inconspicuous place in the fabric to be cleaned.

After washing, the acrylic windshield and windows should be cleaned with an aircraft windshield cleaner. Apply the cleaner with soft cloths and rub with moderate pressure. Allow the cleaner to dry, then wipe it off with soft flannel cloths. A thin, even coat of special acrylic window polish will fill-in minor scratches and help prevent further scratching. Do not use a canvas cover on the windshield or windows unless freezing rain or sleet is anticipated since the cover may scratch the acrylic surface.

CAUTION	Do not use any lacquer polish like carnauba wax on the acrylic windows.

2.3.2 Plastic Trim

The instrument panel, plastic trim and control knobs need only do be wiped with a damp cloth. Oil and grease on the control sticks and control knobs can be removed with a cloth moistened with a suitable solvent. Volatile solvents, such as mentioned in paragraph 2.3.1 must never be used since they soften and craze the plastic.

2.3.3 Painted Surfaces

The painted exterior surfaces of the aircraft, under normal conditions, require a minimum of polishing and buffing. Approximately two weeks are required for acrylic paint to cure completely; in most cases, the curing period will have been completed prior to delivery of the aircraft. In the event that polishing or buffing is required within the curing period, it is recommended that the work is done by an experienced painter. Generally, the painted surfaces can be kept bright by washing with water and mild soap, followed by a rinse with water and drying with cloths or chamois. Harsh or abrasive soaps or detergents which could cause scratches should never be used. After the curing period, the aircraft may be waxed with a good automotive wax. A heavier coating of wax on the leading edge of the wing and tail and on the engine nose cap will help reduce the abrasion encountered in these areas.

2.3.4 Aluminum Surfaces

The aluminum surfaces of some parts require a minimum of care due to their anodized coating, but should never be neglected. Many good aluminum cleaners are available from commercial suppliers of aircraft products. Household type detergent soap powders are effective cleaners, but should only be used very cautiously since some of them are strongly alkaline and will cause damage.

♦ **NOTE**	It is highly recommended to conserve aluminum surfaces after cleaning with a suitable wax or spray oil or at least once per month.

2.3.5 Engine and Engine Compartment

The engine should be kept clean since dirty cooling fins may support overheating of the engine. Also, cleaning is essential to minimize any danger of fire and provide for easier inspection of components. The entire engine cowling may be removed to facilitate engine and interior cowl cleaning. Wash down the engine and components with a suitable solvent, then dry thoroughly with compressed air.

▉ **CAUTION**	Particular care should be given to electrical equipment before cleaning. Solvent should not be allowed to enter magnetos, starter, alternator, voltage regulator and the like. Hence, these components should be protected before saturating the engine with solvent. Any fuel, oil and air openings should be covered before washing the engine with solvent. Caustic cleaning solutions should not be used. After cleaning engine re-lubricate all control arms and moving parts.

2.3.6 Upholstery and Interior

Keeping the upholstery and interior clean prolongs upholstery fabric and interior trim life. To clean the interior, brush or vacuum clean the upholstery and carpet to remove dust and dirt. Then clean upholstery with a sponge moistened with fresh water, wipe plastic trim with a damp cloth. Oil spots and stains may be cleaned with household spot removers, used sparingly. To clean the interior, proceed as follows:

a. Brush or vacuum clean the upholstery and carpet to remove dust and dirt.

b. Clean upholstery with a sponge moistened with fresh water

c. Wipe plastic trim with a damp cloth.

d. Oil spots and stains may be cleaned with household spot removers, used sparingly. Before using any solvent, read the instructions on the container and test it on an obscure place in the fabric to be cleaned. Never saturate the fabric with volatile solvent; it may damage the padding and backing material. Scrape sticky material from the fabric with a dull knife, then spot clean the area.

CAUTION	Before using any cleaner, read the instructions on the container and test it on an inconspicuous place in the fabric to be cleaned. Never saturate the fabric with volatile solvent; it may damage the padding and backing material. Scrape sticky material from the fabric with a dull knife, then spot clean the area.

2.3.7 Propeller

Wash hub and blades with a soft cloth and suitable cleaning solvent, then dry thoroughly with compressed air. The hub of the Sensenich or Neuform propeller are made of anodized aluminum, Tonini or Woodcomp prop feature a zinc coated pressure plate.

CAUTION	Do not use gasoline, alcohol, benzene, acetone, or lacquer thinner. These solvents will soften and damage the lacquer finish.

2.3.8 Wheels

The wheels should be washed periodically and examined for corrosion, cracks and dents in the wheel halves or hubs. If defects are found, remove and repair in accordance with Section 5. Discard cracked wheel halves, of hubs and install new parts.

2.4 Lubrication

The REMOS GX is constructed with minimum number of lubrication point. For these points, lubrication regular grease is used. The following listing shows all points which have to be lubricated frequently.

a. Wing main bolts

b. Wing ball joints (plastic ball) at wing folding mechanism

c. Stabilizer mounting bolts

It is recommended to clean and lubricate all hinges and control system joints and bearings with spray oil like WD40 or equivalent.

When changing wheels it is recommended to lubricate wheel axles before reassembling to prevent them from corrosion and keep wheel changing easier with the composite main gear installed. Not applicable with the steel main gear fitted.

2.5 Inspection

2.5.1 Inspection Requirements

As required by Federal Aviation Regulations, all civil aircraft of U.S. registry must undergo a complete inspection (annual) each twelve calendar months.

In addition to the required Annual Inspection, aircraft operated commercially (for hire) must also have a complete aircraft inspection every 100 hours of operation.

♦ **NOTE**	REMOS strongly recommends that privately operated aircraft undergo the 100hrs inspection interval, too.

2.5.2 Inspection Charts

The first inspection has to be performed after the first 25 hours of service, all following intervals are performed after 100h of operation. To conduct these inspections it is mandatory to use the **REMOS Service and Maintenance Checklist** (latest issue).

2.5.3 Inspection Guidelines

a. Moveable Parts for: lubrication, servicing, security of attachment, binding, excessive wear, safetying, proper operation, proper adjustment, correct travel, cracked fittings, security of hinges, defective bearings, cleanliness, corrosion, deformation, sealing and tension.

b. Fluid Lines and Hoses for: leaks, cracks, dents, kinks, chafing, proper radius, security, corrosion, deterioration, obstruction and foreign matter.

c. Metal Parts for: security of attachment, cracks, metal distortion, broken spot welds, corrosion, condition of paint and any other apparent damage.

d. Composite Parts for: cracks, dents, de-lamination.

e. Wiring for: security, chafing, burning, defective insulation, loose or broken terminals, heat deterioration and corroded terminals.

f. Bolts in Critical Areas for: correct torque in accordance with torque values given in the chart in Section 1, when installed or when visual inspection indicates the need for a torque check.

g. Filters and Fluids for: cleanliness, contamination and/or replacement at specified intervals.

h. Aircraft File: Miscellaneous data, information and licenses are a part of the aircraft file. Check that the following documents are up-to-date and in accordance with current Federal Aviation Regulations. Most of the items listed are required by the United States Federal Aviation Regulations.

To be displayed in the aircraft at all times:

a. Aircraft Airworthiness Certificate

b. Aircraft Registration Certificate

To be carried in the aircraft at all times:

a. Weight and Balance and associated papers (latest copy of the Repair and Alteration Form if applicable).

b. Aircraft Equipment List.

To be made available upon request:

a. Aircraft Log Book

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Section 3

Fuselage

Table of Contents **Section**

3.1 Windshield and Windows

3.1.1 Description

The windshield and windows are single-piece acrylic plastic panels glued to the fuselage and sealed with a silicone bead around, to achieve the best possible aerodynamics and eliminate wind noises as much as possible.

3.1.2 Waxing

- **Required Tools:** Fine-grade wax, batting
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Waxing will fill in minor scratches in clear plastic and help protect the surface from further abrasion. Use a good grade of commercial wax applied in a thin, even coat. Bring wax to a high polish by rubbing lightly with a clean, dry flannel cloth.

3.1.3 Repairs

Damaged window panels and windshield may be removed and replaced if damage is extensive. However, certain repairs as prescribed in the following paragraphs can be made successfully without removing the damaged part from aircraft. Three types of temporary repairs for cracked plastic are possible. No repairs of any kind are recommended on highly-stressed or compound curves where repair would be likely to affect pilot's field of vision. Curved areas are more difficult to repair than flat areas and any repaired area is both structurally and optically inferior to the original surface.

3.1.3.1 Scratches

- **Required Tools:** Sandpaper, rubber pad, buffing compound, batting, automobile body cleaner or fine-grade wax
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Scratches on clear plastic surfaces can be removed by hand-sanding operations followed by buffing and polishing, if steps below are followed carefully.

a. Wrap a piece of No. 3000 (or finer) sandpaper or abrasive cloth around a rubber pad or wood block. Rub surface around scratch with a circular motion, keeping abrasive constantly wet with clean water to prevent scratching surface further. Use minimum pressure and cover an area large enough to prevent formation of “Bull’s eyes” or other optical distortions.

b. Continue sanding operation, using progressively finer grade abrasives until scratches disappear. Do not skip one grade of abrasive!

c. When scratches have been removed, wash area thoroughly with clean water to remove all gritty particles. The entire sanded area will be clouded with minute scratches which must be removed to restore transparency.

d. Apply first tallow or buffering compound to a motor-driven buffing wheel. Hold wheel against plastic surface, moving it constantly over damaged area until cloudy appearance disappears. A 2000-feet-per-minute surface speed is recommended to prevent overheating and distortion. (Example: 750 rpm polishing machine with a 10 inch buffing bonnet.)

e. When buffing is finished, wash area thoroughly and dry with a soft flannel cloth. Allow surface to cool and inspect area to determine if full transparency has been restored. Apply a thin coat of hard wax and polish surface lightly with a clean flannel cloth.

f. Minute hairline scratches can often be removed by rubbing with commercial automobile body cleaner or fine-grade rubbing compound. Apply with a soft clean, dry cloth or imitation chamois.

▉ CAUTION	Do not use a coarse grade of abrasive. No. 3000 is of maximum coarseness.

♦ NOTE	Polishing can be accomplished by hand but will require a considerably longer period of time to attain the same result as produced by a buffing wheel.

♦ NOTE	Rubbing plastic surface with a dry cloth will build up an electrostatic charge which attracts dirt particles and may eventually cause scratching of surface, After wax has hardened, dissipate this charge by rubbing surface with a slightly damp chamois. This will also remove dust particles which have collected while wax is hardening.

3.1.3.2 Cracks

- **Required Tools:** 1/8” drill, aircraft dope
- **Required Parts:** Rubber sheet, fabric, wood strips, bolts and nuts
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. When a crack appears, drill a hole at end of crack to prevent further spreading. Hole should be approximately 1/8 inch in diameter, depending on length of crack and thickness of material.

b. Temporary repairs to flat surfaces can be accomplished by placing a thin strip of wood over each side of surface and inserting small bolts through wood and plastic. A cushion of sheet rubber or aircraft fabric should be placed between wood and plastic on both sides.

c. A temporary repair can be made on a curved surface by placing fabric patches over affected areas. Secure patches with aircraft dope or lacquer thinner.

This type of repairs is used as a temporary measure ONLY, and as soon as facilities are available, panel should be replaced.

3.1.4 Replacement

3.1.4.1 Removal

- **Required Tools:** Jig saw, crowbar, power drill, abrasive paper
- **Required Parts:** None
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Cut out the old window using a jig saw without causing damage to the fuselage.

b. Remove the remaining border of the window by the use of a crowbar and sand of old glue to get a smooth joining surface at the fuselage or door shell.

3.1.4.2 Installation

- **Required Tools:** Standard metric tools, REMOS-Weld adhesive
- **Required Parts:** Window as required
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Sand the faying surface of window and fuselage, using abrasive paper of 320 grain size.

b. Clean the window opening on the fuselage (about 2 inch width) with appropriate solvent.

c. Apply REMOS-Weld adhesive to the joining surfaces of fuselage/door shell.

d. Tap the window to the fuselage opening and wipe away excessive glue, while smoothing the gap between window and fuselage/door shell. Let the glue cure for 24 hours at 65° F.

3.2 Cabin Doors

3.2.1 Removal and Installation

To remove cabin doors unlock and open the doors, unplug the support gas struts from the door bracket. Do not unplug the gas struts while doors are not in fully open position. Withdraw safety pin from both hinges on top of the doors. Installation is carried out in reverse order.

3.2.2 Cabin Door Latches

The cabin door latch contains three locking bolts operated by a rotary door handle (inside and outside each door). Rotating the handle forward will lock while spinning backward will unlock the doors. It is no adjustment, lubrication or servicing required to the latch system.

3.2.3 Lock

3.2.3.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Door handle decal set, Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

In addition, a cylinder and key type lock is installed in both outside door handles. The procedure to replace the lock is given in the following listing (refer to figure 3-2):

a. Remove inside bezel (6) and door trim panel (5).

b. Remove decals (9) from door handle (7) to get access to its retaining screws (8)

c. Remove door handle (7)

d. Refer to figure 3-3 and proceed with the following steps:

e. Disconnect control rod (8).

f. Unscrew complete door lock assembly (12) from outer door shell by removing its four fixing screws (11).

g. Remove decals from outer door handle (16).

h. Remove outer door handle by unscrewing its four retaining screws (9).

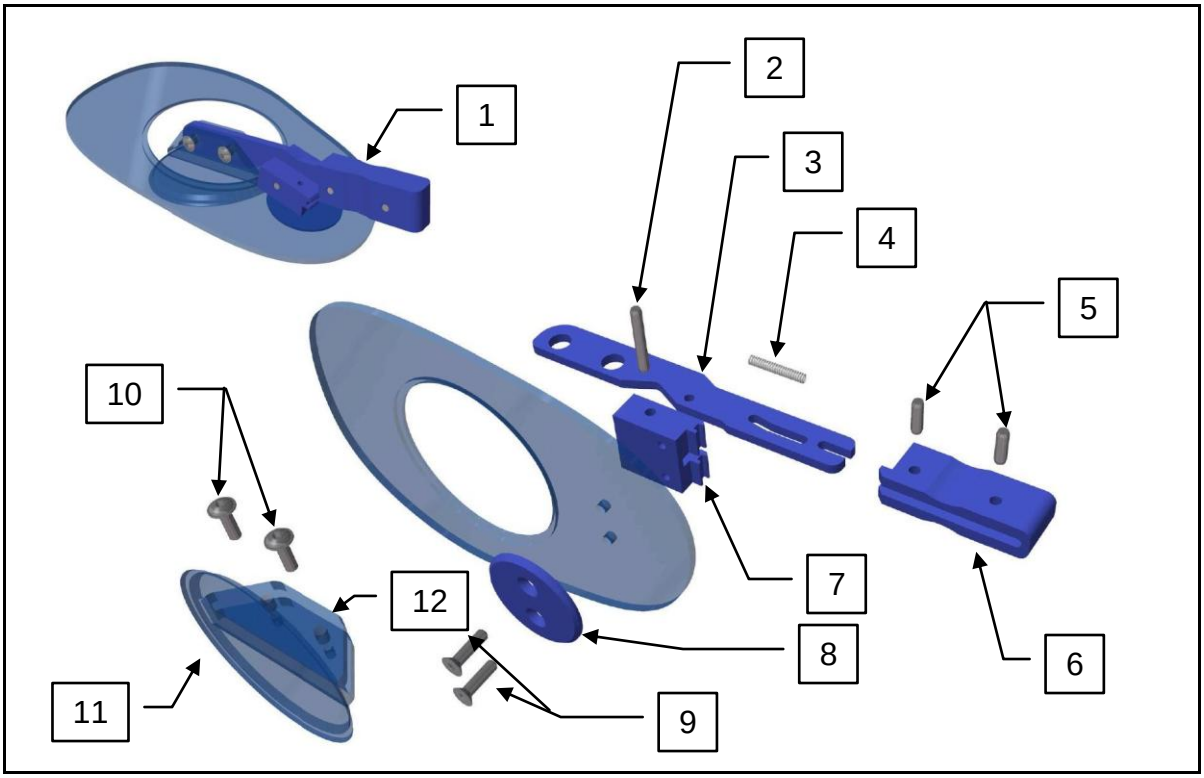
i. Remove lock (14) and remember position for re-installation.

j. Assemble in reverse order.

♦ NOTE	Use Loctite type 243 to secure retaining screws when installing a new key lock.

In figure 3-3 to 3-4 detailed instructions are provided, if further servicing or replacement of components is required to the door lock system.

Figure 3-1



♦ **NOTE**	There are two different versions of some parts (1, 3, 6, 7, 8) given in the upper picture. Please tell our service center your preferred color (silver/blue anodized) in case of purchase.

Figure 3-2

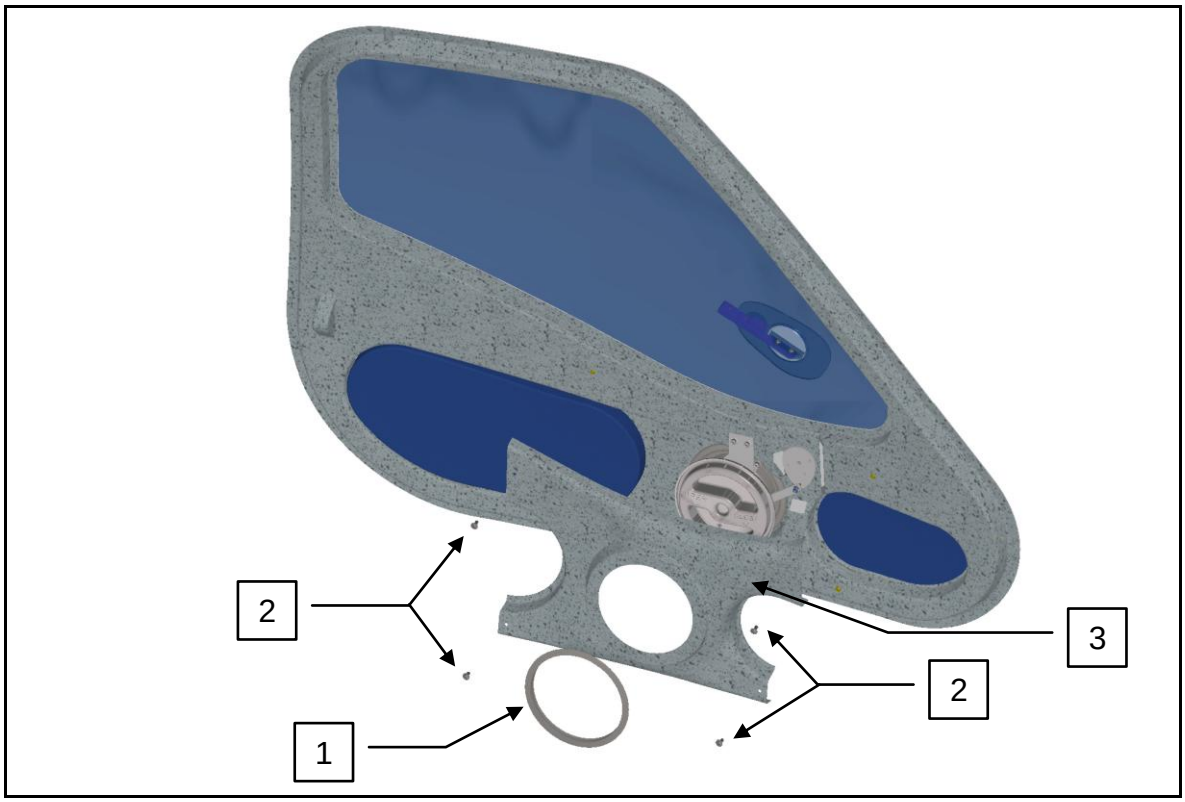


Figure 3-3

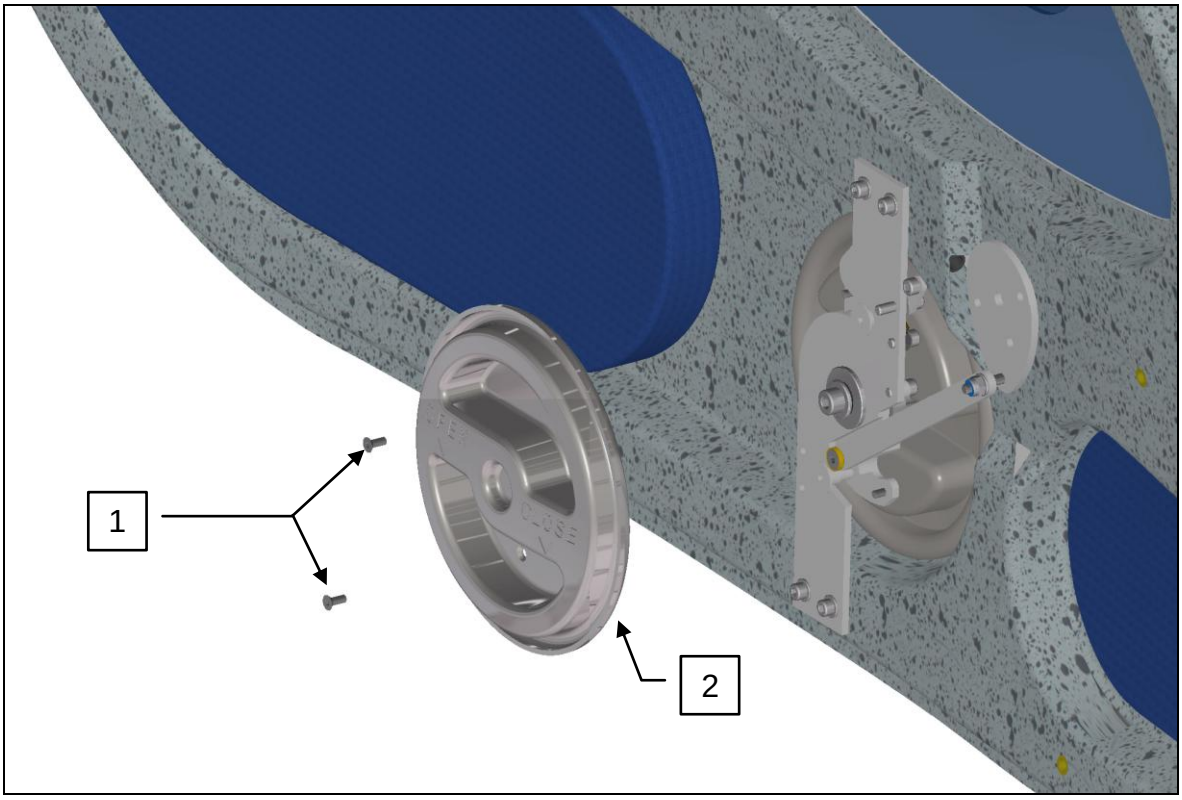


Figure 3-4

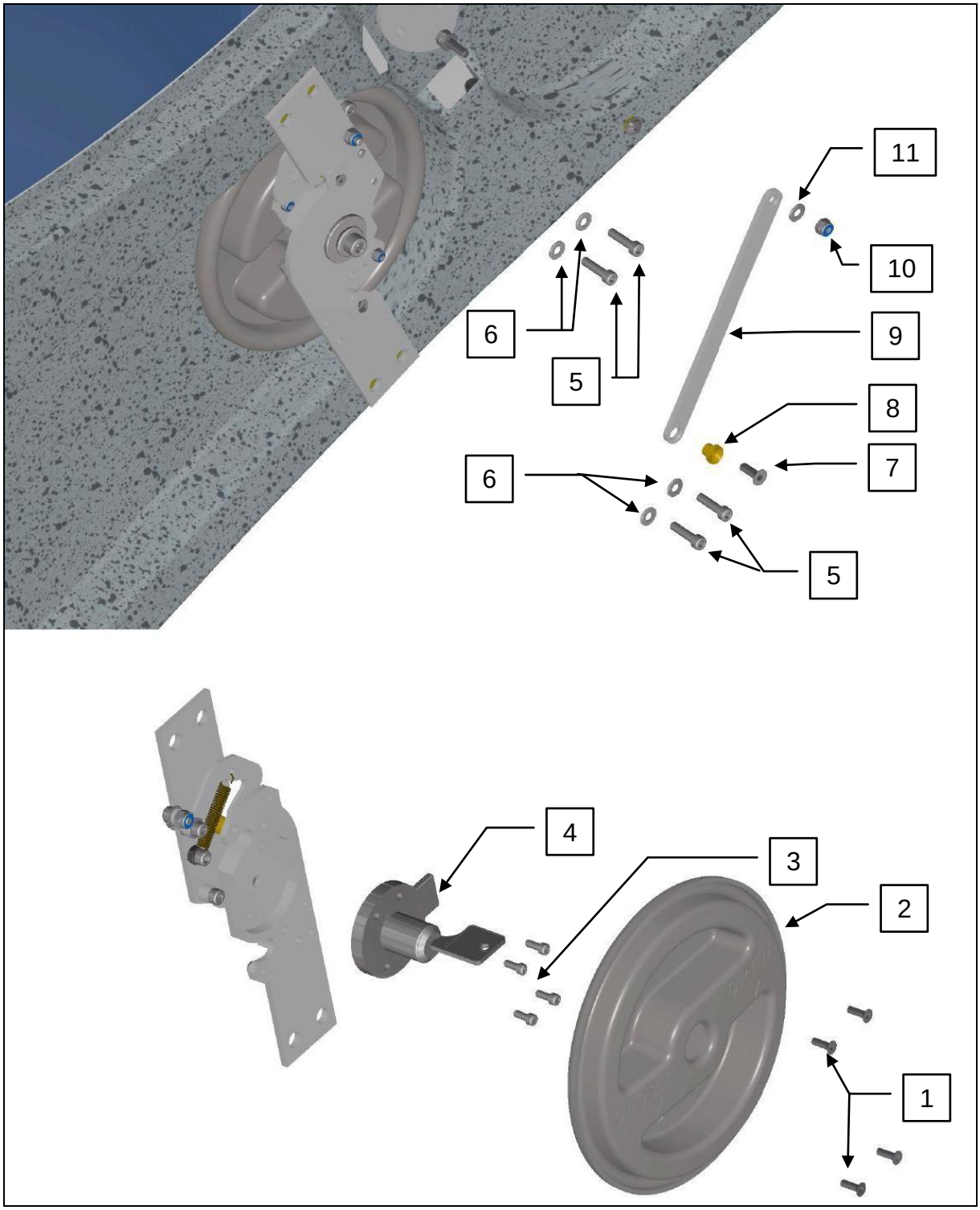
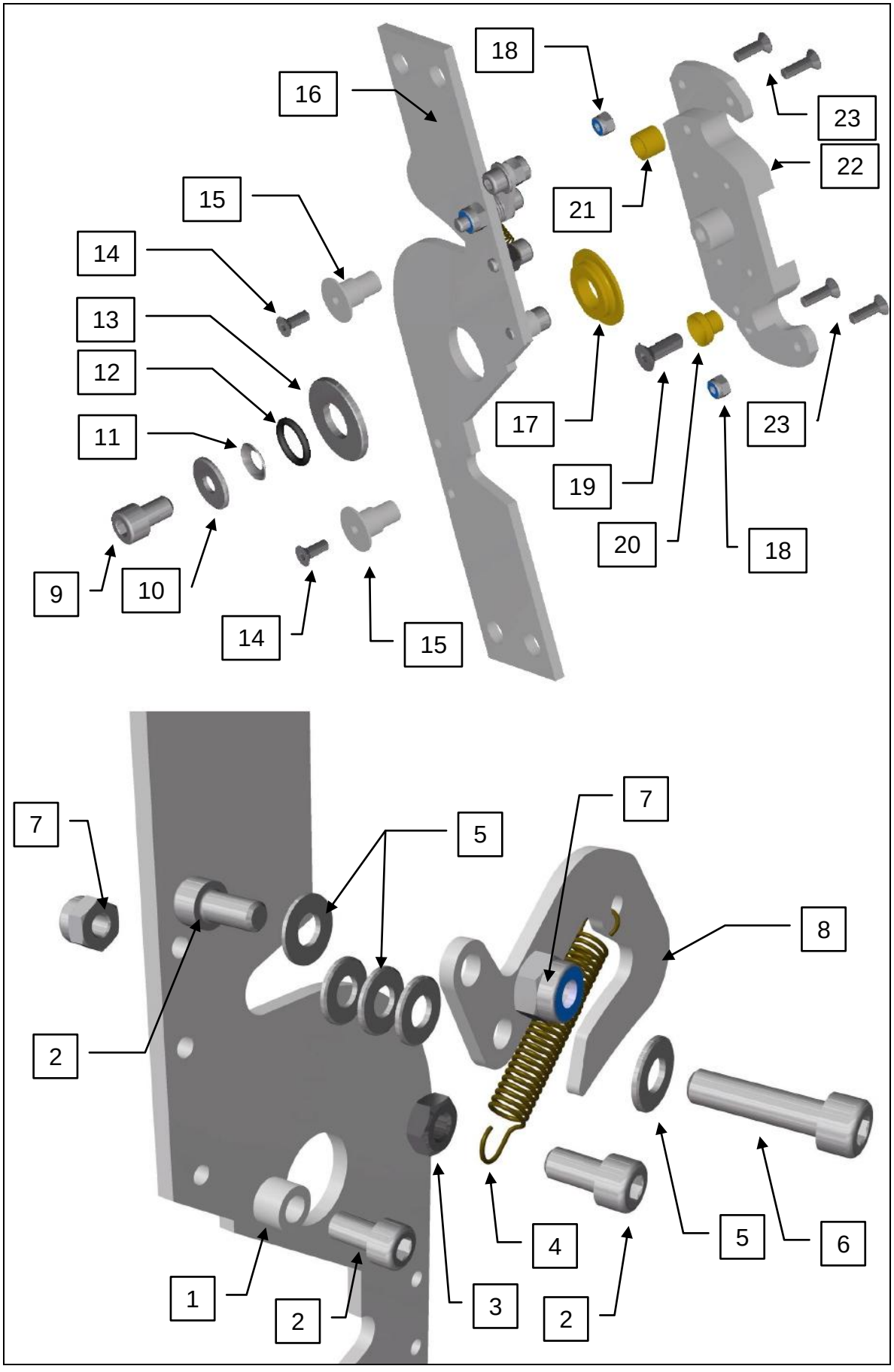


Figure 3-5



3.3 Seats

3.3.1 Description

The standard pilot and co-pilot seat is made from one-piece carbon fiber monocoque, equipped with a 3 position fore and aft adjustment. Seat adjustment is not possible while seated.

3.3.2 Upholstery

Due to the wide selection of fabrics, styles and colors, it is impossible to depict each particular type of upholstery. Major work, if possible, should be accomplished by an experienced mechanic.

Materials and tools will vary with job. Scissors for trimming upholstery to size and a dull-bladed putty knife are the only tools required for most trim work. Use industrial rubber cement to hold mats and fabric edges in place.

3.4 Baggage Compartment

The baggage compartment is located behind the pilot seat. It is a one-piece carbon fiber container, held in place by 2 screws located on it´s face plate and one screw at the inside bottom. After removing these screws the baggage compartment can be withdrawn from the bulkhead.

3.5 Safety Provisions

3.5.1 Safety Belts

4-point safety belts are installed for pilot and co-pilot seat to provide maximum safety. Safety belts are tied to latches screwed to the cabin structure. Belts should be replaced if frayed or cut, latches are defective or stitching is broken. Attaching parts should be replaced if excessively worn or defective.

3.5.2 Ballistic Recovery System

3.5.2.1 Description

The REMOS GX is prepared for the installation of a MAGNUM parachute rescue system. Description and installation is included in the parachute installation manual G3-8 RE RS 080, available on request at REMOS AG.

3.5.3 Baggage Pocket Nets

- **Required Tools:** Standard metric tools
- **Required Parts:** Pocket nets
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Behind each seat, a mold for lightweight baggage is provided covered by a pocket net. The maximum weight capacity must not exceed 5 lb each. Nets should be replaced when frayed or cut or frame is broken.

3.6 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
3-1	1	700437	G3-8 FU-11-10-00	1	Ventilation Window Assy blue anodized	Till 304
	1	700437	G3-8 FU-11-10-00	1	Ventilation Window Assy colorless anodized	304 ff
	2	100343		1	Straight Pin 3x20 DIN 6325	All
	3	100518	G3-8 FU-11-10-01	1	Ventilation Lever blue anodized	Till 304
	3	100518	G3-8 FU-11-10-01	1	Ventilation Lever colorless anodized	304 ff
	4	101039		1	Spiral Spring 17x2,64x0,5	All
	5	102537		2	Dowel Pin 3x10 DIN 7346	All
	6	100519	G3-8 FU-11-10-02	1	Ventilation Handle blue anodized	Till 304
	6	100519	G3-8 FU-11-10-02	1	Ventilation Handle colorless anodized	304 ff
	7	100517	G3-8 FU-11-10-03	1	Ventilation Hub blue anodized	Till 304
	7	100517	G3-8 FU-11-10-03	1	Ventilation Hub colorless anodized	304 ff
	8	100520	G3-8 FU-11-10-06	1	Ventilation Face Plate blue anodized	Till 304
	8	100520	G3-8 FU-11-10-06	1	Ventilation Face Plate colorless anodized	304 ff
	9	100104		2	Countersunk Head Hexagon Socket Screw M3x10 vz DIN 7991	All
	10	102275		2	Truss Head Hexagon Socket Screw M3x10 ISO 7380 A2	All
	11	100515	G3-8 FU-11-10-05	1	Ventilation Acrylic Flap	All
	12	100516	G3-8 FU-11-10-04	1	Ventilation Clamp	All
3-2	1	100511	G3-8 FU-11-30-07	1	Fuselage Door Panel Inside	All
	2	100188		4	Lens Head Hexagon Socket Screw M4x12	All
	3		G3-8 FU-11-10-05	1		All
3-3	1	100103		2	Countersunk Head Hexagon Socket Screw M3x8 vz DIN 7991	All
	2	100508	G3-8 FU-11-30-04	1	Fuselage Door Handle LH Inside	All
		100510	G3-8 FU-11-30-05	1	Fuselage Door Handle RH Inside	All
3-4	1	100101		4	Countersunk Head Hexagon Socket Screw M3x10 vz DIN 7991	All
	2	100507	G3-8 FU-11-30-02	1	Fuselage Door Handle LH Outside	All
		100509	G3-8 FU-11-30-03	1	Fuselage Door Handle RH Outside	All
	3	100102		4	Cylinder Head Hexagon Socket Screw M3x8 vz DIN912 8.8	All
	4	100514		1	Lock	All
	5	100113		4	Cylinder Head Hexagon Socket Screw M4x16 vz DIN912 8.8	All
	6	100233		4	Washer 4,3 DIN125 FormA Steel vz	All
	7	100123		1	Countersunk Head Hexagon Socket Screw M4x12 vz DIN7991 8.8	All
	8	100504	G3-8 FU-11-20-14	1	Door Lock Bearing Bush	All
	9	100503	G3-8 FU-11-20-10	1	Door Lock Bell Crank	All
	10	100212		1	Self-locking Hexagon Nut M4 DIN985 vz	All
	11	100233		1	Washer 4,3 DIN125 FormA Steel	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
3-5	1	100500	G3-8 FU-11-20-11	1	Door Lock Distance Bush Arrester	All
	2	100122		3	Cylinder Head Hexagon Socket Screw M4x8 vz DIN912 8.8	All
	3	100213		1	Hexagon Nut M4 DIN934	All
	4	101038		1	Tension Spring	All
	5	100233		5	Washer 4,3 ISO 7091 vz	All
	6	100113		1	Cylinder Head Hexagon Socket Screw M4x16 vz DIN912 8.8	All
	7	100212		2	Self-locking Hexagon Nut M4 DIN985 vz	All
	8	100512	G3-8 FU-11-20-08	1	Door Lock Safety Catch	All
	9	100148		1	Cylinder Head Hexagon Socket Screw M6x10 vz DIN912 8.8	All
	10	100253		1	Washer M6 DIN 552 6,4x18x1,5	All
	11	100266		1	Spring Washer 6,4 DIN 137 vz	All
	12	101037		1	O-Ring 10x2	
	13	102092		1	Washer M10 ISO 7093 vz	
	14	100103		2	Countersunk Head Hexagon Socket Screw M3x8 vz DIN 7991	
	15	100505	G3-8 FU-11-20-12	2	Door Lock Distance Bush Handle Inside	
	16	100498	G3-8 FU-11-20-06	1	Door Lock Central Plate	
	17	100499	G3-8 FU-11-20-15	1	Door Lock Master Bush	
	18	100211		2	Self-locking Hexagon Nut M3 DIN985 vz	
	19	100123		1	Countersunk Head Hexagon Socket Screw M4x12 vz DIN7991 8.8	
	20	100504	G3-8 FU-11-20-14	1	Door Lock Bearing Bush	
	21	100513	G3-8 FU-11-20-13	1	Door Lock Bushing	
	22	100497	G3-8 FU-11-20-07	1	Door Lock Mount	
	23	100101		4	Countersunk Head Hexagon Socket Screw M3x10 vz DIN 7991	

Section 3

Fuselage

Table of Contents **Section**

3.1 Windshield and Windows

3.1.1 Description

The windshield and windows are single-piece acrylic plastic panels glued to the fuselage and sealed with a silicone bead around, to achieve the best possible aerodynamics and eliminate wind noises as much as possible.

3.1.2 Waxing

- **Required Tools:** Fine-grade wax, batting
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Waxing will fill in minor scratches in clear plastic and help protect the surface from further abrasion. Use a good grade of commercial wax applied in a thin, even coat. Bring wax to a high polish by rubbing lightly with a clean, dry flannel cloth.

3.1.3 Repairs

Damaged window panels and windshield may be removed and replaced if damage is extensive. However, certain repairs as prescribed in the following paragraphs can be made successfully without removing the damaged part from aircraft. Three types of temporary repairs for cracked plastic are possible. No repairs of any kind are recommended on highly-stressed or compound curves where repair would be likely to affect pilot's field of vision. Curved areas are more difficult to repair than flat areas and any repaired area is both structurally and optically inferior to the original surface.

3.1.3.1 Scratches

- **Required Tools:** Sandpaper, rubber pad, buffing compound, batting, automobile body cleaner or fine-grade wax
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Scratches on clear plastic surfaces can be removed by hand-sanding operations followed by buffing and polishing, if steps below are followed carefully.

a. Wrap a piece of No. 3000 (or finer) sandpaper or abrasive cloth around a rubber pad or wood block. Rub surface around scratch with a circular motion, keeping abrasive constantly wet with clean water to prevent scratching surface further. Use minimum pressure and cover an area large enough to prevent formation of “Bull’s eyes” or other optical distortions.

b. Continue sanding operation, using progressively finer grade abrasives until scratches disappear. Do not skip one grade of abrasive!

c. When scratches have been removed, wash area thoroughly with clean water to remove all gritty particles. The entire sanded area will be clouded with minute scratches which must be removed to restore transparency.

d. Apply first tallow or buffering compound to a motor-driven buffing wheel. Hold wheel against plastic surface, moving it constantly over damaged area until cloudy appearance disappears. A 2000-feet-per-minute surface speed is recommended to prevent overheating and distortion. (Example: 750 rpm polishing machine with a 10 inch buffing bonnet.)

e. When buffing is finished, wash area thoroughly and dry with a soft flannel cloth. Allow surface to cool and inspect area to determine if full transparency has been restored. Apply a thin coat of hard wax and polish surface lightly with a clean flannel cloth.

f. Minute hairline scratches can often be removed by rubbing with commercial automobile body cleaner or fine-grade rubbing compound. Apply with a soft clean, dry cloth or imitation chamois.

▉ CAUTION	Do not use a coarse grade of abrasive. No. 3000 is of maximum coarseness.

♦ NOTE	Polishing can be accomplished by hand but will require a considerably longer period of time to attain the same result as produced by a buffing wheel.

♦ NOTE	Rubbing plastic surface with a dry cloth will build up an electrostatic charge which attracts dirt particles and may eventually cause scratching of surface, After wax has hardened, dissipate this charge by rubbing surface with a slightly damp chamois. This will also remove dust particles which have collected while wax is hardening.

3.1.3.2 Cracks

- **Required Tools:** 1/8” drill, aircraft dope
- **Required Parts:** Rubber sheet, fabric, wood strips, bolts and nuts
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. When a crack appears, drill a hole at end of crack to prevent further spreading. Hole should be approximately 1/8 inch in diameter, depending on length of crack and thickness of material.

b. Temporary repairs to flat surfaces can be accomplished by placing a thin strip of wood over each side of surface and inserting small bolts through wood and plastic. A cushion of sheet rubber or aircraft fabric should be placed between wood and plastic on both sides.

c. A temporary repair can be made on a curved surface by placing fabric patches over affected areas. Secure patches with aircraft dope or lacquer thinner.

This type of repairs is used as a temporary measure ONLY, and as soon as facilities are available, panel should be replaced.

3.1.4 Replacement

3.1.4.1 Removal

- **Required Tools:** Jig saw, crowbar, power drill, abrasive paper
- **Required Parts:** None
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Cut out the old window using a jig saw without causing damage to the fuselage.

b. Remove the remaining border of the window by the use of a crowbar and sand of old glue to get a smooth joining surface at the fuselage or door shell.

3.1.4.2 Installation

- **Required Tools:** Standard metric tools, REMOS-Weld adhesive
- **Required Parts:** Window as required
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Sand the faying surface of window and fuselage, using abrasive paper of 320 grain size.

b. Clean the window opening on the fuselage (about 2 inch width) with appropriate solvent.

c. Apply REMOS-Weld adhesive to the joining surfaces of fuselage/door shell.

d. Tap the window to the fuselage opening and wipe away excessive glue, while smoothing the gap between window and fuselage/door shell. Let the glue cure for 24 hours at 65° F.

3.2 Cabin Doors

3.2.1 Removal and Installation

To remove cabin doors unlock and open the doors, unplug the support gas struts from the door bracket. Do not unplug the gas struts while doors are not in fully open position. Withdraw safety pin from both hinges on top of the doors. Installation is carried out in reverse order.

3.2.2 Cabin Door Latches

The cabin door latch contains three locking bolts operated by a rotary door handle (inside and outside each door). Rotating the handle forward will lock while spinning backward will unlock the doors. It is no adjustment, lubrication or servicing required to the latch system.

3.2.3 Lock

3.2.3.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Door handle decal set, Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

In addition, a cylinder and key type lock is installed in both outside door handles. The procedure to replace the lock is given in the following listing (refer to figure 3-2):

a. Remove inside bezel (6) and door trim panel (5).

b. Remove decals (9) from door handle (7) to get access to its retaining screws (8)

c. Remove door handle (7)

d. Refer to figure 3-3 and proceed with the following steps:

e. Disconnect control rod (8).

f. Unscrew complete door lock assembly (12) from outer door shell by removing its four fixing screws (11).

g. Remove decals from outer door handle (16).

h. Remove outer door handle by unscrewing its four retaining screws (9).

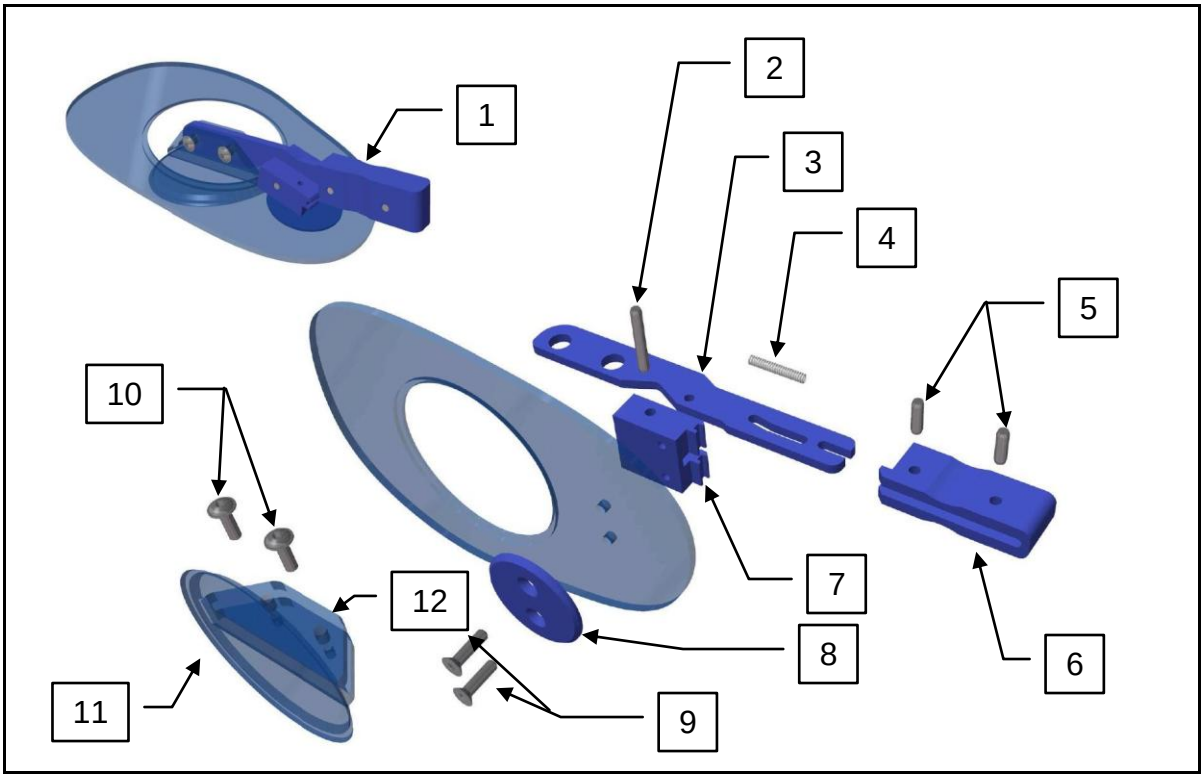
i. Remove lock (14) and remember position for re-installation.

j. Assemble in reverse order.

♦ NOTE	Use Loctite type 243 to secure retaining screws when installing a new key lock.

In figure 3-3 to 3-4 detailed instructions are provided, if further servicing or replacement of components is required to the door lock system.

Figure 3-1



♦ **NOTE**	There are two different versions of some parts (1, 3, 6, 7, 8) given in the upper picture. Please tell our service center your preferred color (silver/blue anodized) in case of purchase.

Figure 3-2

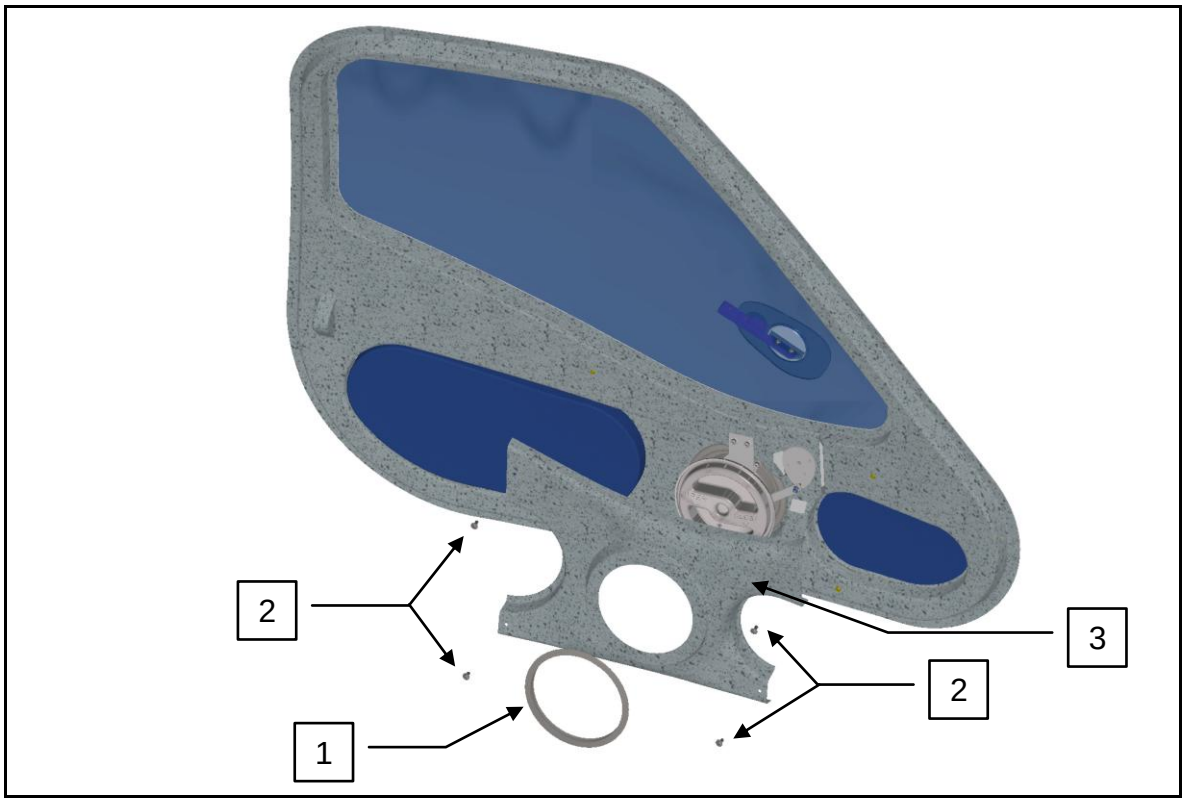


Figure 3-3

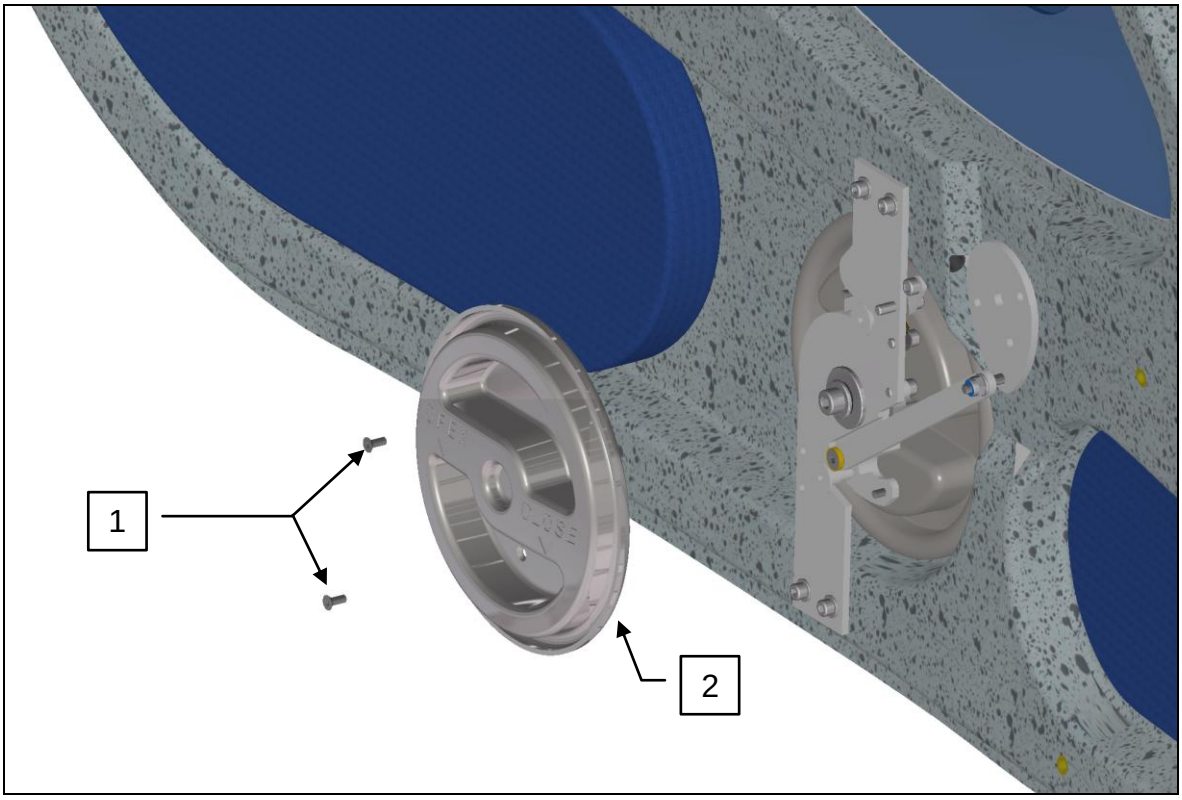


Figure 3-4

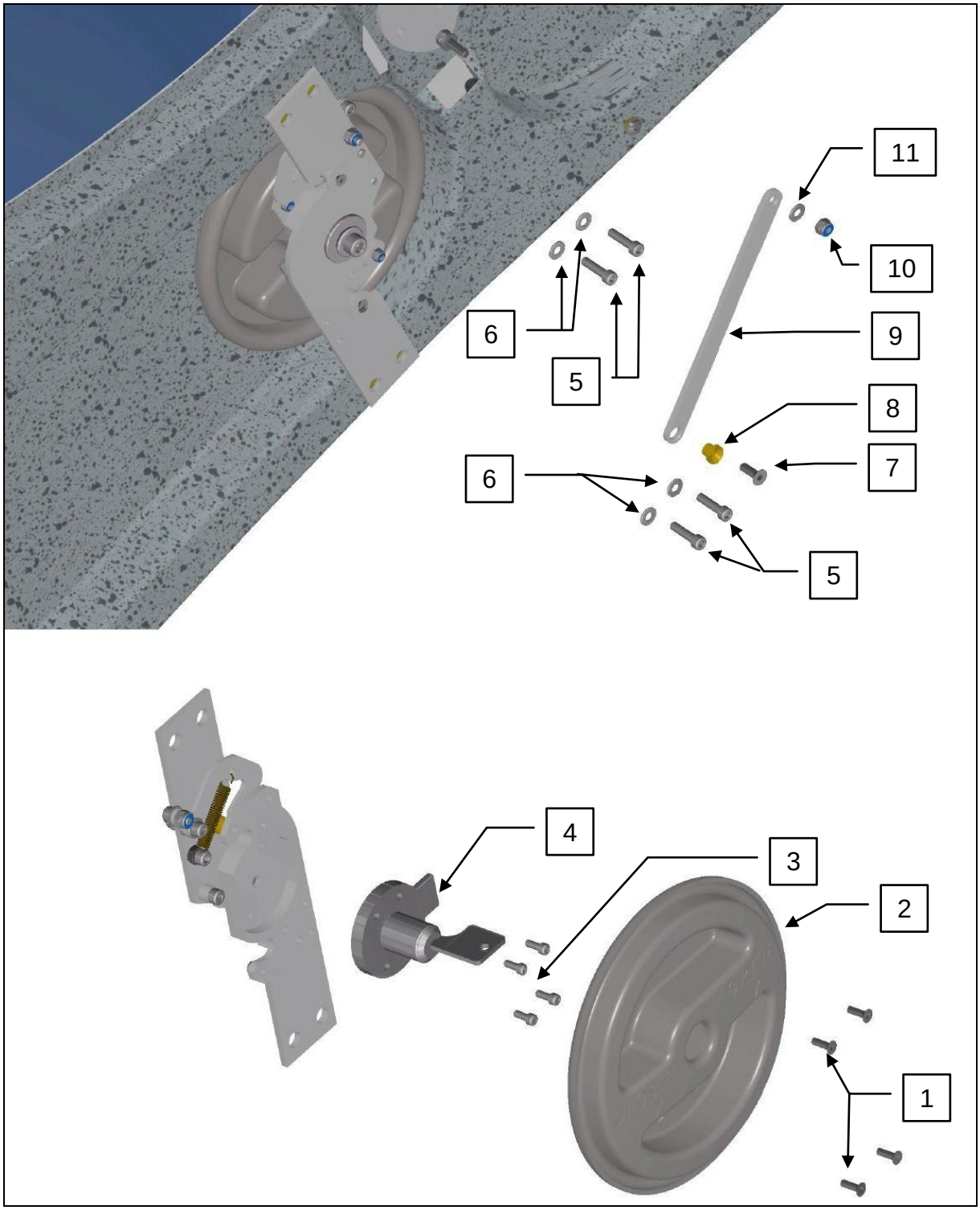
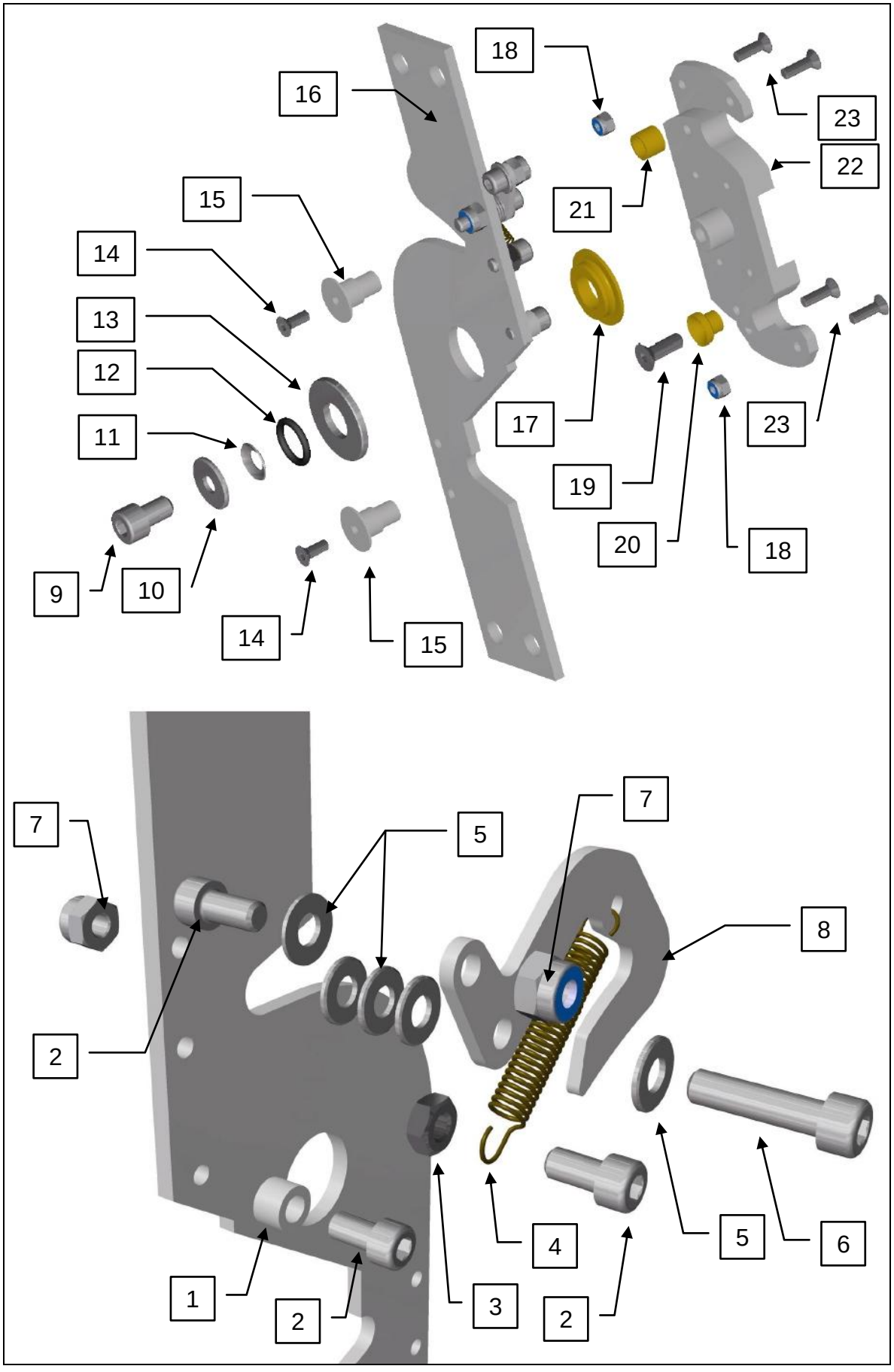


Figure 3-5



3.3 Seats

3.3.1 Description

The standard pilot and co-pilot seat is made from one-piece carbon fiber monocoque, equipped with a 3 position fore and aft adjustment. Seat adjustment is not possible while seated.

3.3.2 Upholstery

Due to the wide selection of fabrics, styles and colors, it is impossible to depict each particular type of upholstery. Major work, if possible, should be accomplished by an experienced mechanic.

Materials and tools will vary with job. Scissors for trimming upholstery to size and a dull-bladed putty knife are the only tools required for most trim work. Use industrial rubber cement to hold mats and fabric edges in place.

3.4 Baggage Compartment

The baggage compartment is located behind the pilot seat. It is a one-piece carbon fiber container, held in place by 2 screws located on it´s face plate and one screw at the inside bottom. After removing these screws the baggage compartment can be withdrawn from the bulkhead.

3.5 Safety Provisions

3.5.1 Safety Belts

4-point safety belts are installed for pilot and co-pilot seat to provide maximum safety. Safety belts are tied to latches screwed to the cabin structure. Belts should be replaced if frayed or cut, latches are defective or stitching is broken. Attaching parts should be replaced if excessively worn or defective.

3.5.2 Ballistic Recovery System

3.5.2.1 Description

The REMOS GX is prepared for the installation of a MAGNUM parachute rescue system. Description and installation is included in the parachute installation manual G3-8 RE RS 080, available on request at REMOS AG.

3.5.3 Baggage Pocket Nets

- **Required Tools:** Standard metric tools
- **Required Parts:** Pocket nets
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Behind each seat, a mold for lightweight baggage is provided covered by a pocket net. The maximum weight capacity must not exceed 5 lb each. Nets should be replaced when frayed or cut or frame is broken.

3.6 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
3-1	1	700437	G3-8 FU-11-10-00	1	Ventilation Window Assy blue anodized	Till 304
	1	700437	G3-8 FU-11-10-00	1	Ventilation Window Assy colorless anodized	304 ff
	2	100343		1	Straight Pin 3x20 DIN 6325	All
	3	100518	G3-8 FU-11-10-01	1	Ventilation Lever blue anodized	Till 304
	3	100518	G3-8 FU-11-10-01	1	Ventilation Lever colorless anodized	304 ff
	4	101039		1	Spiral Spring 17x2,64x0,5	All
	5	102537		2	Dowel Pin 3x10 DIN 7346	All
	6	100519	G3-8 FU-11-10-02	1	Ventilation Handle blue anodized	Till 304
	6	100519	G3-8 FU-11-10-02	1	Ventilation Handle colorless anodized	304 ff
	7	100517	G3-8 FU-11-10-03	1	Ventilation Hub blue anodized	Till 304
	7	100517	G3-8 FU-11-10-03	1	Ventilation Hub colorless anodized	304 ff
	8	100520	G3-8 FU-11-10-06	1	Ventilation Face Plate blue anodized	Till 304
	8	100520	G3-8 FU-11-10-06	1	Ventilation Face Plate colorless anodized	304 ff
	9	100104		2	Countersunk Head Hexagon Socket Screw M3x10 vz DIN 7991	All
	10	102275		2	Truss Head Hexagon Socket Screw M3x10 ISO 7380 A2	All
	11	100515	G3-8 FU-11-10-05	1	Ventilation Acrylic Flap	All
	12	100516	G3-8 FU-11-10-04	1	Ventilation Clamp	All
3-2	1	100511	G3-8 FU-11-30-07	1	Fuselage Door Panel Inside	All
	2	100188		4	Lens Head Hexagon Socket Screw M4x12	All
	3		G3-8 FU-11-10-05	1		All
3-3	1	100103		2	Countersunk Head Hexagon Socket Screw M3x8 vz DIN 7991	All
	2	100508	G3-8 FU-11-30-04	1	Fuselage Door Handle LH Inside	All
		100510	G3-8 FU-11-30-05	1	Fuselage Door Handle RH Inside	All
3-4	1	100101		4	Countersunk Head Hexagon Socket Screw M3x10 vz DIN 7991	All
	2	100507	G3-8 FU-11-30-02	1	Fuselage Door Handle LH Outside	All
		100509	G3-8 FU-11-30-03	1	Fuselage Door Handle RH Outside	All
	3	100102		4	Cylinder Head Hexagon Socket Screw M3x8 vz DIN912 8.8	All
	4	100514		1	Lock	All
	5	100113		4	Cylinder Head Hexagon Socket Screw M4x16 vz DIN912 8.8	All
	6	100233		4	Washer 4,3 DIN125 FormA Steel vz	All
	7	100123		1	Countersunk Head Hexagon Socket Screw M4x12 vz DIN7991 8.8	All
	8	100504	G3-8 FU-11-20-14	1	Door Lock Bearing Bush	All
	9	100503	G3-8 FU-11-20-10	1	Door Lock Bell Crank	All
	10	100212		1	Self-locking Hexagon Nut M4 DIN985 vz	All
	11	100233		1	Washer 4,3 DIN125 FormA Steel	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
3-5	1	100500	G3-8 FU-11-20-11	1	Door Lock Distance Bush Arrester	All
	2	100122		3	Cylinder Head Hexagon Socket Screw M4x8 vz DIN912 8.8	All
	3	100213		1	Hexagon Nut M4 DIN934	All
	4	101038		1	Tension Spring	All
	5	100233		5	Washer 4,3 ISO 7091 vz	All
	6	100113		1	Cylinder Head Hexagon Socket Screw M4x16 vz DIN912 8.8	All
	7	100212		2	Self-locking Hexagon Nut M4 DIN985 vz	All
	8	100512	G3-8 FU-11-20-08	1	Door Lock Safety Catch	All
	9	100148		1	Cylinder Head Hexagon Socket Screw M6x10 vz DIN912 8.8	All
	10	100253		1	Washer M6 DIN 552 6,4x18x1,5	All
	11	100266		1	Spring Washer 6,4 DIN 137 vz	All
	12	101037		1	O-Ring 10x2	
	13	102092		1	Washer M10 ISO 7093 vz	
	14	100103		2	Countersunk Head Hexagon Socket Screw M3x8 vz DIN 7991	
	15	100505	G3-8 FU-11-20-12	2	Door Lock Distance Bush Handle Inside	
	16	100498	G3-8 FU-11-20-06	1	Door Lock Central Plate	
	17	100499	G3-8 FU-11-20-15	1	Door Lock Master Bush	
	18	100211		2	Self-locking Hexagon Nut M3 DIN985 vz	
	19	100123		1	Countersunk Head Hexagon Socket Screw M4x12 vz DIN7991 8.8	
	20	100504	G3-8 FU-11-20-14	1	Door Lock Bearing Bush	
	21	100513	G3-8 FU-11-20-13	1	Door Lock Bushing	
	22	100497	G3-8 FU-11-20-07	1	Door Lock Mount	
	23	100101		4	Countersunk Head Hexagon Socket Screw M3x10 vz DIN 7991	

Section 4

Wings and Empennage

Table of Contents **Section**

4.1 Wings

4.1.1 Description

Each all composite wing is a monocoque type, made from carbon fiber sandwich components. Each wing contains one main spar and suitable ribs for the attachment of the skin. The outer skin consists of a carbon fiber sandwich construction all over. Each wing assembly provides full composite ailerons and flaps constructed from carbon fiber sandwich materials. A colored navigation light is installed to each removable carbon fiber wing tip. The right wing is containing a landing light system installed to the mean section of the leading edge.

Both wings provide a special mechanism to fold them back for storing or transportation of the aircraft. Refer to the REMOS GX Pilot Operating Handbook, for instructions about folding and re-installing wings.

4.1.2 Installation

- **Tools required:** Standard metric tools
- **Parts required:** Refer to figure 4-1
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Wing installation in general has to be carried out in reverse order to removal but we strongly recommend to read the following instructions prior to start installation:

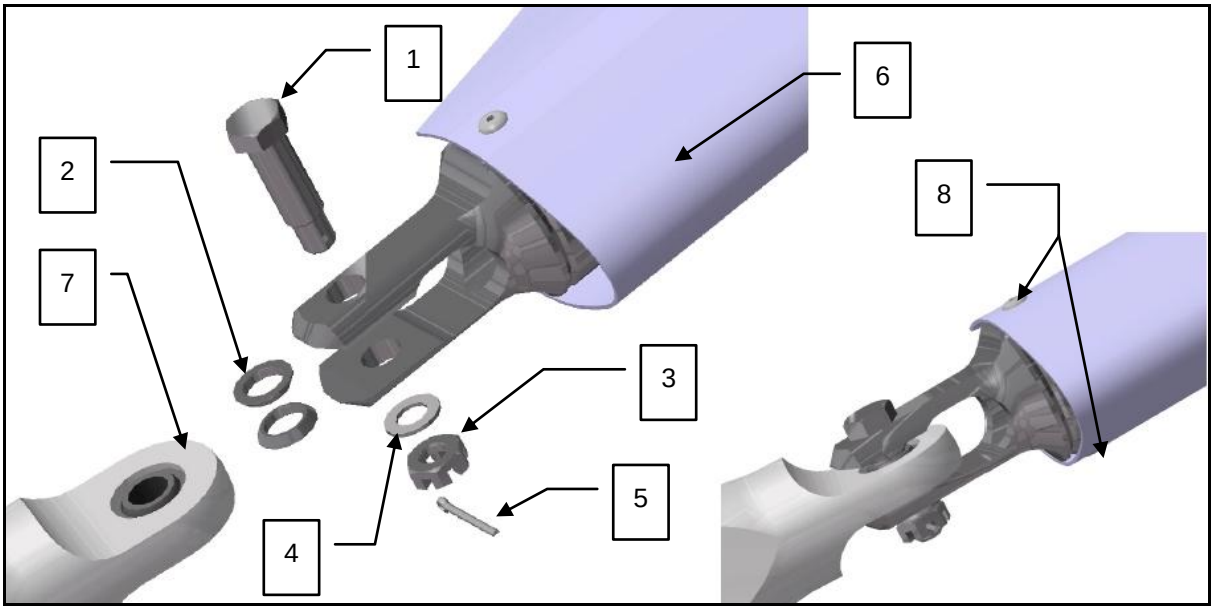
▲ WARNING	Insecurely connected, improper operation of control surfaces or insecurely locked fasteners will lead to loss of control of the aircraft!!

4.1.2.1 Installing Strut to Fuselage

♦ NOTE	All struts are providing a "Top" marking, which has to point upward when installed, while leading edge (rounded edge) has to point forward.

Connect wing strut first to the fuselage and support as suitable, so that no damage occurs to the attachment and strut bearing. In figure 4-1 the correct installation of the strut-fuselage connection is given. Take care that leading edge of the profiled wing strut is pointing forward. It may be helpful to apply a small amount of grease to both chamfered washer prior to installation. Take also care for the right orientation of those washers, otherwise the folding mechanism of the wings will not operate properly and damage to the strut could be caused

Figure 4-1



CAUTION	Watch for the correct installation of the cone washers (2) as shown in illustration 4-1. Damage to the struts may occur and folding of the wings will not be possible if those washers are installed in a wrong way! Tighten castle nut (3) hand tight and secure with a new cotter pin.

4.1.2.2 Installing Wing to Fuselage

To install the wing to the fuselage at least two persons are required!

a. Insert the plastic ball into the guide cage at the wing root (left and right ball joints are different; each plastic ball provides a marking matching with the appropriate bracket at the fuselage).

b. Hold wing in a position to be aligned with the fuselage, leading edge pointing to the ground (wing root pointing forward), so that ball bearing guide cage and ball bracket at the fuselage are side by side.

c. Apply the plastic ball into the guide cage at the wing root, so that it is possible to push it over the bracket at the fuselage and insert it´s fixation screw. Do not overtighten this screw. While doing so a second person has to support the wing at the outboard end, so that no part of the wing skin will touch the fuselage.

d. Now the wing outboard end can be moved forward slowly, make sure that the wing will not spin around its axis. If the wing has reached its forward position one person at the wing root has to spin it till the connection latches have aligned with the fuselage latches.

   Great care has to be taken, that no damage will occur to the wing surfaces during rigging of the wing by scratching on the fuselage sided wing fittings!

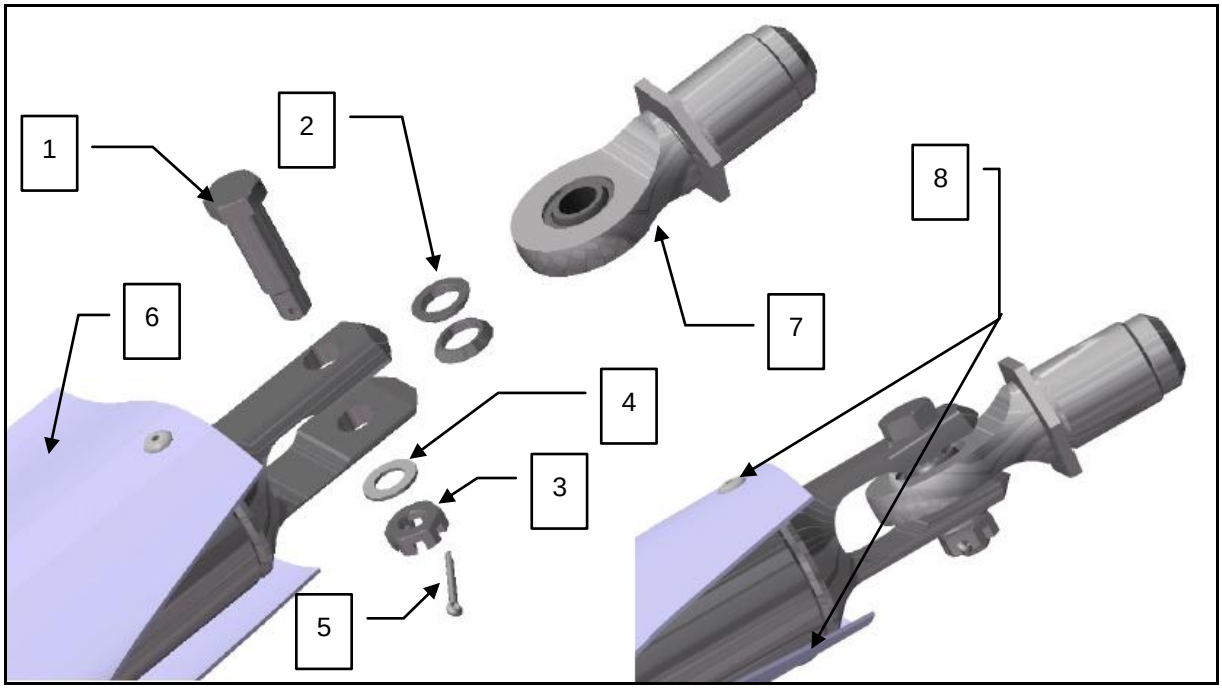
e. Take care that flap drive engages to the fuselage and apply pressure to the wing tip, so that the latches on the wing root and fuselage engage and the wing mainbolt could be pushed through its guide tube. Ensure that the wing mainbolt has engaged completely and secure it with a Fokker needle.

♦ **NOTE**	Support of the wing outboard end is required till the strut has been connected to the wing attachment.

4.1.2.3 Connecting Strut to Wing

Figure 4-2 is showing how to apply the connection bolts at the strut-wing attachment. It may be helpful for installation to apply grease to both chamfered washers prior to installation.

Figure 4-2



▉ **CAUTION**	Watch for the correct installation of the cone washers (2) as shown in illustration 4-2. Damage to the struts may occur and folding of the wings will not be possible if those washers are installed in a wrong way! Tighten castle nut (3) hand tight and secure with a new cotter pin (5). When removing or reassembling of the Eye Bearing Assy (7) is required, use Loctite 243 (medium strength) for installation and torque hand tight. Look to it that Eye Bearing Assy and Wing Strut fit together.

4.2 Wing Struts

4.2.1 Description

Each wing has a single lift strut. The strut itself is available in two different versions: Steel und CFRP. The steel strut consists of streamlined composite fairings riveted and glued to an inner steel tube with welded end fittings for attachment to the fuselage and wing brackets.

The CFRP strut is a one-piece, monocoque costume-made part of the wing and is half as heavy as the normal steel strut.

♦ **NOTE**	Installation and removal of the struts is always the same, no matter what kind of strut is used.

4.2.2 Removal and Installation

Refer to the paragraph 4.1.2.1 and 4.1.2.3.

Figure 4-3

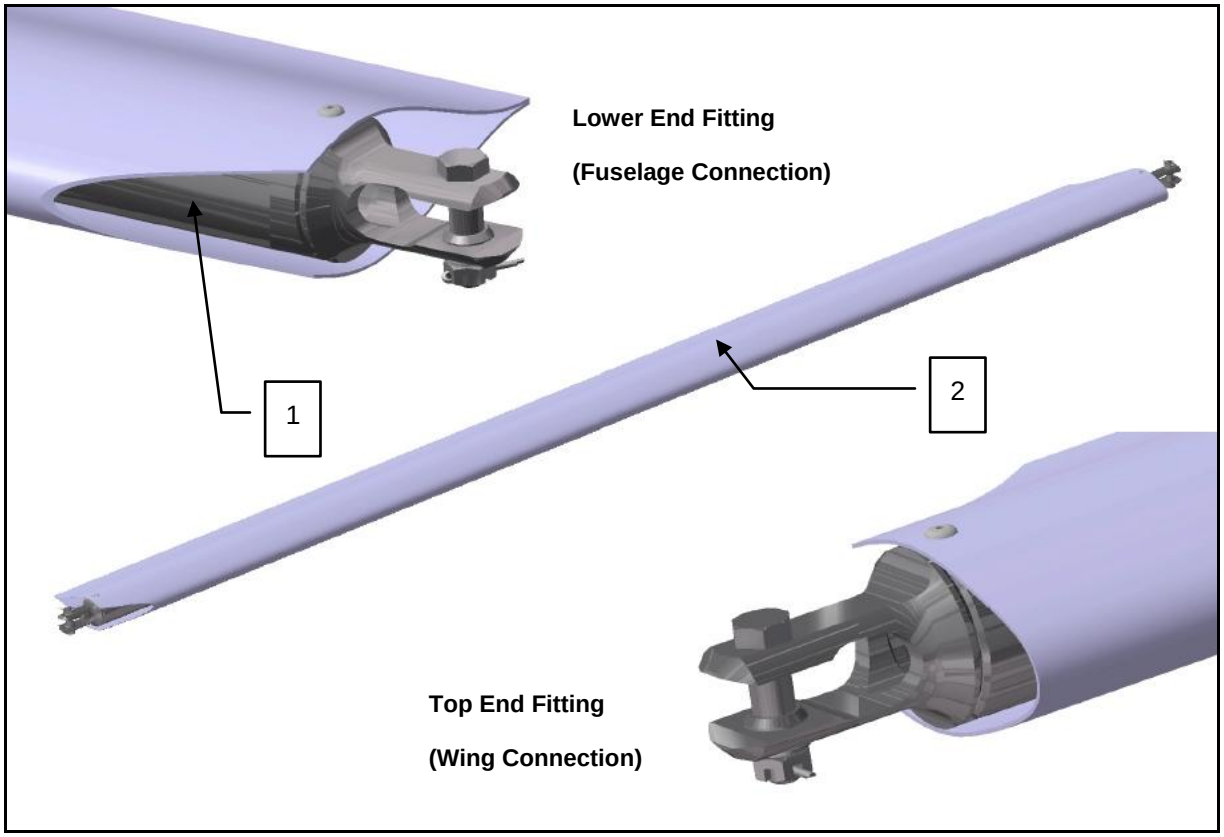
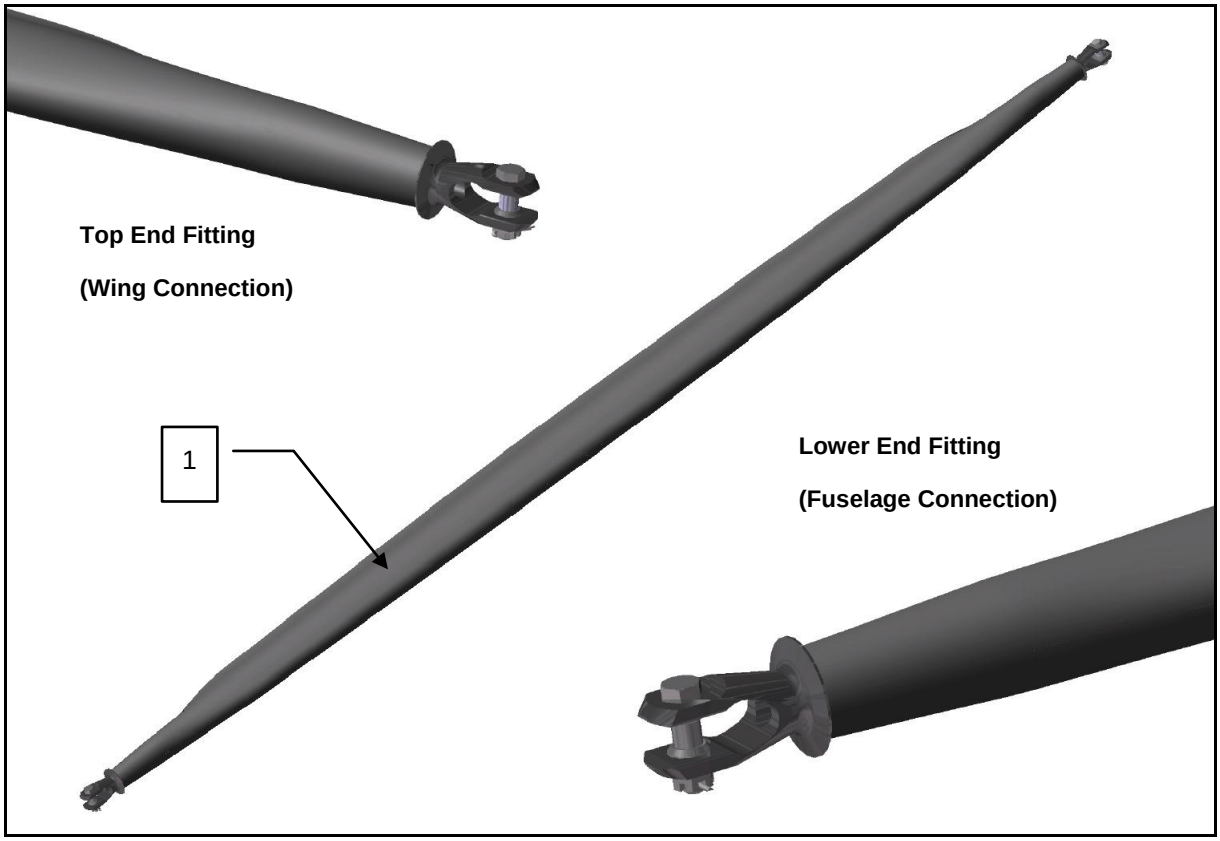


Figure 4-4


Top End Fitting
(Wing Connection)
1
Lower End Fitting
(Fuselage Connection)

4.3 Horizontal Stabilizer

4.3.1 Description

The horizontal stabilizer is primarily of all composite monocoque construction, consisting of outer shell and ribs, no spar is included. Hinges are located on the trailing edge to support the elevator.

4.3.2 Removal and Installation

- **Required Tools:** REMOS Bolt-Removal Tool (recommended)
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Removal and installation of the stabilizer is quite easy, but needs two persons to perform:

a. Remove the tail cover.

b. Disconnect the trim actuator connector.

c. Disconnect the elevator control rod by opening the quick-release connector (push button and slide back the securing tube).

d. Support stabilizer by a second person.

e. Withdraw Fokker-needle and remove both stabilizer bolts to the left.

f. Remove stabilizer.

g. Install horizontal stabilizer by reversing preceding steps and check operation of trim system.

♦ NOTE	Stabilizer bolts are different in length, therefore each bolt provide a marking for installation: "V" means front bolt, "H" means rear bolt.

▉ CAUTION	Ensure that both Fokker needles are engaged to the stabilizer bolts.

Figure 4-5

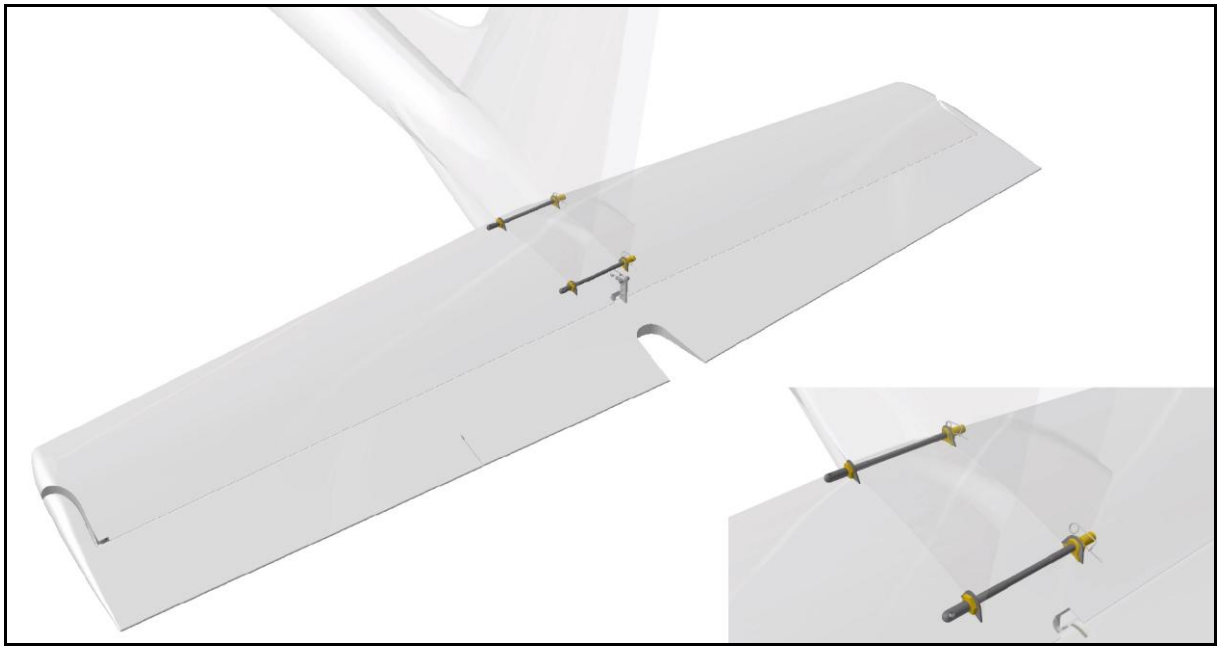


Figure 4-6

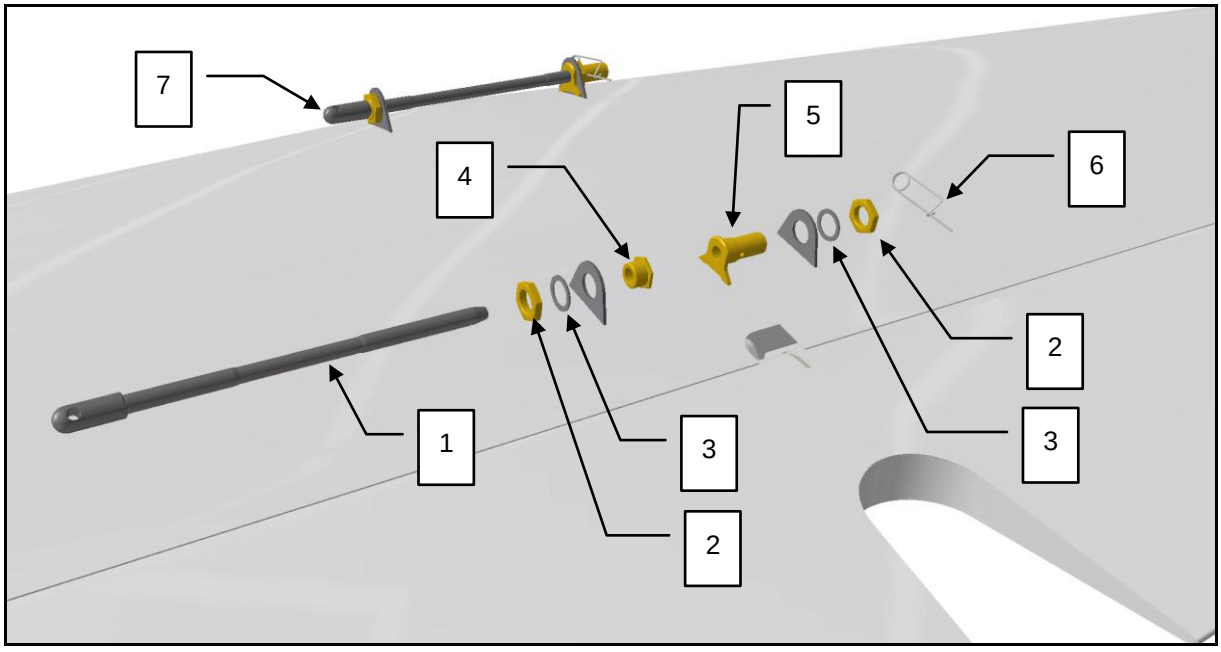
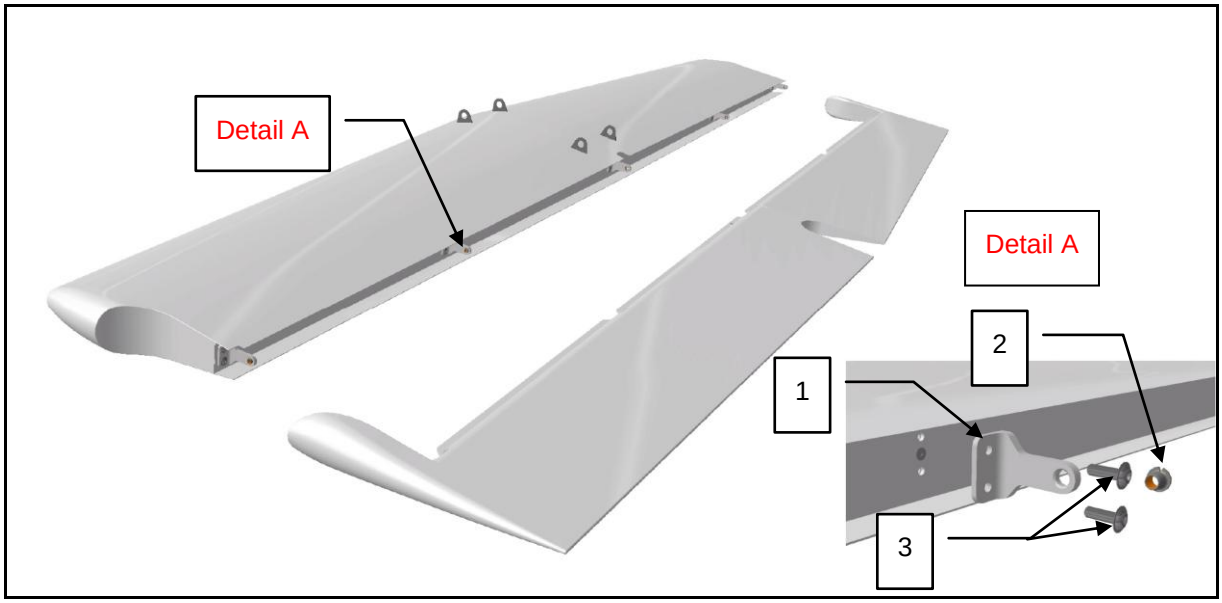


Figure 4-7



4.4 Vertical Stabilizer

4.4.1 Description

The vertical stabilizer is part of the fuselage structure.

Figure 4-8

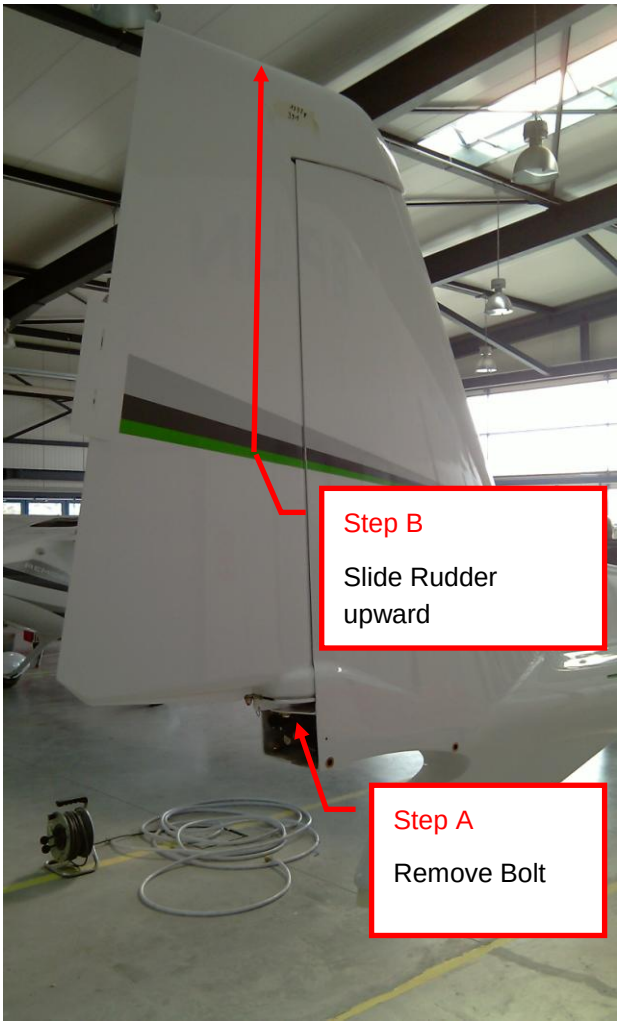


Figure 4-9

4.4.2 Removal and Installation

- **Required Tools:** Standard metric tools, edge cutter
- **Required Parts:** Safety wire (1.0 mm)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Disconnect tail navigation light quick-disconnect (Only if equipped with tail navigation light).

b. Relieve cable tension at cable tensioner (Figure 10-3).

c. Disconnect cables from rudder.

d. Remove lower hinge bolt and slide rudder upward to disengage upper hinge bolt.

e. Reverse preceding steps for installation.

f. Rig system in accordance with applicable paragraph in this section and safety clevises, secure hinge bolt by wire.

4.5 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
4-1	1	100831	G3-8_ST-01-00-13	1	Fit-Bolt M8x10x34	
	2	100832	G3-8_ST-01-00-14	4	Cone-Washer Wing Strut	
	3	100383		2	Flat Castle Nut M8 DIN 979 A4	
	4	102968		2	Washer 8x14x1 DIN 988 A2	
	5	103106		2	Cotter Pin 2x20 DIN94 A4	
	6	101720	G3-8_ST-01-00-25	1	Wingstrut Cover 43x1	
	7	100612	G3-8_FU-06-00-00	1	Assembly Fuselage Strut Bracket left	
		100614	G3-8_FU-06-00-01	1	Assembly Fuselage Strut Bracket right	
	8	101893		4	Blind Rivet Truss Head 4x8 St/St A2K	
4-2	1	100831	G3-8_ST-01-00-13	1	Fit-Bolt M8x10x34	
	2	100832	G3-8_ST-01-00-14	4	Cone-Washer Wing Strut	
	3	100383		2	Flat Castle Nut M8 DIN 979 A4	
	4	102968		2	Washer 8x14x1 DIN 988 A2	
	5	103106		2	Cotter Pin 2x20 DIN94 A4	
	6	101720	G3-8_ST-01-00-25	1	Wingstrut Cover 43x1	
	7	102192	G3-8_WG-04-05-00	1	Assy Wing Strut Swivel Bracket + Boltnut Spliced	
	8	101893		4	Blind Rivet Truss Head 4x8 St/St A2K	
4-3	1	100825	G3-8_ST-00-00-04	1	Wingstrut Weldment	
	2	700438	G3-8_ST-00-00-03	1	Assy Wingstrut Left + Cover	
		700440			Assy Wingstrut Right + Cover	
4-4	1	103392	G3-8 _ST-00-00-30	1	Wingstrut CFRP	
4-6	1	100568	G3-8_HT-10-01-07	1	Stabilizer Bearing-Bolt-Rearward-Short	
	2	100677	G3-8_HT-10-01-05	2	Stabilizer Hexnut-Bolt-Bearing	
	3	102128		2	Washer 16x22x1 DIN 988 A2	
	4	100674	G3-8_HT-10-01-04	1	Stabilizer Bolt-Bearing Short	
	5	100675	G3-8_HT-10-01-03	1	Stabilizer Bolt-Bearing Long	
	6	101064		1	Fokker Needle 35x1.5	
	7	100567	G3-8_HT-10-01-08	1	Stabilizer Bearing-Bolt-Front-Long	
4-7	1	100673	G3-8_HT-10-01-00	1	Bracket Stabilizer-Elevator	
	2	101152		1	Socket 6x8 BB 0608 DP4	
	3	102156		2	Lens Head Screw M5x16 ISO 7380 A2	

Section 5

Landing Gear and Brakes

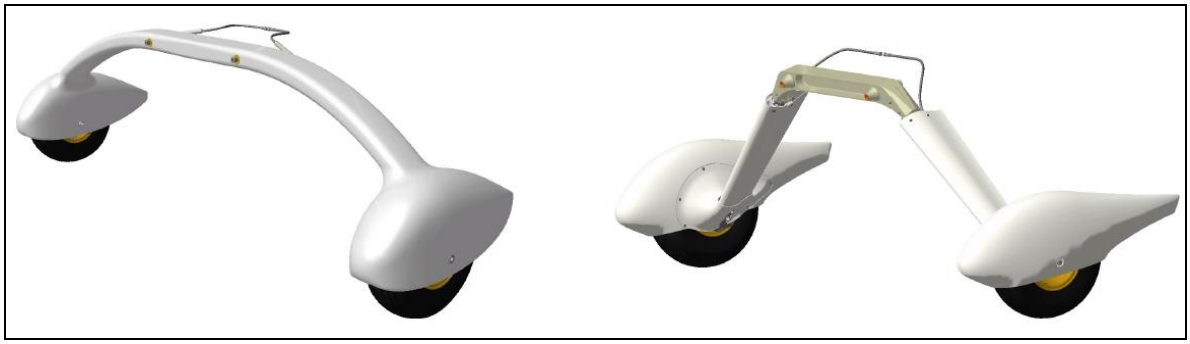
Table of Contents **Section**

5.1 Landing Gear, General Description

Either a hollow composite main landing gear or steel spring struts may be installed on all REMOS GX aircraft. The brake system is attached to the wheel by a separate torque plate. Wheels with disc-type brakes and tube-type tires are installed.

All models are equipped with steerable nose gear. The nose gear provides shock absorbing rubber elements. The nose wheel is steerable with the rudder pedals up to a maximum pedal deflection. Nose and main wheel speed fairings may be used as desired. With the composite main gear, wheel pants are a non detachable part of the system.

Figure 5-1



5.1.1 Trouble Shooting

Trouble	Probable Cause	Remedy
Aircraft leans to one side	Incorrect tire inflation	Inflate to pressure specified in figure 1-1.
	Swingarm broken	Exchange swingarm
Tires wears excessively	Incorrect tire inflation	Inflate to pressure specified in figure 1-1.
	Dragging brakes	Refer to paragraph 5.2.2.
	Wheel bearing damaged	Install new part (s)
	Wheels out of balance	Correct in accordance with paragraph 5.1.3.3.
Wheel bounce evident on smooth surface	Out of balance condition	Correct in accordance with paragraph 5.1.3.3.

5.1.2 Composite Main Gear

Figure 5-1 illustrates the composite main landing gear. The illustrations should be used in conjunction with the following procedures during removal and installation of component parts. Disassembly, inspection and repair, and reassembly of the main wheel configurations are described in separate paragraphs for each configuration. The webbed wheels are consisting of two aluminum flanges and a hub. The flanges are attached to the wheel hub by thru-bolts and nuts as shown in figure 5-5. During assembly of the main wheel the thru-bolt self locking nuts, shall be tightened evenly and torqued to the value specified in paragraph 5.1.2.2.3.

5.1.2.1 Main Landing Gear Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** 2 x Self-Locking Nut M14x1.5
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

The following procedural steps remove the landing gear as a complete assembly. Refer to applicable paragraphs for removal of the individual components.

a. Remove main gear fairing from the bottom of the fuselage.

b. Remove pilot and copilot seat (refer to Section 3).

c. Remove baggage compartment (refer to Section 3).

d. Remove cable ties securing the brake line distributor to the fuselage (accessible when baggage compartment is removed).

e. Drain hydraulic brake fluid from brake lines.

f. Disconnect hydraulic brake line at the brake line distributor.

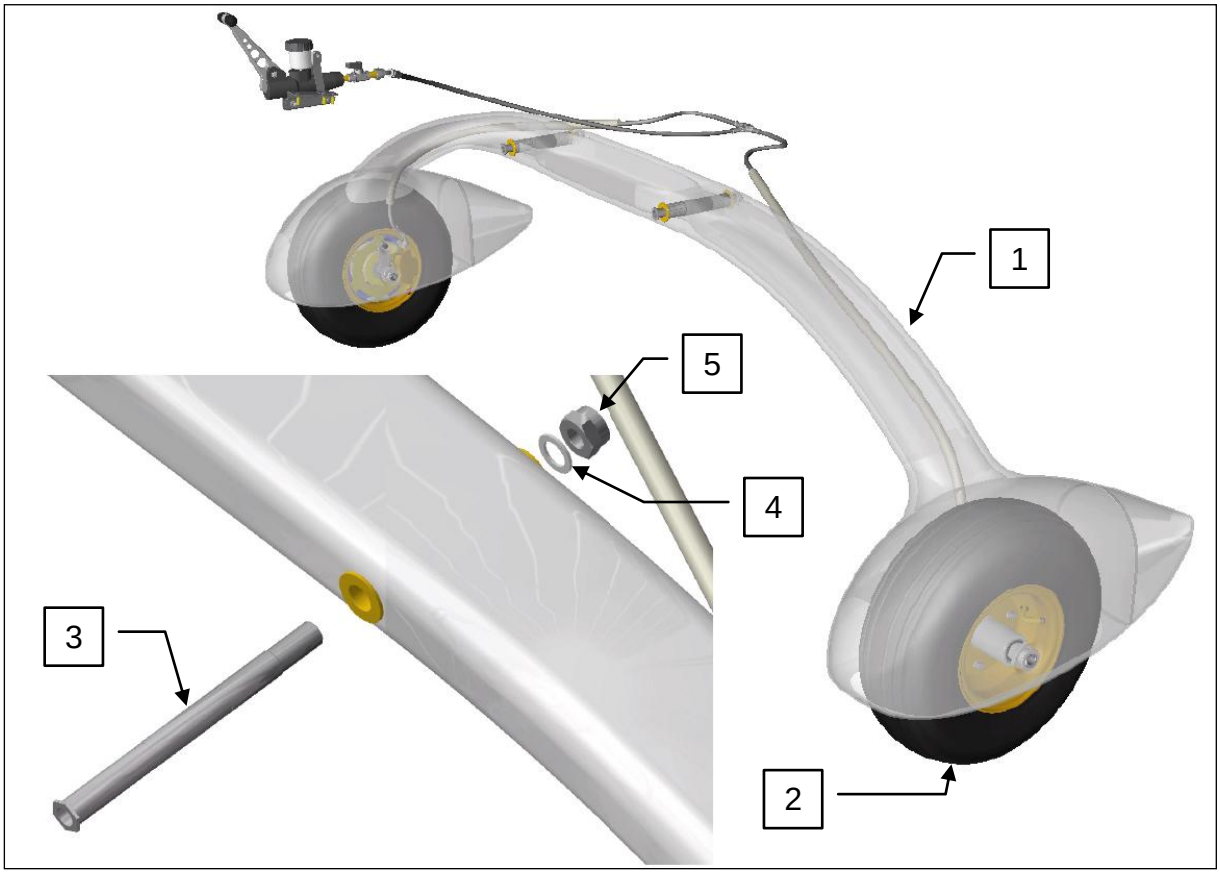
g. Hoist or jack aircraft in accordance with Section 2.

h. Remove both bolts attaching main gear to fuselage.

i. Remove main gear assembly.

Installation of the main gear has to be carried out in reversed order to removal.

Figure 5-2



5.1.2.2 Main Wheel Removal

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

To remove main wheel follow steps from a to e, outlined in paragraph 5.1.2.1 and then proceed as described below (refer to figure 5-3):

a. Hoist or jack aircraft in accordance with Section 2.

b. Remove wheel axis from the wheel fairing.

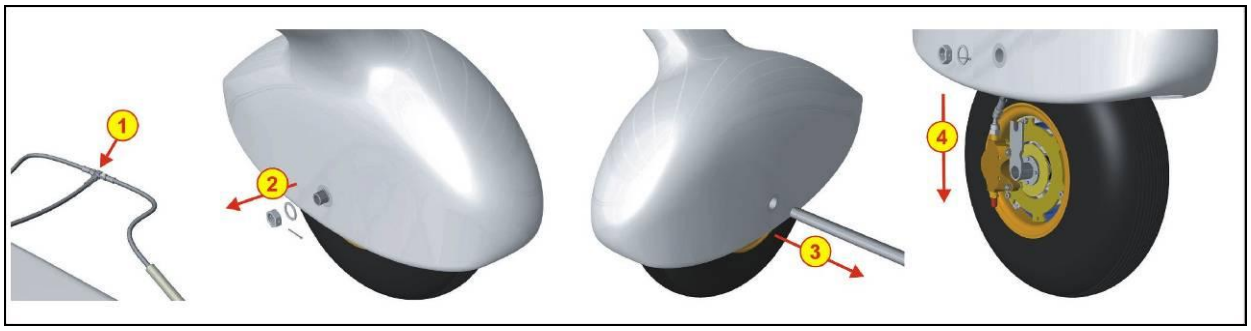
c. Withdraw main wheel assembly from the wheel fairing.

d. Drain hydraulic brake fluid from brake line.

e. Disconnect hydraulic brake line at the brake cylinder.

♦ NOTE	If tire, brake pads or brake disc have to be replaced, it is not necessary to drain and disconnect the brake line.

Figure 5-3



5.1.2.2.1 Main Wheel Disassembly

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Unscrew brake disc and withdraw complete brake assembly from wheel hub.

b. Remove valve core and deflate tire. Break tire beads loose from wheel rims.

c. Remove thru-bolts and separate wheel halves, removing tire, tube, hub and torque plate.

d. Remove wheel bearings from wheel hub.

▲ WARNING	Injury can result from attempting to separate wheel halves with the tire inflated. Avoid damaging wheel flanges when breaking tire beads loose.

Figure 5-4

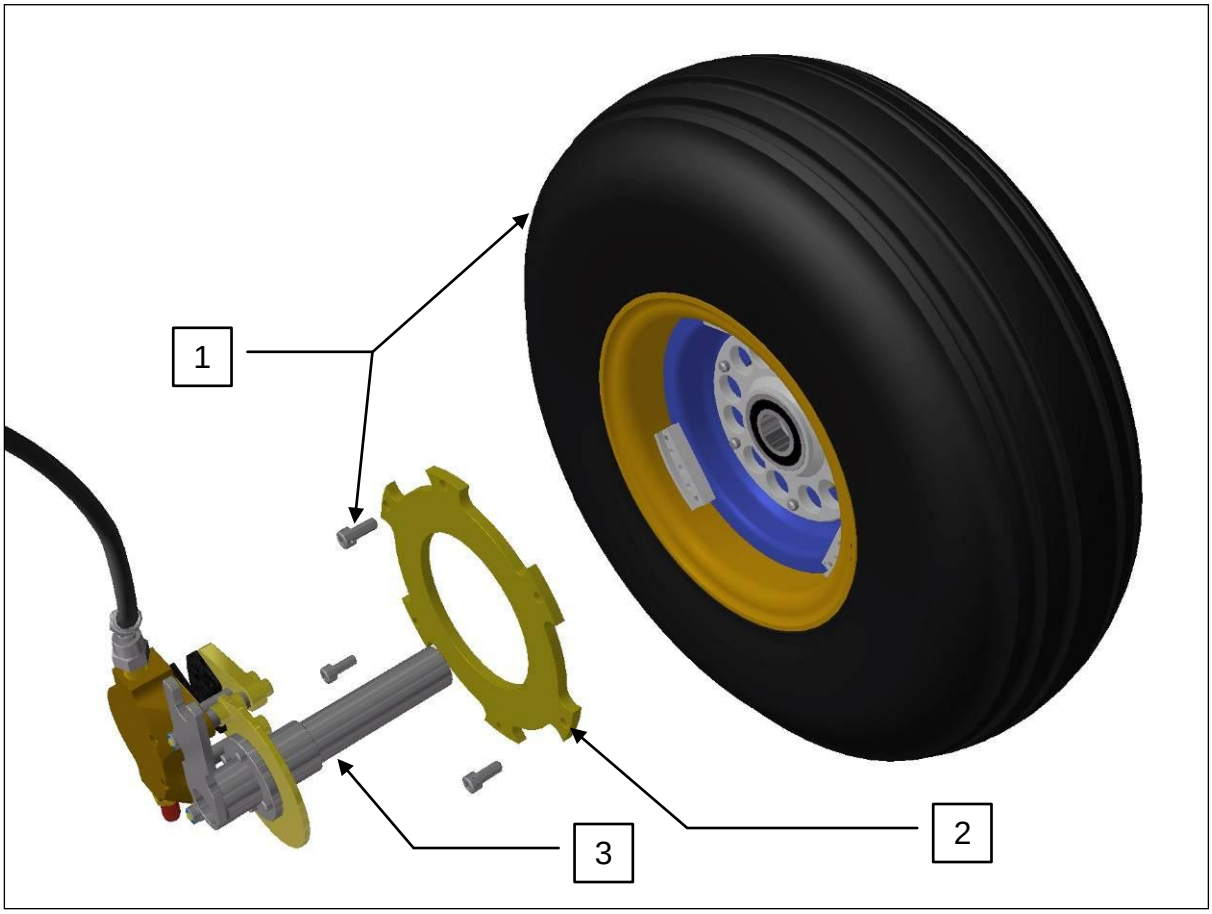


Figure 5-5

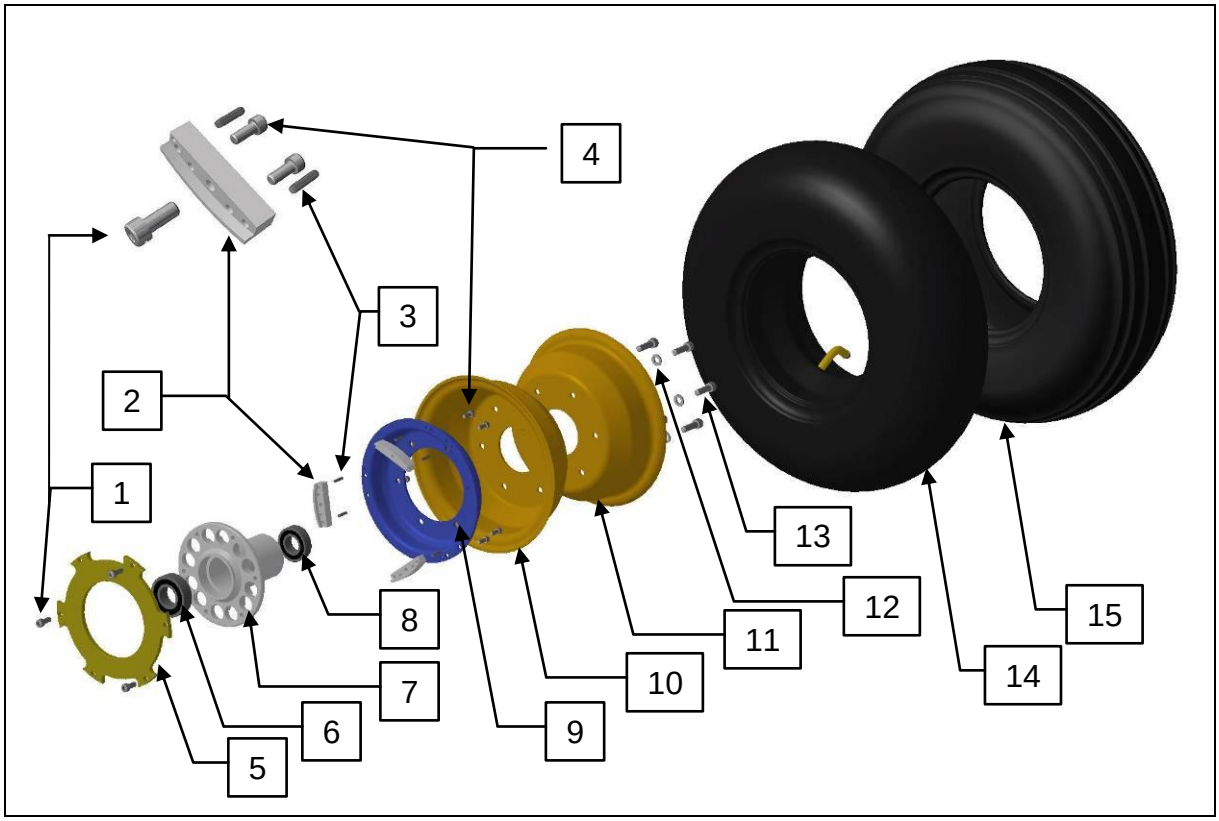
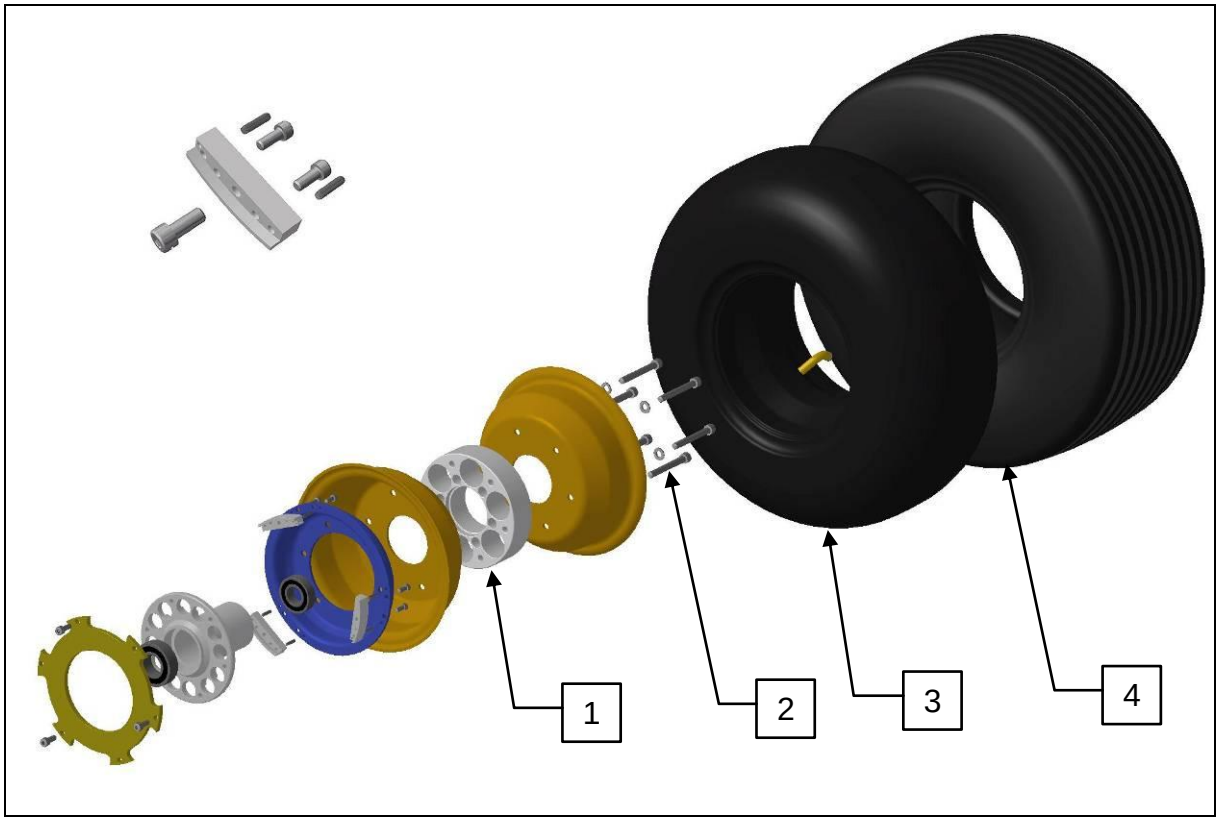


Figure 5-6



♦ NOTE	Figure 5-6 shows the school version of the main wheel. This wheel is only available for the metal main gear. Parts not listed in Figure 5-6 are the same as in Figure 5-5.

5.1.2.2.2 Main Wheel Inspection and Repair

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Clean all metal parts in solvent and dry thoroughly.

b. Inspect wheel halves for cracks. Cracked wheel halves shall be discarded and new parts used. Sand out nicks, gouges, and corroded areas. When the protective coating has been removed, the area should be cleaned thoroughly, primed with zinc chromate and painted with aluminum lacquer.

c. If excessively warped or scored, or worn to a thickness of 0.130-inch, brake disc should be replaced with a new part. Sand smooth small nicks and scratches.

d. Carefully inspect bearings for damage and discoloration or noises when rotating.

5.1.2.2.3 Main Wheel Reassembly

- **Required Tools:** Standard metric tools
- **Required Parts:** Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Insert wheel bearing to the wheel hub.

b. Insert thru-bolts through wheel hub, torque plate in the inner wheel half.

c. Position tire and tube on outboard wheel half with the tube inflation valve through hole in wheel half.

d. Place the outboard wheel half to position on inboard wheel half. Apply a light force to bring wheel halves together.

e. While maintaining a light force on the wheel halves assemble a washer and a nut on one thru-bolt and tighten snugly.

f. Assemble the remaining washers on the thru-bolts and torque to 88 in. lb. (10 Nm), use Loctite 243 for securing.

g. Place brake assembly into the inboard wheel half and insert brake disc retaining screws and torque to 53 in. lb. (6 Nm), secure them additional by safety-wire.

♦ **NOTE**	Brake assemblies of right and left side are different, When installed to the wheel, brake cylinder must be located behind wheel axle, while bleed valve is pointing downward. Refer to figure 5-3 and 5-4 and 5-5, 5-6 for a detailed illustration.

▉ **CAUTION**	Uneven or improper torque of thru-bolts can cause failure of bolts, with resultant wheel failure.

5.1.2.3 Main Wheel Installation

- **Required Tools:** Standard metric tools,
- **Required Parts:** DOT 4 hydraulic fluid, tie wraps
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

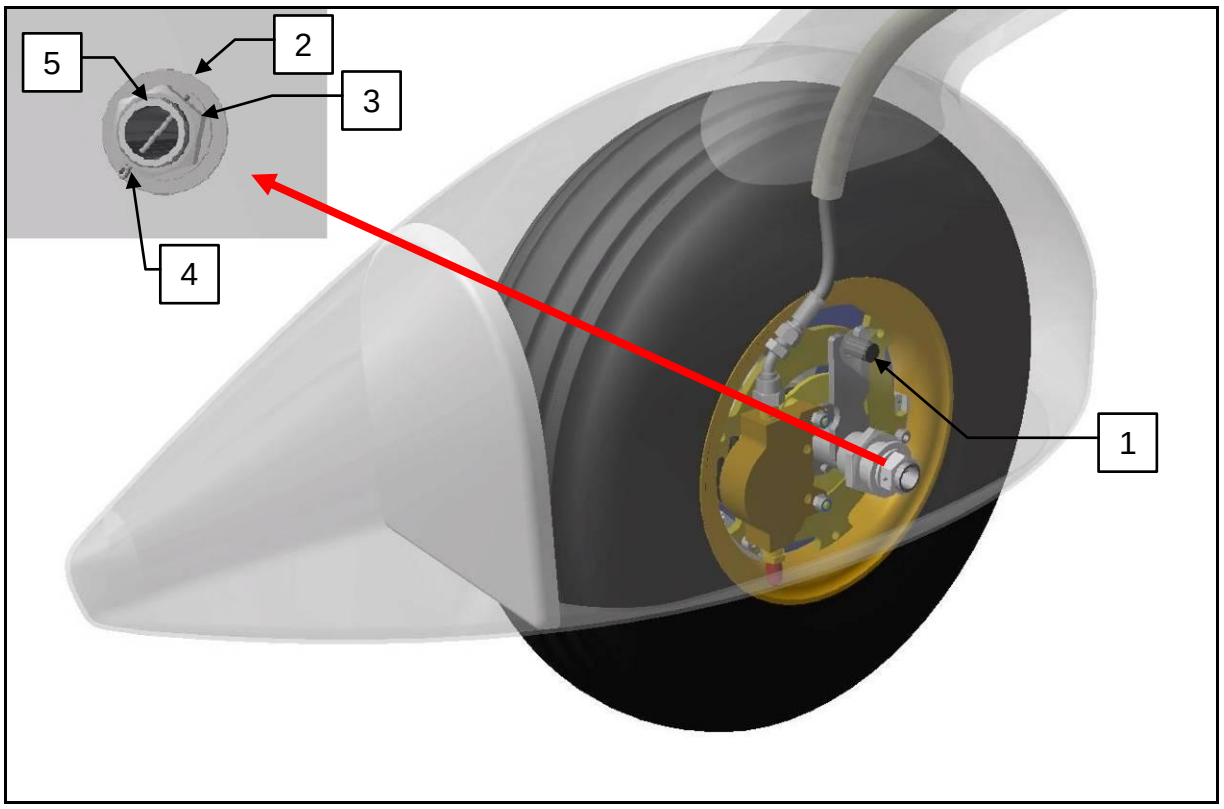
Main Wheel Installation is done in reverse order to removal. When installing wheel assembly to wheel fairing, ensure that the torque lever of the brake assembly has engaged to the retaining pivot located at the inboard side of the wheel fairing. Check thoroughly for sufficient space between brake line and tire. Refer to figure 5-7.

After completing installation, fill and bleed hydraulic lines and attach fuel hose distributor to its bracket inside the fuselage and secure with cable ties.

♦ NOTE	It may be helpful for bleeding all air off the hydraulic system, to lower the aircrafts tail.

▉ CAUTION	Does not use aircraft brake fluid, doing so will cause damage to the cylinder seals. DOT 4 automobile brake fluid must be used only.

Figure 5-7



5.1.3 Steel Main Gear

Figure 5-18 illustrates the steel main landing gear. The illustrations should be used in conjunction with the following procedures during removal and installation of component parts. Disassembly, inspection and repair, and reassembly of the main wheel configurations are described in separate paragraphs for each configuration.

5.1.3.1 Main Landing Gear Removal and Installation

- **Required Tools:** Standard metric tools
- **Parts required:** 2 x Self-Locking Nut M14x1.5
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

The following procedural steps remove the landing gear as a complete assembly. Refer to applicable paragraphs for removal of the individual components.

a. Unscrew main gear fairing from the bottom of the fuselage.

b. Remove pilot and copilot seat (refer to Section 3).

c. Remove baggage compartment (refer to Section 3).

d. Remove cable ties securing the brake line distributor to the fuselage (accessible when baggage compartment is removed).

e. Drain hydraulic brake fluid from brake lines.

f. Disconnect hydraulic brake line at the brake hose distributor.

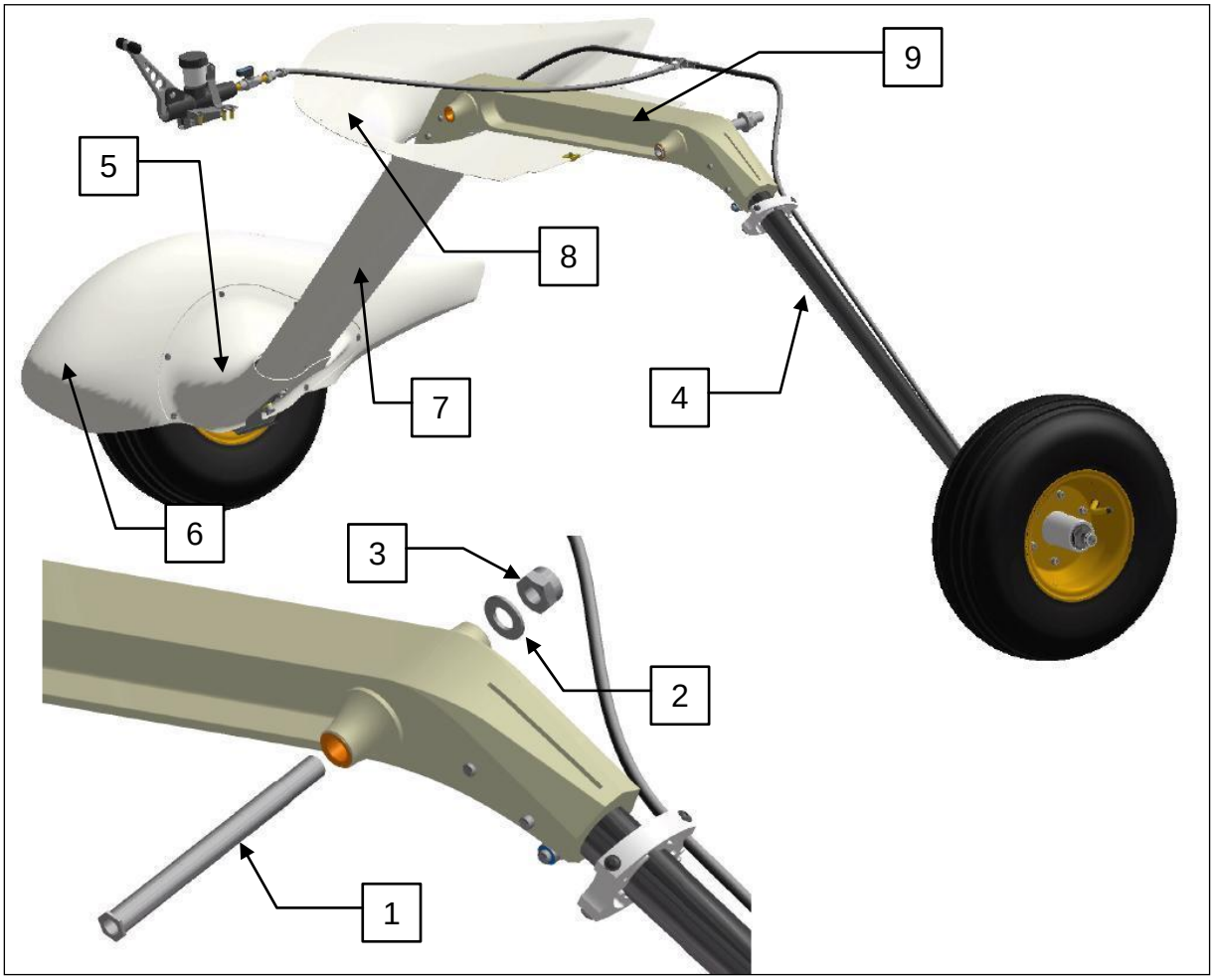
g. Hoist or jack aircraft in accordance with Section 2.

h. Remove both fixing bolts attaching main gear to fuselage.

i. Remove main gear assembly.

Installation of the main gear has to be carried out in reversed order to removal.

Figure 5-8



5.1.3.2 Main Landing Gear Disassembly

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-9 to 5-13 as illustrated guide to conduct the following procedure.

a. Remove the wheel pant retaining screws from the fairing.

b. Withdraw the fairing to the top.

c. Loosen and remove wheel nut from wheel axle.

d. Remove and discard securing washer from wheel axle.

e. Unscrew brake disc from wheel assembly and/or disconnect brake hose from brake assembly (not applicable with the REMOS brake system installed).

f. Withdraw brake assembly and brake disc from wheel hub.

g. Remove the spring strut fixing screws at the center beam (see figure 5-11).

h. Withdraw the complete strut assembly

i. Remove the upper strut retaining screws and slide of the complete fairing

j. For overhaul or exchange unscrew the strut fairing from the wheel hub cover.

♦ **NOTE**	Remember the position of the nyloc collar bush inside the fairing like illustrated in figure 5-9. Take care to relocate it when reassembling the fairing. Use Loctite 243 (medium strength) at all fairing retaining screws at reassembly.

♦ **NOTE**	There are two ways to remove the wheel from the wheel axle, Version A and B are given in figure 5-10.

Figure 5-9

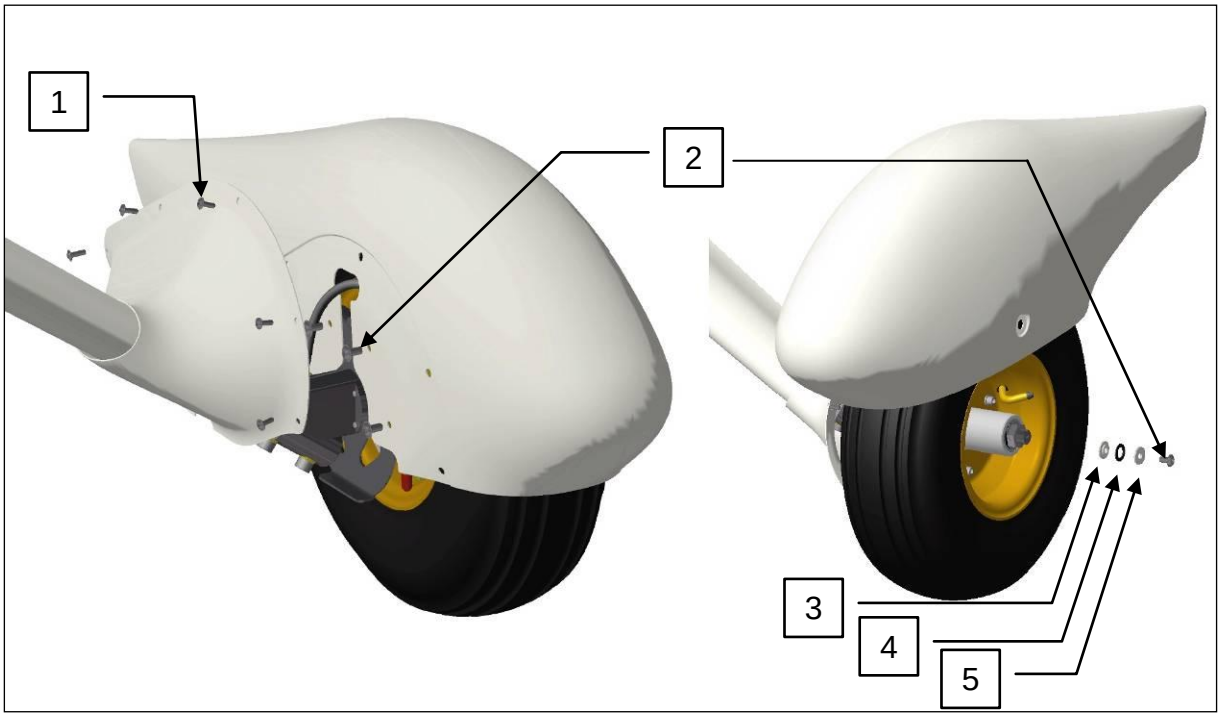


Figure 5-10

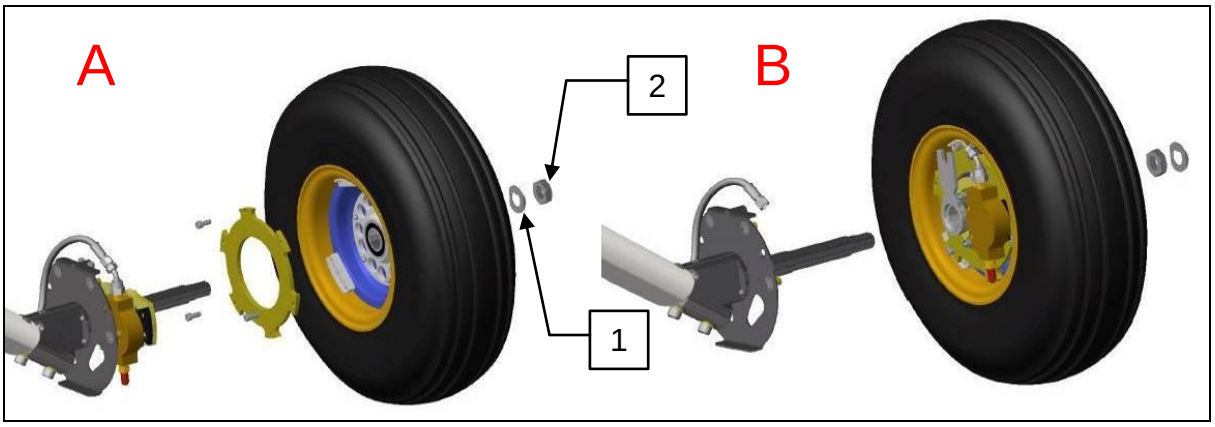


Figure 5-11

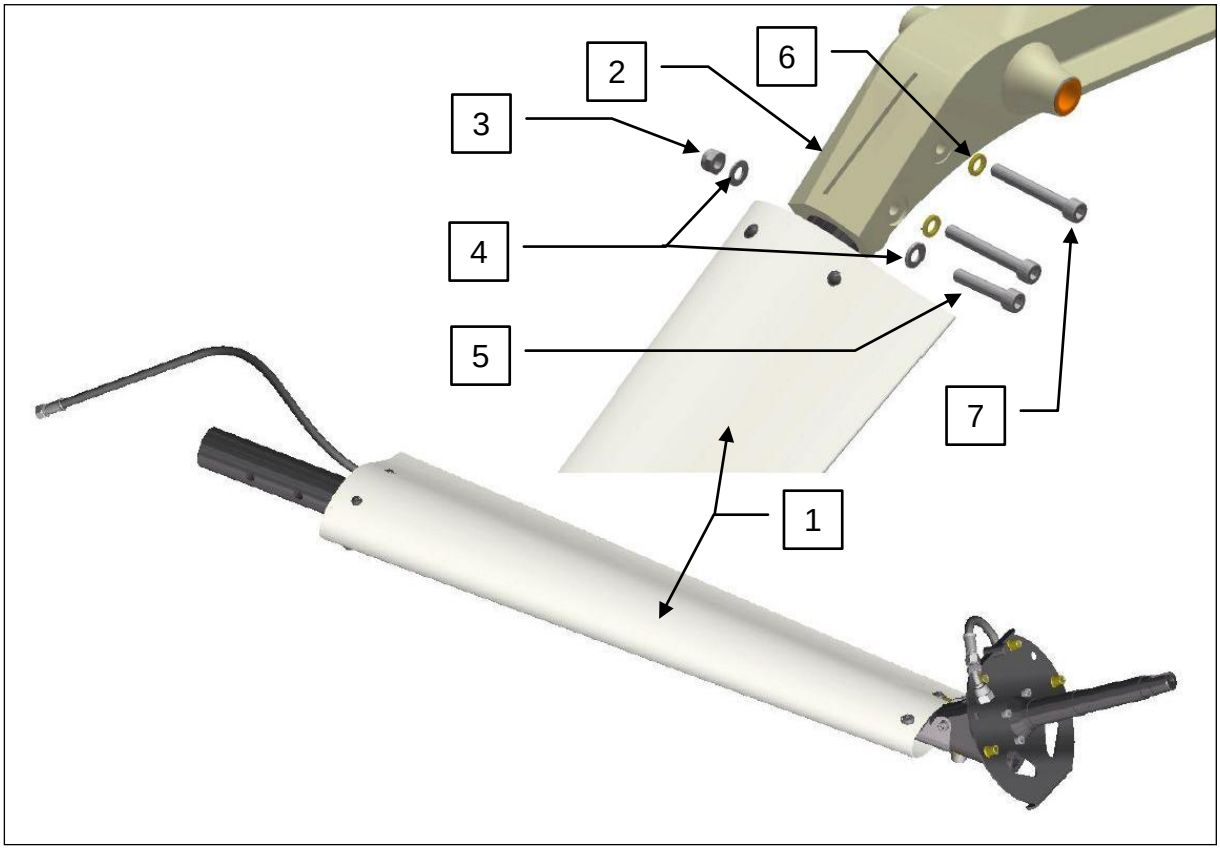


Figure 5-12

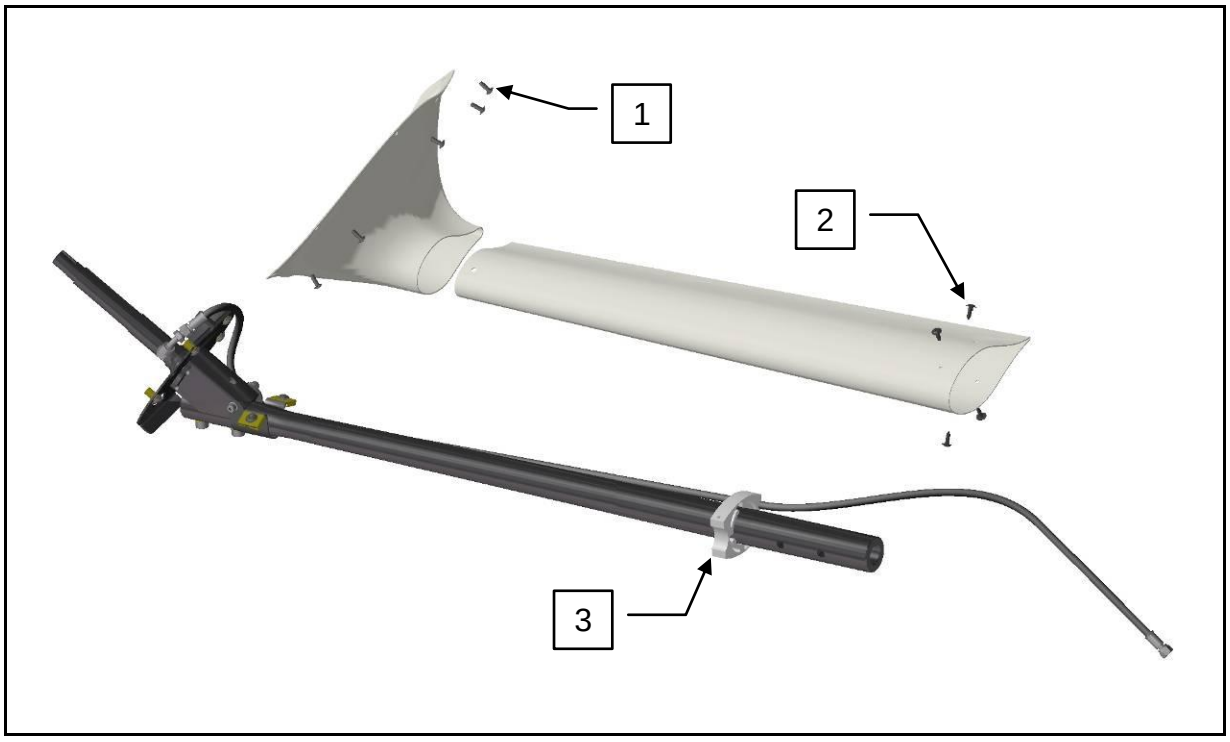
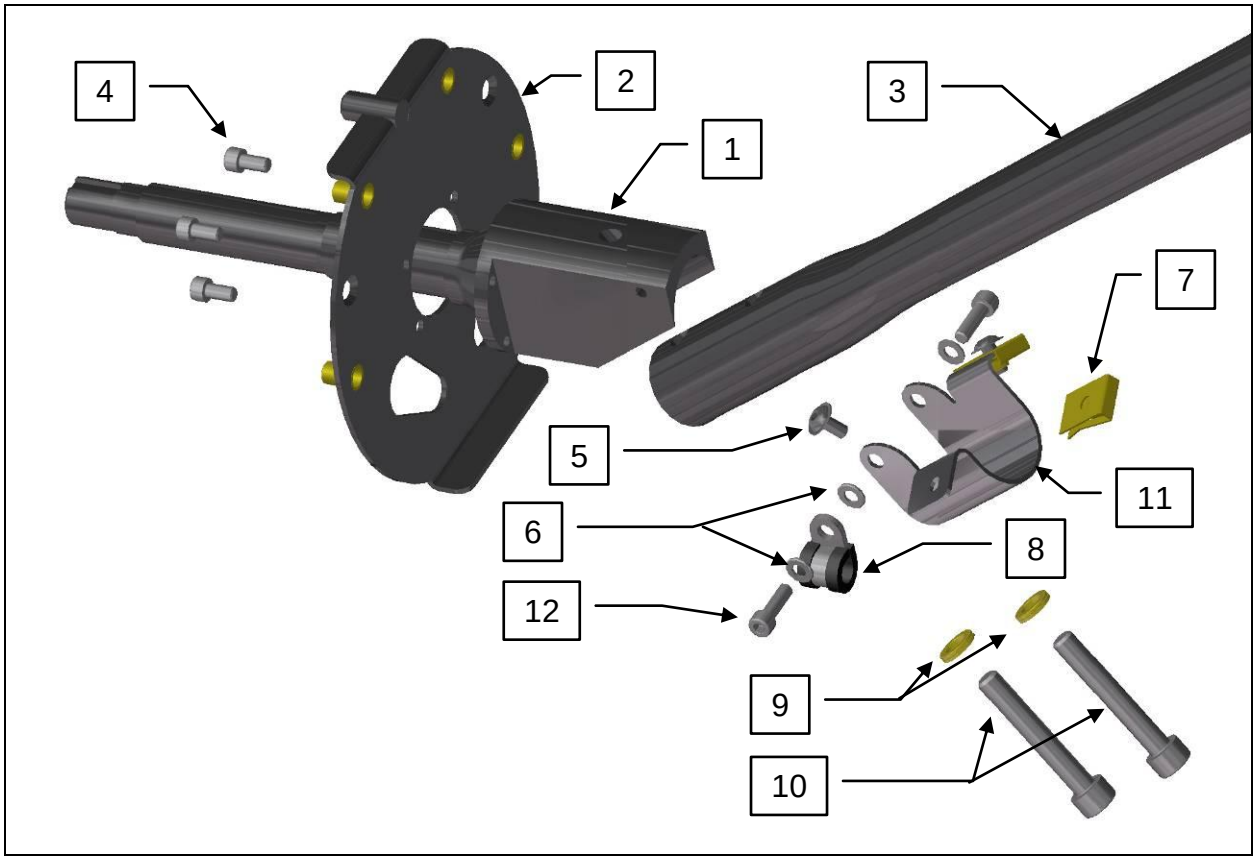


Figure 5-13

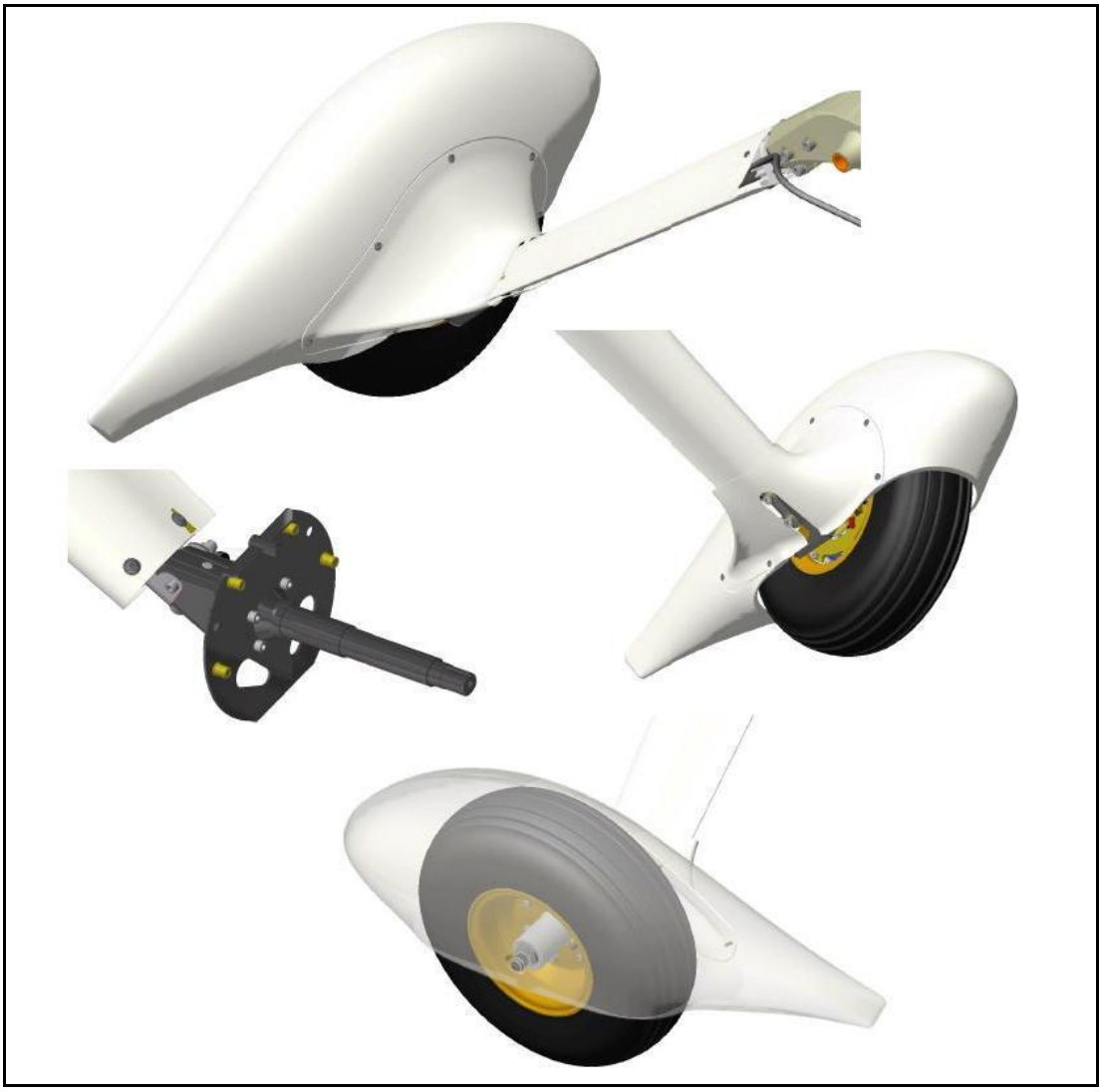


5.1.3.3 Main Landing Gear Reassembly

- **Required Tools:** Standard metric tools, wire cutting pliers
- **Required Parts:** Loctite 243 (medium strength), ties wraps
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Landing Gear reassembly is done in reverse order to disassembly. Refer to figure 5-8 to figure 5-12 for detailed information. In figure 5-14 important fastening torques and securing information are given to be followed up.

Figure 5-14



♦ **NOTE**	It is permissible to operate the aircraft without wheel fairings, intersection fairings landing gear fairings and/or fuselage belly fairings detached. It is strongly recommended to remove the intersection fairings when flying with the wheel fairings removed. To have the wheel fairings attached the landing gear fairings, intersection fairings and fuselage belly fairings need to be installed.

5.1.3.3.1 Main Wheel Disassembly

- **Required Tools:** Standard metric tools,
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-15.

a. Remove the wheel pant retaining screws from the fairing.

b. Withdraw the fairing to the top.

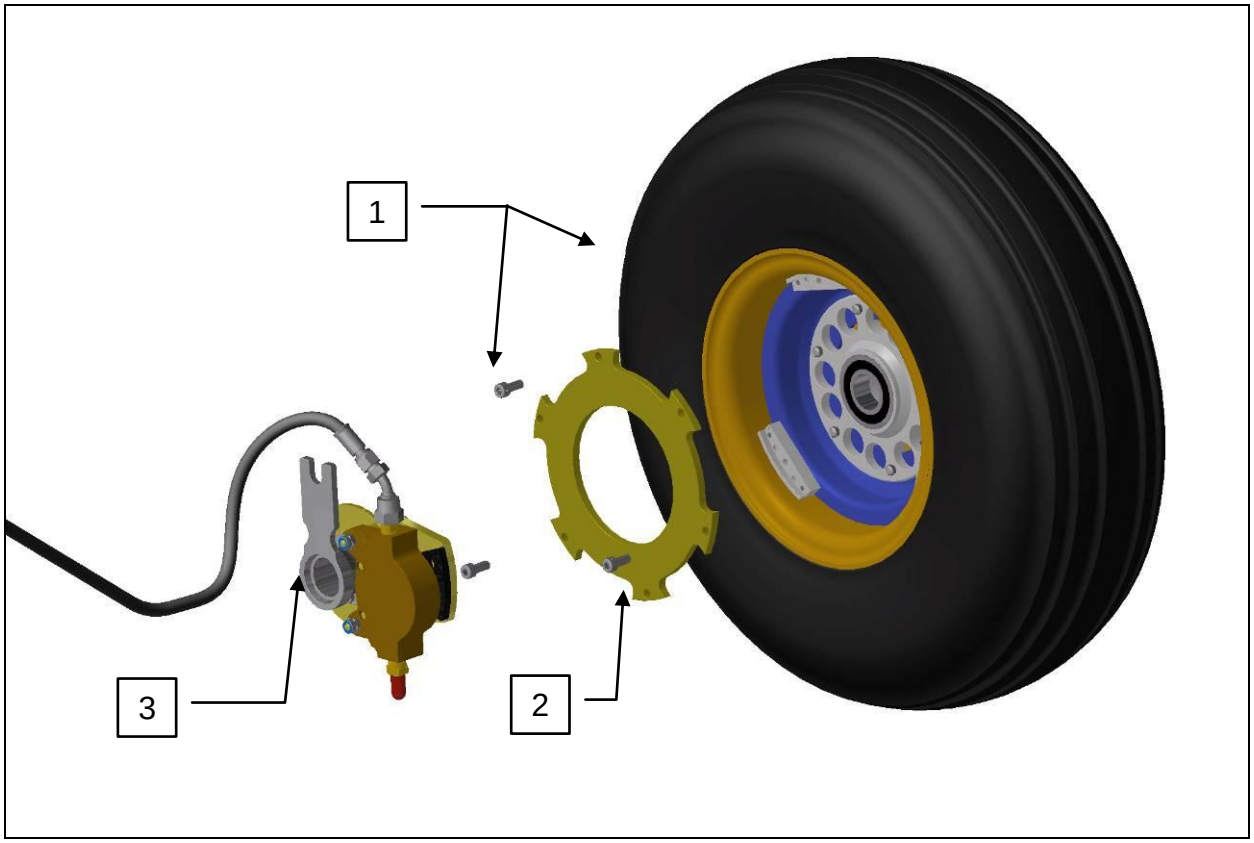
c. Loosen and remove wheel nut from wheel axle.

d. Remove and discard securing washer from wheel axle.

e. Withdraw brake assembly ,brake disc and wheel from wheel hub.

Take care that the brake disc and brake pads are clean and free from grease.

Figure 5-15



5.1.3.4 Main Wheel Installation

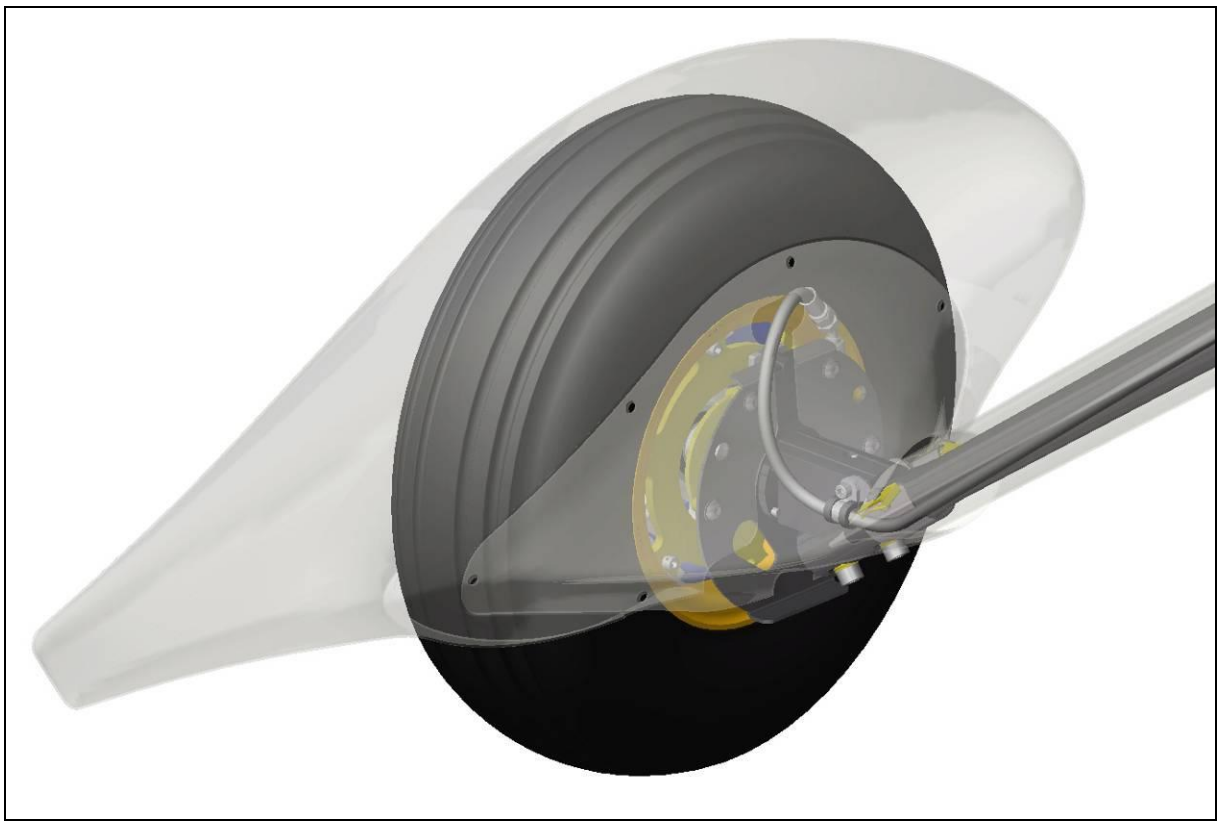
- **Required Tools:** Standard metric tools, wire cutting pliers, bleed kit
- **Required Parts:** DOT 4 hydraulic fluid, Loctite 243 (medium strength), Locking Plate 16x30 (Order Nr. 102322)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Main Wheel Installation is done in reverse order to removal. When installing wheel assembly to wheel axle, ensure that the torque lever of the brake assembly has engaged to the torque bolt located at the anchor plate assembly. Check thoroughly for sufficient space between brake line and tire; refer to figure 5-16. Detailed information how to install the wheel fairing are given in figures 5-9, 5-10 & 5-14.

After completing installation, fill and bleed hydraulic lines.

CAUTION	Do not use aircraft brake fluid, doing so will cause damage to the cylinder seals. DOT 4 automobile brake fluid must be used only.

Figure 5-16



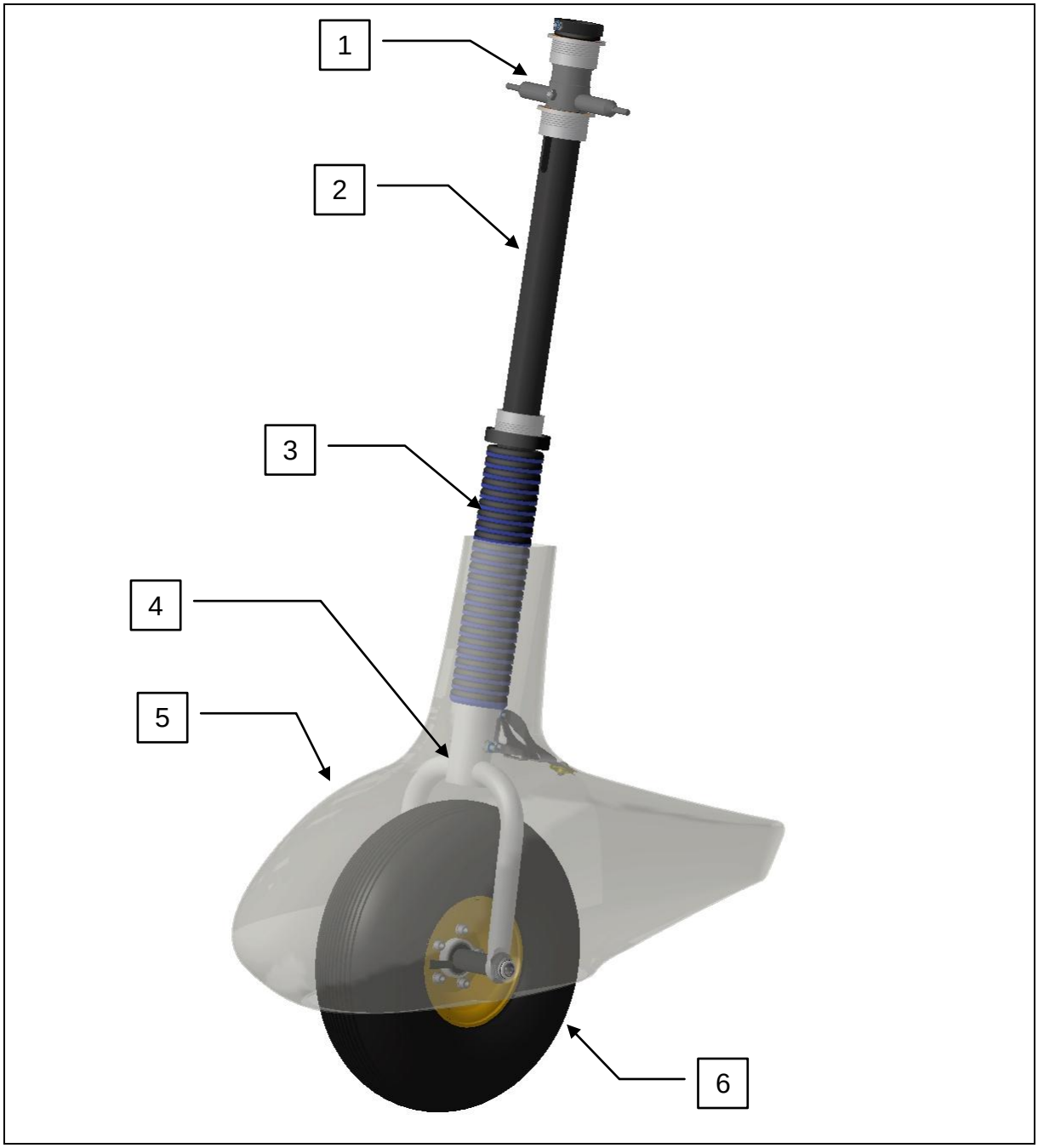
5.1.4 Nose Gear, General Description

The nose gear on the REMOS GX consists of a dip tube (nose gear strut), guided by three maintenance-free slide bearings which are hold by brackets laminated to the fuselage. Rubber spring elements are deferred over the dip tube which carries a wheel fork made from steel at its lower end.

The nose gear is controlled by the foot pedals and enables an effective steering of the aircraft when on the ground. Spring deflection provided is about 2.9 in (75 mm).

The composite nose landing gear is no longer available. To ensure operation of aircraft equipped with FRP nose landing gears the steel nose landing gear needs to be installed. A fairing for the steel nose landing gear (pos. 5 of fig. 5-17) with the look of the FRP nose landing gear is available.

Figure 5-17



5.1.4.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Parts required:** None
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-18 as illustrated guide to conduct the following procedure.

a. Remove engine cowling for access.

b. Weight or tie-down tail of aircraft to raise nose wheel off the floor.

c. Remove the fit bolt (7) from the sliding translator (6) inside the cabin.

d. Remove both retaining screws on top of the nose gear strut (1).

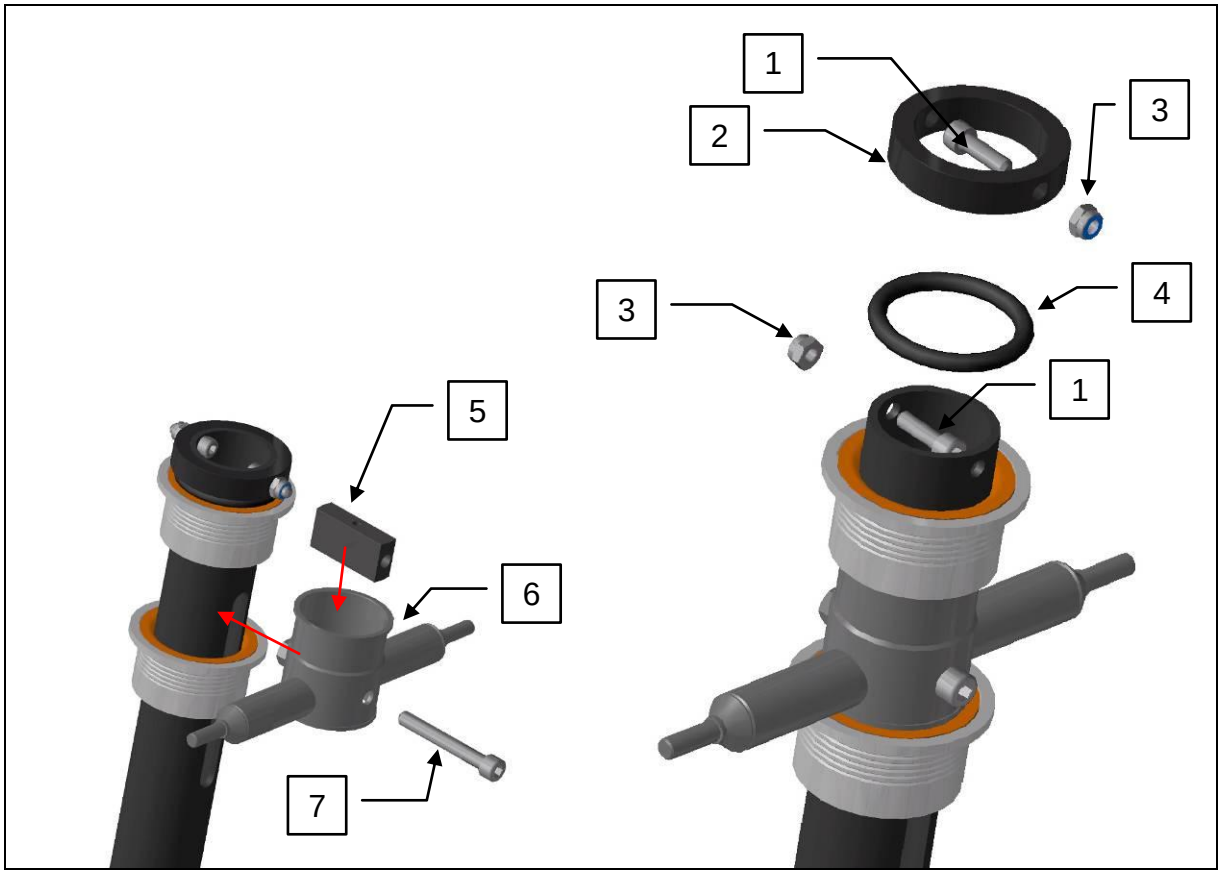
e. Withdraw nose gear strut from the bottom of the fuselage.

Installation of nose gear is done in reversed order to removal. Apply grease to the slider and strut prior to installation, this will ease the reassembly.

♦ **NOTE**	Inside the nose gear strut a slider (5) is provided, after removing the fit bolt (7), this slider may fall down into the strut tube. Pick it up for reuse at installation of the nose gear.

♦ **NOTE**	It may be helpful to slacken the rudder control wire tension, to ease withdrawing the strut of its slide bearings.

Figure 5-18



5.1.4.2 Nose Wheel Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Securing washer
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-19 as illustrated guide and follow the steps below.

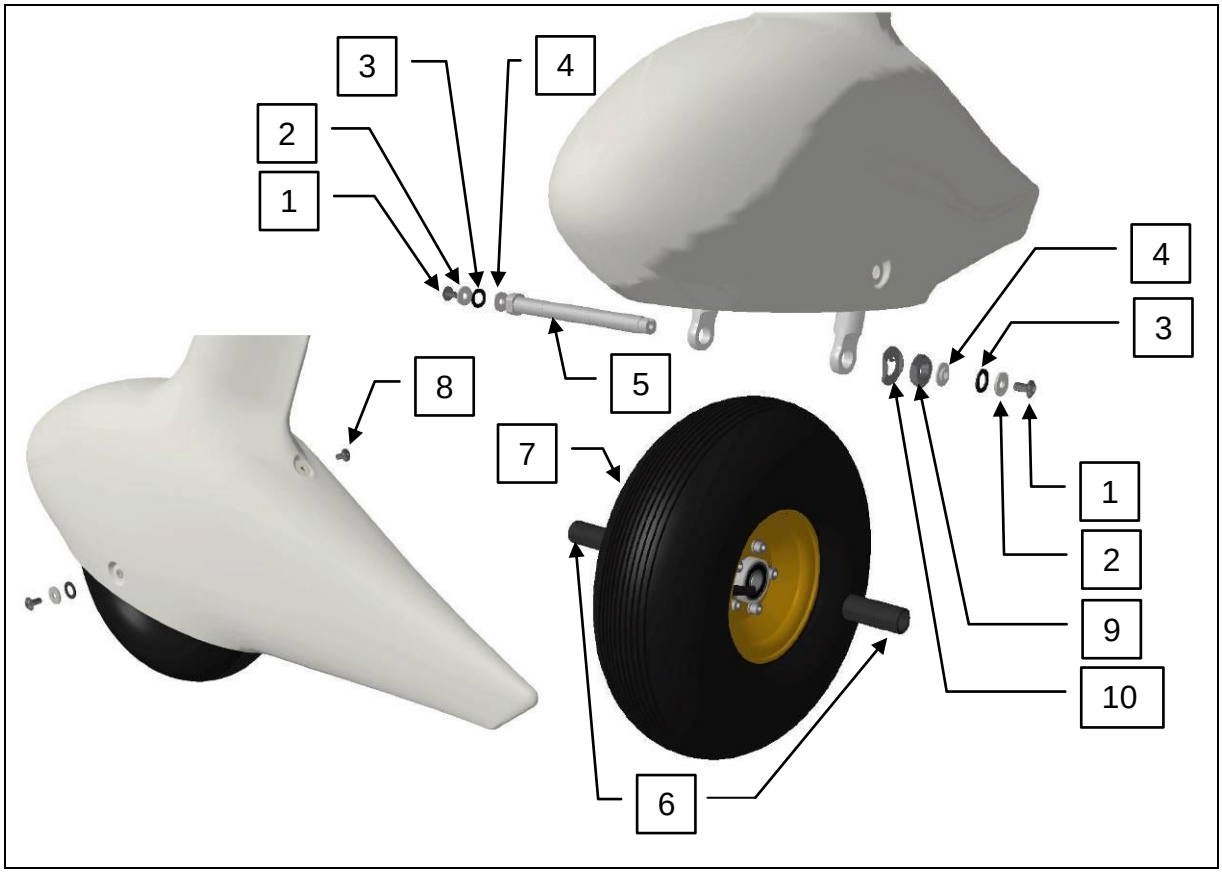
a. Remove the wheel fairing retaining screws and slide the fairing upward.

b. Remove the wheel nut and withdraw the wheel axle.

c. Remove the nose wheel assembly from the wheel fork.

Installation of the nose wheel is done in reversed order to removal. After installing the wheel axle, apply a new securing washer and torque wheel nut to 221 in.lb. (25 Nm).

Figure 5-19



♦ NOTE	It is permissible to operate the aircraft with the nose landing gear fairing detached.

5.1.4.2.1 Disassembly

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-20 as illustrated guide and follow the steps below.

a. Remove valve core and deflate tire. Break tire beads loose from wheel rims.

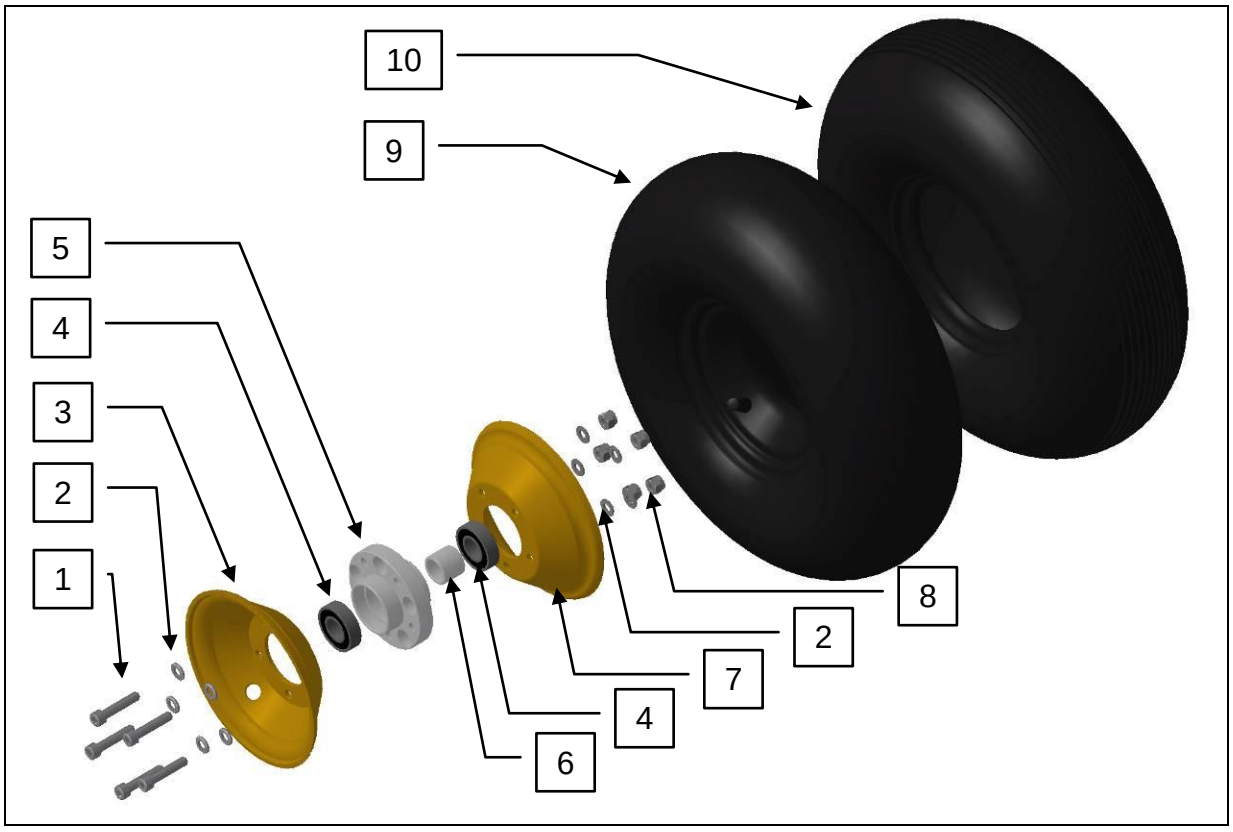
b. Remove thru-bolts (1) and separate wheel halves, removing tire, tube and hub.

c. Remove wheel bearings (4) from wheel hub (5).

▲ WARNING	Injury can result from attempting to separate wheel halves with the tire inflated. Avoid damaging wheel flanges when breaking tire beads loose. A scratch, gouge, or nick may cause wheel failure.

♦ NOTE	Watch for position of spacer sleeve (6).

Figure 5-20



5.1.4.2.2 Inspection

- **Required Tools:** Depending on condition
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Clean all metal parts in solvent and dry thoroughly.

b. Inspect wheel halves for cracks. Cracked wheel halves shall be discarded and new parts used. Sand out nicks, gouges, and corroded areas. When the protective coating has been removed, the area should be cleaned thoroughly, primed with zinc chromate and painted with aluminum lacquer.

c. Carefully inspect bearings for damage and discoloration or noises when rotating. Do not try to re-lubricate the sealed bearings. If in doubt about bearing condition, replace bearings.

5.1.4.2.3 Reassembly

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-20 as illustrated guide and follow the steps below.

a. Insert wheel bearings (4) and spacer sleeve (6) to the wheel hub (5).

b. Apply washers (2) to thru-bolts (1) and insert through wheel half (3) and wheel hub (5).

c. Position tire and tube on wheel half with the tube inflation valve through hole in wheel half (3).

d. Place one wheel half to position on other wheel half. Apply a light force to bring wheel halves together.

e. While maintaining the light force assemble a washer and nut on one thru-bolt (1) and tighten snugly.

f. Assemble the remaining washers and nuts on the thru-bolts (1) and torque to 88 in. lb. (10 Nm).

▉ CAUTION	Uneven or improper torque of thru-bolt nuts can cause failure of bolts, with resultant wheel failure.

5.1.4.3 Wheel Fork Removal and Installation

- **Required Tools** Standard metric tools
- **Required Parts:** Self-locking nuts
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-21 as illustrated guide and follow the steps below, assumed that the wheel fairing already has been removed.

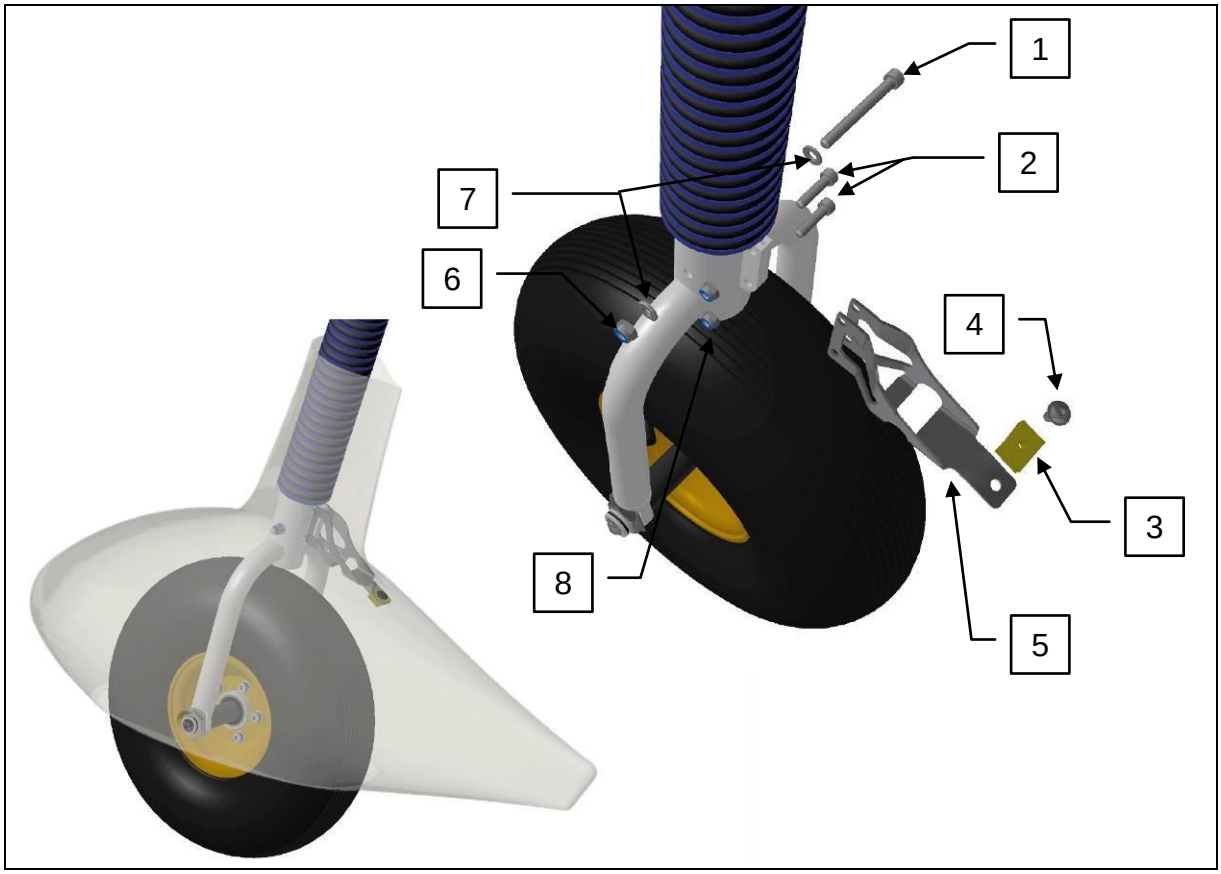
a. Remove thru-bolt (1) and clamping bolts (2)

b. Withdraw wheel fork downward.

Installation of the wheel fork is done in reversed order to removal. Use new self-locking nuts for thru-bolt and clamping bolts and torque to 53 in.lb. (6 Nm).

♦ NOTE	Remember position of wheel fairing bracket (4), if installed.

Figure 5-21

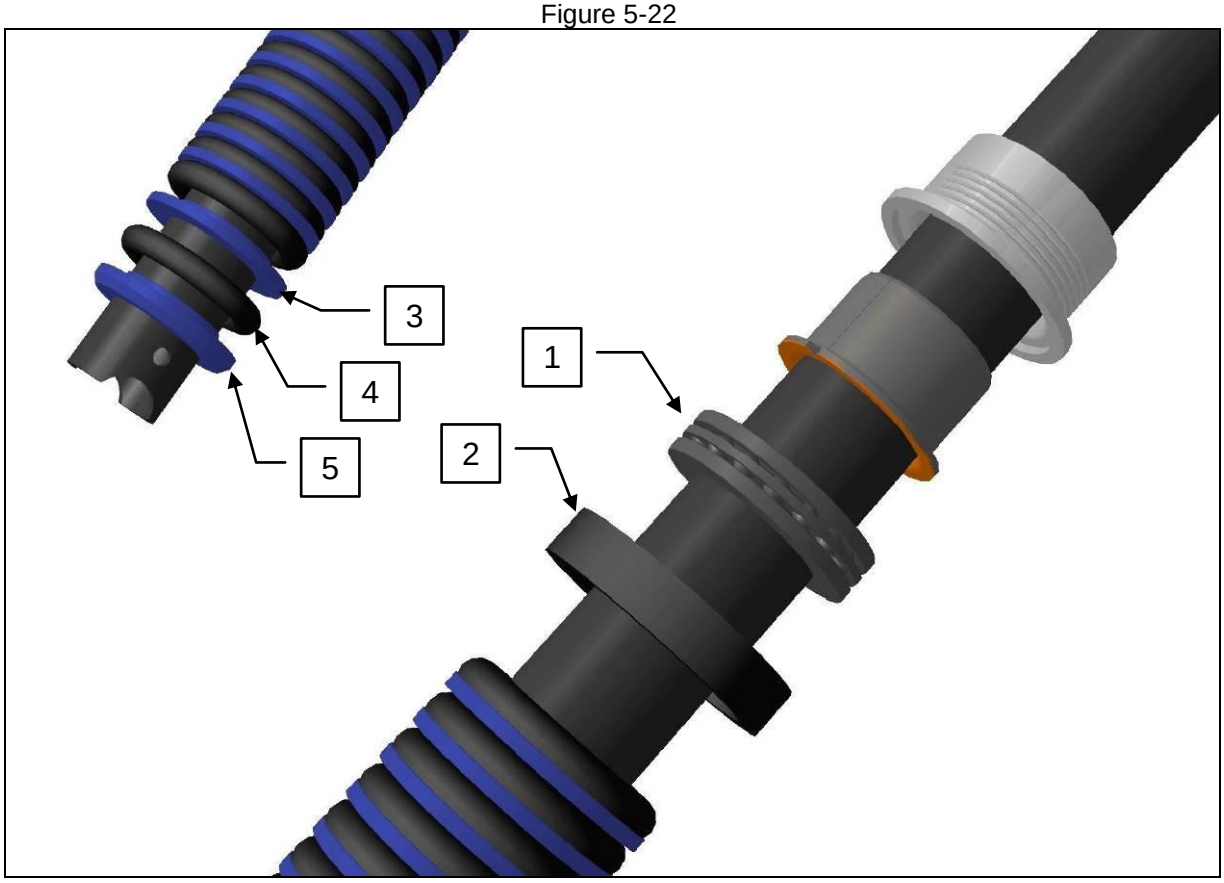


5.1.4.4 Spring Assembly Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-22 as illustrated guide, assumed that the wheel fork already has been removed, as described in previous paragraph.

Figure 5-22



5.1.4.5 Nose Wheel Steering System

Nose wheel steering is accomplished through the use of the rudder pedals. Steering rod assemblies connect the nose gear steering.

5.1.4.5.1 Steering Adjustment

- **Required Tools:** Standard metric tools
- **Required Parts:** Self-locking nuts
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Since the nose wheel steering and rudder system are interconnected, adjustment to one system may affect the other system. Section 10 of this manual contains rigging instructions for the rudder system. Follow the instructions below for adjusting the nose gear with the rudder pedals.

In figure 5-23 the interconnection between nose gear and rudder pedals is shown (to be omitted the nose gear assembly and fuselage structure).

Refer to figure 5-23 as illustrated guide and follow the steps below.

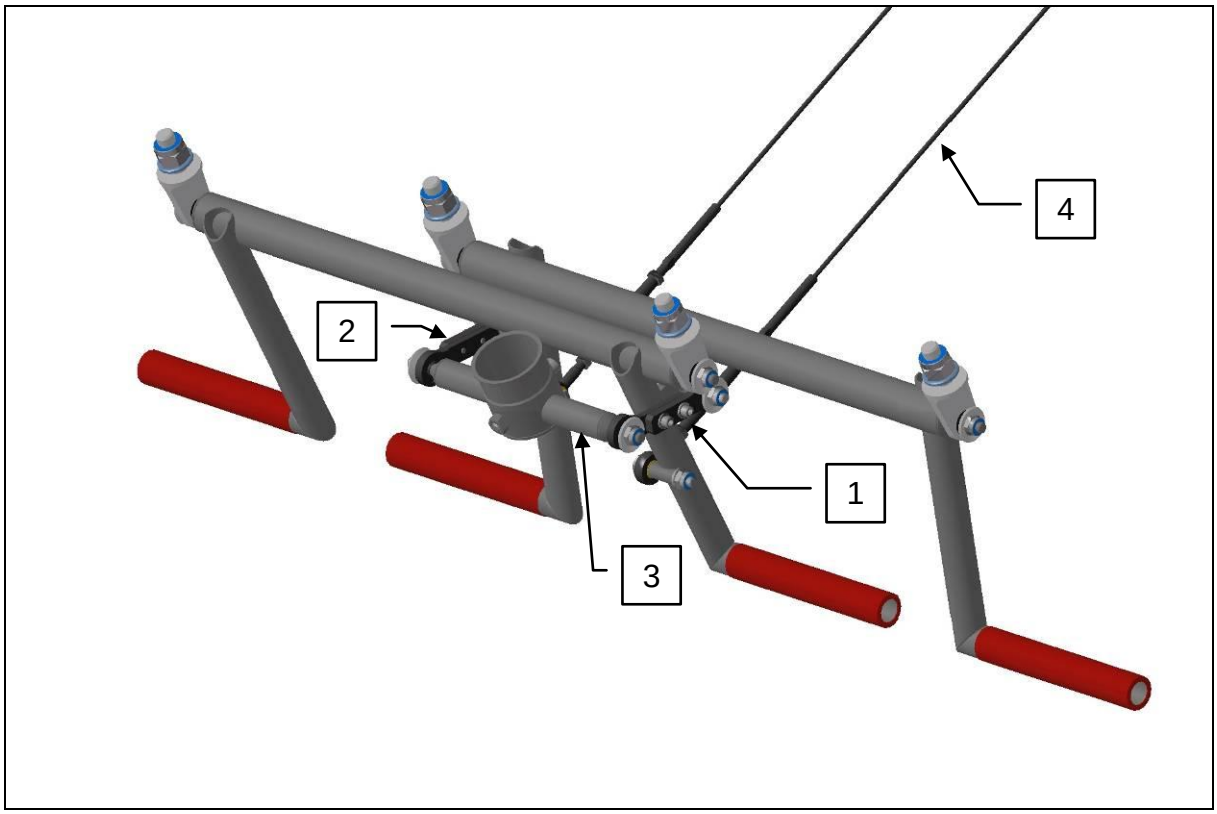
a. Loosen the locking screws (1) on both control rods (2).

b. Align rudder pedals (5) with nose gear wheel (not illustrated).

c. Tighten locking screws (1) and torque to 53 in. lb. (6 Nm).

CAUTION	Doing so may have an effect on the rudder surface alignment, requiring adjustment of the rudder control wires (4). Refer to Section 10 in this manual for rigging instructions of the rudder system.

Figure 5-23



5.1.4.6 Wheel Balancing

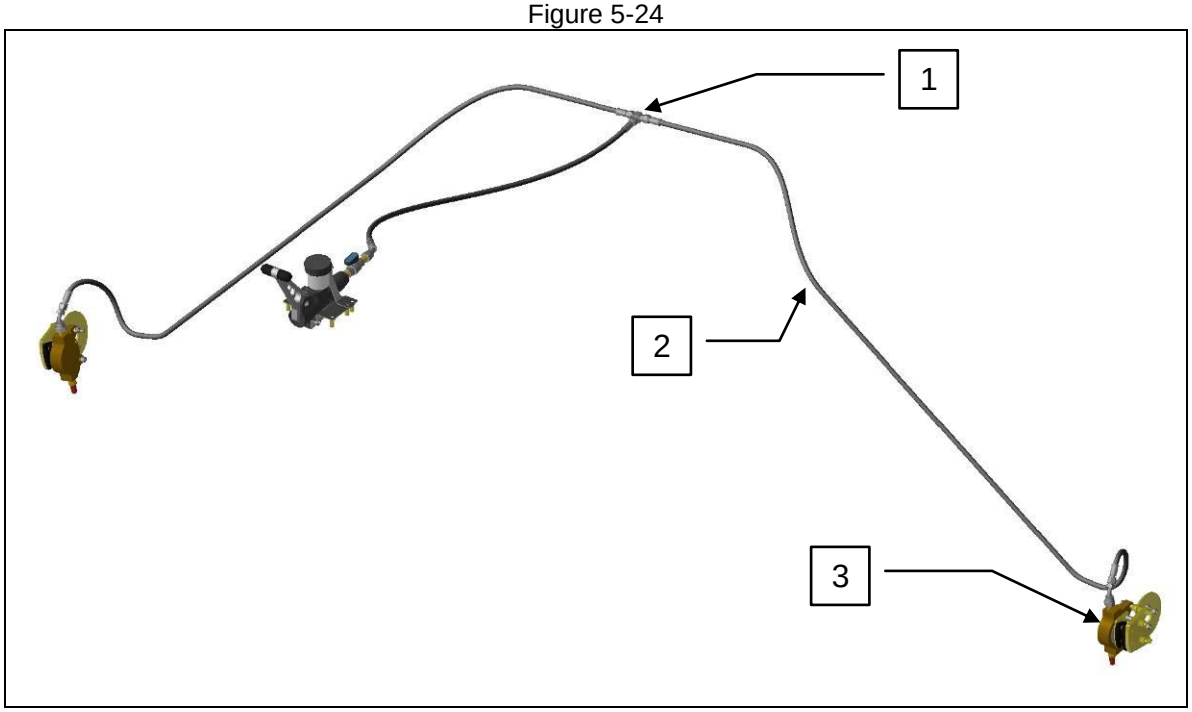
Since uneven tire wear is usually the cause of wheel unbalance, replacing the tire probably will correct this condition. Tire and tube manufacturing tolerances permit a certain amount of static unbalance. If a wheel shows evidence of unbalance during service, it may be statically balanced.

5.2 Brake System, General Description

The hydraulic brake system consists of a master cylinder including reservoir, located between both seats. A brake hose connects the master cylinder to a distributor, located behind the cabin bulkhead. Two brake hoses run from the distributor to each wheel brake cylinder.

An illustrated overview is given in figure 5-24.

Figure 5-24



5.2.1 Trouble Shooting

Trouble	Probable Cause	Remedy
Dragging Brakes	Brake lever binding.	Check and adjust properly.
	Worn or broken return spring (in master cylinder).	Install a new cylinder.
	Restrictions in hydraulic lines or restriction in master cylinder valve.	Drain brake lines and clean inside of the brake line with filtered compressed air.
	Worn, scored or warped brake disc.	Install new disc and brake linings.
	Damaged or accumulated dirt restricting free movement of brake parts.	Clean and repair or install new parts as necessary.
Brakes Fail to Operate	Leak in system.	Install new parts.
	Air in system.	Bleed system.
	Lack of fluid in master cylinder.	Fill and bleed system.
	Master cylinder defective.	Install a new cylinder.

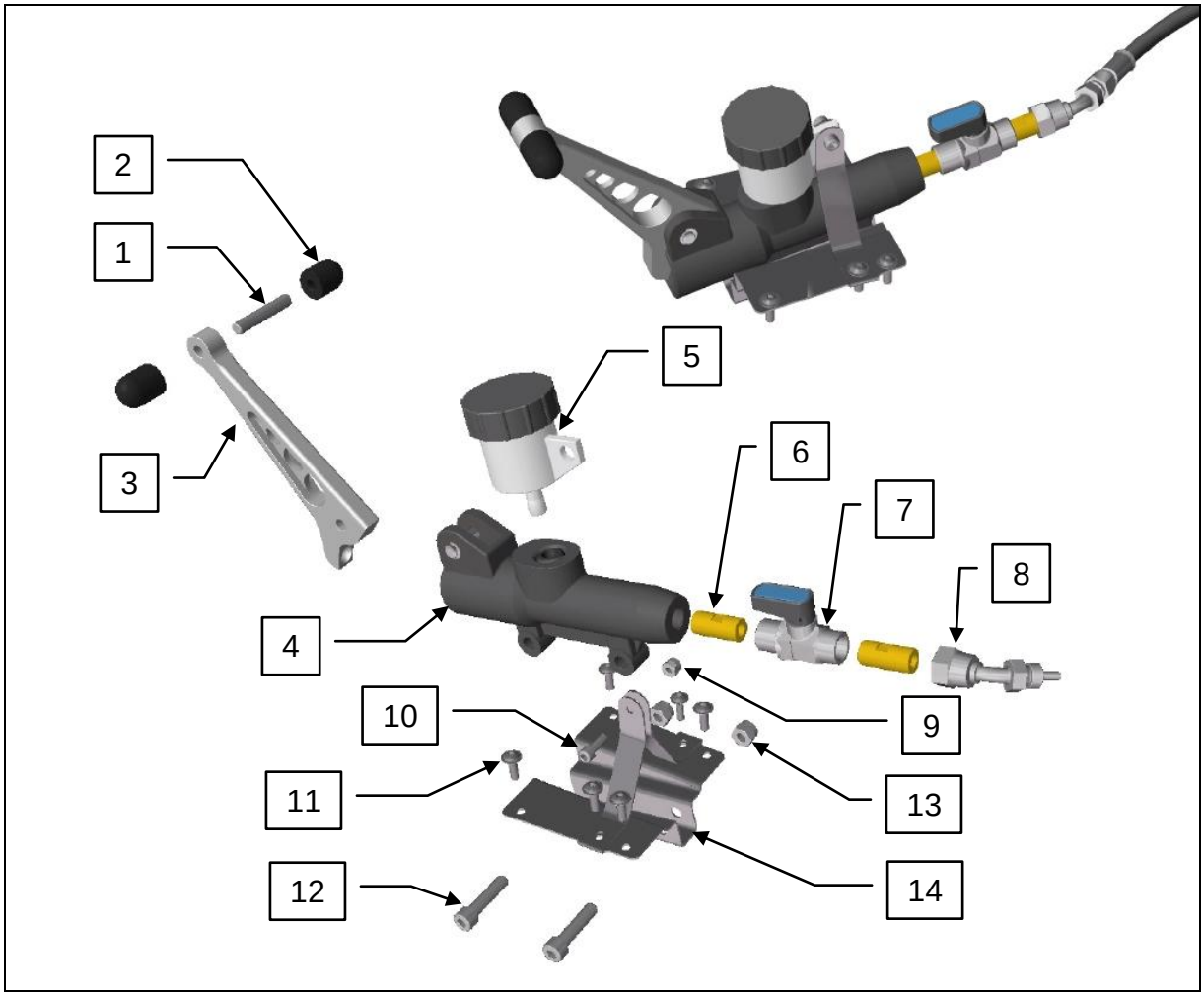
5.2.2 Brake Master Cylinder

The brake master cylinder, located between seats, is actuated by applying pressure at the top of the brake lever. A small reservoir is incorporated onto the master cylinder for the fluid supply.

In figure 5-25 a detailed illustration of the brake master cylinder assembly is given, to provide a reference for identifying each of the components used.

CAUTION	Do NOT use aircraft brake fluid because this will damage the sealings of the brake cylinder. The use of DOT 4 automotive brake fluid is permitted only!

Figure 5-25



5.2.2.1 Removal and Installation

- **Required Tools:** Standard metric and imperial tools, bleed kit
- **Required Parts:** Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Remove bleeder screws at wheel brake assemblies and drain hydraulic fluid from brake cylinder.

b. Remove seats, parking brake valve lever, master cylinder filler cap and center panel cover for access to the brake master cylinder.

c. Disconnect brake line from master cylinder assembly and remove master cylinder from its bracket.

d. Unscrew parking brake valve and brake lever from master cylinder.

e. Reverse the preceding steps to install brake master cylinders, then fill and bleed brake system in accordance with paragraph 5.2.5.

♦ **NOTE**	Use Loctite 243 (medium strength) or similar for reassembling the thread cores to parking brake valve and brake master cylinder.

5.2.2.2 Inspection

The master cylinder is limited to cleaning; always install a new master cylinder if any defects are determined. Use automobile clean hydraulic fluid or new DOT 4 brake fluid.

CAUTION	Do not use aircraft hydraulic fluid because this will damage the master cylinder sealings.

5.2.3 Hydraulic Brake Hoses

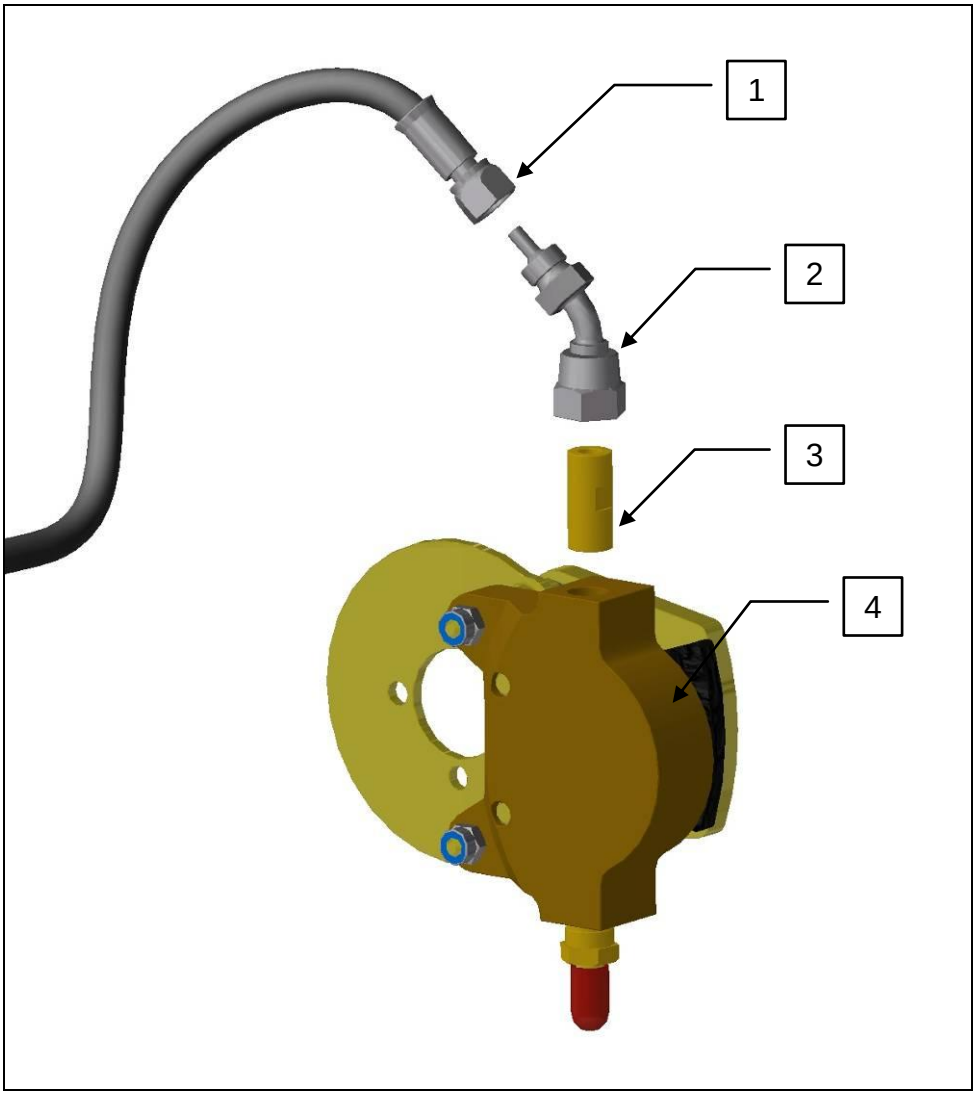
All hydraulic hoses used for the brake system are flexible plastic hoses covered by a metal shielding. All hoses provide appropriate connectors to provide an easy replacement.

5.2.4 Wheel Brake Assemblies

The wheel brake assemblies use a disc which is attached to the main wheel with a torque plate fixed by the thru-bolts and a floating brake assembly.

In figure 5-26 the system and brake line connection is illustrated as a guide.

Figure 5-26



5.2.4.1 Removal

To remove brake system from the wheel, refer to paragraph 5.1.2.2 and 5.1.2.2.1. Drain hydraulic fluid from brake hoses prior to disconnecting the brake assembly.

After the brake assembly is disconnected you could remove disc and brake linings from the assembly.

5.2.4.2 Inspection

- **Required Tools:** Standard metric and imperial tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Clean all parts except brake linings and O-rings in dry cleaning solvent and dry thoroughly.

b. New O-rings are usually installed at each time they are removed. If O-ring reuse is necessary, they should be wiped with a clean cloth saturated in new automobile hydraulic fluid (DOT 4) and inspected for damage.

c. Check brake lining for deterioration and maximum permissible wear. See paragraph 5.2.4.5.

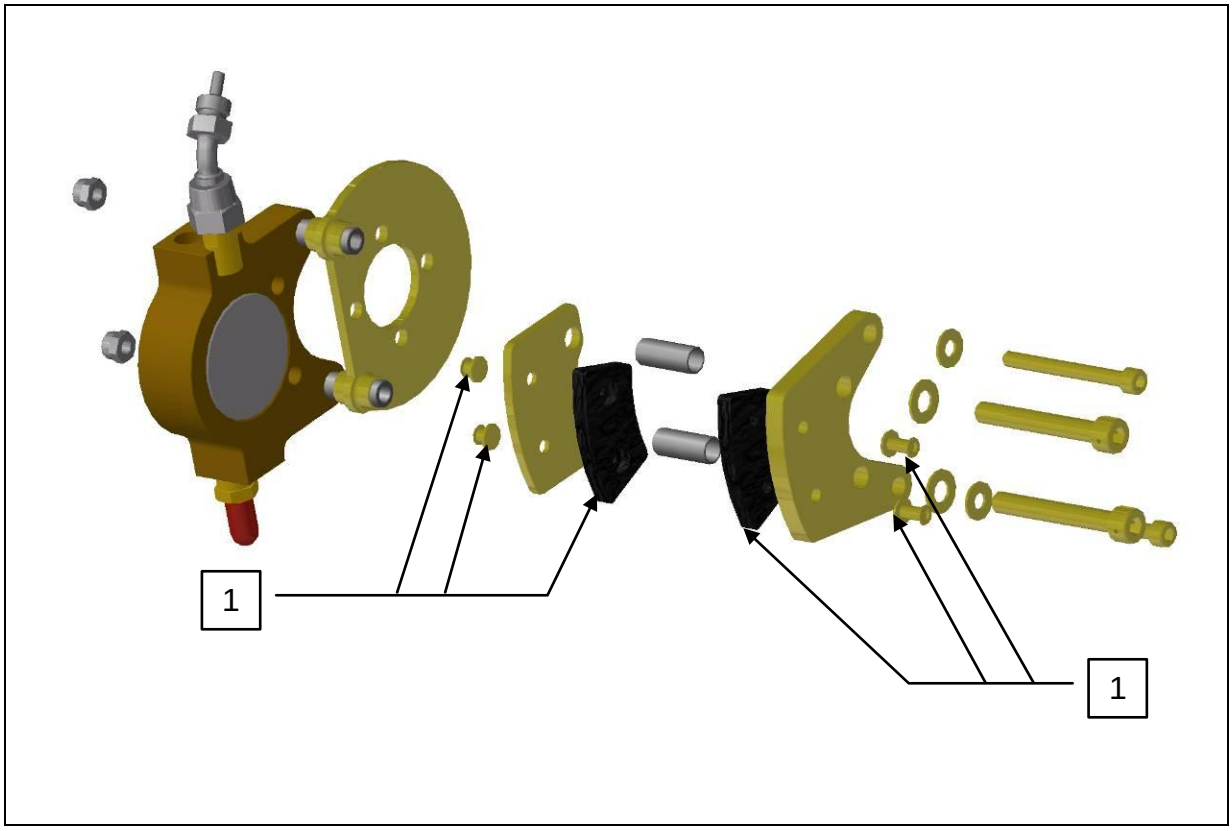
d. Inspect brake cylinder bore for scoring. A scored cylinder will leak or cause rapid O-ring wear. Install new break cylinder.

e. If the anchor bolts on the brake assembly are nicked or gouged, they shall be sanded smooth to prevent binding with the pressure plate or torque plate.

f. Inspect wheel brake disc for a minimum thickness of 0.135-inch. If brake disc is below minimum thickness, install a new part.

♦ **NOTE**	Thorough cleaning is important. Dirt and chips are the greatest single cause of malfunctions in the hydraulic brake system.

Figure 5-27



5.2.4.3 Reassembly

Lubricate parts with clean DOT 4 automobile hydraulic fluid and assemble components with clean automobile DOT 4 hydraulic fluid and assemble components with care to prevent damage to O-rings.

5.2.4.4 Installation

Installation of wheel brake assembly is done in reversed order to removal, refer to paragraph 5.2.4.1.

5.2.4.5 Check Brake Lining Wear

New brake lining should be installed when they are worn to a minimum thickness of 0.08 inch. Visually compare 3/32-inch strip of material held adjacent to each lining to measure the thickness of the lining.

5.2.4.6 Brake Pad Installation

- **Required Tools:** Standard metric tools, riveting tool
- **Required Parts:** Brake pads, rivets
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Refer to figure 5-27 as illustrated guide and follow the steps below.

a. Remove bolts (9) securing back plate (8) and remove back plate.

b. Slide pressure plate (4) off anchor bolts/slide bearing sleeve (9)/(7).

c. Place back plate (8) on a table with lining side down flat. Center a 3/32-inch (or slightly smaller) punch in the rolled rivet and hit the punch sharply with a hammer. Punch out all rivets (3)/(6) securing the linings (5) to the back plate (8) and pressure plate (4) in the same manner.

d. Clamp the flat side of the anvil in a vise.

e. Align new lining on back plate and place brake rivet in hole with rivet head in the lining. Place head against the anvil.

f. Center the rivet setting punch on the lips of the rivet. While holding the back plate down firmly against the lining, hit punch with a hammer to set the rivet.

g. Repeat blows on the punch with a hammer to set the rivet. Repeat blows on the punch until lining is firmly against back plate.

h. Realign the lining on the back plate and install and set rivets in the remaining holes.

i. Install a new lining on pressure plate in the same manner.

j. Position pressure plate on anchor bolts and place cylinder in position so that anchor bolts slide into the torque plate.

k. Install back plate with bolts and washers.

♦ **NOTE**	New rivets kit is provided with every brake lining set.

5.2.5 Brake System Bleeding

- **Required Tools:** Standard imperial tools, bleed kit
- **Required Parts:** DOT 4 hydraulic brake fluid
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Bleeding with a clean hydraulic pressure source connected to the wheel cylinder bleeder is recommended.

a. Remove brake master cylinder filler plug and screw flexible hose with appropriate fitting into the filler hole at top of the master cylinder.

b. Immerse the free end of the flexible hose in a container with enough hydraulic fluid to cover the end of the hose.

c. Connect a clean hydraulic pressure source, such as a hydraulic hand pump or Hydro Fill unit, to the bleeder valve in the wheel cylinder.

d. As fluid is pumped into the system, observe the immersed end of the hose at the master brake cylinder for evidence of air bubbles being forced from the brake system. When bubbling hast ceased, remove bleeder source from wheel cylinder and tighten the bleeder valve.

♦ NOTE	Ensure that the free end of the hose from the master cylinder remains immersed during the entire bleeding process.

▉ CAUTION	Do not use aircraft brake fluid because this will damage the master cylinder sealings. DOT 4 automobile brake fluid must be used only.

5.2.6 Parking Brake System (refer to figure 5-25)

The parking brake system consists of a control lever behind the master brake cylinder. To engage the parking brake, depress the brake lever and rotate the parking brake control lever to the right. To release the parking brake, rotate the control lever counter clockwise.

5.3 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
5-2	1	100591	E4-52.01.00	1	GRP Main gear	-
	2	700691	G3-8 MG-10-00-01	2	Main wheel Matco Pre-Assy	All
	3	102008	G3-8 MG-01-00-11	2	Main gear Mainbolt GX	All
	4	100532	G3-8 MG-01-00-06	2	Washer 15x23x1.7 Main gear Mainbolt	All
	5	102143		2	Self-locking hexagon nut M14x1,5 DIN985	All
5-4	1	700691	G3-8 MG-10-00-01	1	Main wheel Matco Pre-Assy	All
	2	103247	G3-8 MG-10-01-00	1	Brake Disc	All
	3	100600	G3-8 MG-30-01-00	1	Axle Shaft Matco Brake	All
5-5	1	100134		3	Allen Screw M5x12 DIN 912 8.8	All
	2	100544	G3-8 MG-10-30-01	3	Brake disc-Adapter Matco	All
	3	100345		6	Pin 3x12 DIN 6325	All
	4	100112		6	Allen Screw M4x10 DIN 912 8.8	All
	5	103247	G3-8 MG-10-01-00	1	Brake Disc	All
	6	101045		1	Ball Bearing 6004 2RS	All
	7	100540	G3-8 MG-10-10-04	1	Wheel hub Main wheel	All
	8	101044		1	Ball Bearing 6003 2RSH	All
	9	100537	G3-8 MG-10-10-01	1	Torque Plate	All
	10	100539	G3-8 MG-10-10-03	1	Main wheel Inboard Wheel Half	All
	11	100538	G3-8 MG-10-10-02	1	Main wheel Outboard Wheel Half (Hole for valve)	All
	12	100231		6	Washer 6,4 DIN 125 Form A	All
	13	100144		6	Allen Screw M6x20 DIN 912 8.8	All
	14	102252		1	Tube Main wheel	All
	15	102251		1	Tire Main wheel	All
5-6	1	102677	G3-8 MG-10-10-05	1	Main gear Mainwheel Wheel Adapter	All
	2	100154		6	Allen Screw M6x50 DIN 912 8.8	All
	3	102689		1	Tube School Wheel 15x600-6	-
	4	102690		1	Tire School Wheel 15x600-6	-
5-7	1	100531	G3-8 MG-41-01-03	1	Torquebolt GRP Main gear	All
	2	100524	G3-8 MG-01-00-03	1	Washer 17x23x1.7 Wheel axle Main gear	All
	3	100523	G3-8 MG-01-00-02	1	Hex nut 16x1 Wheel axle Main gear	All
	4	100286		1	Cotter Pin 1.6x18 DIN 94 Steel vz	All
	5	100522	G3-8 MG-01-00-01	1	Wheel Axle GFRP Maingear	All
5-8	1	102008	G3-8 MG-01-00-11	2	Main gear Mainbolt GX	All
	2	100532	G3-8 MG-01-00-06	2	Washer 15x23x1.7 Main gear Mainbolt	All
	3	102143		2	Self-locking hexagon nut M14x1,5 DIN985	All
	4	102304	G3-8 MG-40-01-05	2	Main gear Strut RF	All
	5	102668	G3-8 MG-40-02-23	1	Main gear Wheel-Hub Cover left	All
		102667	G3-8 MG-40-02-21	1	Main gear Wheel-Hub Cover right	All
5-8	6	102670	G3-8 MG-40-02-22	1	Main gear RF Wheel Fairing left	All
		102669	G3-8 MG-40-02-20	1	Main gear RF Wheel Fairing right	All
	7	102672	G3-8 MG-40-02-25	1	Main gear RF Strut Fairing left	All
		102671	G3-8 MG-40-02-24	1	Main gear RF Strut Fairing right	All
	8	102674	G3-8 MG-40-02-29	1	Main gear Fuselage Fairing left	All
		102673	G3-8 MG-40-02-28	1	Main gear Fuselage Fairing right	All
	9	102302	G3-8 MG-40-00-02	1	Main gear Strut bracket Assy	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
5-9	1	100189		6	Lens Head Screw Hexagon Socket M4x12 ISO 7380 FL	All
	2	102325		5	Lens Head Screw with Flange M6x12	All
	3	102332		1	Collar Bush 6x18x3.5	All
	4	102331		1	Rubber Washer 11x18x1	All
	5	102333		1	Nylon Washer 6x18x2	All
5-10	1	102322		1	Locking Plate 16x30 DIN462, A4	All
	2	102358		1	Hex Nut M16x1.5, DIN936, A2K	All
5-11	1	102672	G3-8 MG-40-02-25	1	Main gear RF Strut Fairing left	All
		102671	G3-8 MG-40-02-24	1	Main gear RF Strut Fairing right	All
	2	102302	G3-8 MG-40-00-02	1	Main gear Strut bracket Assy	All
	3	100224		1	Self-locking Hexagon Nut M8	All
	4	100239		2	Washer 8.4 DIN126 Steel	All
	5	102330		1	Allen Screw M8x40 DIN912 8.8	All
	6	101880		2	Lock Washer M8	All
	7	102326		2	Cylinder Head Screw M8x60 DIN912 10.9 A2C	All
5-12	1	100189		6	Lens Head Screw Hexagon Socket M4x12 ISO 7380 FL	All
	2	102324		4	Lens Head Tapping Screw M3,9x13 Delta Seal	All
	3	102306	G3-8 MG-40-01-13	1	Main gear Bearing Strut-Fairing	All
5-13	1	102305	G3-8 MG-40-01-00	1	Main gear Wheel-Axle RF	All
	2	102303	G3-8 MG-40-00-01	1	Main gear Ancorplate RF Assy	All
	3	102304	G3-8 MG-40-01-05	1	Main gear Strut RF	All
	4	100142		4	Allen Screw M5x10 DIN912 8.8	All
	5	102155		2	Lens Head Screw Hexagon Socket M5x10 ISO7380 A2	All
	6	100232		3	Washer 5.3 DIN125 Form A Steel	All
	7	102323		2	Speed Nut M5	All
	8	100945		1	Pipe Clamp B12mm D8mm	All
	9	101880		2	Lock Washer M8	All
	10	102327		2	Allen Screw M8x50 DIN912 10.9	All
	11	102647	G3-8 MG-40-01-27	1	Main gear Bracket FBV left	All
		102648	G3-8 MG-40-01-26	1	Main gear Bracket FBV right	All
	12	100129		2	Allen Screw M5x16 DIN912 8.8	All
5-15	1	700691	G3-8 MG-10-00-01	1	Main wheel Matco Pre-Assy	All
	2	103247	G3-8 MG-10-01-00	1	Brake Disc	All
	3	100542	G3-8 MG-30-01-01	1	Axle Shaft Matco Brake	All
5-17	1	100690	G3-8 CS-20-00-07	1	Steering Arm Nose Wheel	All
	2	100818	G3-8 NG-01-00-00	1	Nose Gear Dip Tube	All
	3	700683	G3-8 NG-10-00-00	1	Spring Package Nose gear Assy	All
	4	100824	G3-8 NG-40-00-00	1	Wheel fork Assy	All
	5	102666	G3-8 NG-02-00-00	1	Nose gear Wheel fairing RF	All
	6	700612	G3-9 NG-50-00-00	1	Nose gear Nose wheel Complete	All
5-18	1	100129		2	Allen Screw M5x16 DIN912 8.8	All
	2	100814	G3-8 NG-01-00-06	1	Nose gear Lockring Top	All
	3	100218		2	Self-locking Hexagon Nut M5 DIN985	All
	4	101157		1	O-Ring 34x5	All
	5	100689	G3-8 CS-20-01-19	1	Pedal Nose Wheel Steering Arm Slide Block	All
	6	100690	G3-8 CS-20-00-07	1	Steering Arm Nose Wheel	All
	7	100152		1	Allen Screw M6x45 DIN912 8.8	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
5-19	1	102325		2	Lens Head Screw with Flange M6x12 A2/70	All
	2	102333		2	Nylon Washer 6x18x2	All
	3	102331		2	Rubber Washer 11x18x1	All
	4	102332		2	Collar Bush 6x18x3.5	All
	5	100819	G3-8 NG-01-00-01	1	Nose gear Wheel-Axle RF	All
	6	100820	G3-8 NG-01-00-02	2	Nose gear Distance Sleeve-RF	All
	7	700612	G3-9 NG-50-00-00	1	Nose gear Nose wheel Complete	All
	8	102155		1	Lens Head Screw M5x10 ISO7380 FL A2	All
	9	102238		1	Nut M14x1.5 ISO4035 A2	All
	10	102237		1	Lock Washer 14x30x0.8 DIN462, A2	All
5-20	1	100145		5	Allen Screw M6x30 DIN912 8.8	All
	2	100231		10	Washer 6.4 DIN125 Form A Steel	All
	3	100547	G3-8 NG-50-10-03	1	Nose gear Nosewheel Wheelhalf-Vent Left	All
	4	101045		2	Ball Bearing 6004 2RS	All
	5	100549	G3-8 NG-50-10-01	1	Nosegear Nosewheel Wheelhub	All
	6	100815	G3-8 NG-50-10-02	1	Nosewheel Distance Sleeve Short	All
	7	100548	G3-8 NG-50-10-04	1	Nosegear Nosewheel Wheelhalf Right	All
	8	100221		5	Self-locking Hexagon Nut M6 DIN985	All
	9	101056		1	Tube 4.00-4	All
	10	101055		1	Tire 4.00-4 4PR	All
5-21	1	100153		1	Allen Screw M6x55 DIN912 8.8	All
	2	100130		2	Allen Screw M5x20 DIN912 8.8	All
	3	102323		1	Speed Nut M5	All
	4	102155		1	Lens Head Screw M5x10 ISO7380 FL A2	All
	5	102649	G3-8 NG-01-00-13	1	Nosegear Bracket Wheel Fairing	All
	6	100221		1	Self-locking Hexagon Nut M6 DIN985	All
	7	100231		2	Washer DIN125 Form A Steel	All
	8	100218		2	Self-locking Hexagon Nut M5 DIN985	All
5-22	1	101156		1	Deep Groove Ball Thrust Bearing 51107G 35x52x12	All
	2	100813	G3-8 NG-01-00-11	1	Nosegear Bearing Dust Cover	All
	3	100816	G3-8 NG-10-01-00	23	Guide Ring	All
	4	101159		24	O-Ring 36x9	All
	5	100817	G3-8 NG-10-01-01	1	Guide Ring Bottom	All
5-23	1	100112		2	Allen Screw M4x10 DIN912 8.8	All
	2	100684	G3-8 CS-20-00-05	1	Assembly Nose Wheel Drive	All
	3	100690	G3-8 CS-20-00-07	1	Steering Arm Nose Wheel	All
	4	100697	G3-8 CS-50-00-02	1	Control Wire Rudder	All
5-24	1	101046		1	Brake Distributor 3F	All
	2	101047		1	Brake Line 1400mm	All
	3	100543	G3-8 MG-30-02-00	1	Matco Brake Assy	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
5-25	1	100535	G3-8 MG-01-00-09	1	Bolt Grip Handle	All
	2	100533	G3-8 MG-01-00-08	2	Grip Handle Brake Lever	All
	3	100534	G3-8 MG-01-00-07	1	Brake Lever colorless anodized	304 ff.
	4	101040		1	Brake Master Cylinder PS16	All
	5	101041		1	Brake Fluid Reservoir	All
	6	100521	G3-8 MG-01-00-00	2	Threaded Couping G1/8 R1/8	All
	7	101042		1	Shut Off Valve 1/8”	All
	8	101043		1	Fitting 45°	All
	9	100221		1	Self Locking Hexagon Nut M4 DIN985	All
	10	100189		1	Allen Screw M4x12 DIN912 8.8	All
	11	100536		6	Lens Head Screw M4x12 ISO7380 FL A2-70	All
	12	100150		2	Allen Screw M6x25 DIN912 8.8	All
	13	100212		2	Self Locking Hexagon Nut M6 DIN985	All
	14	100121	G3-8 MG-01-00-10	1	Mounting Bracket Master Cylinder	All
5-26	1	101047		1	Brake Line 1400mm	All
	2	101043		1	Fitting 45°	All
	3	100521	G3-8 MG-01-00-00	1	Threaded Couping G1/8 R1/8	All
	4	100543	G3-8 MG-30-02-00	1	Matco Brake Assy	All
5-27	1	100601	G3-8 MG-30-02-06	1	Brake Pads	All

Section 6

Structures – Aileron Control System

Table of Contents **Section**

6.1 Aileron Control System, Description

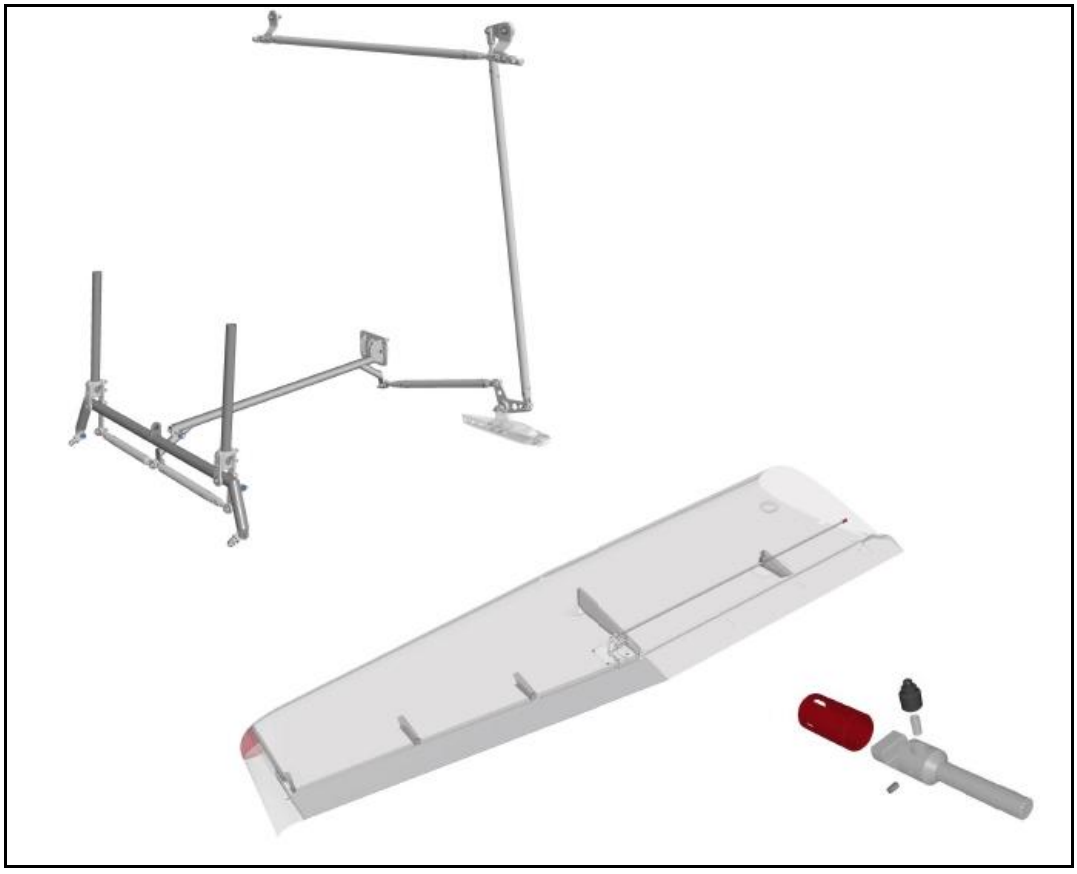
The aileron control system is comprised of push-pull rods and bell cranks, which link the control sticks to the ailerons. Refer to figure 6-1 as a general overview.

6.1.1 Trouble Shooting

♦ **NOTE**	Due to remedy procedures in the following trouble shooting chart it may be necessary to re-rig system, and if so then refer to paragraph 6.1.6.

Trouble	Probable Cause	Remedy
Lost motion in control sticks.	Broken brackets or worn rod end bearings.	Replace worn or broken parts.
	Sprung bell cranks.	Replace bell crank.
Resistance to control stick movement.	Bell cranks distorted or damaged.	Replace bell crank.
Control stick not centered with aileron neutral.	Improper adjustment of aileron push-pull rods.	Adjust in accordance with paragraph 6.1.6.
Incorrect aileron travel	Push-pull rods not adjusted properly.	Adjust in accordance with paragraph 6.1.6.
	Control stick adjustment-screws are not adjusted properly.	Adjust in accordance with paragraph 6.1.6.

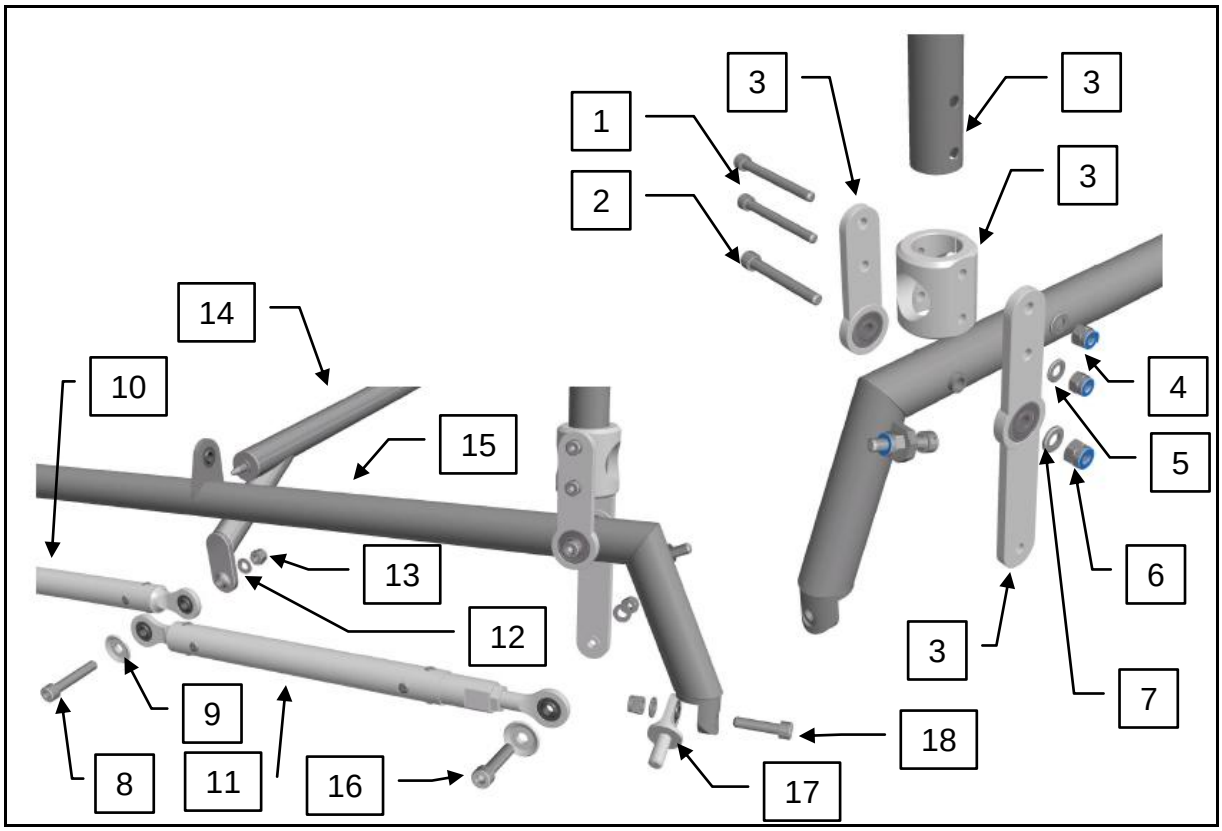
Figure 6-1



6.1.2 Control Stick Linkage, Description

Both control sticks are linked together by a control rod system to ensure synchronous movement. The linkage is located beneath two fiberglass-panels on the floor of the cabin right in front of the seats. A translator connects the control stick linkage to the aileron linkage, which uses several bell cranks to establish the connection to the control surfaces. An illustration of the control stick linkage is given in figure 6-2.

Figure 6-2



6.1.2.1 Removal and Installation

- **Required Tools:** Standard metric tools, wire cutting pliers
- **Required Parts:** Self-locking nuts as required
- **Level of Maintenance:** Heavy
- **Certification required**: A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

In general the control stick linkage needs no regular servicing, due to replacement of other parts of the aileron control system, it may be required to readjust the correct travel of the ailerons and access to the linkage will be required.

a. Remove both seats from the cabin.

b. Remove fabric stick cover from the stick linkage cover panels and remove cover panels itself.

c. Remove stick grips and disconnect wiring from stick switches.

d. Remove wiring from stick tubes and linkage (remember position of stick wiring and cable ties, for reinstallation).

e. Remove sticks and linkage from their brackets on the bottom of the aircraft.

CAUTION	If stick wiring is not installed correctly, binding of sticks and cracking or chafing of wiring will occur and may cause fire.

Reassembly is done in reverse order to steps outlined above. Tighten screws and bolts to a torque in accordance to the values given in Section 1.

CAUTION	DO NOT REUSE SELF-LOCKING NUTS.

6.1.3 Aileron Control Rods, Description

Aileron control rods are running from the control stick linkage joint through the fuselage to the aileron control surfaces providing several bell cranks. The whole aileron control rod system needs no regular servicing.

6.1.3.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

To get access to the aileron control rods, both wings provide access flaps. Routing of the control rods within the fuselage will be visible, if baggage compartment is removed (refer to Section 3). Additionally, the center cover (located between both seats) and the control stick floor covers can be removed if required. When necessary to replace parts of the control rod system, always use new self-locking nuts and torque to the values given in Section 1. Detailed information is given in figure 6-3 and 6-4.

6.1.4 Bell Cranks, Description

The aileron control rod system provides various bell cranks, located in the fuselage and in the wings, refer to figure 6-3 and 6-4 for detailed illustration. Bell cranks need no regular servicing.

Figure 6-3

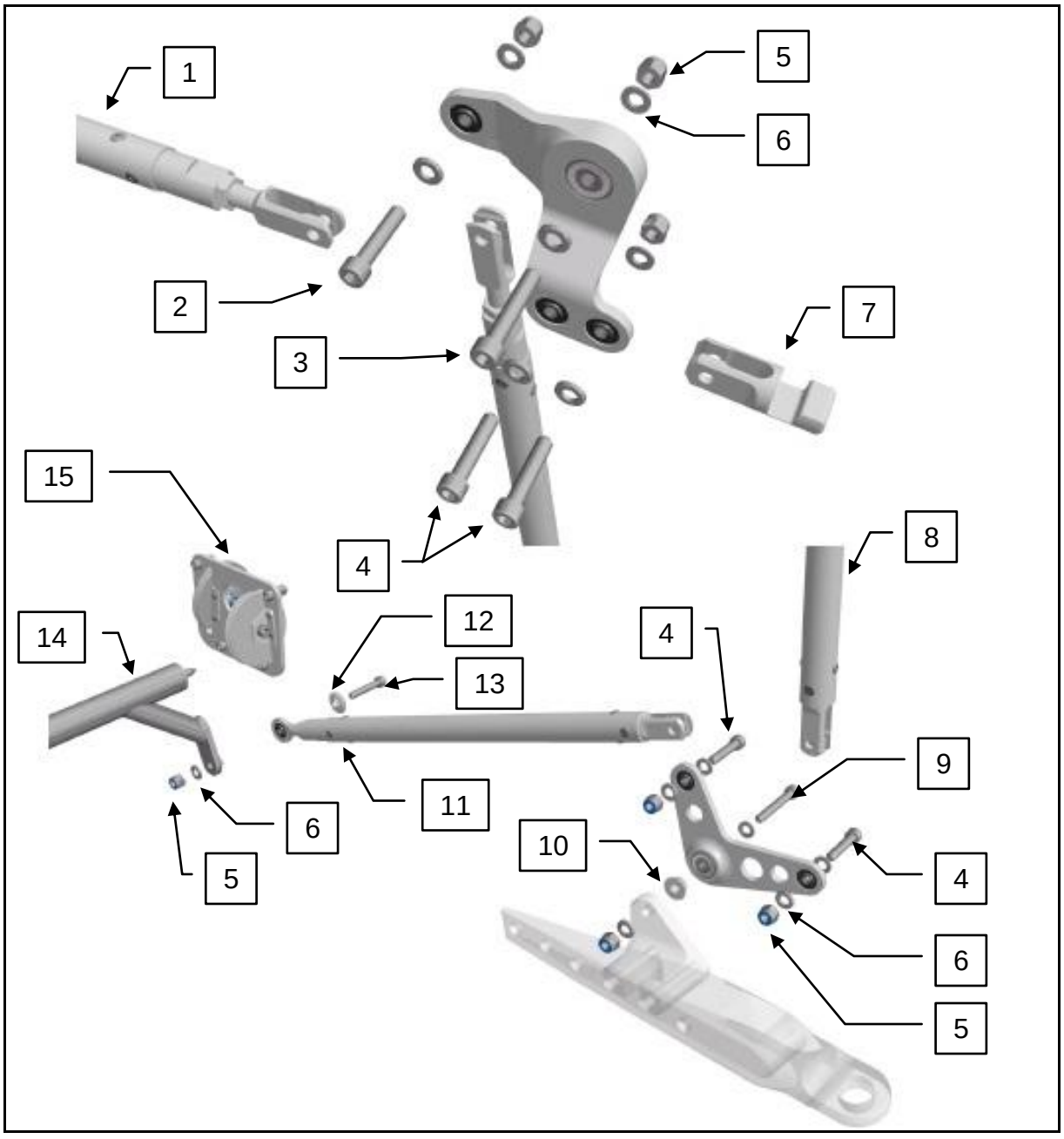
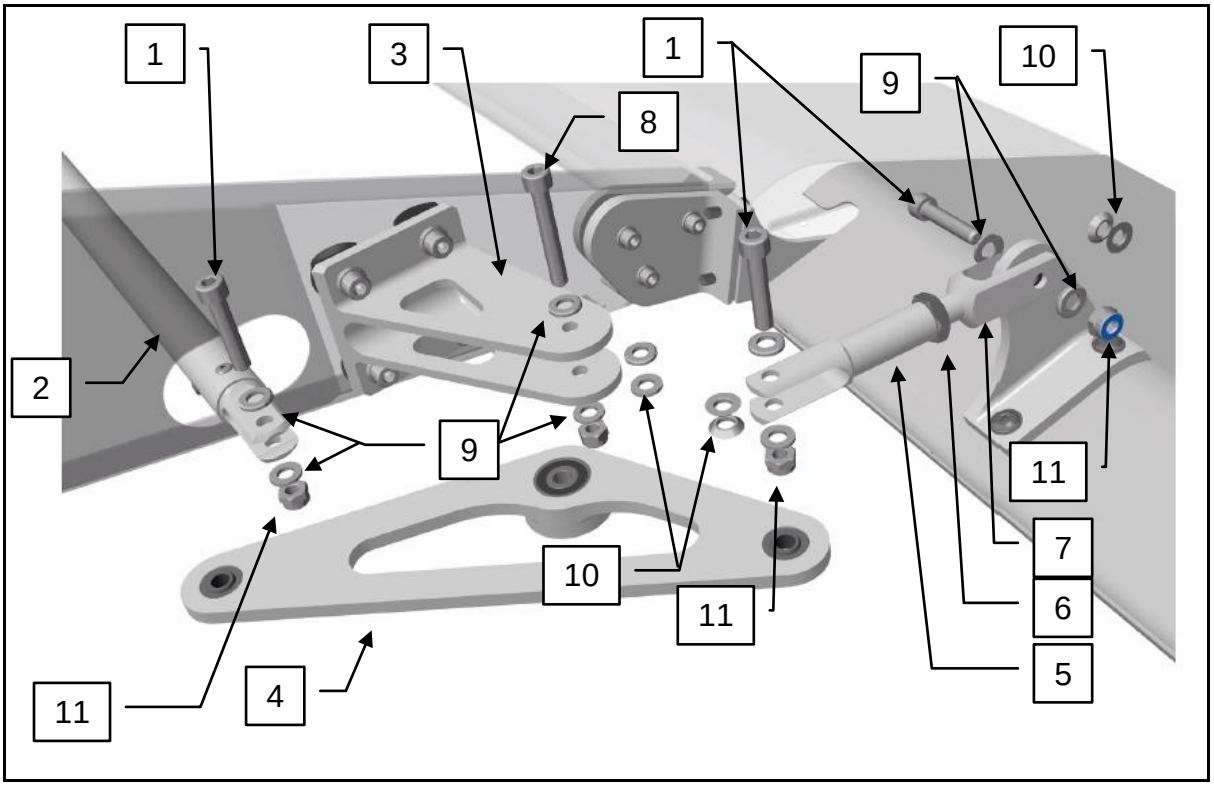


Figure 6-4



6.1.5 Ailerons, Description

Ailerons are made from carbon fiber composite material, hinged to the outer trailing edge of the wings.

6.1.5.1 Removal and Installation

Refer to figure 6-5 as guide for successfully conducting this procedure.

- **Parts required:** Standard metric tools
- **Required Parts:** Loctite 243 (medium strength), self-locking nuts as required
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Disconnect push-pull rod at aileron horn (**A**).

b. Unscrew and remove wing position light cover and wing tip (3) as long as the aileron hinge (5) at the tip (**B**).

c. Slide aileron (2) in tip direction and remove from its hinge bolts (9).

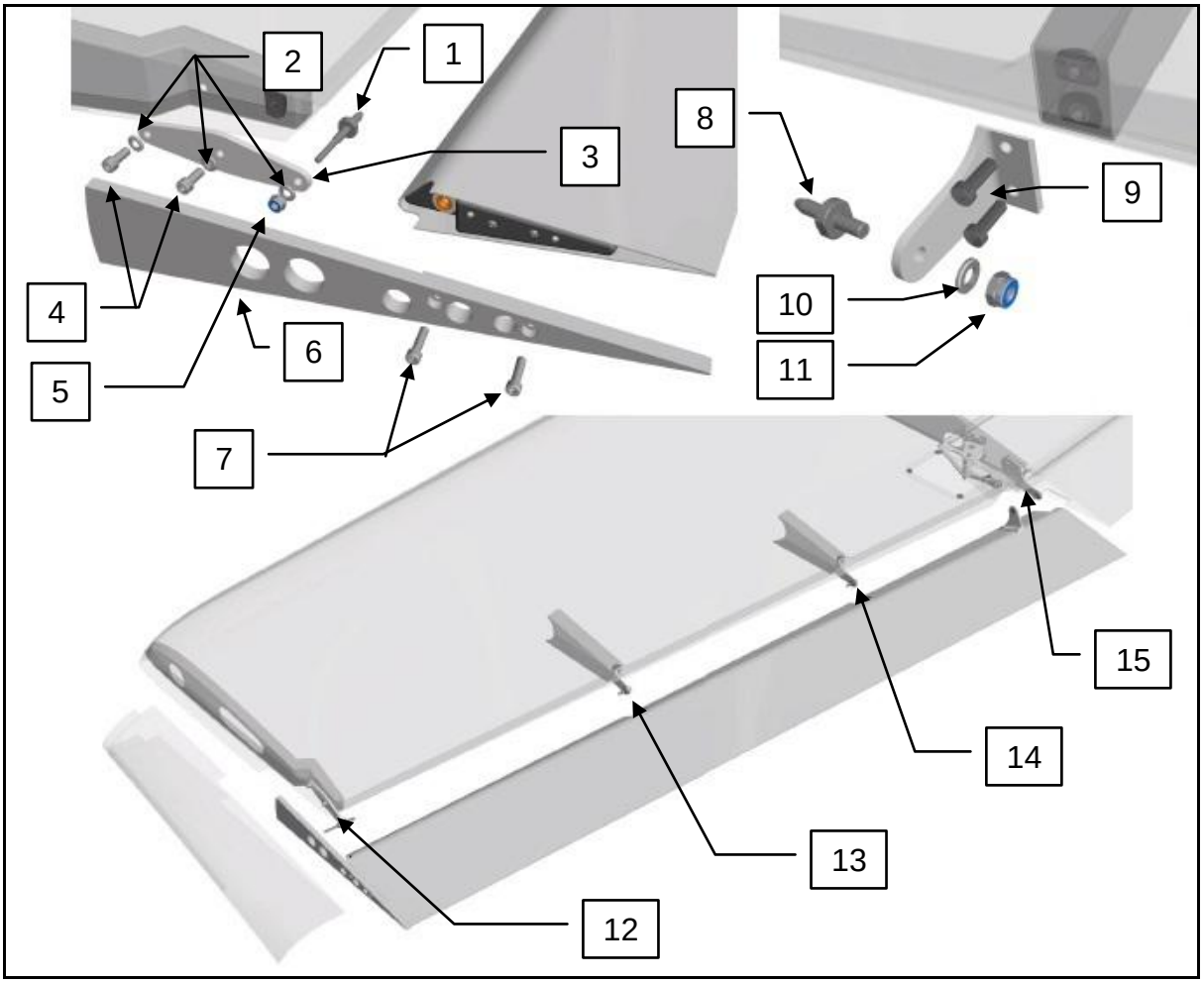
d. Install aileron in reverse order to the preceding steps.

e. Secure outer hinge screws (7) with Loctite 243 medium strength.

f. If rigging was correct and push-pull rod adjustment was not disturbed, it should not be necessary to rig system.

♦ **NOTE**	Use new self-locking nuts and torque to the values given in Section 1.

Figure 6-5



6.1.5.2 Repair

Repair is limited to replace slide bearings or hinge bolts and restoring dents or smaller cracks on edges. Since ailerons are designed as sandwich construction parts, it is strongly recommended to replace or return to factory for repair, if larger deterioration of the skin is detected.

6.1.6 Rigging

- **Required Tools:** Standard metric tools
- **Required Parts:** Safety wire, self-locking nuts as required
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

To achieve a correct aileron setting it is required that flaps have been set to the "up" position correctly first.

a. Disconnect push-pull rod at aileron horn.

b. Adjust aileron push-pull rod to achieve alignment of ailerons and wing flaps and reconnect to aileron horn.

c. Check or adjust center position of control stick (adjustment can be done at the top end of the vertical rod, routed behind the left (pilot) seat.

d. Check the maximum permissible travel of the ailerons as outlined in Section 1. If required set to correct travel, using the adjustment-screws located on the control stick linkage adjacent to each stick hub.

e. Align ailerons and wing flaps and hold in that position (i.e. secure with clamp).

f. Finally check ailerons for correct travel, using an inclinometer.

♦ **NOTE**	DO NOT REUSE SELF-LOCKING NUTS.

♦ **NOTE**	Secure adjustment-screws with safety-wire after conducting aileron travel adjustment.

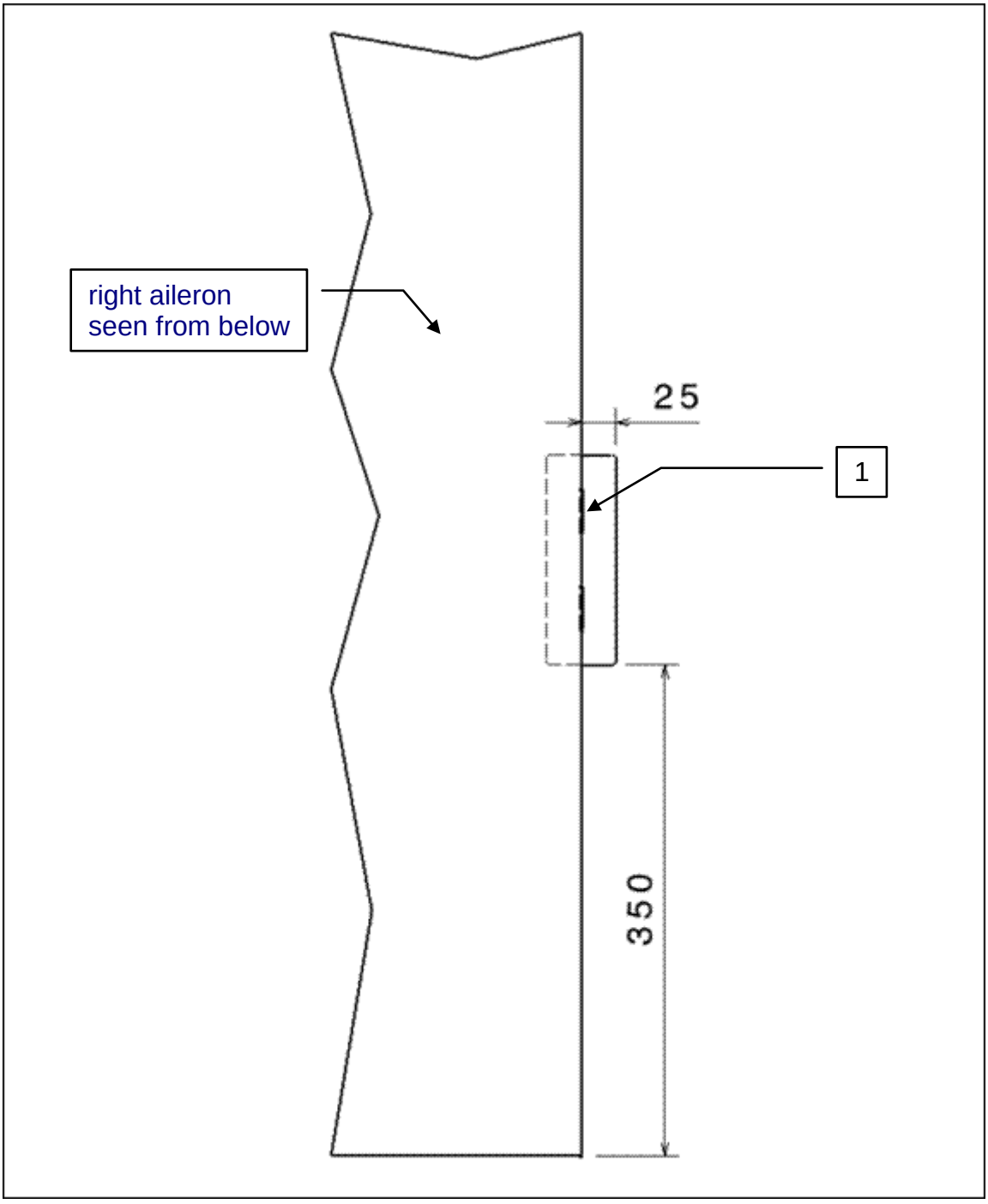
6.2 Aileron Trim Tab

A trim tab is attached to the lower side of the right aileron. The trim tab is 50mm wide (30mm of it are attached to the rudder) and 150mm long. The trim tab is located on the trailing edge of the right aileron, 350mm from the inner edge. Bond Teroson Terostat MS9380 is used in the process of manufacturing. Alternative bonds may be used. It is recommended to use bond that keep certain flexibility after the curing process.

Bend the tab slightly in case the aircraft does not fly straight. In case left aileron is required bend the tab upward and vice versa. Use small steps of app. 10deg in bending and several trials to find out the optimum position of the tab.

Keep in mind: The amount of left or right aileron differs not only with tolerances of the aircraft, but significantly with the loading of the aircraft. This is typical for aircraft with a payload similar to the empty weight in case the load is not on the center line. In case of flying single solo with little fuel and maybe some baggage, right aileron is required. If now the trim tab is adjusted so that the aircraft is flying straight and the next flight is with more fuel and maybe a passenger on board, left aileron is required. The reason is asymmetric loading and shall not be associated with airframe tolerances.

Figure 6-6



6.3 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
6-2	1	102183	G3-8 REP-00-02-06	2	Hexagon Bolt M5x50 SL42-Tol.5h6	All
	2	102181	G3-8 REP-00-02-04	1	Hexagon Bolt M6x51 SL42-Tol.6f7	All
	3	100693	G3-8 CS-30-00-02	1	Assembly Stick Left Including Item 1,4,5,7,8	All
		102897	G3-8 CS-30-00-03	1	Assembly Stick Right Including Item 1,4,5,7,8	All
	4	100218		2	Self-Locking Nut M5 DIN985	All
	5	100232		2	Washer M5 DIN125 Form A Steel vz	All
	6	100221		1	Self-Locking Nut M6 DIN985 vz	All
	7	100231		1	Washer M6 DIN125 Form A Steel vz	All
	8	102178	G3-8 REP-00-02-02	1	Hexagon Bolt M6x37 SL14-Tol.6f7	All
	9	100683	G3-8 REP-00-00-06	1	Plate Washer 20x6	All
	10	100607	G3-8 CS-10-00-01	1	Control-Rod Aileron SB right	All
	11	100606	G3-8 CS-10-00-00	1	Control-Rod Aileron SB left	All
	12	100231		1	Washer M6 DIN125 Form A Steel vz	All
	13	100221		1	Self-Locking Nut M6 DIN985 vz	All
	14	100694	G3-8 CS-40-00-01	1	Aileron Bridge	All
	15	100691	G3-8 CS-30-00-01	1	Stick Bridge	All
	16	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25 SL16-TOL.6f7	All
	17	100692	G3-8 REP-30-00-00	1	Swivel Bracket Short	All
	18	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25 SL16-TOL.6f7	All
6-3	1	100610	G3-8 CS-10-00-04	1	Control-Rod Aileron Connection Top	All
	2	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25 SL16-TOL.6f7	All
	3	102178	G3-8 REP-00-02-02	1	Hexagon Bolt M6x37 SL14-Tol.6f7	All
	4	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25 SL16-TOL.6f7	All
	5	100221		1	Self-Locking Nut M6 DIN985 vz	All
	6	100231		1	Washer M6 DIN125 Form A Steel vz	All
	7	100564	G3-8 REP-20-01-00	1	Fastener Clevis Connector	All
	8	100609	G3-8 CS-10-00-03	1	Control-Rod Aileron KRS left	All
	9	102180	G3-8 REP-00-02-03	1	Hexagon Bolt M6x43 SL30-Tol.6f7	All
	10	100603	G3-8 REP-00-00-03	1	Sleeve Conical	All
	11	100608	G3-8 CS-10-00-02	1	Control-Rod Aileron KRS Bottom	All
	12	100683	G3-8 REP-00-00-06	1	Plate Washer 20x6	All
	13	102177	G3-8 REP-00-02-01	1	Hexagon Bolt M6x30 SL15-Tol.6f7	All
	14	100694	G3-8 CS-40-00-01	1	Aileron Bridge	All
	15	100695	G3-8 CS-50-00-00	1	Assembly Fairlead Front	All
6-4	1	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25 SL16-TOL.6f7	All
	2	100806	G3-8 WG-08-00-01	1	Aileron Control Rod	All
	3	100743	G3-8 WG-04-01-24	1	Bracket Aileron Control	All
	4	100805	G3-8 WG-08-01-07	1	Aileron Bell Crank Left Hand Side	All
		100807	G3-8 WG-08-01-08	1	Aileron Bell Crank Right Hand Side	
	5	100796	G3-8 WG-08-01-05	1	Wing Control Flap Fork Head Bushing	All
	6	101748	G3-8 CS-10-01-07	1	Hexagon Nut M10x1, AlZuMgCu1,5	All
	7	100804	G3-8 WG-08-01-10	1	Wing Control Flap Fork Head Bolt	All
	8	102178	G3-8 REP-00-02-02	1	Hexagon Bolt M6x37 SL14-Tol.6f7	All
	9	100231		2	Washer M6 DIN125 Form A Steel vz	All
	10	100803	G3-8 REP-00-00-13	2	Cone Ring 6x2	All
	11	100221		1	Self-Locking Nut M6 DIN985 vz	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
6-5	1	100751	G3-8 WG-04-01-07	1	Bearing Bolt Aileron	All
	2	100231		3	Washer M6 DIN125 Form A Steel vz	All
	3	100744	G3-8 WG-04-01-23	1	Bracket Aileron X4500 Right/Left	All
	4	100155		2	Cylinder Head Screw M6x16 vz DIN912	All
	5	100221		1	Self-Locking Nut M6 DIN985 vz	All
	6	102378	G3-8 WG-06-01-07	1	Aileron Balancing Weight	All
	7	100130		2	Cylinder Head Screw M5x20 vz DIN912 8.8	All
	8	100751	G3-8 WG-04-01-07	1	Bearing Bolt Aileron	All
	9	102156		2	Lens Head Screw with Flange M5x16 ISO7380 A2	All
	10	100231		1	Washer M6 DIN125 Form A Steel vz	All
	11	100221		1	Self-Locking Nut M6 DIN985 vz	All
	12	100744	G3-8 WG-04-01-23	1	Wing Bracket Aileron X4500	All
	13	100745	G3-8 WG-04-01-21	1	Wing Bracket Aileron X3795 Left	All
		100753	G3-8 WG-04-01-22	1	Wing Bracket Aileron X3795 Right	All
	14	100746	G3-8 WG-04-01-19	1	Wing Bracket Aileron X3100 Left	All
		100754	G3-8 WG-04-01-20	1	Wing Bracket Aileron X3100 Right	All
	15	100747	G3-8 WG-04-01-17	1	Wing Bracket Aileron X2425 Left	All
		100755	G3-8 WG-04-01-18	1	Wing Bracket Aileron X2425 Right	All
6-6	1	102338	G3-8 WG-06-01-12	1	Trim Tab Aileron	All

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Section 7

Wing Flap Control System

Table of Contents **Section**

7.1 Wing Flap Control System, Description

The wing flap control system is comprised of an electric motor and transmission assembly, push-pull rods, a bell crank and a flap position indicator. Power from the motor assembly is transmitted to the flaps by push-pull rods and a bell crank. A single piece aluminum drive shaft with an attached actuation lever for the connection to the flap motor is located inside the cabin. Both ends of the shaft are providing slots to engage into the bell crank drive shaft at each wing. A push-pull rod is attached to the bell crank to connect wing flap. Electrical power to the motor is controlled by a 3-position switch mounted on the instrument panel. The flap position indicator is calibrated to show degrees of extension. A general overview is given in figure 7-1.

7.1.1 Operational Check

a. Operate flaps through their full range of travel, observing for uneven or jumpy motion, binding and lost motion in system. Ensure flaps are moving together through their full range of travel.

b. Attempt to overrun travel extremes and check up- and down-limit switch actuation at flaps retracted and extended position. FLAP MOTOR MUST STOP OR DAMAGE WILL RESULT.

c. Check flaps for sluggishness in operation. In flight at 65 kts, indicated airspeed, flaps should fully extend in approximately 8-9 seconds and retract in approximately 6-7 seconds. On the ground, with engine running, the flaps should extend or extract in approximately 7 seconds.

d. With flaps full UP, mount an inclinometer on one flap and set to 0°. Lower flaps to full DOWN position and check flap angle as specified in figure 1-1. Check approximate mid-range percentage setting against degrees as indicated on inclinometer.

e. Inspect flap hinges for free play or binding (if necessary disconnect motor assembly from actuator lever inside the cabin).

Figure 7-1

7.1.2 Trouble Shooting

♦ NOTE	Due to remedy procedures in the following trouble shooting chart it may be necessary to re-rig system, refer to paragraph 7.1.6.3.

Trouble	Probable Cause	Remedy
Flaps fail to move.	Blown fuse/circuit breaker.	Replace fuse or reset circuit breaker.
	Defective switch.	Replace switch.
	Defective motor.	Remove and bench test motor. Replace if defective.
	Broken or disconnected wires.	Run a continuity check. Connect or repair wiring.
	Defective Transmission.	Replace motor assembly.
	Defective limit switch.	Replace motor assembly.
Incorrect flap travel.	Incorrect rigging.	Refer to paragraph 7-1.6.3.
	Defective limit switch.	Replace motor assembly.
Flaps fail to retract.	Defective switch.	Replace switch
	Defective limit switch	Replace motor assembly.
	Defective motor	Replace motor assembly.
Flaps fail to extend.	Defective switch.	Replace switch
	Defective limit switch	Replace motor assembly.
	Defective motor	Replace motor assembly.
Flap position indicator failure.	Broken or disconnected wires.	Run a continuity check. Connect or repair wiring.
	Defective indicator.	Replace indicator.
	Defective position sensor.	Replace motor assembly.

♦ NOTE	Limit switches, transmission and indicator position sensor are part of the motor assembly. If limit switches (sealed reed type) or position sensor is determined to be defective, they may be replaced within the motor assembly. Due to flight safety concerns we strongly recommend to replace complete motor assembly.

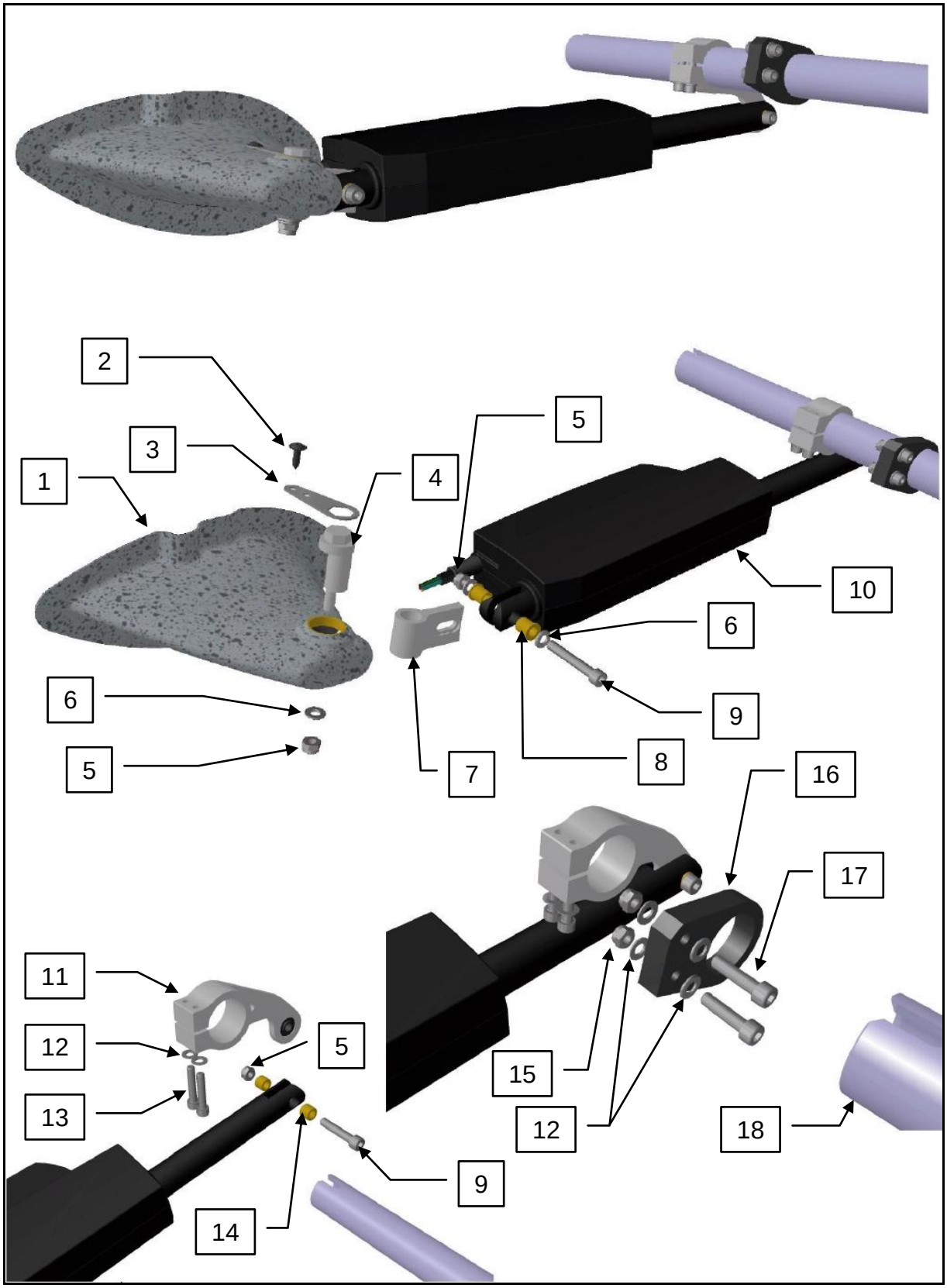
7.1.3 Flap Motor and Transmission Assembly

7.1.3.1 Removal and Installation

- **Required Tools:** Standard metric Tools
- **Required Parts:** Self-locking nuts as required
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

An illustration of the flap motor assembly is given in figure 7-2.

Figure 7-2



a. Run flaps to full DOWN position.

b. Support flaps from outside the aircraft in that position by a second person.

c. Disconnect motor push-pull rod from flap actuation lever (11) inside the cabin.

d. Disconnect battery cables at the battery and insulate cable terminals as a safety precaution.

e. Push up flaps till they lock at full UP position.

f. Remove locking plate (3) from flap motor bracket.

g. Unscrew eccentric bolt (4) and remove motor.

h. Disconnect wiring from motor.

i. Reverse the preceding steps for reinstallation.

♦ **NOTE**	Mark adjustment of eccentric bolt before removing it, this setting is required for reinstallation. The locking plate allows adjustment of the eccentric bolt in 15° steps, to achieve correct flap travel adjustment (refer to paragraph 7.1.6.3).

♦ **NOTE**	In general, no rigging is required if motor has to be replaced, but is essential to check correct rigging in accordance with paragraph 7.1.6.3.

7.1.3.2 Repair

Repair is limited to the replacement of motor and associated hardware, although some parts within the motor assembly may be replaced, we strongly recommend, always to replace the complete motor assembly as safety precaution.

7.1.4 Flap Control System

7.1.4.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Loctite 641
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Prior to removing the flap control linkage, the motor assembly has to be removed (see paragraph 7.1.3.1) and the wings have to be folded back (refer to Pilot Operating Handbook). Refer to figure 7-2 and 7-3 for details on removal and installation.

a. Unscrew the drive-shaft support bearing (16 / figure 7-2).

b. Withdraw the drive-shaft (18 / figure 7-2) from the fuselage.

c. Unscrew actuation lever clamping screws (13 / figure 7-2).

d. Disconnect push-pull rods (figure 7-3) from wing flaps and remove bell crank assembly from wing.

e. Reverse the preceding steps for installation.

f. After assembling and rigging is completed, tighten all bolts and nuts as outlined in Section 1.

♦ **NOTE**	To remove the actuation lever from the drive shaft, the whole assembly has to be heated up to 480°F. Do not partially heat up the assembly, because this would cause deterioration to the drive-shaft.

CAUTION	The actuation lever is installed to the drive shaft by clamping, secured with Loctite 641. Due to safety precautions we always recommend to install a new lever when it needs to be disassembled. After applying Loctite to assemble the actuation lever to the drive-shaft, you will have **30 minutes** to rig the flap control system until the Loctite will cure, therefore refer to paragraph 7.1.6.3 prior to installation of the lever.

7.1.4.2 Repair

Repair consists of the replacement of defective parts only.

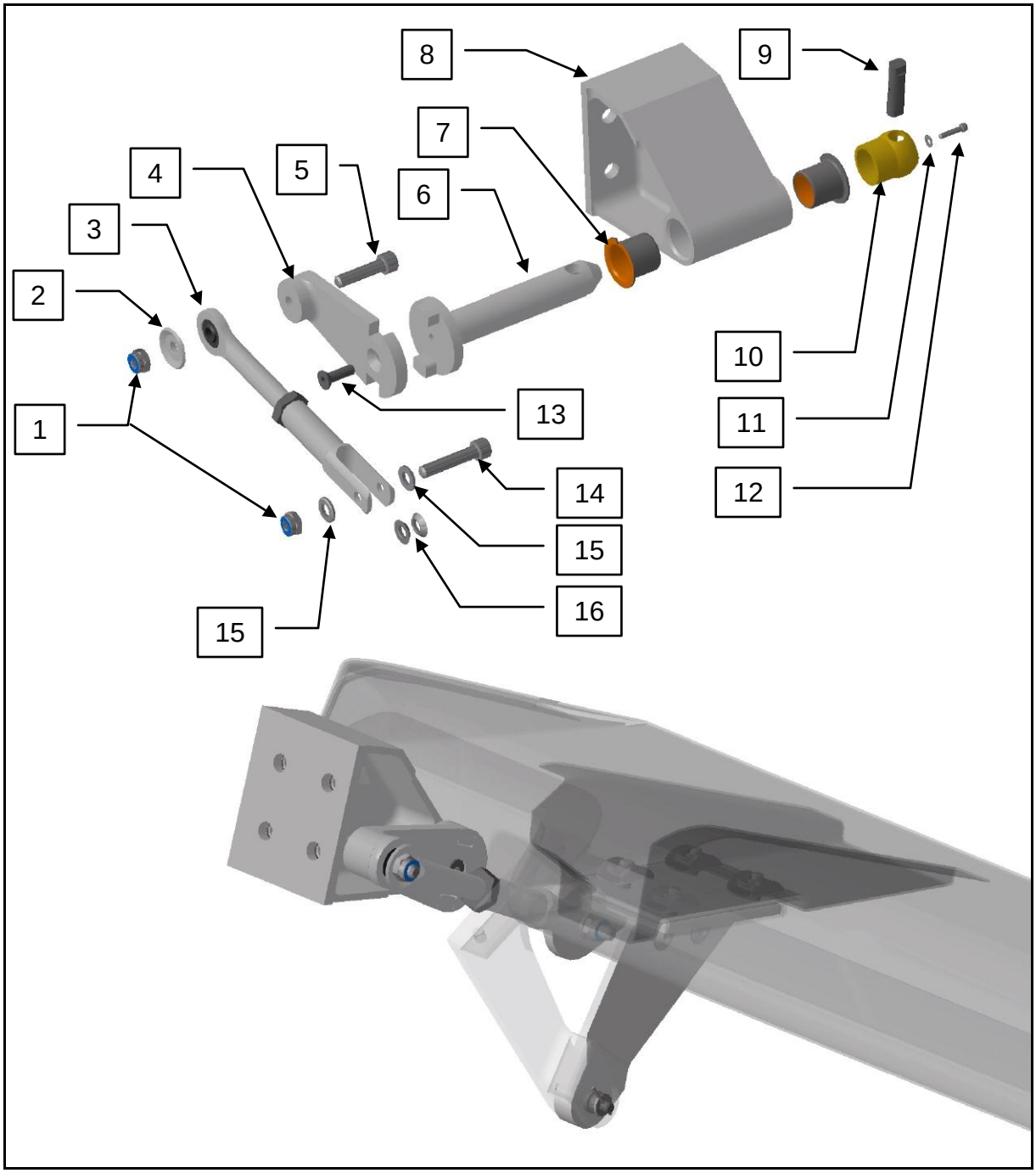
7.1.5 Indicating System, Description

Indication of flap position is provided by an LED-array gauge located on the switch panel for the Explorer, Aviator and eLITE. The flap position for the NXT/NXES is provided by the SkyView. A position sensor is part of the flap motor, and provides an appropriate voltage to the indicator gauge depended on the flap position.

7.1.5.1 Repair

Repair is limited to the replacement of LED-Indicator, wiring and flap motor assembly (refer to paragraph 7.1.3.1).

Figure 7-3



7.1.6 Flaps

7.1.6.1 Removal and Installation (refer to figure 7-4 and 7-5.)

- **Required Tools:** Standard metric tools
- **Required Parts:** Self-locking nuts and cotter pins as required
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Run flaps to full DOWN position.

b. Disconnect push-pull rod (A / figure 7-4) at wing flap bracket.

c. Remove cotter pins and hinge bolts from hinge brackets (B / figure 7-4).

d. Remove flap (C / figure 7-4).

e. As flap is removed from wing, all washers and bushings will fall free. Retain these for reinstallation.

f. Reverse the preceding steps for reinstallation. If push-pull rod (figure 7-4) adjustment is not disturbed, re-rigging of system should not be necessary.

g. Check flap travel and rig in accordance with paragraph 7.1.6.3, if necessary.

♦ **NOTE**	Always use new cotter pins for securing the hinge bolts.

Refer to figure 7-5 as guide for removal and installation of hinge brackets and bearings. Use Loctite 243 on all bolt connections for securing screws. Tighten bolts to a torque in accordance to the values given in Section 1.

Figure 7-4

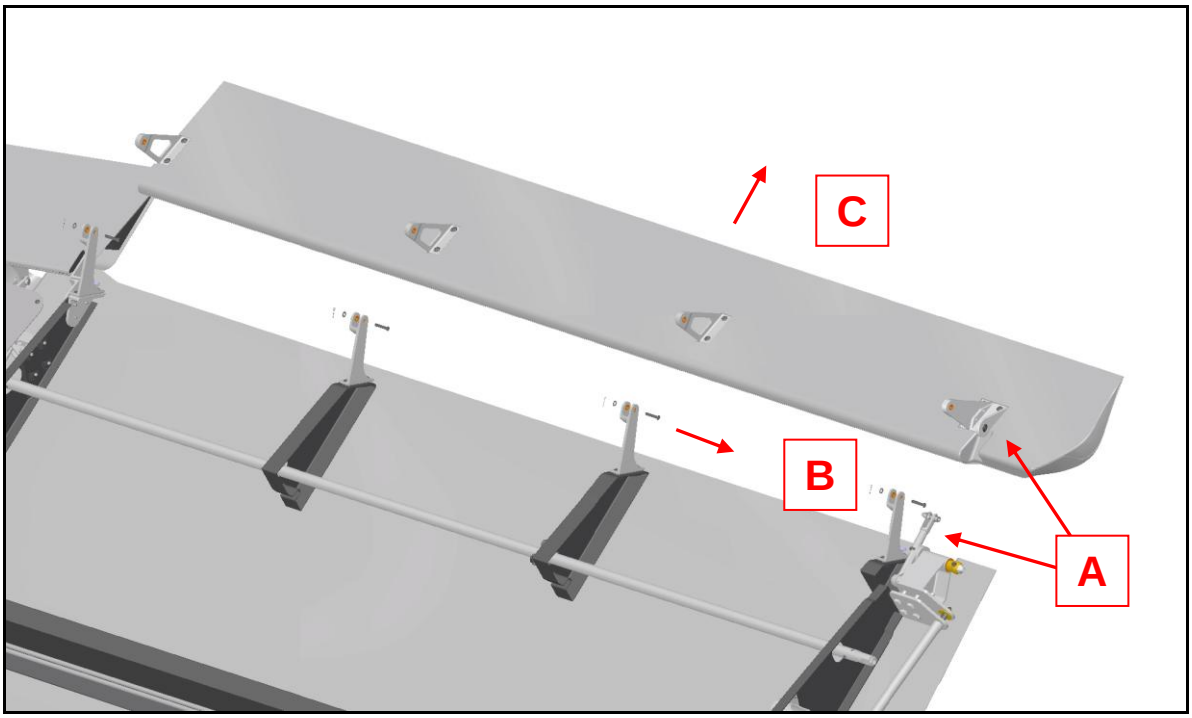


Figure 7-5

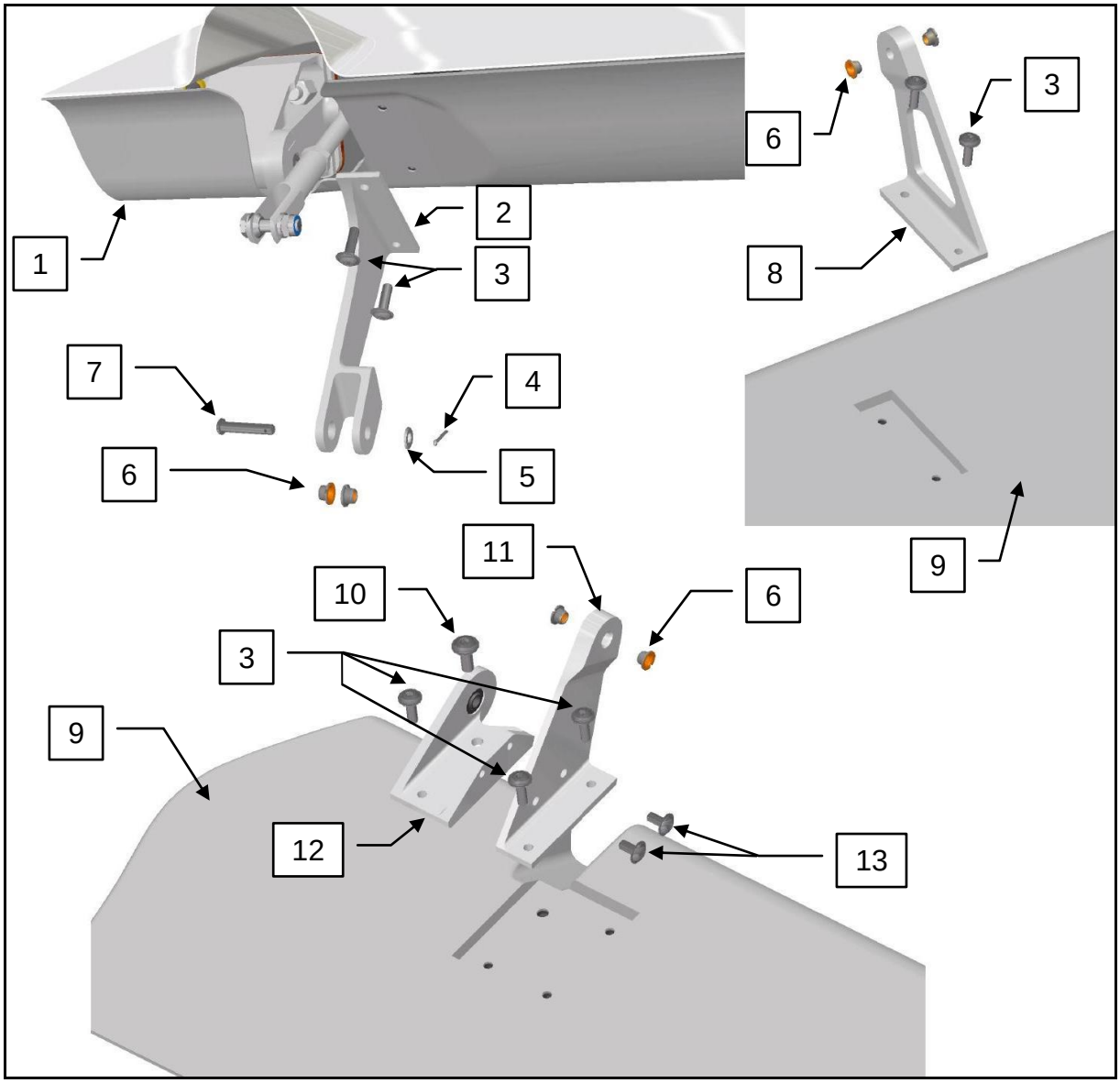
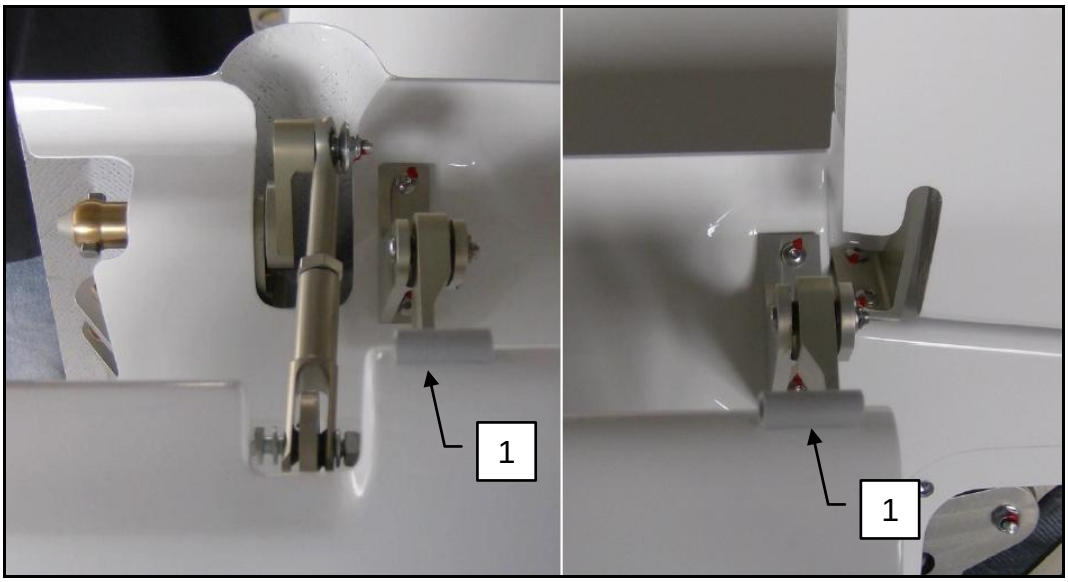


Figure 7-6



7.1.6.2 Repair

Repair is limited to replace sleeve bearings or hinge bolts and restoring dents or smaller cracks on edges. Since flaps are designed as carbon fiber sandwich components, it is strongly recommended to replace or return to factory for repair, if larger damage or deterioration of the skin is dedicated.

7.1.6.3 Rigging

- **Required Tools:** Inclinometer
- **Required Parts:** Loctite 641 & 243
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

The following description has to be maintained if flap control system was reassembled completely, including installing a new actuator lever to the drive shaft inside the cabin. If only wing flaps has been replaced, check correct flap travel as outlined in Section 1 and perform steps p. to r.

a. Operate flaps to full UP position.

b. Loosen clamping of actuator lever inside the cabin (11 / figure 7-2).

c. Check that flaps are locked in upper position, by pressing firmly on the upper side of the flap surface. If required push flaps up till they are locked, adjust push-pull rods (3 / figure 7-3) when necessary to ensure that flaps are locking in upper position.

d. Temporarily tighten clamp of actuator lever inside the cabin (11 / figure 7-2).

e. Install an inclinometer to one of the flaps and set to 0°.

f. Run flaps to full DOWN position and check flap angle as specified in figure 1-1.

g. If required adjust eccentric bolt at the motor-bracket connection to achieve more or less of flap angle. The eccentric bolt (4 / figure 7-2) could be adjusted in 15° steps to match with locking plate (3 / figure 7-2). The motor assembly can be moved forward and backward, causing 2° difference in full flap angle.

h. Run flaps to full UP position and repeat step **c** to **g** as long as travel of flaps is within the limits outlined in figure 1-1.

i. Run flaps to full UP position, mark position of actuator lever on drive shaft and loosen both clamp-screws and slide lever to the right (viewed from front).

j. Apply **Loctite 641** to the position on the drive shaft where the actuator lever (11 / figure 7-2) has to be clamped. Slide back the lever in its marked position and tighten one clamp screw temporarily again.

k. Operate flaps to full DOWN position and check flap angle again.

l. Run flaps to 15° position and tighten both clamp screws to a torque value given in figure 1-2. (Secure clamp screws, using **Loctite 243**).

m. Perform a check flight and ensure that aircraft maintains heading at full payload, with both seats occupied.

n. If pressure to the control stick is required during normal flight, to keep wings level, adjust trim tab at the aileron to achieve level flight.

♦ **NOTE**	It is essential that flaps are locked in upper position. Check that bell crank does override the locking position for a short distance only. If bell crank does override the locking position too far, you will not be able to get the full flap travel as required.

♦ **NOTE**	After applying **Loctite 641** to the actuator lever clamp, you have **30 minutes** until the Loctite will cure, further correction to the adjustment can only be done within this time.

♦ **NOTE**	Remember position of washers used on the push-pull rod connecting the wing flap bracket. DO NOT REUSE SELF-LOCKING NUTS. Tighten rod connecting bolt to the torque value outlined in figure 1-2.

7.2 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
7-2	1	700080	G3-8 FU-00-00-20	1	Flap Drive Mount	All
	2	102324		1	Lens Head Tapping Screw M3.9x13 Delta Seal	All
	3	100487	G3-8 CS-80-01-04	1	Locking Plate Flap	All
	4	100486	G3-8 CS-80-01-03	1	Eccentric Bolt Flap	All
	5	100221		3	Self-locking Hexagon Nut M6	All
	6	100231		3	Washer 6.4 DIN125 FormA vz	All
	7	100490	G3-8 CS-80-01-05	1	Support Feet Flap	All
	8	100489	G3-8 CS-80-01-07	2	Collar Bush Flap	All
	9	100147		1	Allen Screw M6x35 DIN912 8.8	All
	10	101031		1	Flap Motor LA12.1P-100-12-003	All
	11	100485	G3-8 CS-80-00-00	1	Flap Control Lever Assy	All
	12	100232		2 (4)	Washer 5.3 DIN125 Form A Steel	All
	13	100131		2	Allen Screw M5x25 DIN912 8.8	All
	14	100488	G3-8 CS-80-01-06	2	Flap Control Bushing	All
	15	100218		2	Self-locking Hexagon Nut M5	All
	16	100484	G3-8 CS-80-01-02	1	Flap Control Bearing Drive Tube	All
	17	100130		2	Allen Screw M5x20 DIN912 8.8	All
	18	100483	G3-8 CS-80-01-01	1	Fuselage Flap Flaptube	All
7-3	1	100221		2	Self-locking Hexagon Nut M6	All
	2	100683	G3-8 REP-00-00-06	1	Plate Washer 20x6	All
	3	100797	G3-8 WG-08-00-04	1	Bearing Lug Bolt LG 14 Assy	All
	4	100801	G3-8 WG-08-01-00	1	Wing Control Flap Lever Actuator Part 1	All
	5	100150		1	Allen Screw M6x25 DIN912 8.8	All
	6	100800	G3-8 WG-08-01-01	1	Wing Control Flap Lever Actuator Part 2	All
	7	101149		2	Bushing DU 16X17 BB 1617	All
	8	100765	G3-8 WG-04-01-13	1	Wing Bracket Flap Actuator Left	All
		100768	G3-8 WG-04-01-14	1	Wing Bracket Flap Actuator Right	All
	9	100798	G3-8 WG-08-01-02	1	Wing Control Flap Bolt Actuator	All
	10	100799	G3-8 WG-08-01-03	1	Wing Control Flap Tappet Actuator	All
	11	102661		1	Washer 2.5 DIN125 FormA vz	All
	12	100100		1	Allen Screw M2,5x12 vz DIN912 A4-70	All
	13	101731		1	Countersunk Head Hexagon Socket Screw M5x16 A2-70	All
	14	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25	All
	15	100231		2	Washer 6.4 DIN125 FormA vz	All
	16	100803	G3-8 REP-00-00-13	2	Cone Ring 6x2	All
	17	100796	G3-8 WG-08-01-05	1	Wing Control Flap Fork Head Bushing	All
	18	100748	G3-8 CS-10-01-07	1	Hex Nut M10x1	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
7-5	1	700803		1	Left Wing FVK	All
		700804		1	Right Wing FVK	All
	2	100771	G3-8 WG-04-01-09	1	Wing Bracket Flap Left	All
		100773	G3-8 WG-04-01-10	1	Wing Bracket Flap Right	All
	3	102156		2 (3)	Lens Head Screw with Flange M5x16 ISO7380 A2	All
	4	100284		1	Cotter Pin 1,6x12 DIN94 Steel	All
	5	100232		1	Washer 5.3 DIN125 Form A Steel	All
	6	101151		2	Bushing 5X5 BB 0505 DUB	All
	7	100772	G3-8 WG-04-01-31	1	Wing Stud 5x27 Flap	All
	8	100786	G3-8 WG-05-01-04	1	Wing Flap Bracket Left	All
		100787	G3-8 WG-05-01-05	1	Wing Flap Bracket Right	All
	9	700810		1	Left Flap FVK	All
		700811		1	Right Flap FVK	All
	10	102158		1	Lens Head Screw Hexagon Socket M6x16 ISO7380 A2 FL	All
	11	100782	G3-8 WG-05-01-02	1	Wing Flap Bearing-Lever Actuator Left	All
		100785	G3-8 WG-05-01-03	1	Wing Flap Bearing-Lever Actuator Right	All
	12	100783	G3-8 WG-05-01-00	1	Wing Flap Actuator-Bracket Left	All
		100784	G3-8 WG-05-01-01	1	Wing Flap Actuator-Bracket Right	All
	13	102155		2	Lens Head Screw Hexagon Socket M5x10 ISO7380 A2	All
7-6	1	102807		2	Flap Drive Stop	All

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Section 8

Elevator Control System

Table of Contents **Section**

8.1 Elevator Control System, Description

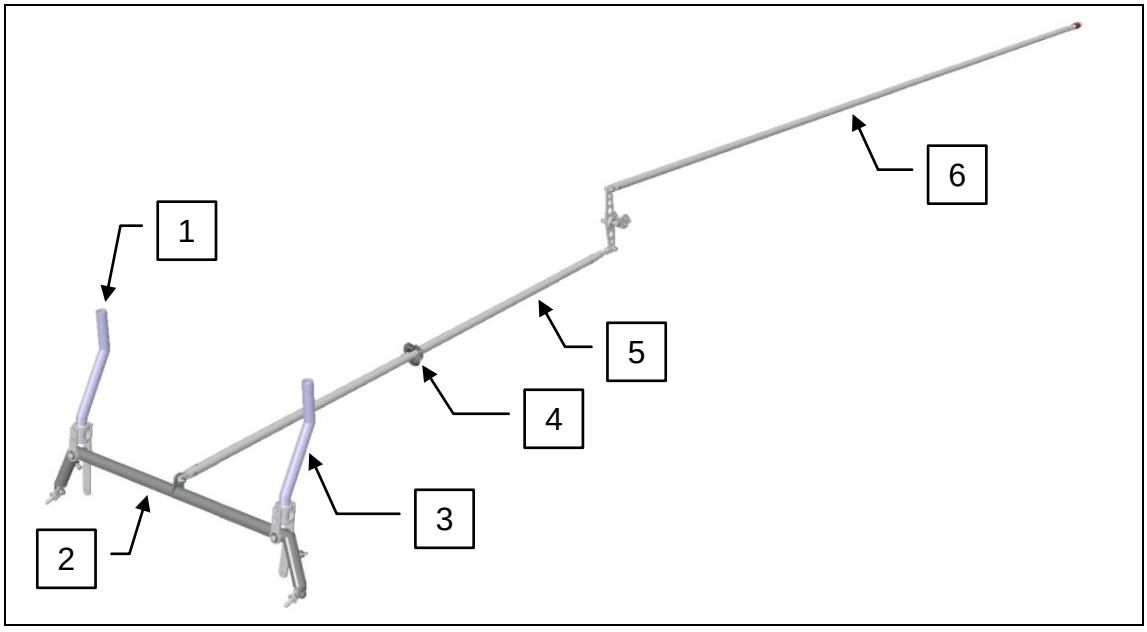
The elevator is operated by the pulling/pushing power transmitted from the control stick through a bell crank and a push-pull tube. An elevator trim tab is installed on the elevator and is described in Section 9. A general overview is given in figure 8-1.

8.1.1 Trouble Shooting

♦ NOTE	Due to remedy procedures in the following trouble shooting chart it may be necessary to re-rig system; if so, refer to paragraph 8.1.4.

Trouble	Probable Cause	Remedy
No response to control stick fore-and-aft movement.	Quick release connector at aft end of push-pull tube disconnected.	Join quick release connector properly.
	Forward end of push-pull tube disconnected.	Attach push-pull tube correctly.
	Connection between bell crank and push-pull tube disconnected.	Attach push-pull tube correctly.
Binding or jumpy motion felt in movement of elevator.	Defective bell crank pivot bearing.	Replace bell crank bearing.
	Nylon grommet bearings binding.	Replace grommet.
	Defective elevator hinges or lubrication needed.	Replace defective hinges or lubricate per Section 2.
Elevator fails to attain prescribed travel.	Interference beneath center cover or behind rear cabin bulkhead.	Rig system in accordance with paragraph 8.1.4.

Figure 8-1



8.1.2 Elevator

8.1.2.1 Removal and Installation (refer to figure 8-2.)

- **Required Tools:** Standard metric tools
- **Required Parts:** Self-locking Nut (M6)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Disconnect quick release connector at the aft end of push-pull tube (1).

b. Disconnect trim wiring at terminal on fuselage tail.

c. Unscrew the securing nut at the center of the leading edge on elevator, adjacent to actuator bracket .

d. Move elevator to full DOWN position.

e. Slide elevator to the right side, to disengage hinges.

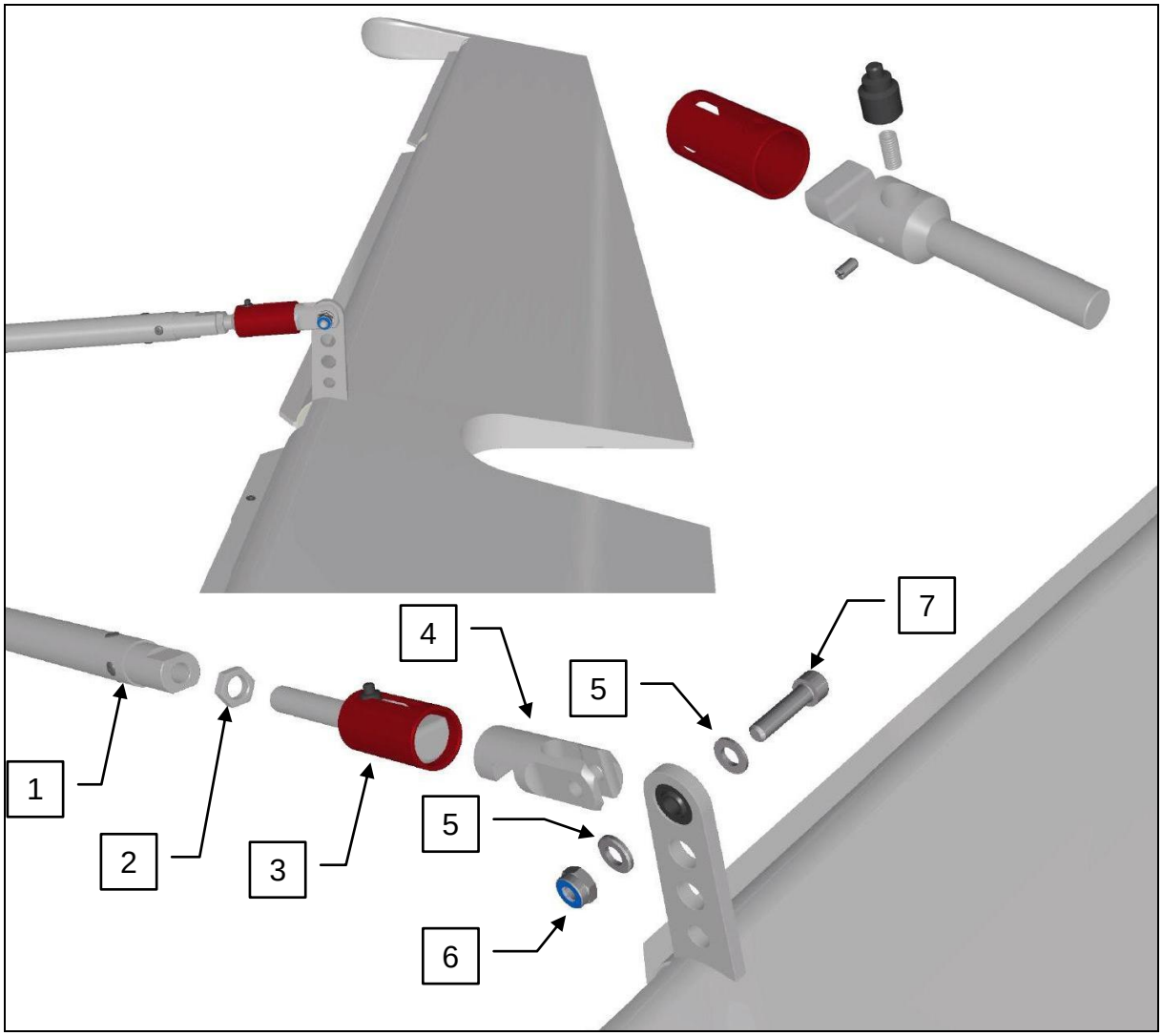
f. Using care, remove elevator.

g. Reverse preceding steps for installation.

h. Rig system in accordance with applicable paragraph in this section if necessary.

♦ NOTE	If push-pull tube screw is not turned, rigging of trim system should not be necessary after installation of elevator.

Figure 8-2



8.1.2.2 Repair

Repair may be accomplished as outlined in Section 18. Hinge sleeve bearings may be replaced as necessary. Further repair is limited to restoring dents or smaller cracks on edges. Since the elevator is designed as carbon fiber sandwich component, it is strongly recommended to replace or return to factory for repair, if larger damage or deterioration of the skin is detected.

8.1.3 Bell Crank

8.1.3.1 Removal and Installation (refer to figure 8-3.)

- **Required Tools:** Standard metric tools
- **Required Parts:** 3x self-locking nut (M6)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Remove pilot seat and baggage compartment (refer to Section 3).

b. Disconnect forward and aft push-pull tube from bell crank(3).

c. Remove pivot bolt (11) and remove bell crank.

d. Reverse preceding steps for installation.

e. Check for free play of push-pull tubes and bell crank.

Figure 8-3

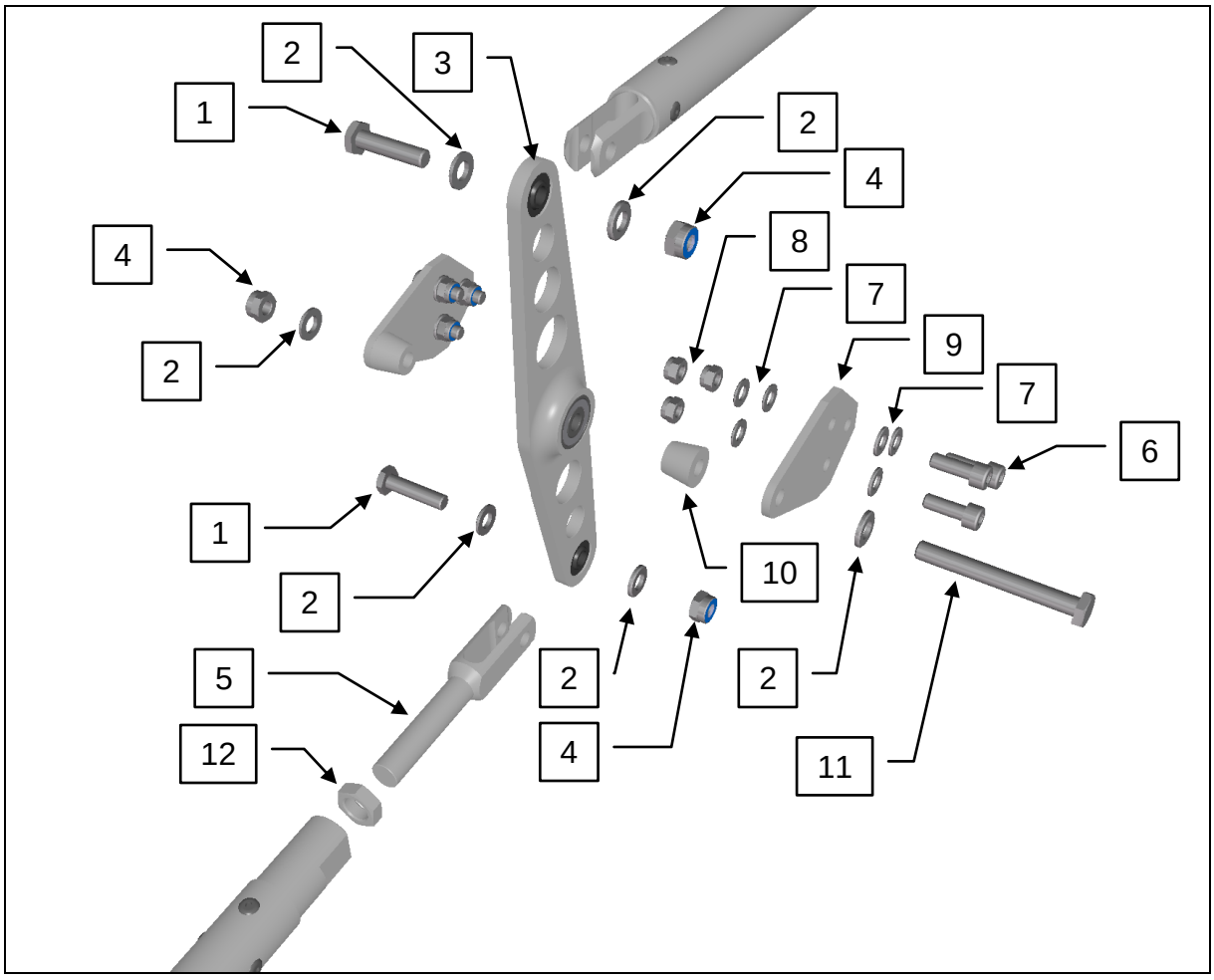
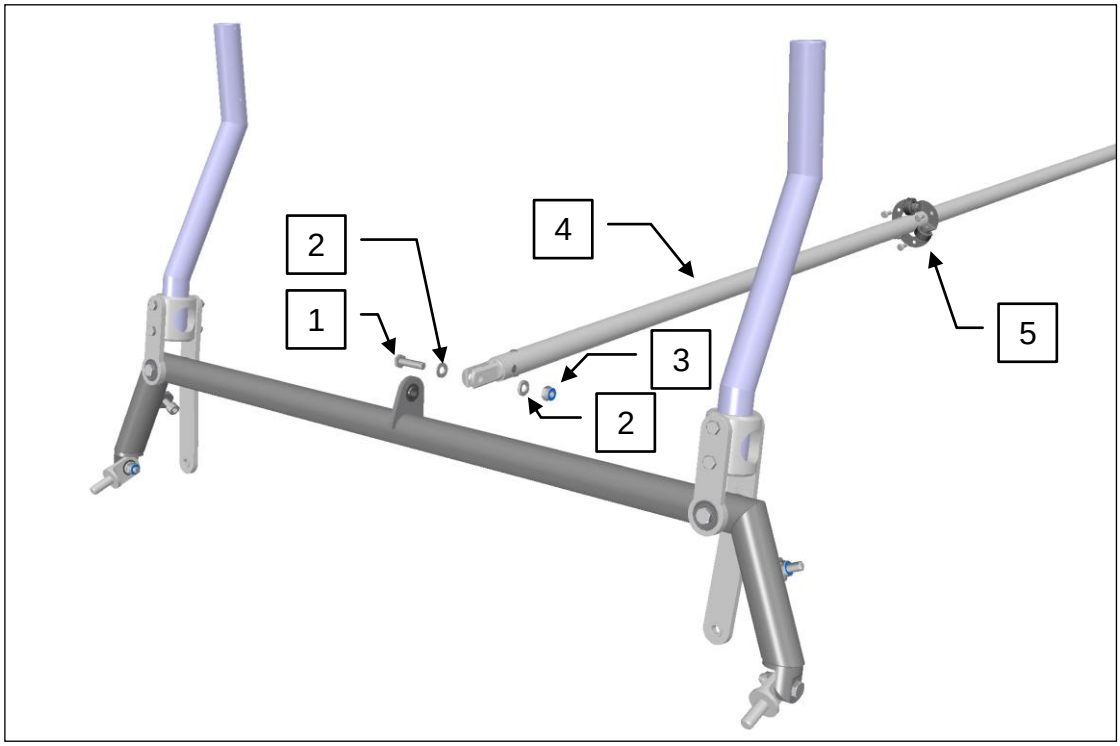


Figure 8-4



8.1.4 Rigging

- **Required Tools:** Standard metric tools, inclinometer
- **Required Parts:** Loctite 243 (medium strength)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Locate neutral position of elevators by streamlining elevators with stabilizer.

b. Place an inclinometer on the elevator and set to zero.

c. Check for centered position of control stick.

d. If required, adjust stick center position at the aft end of push-pull tube and secure with **Loctite 243**.

e. Check elevator travel as outlined in figure 1-1.

8.2 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
8-1	1	102897	G3-8 CS-30-00-03	1	Assembly Stick Right	340 ff
	2	100691	G3-8 CS-30-00-01	1	Assembly Stick Bridge	All
	3	100693	G3-8 CS-30-00-02	1	Assembly Stick Left	All
	4	100625	G3-8 REP-10-00-00	1	Assembly Roller Guide	All
	5	100560	G3-8 CS-10-00-05	1	Control-Rod Elevator Front	All
	6	100561	G3-8 CS-10-00-06	1	Control-Rod Elevator Rear	All
8-2	1	100561	G3-8 CS-10-00-06	1	Control-Rod Elevator Rear	All
	2	101748	G3-8 CS-10-01-07	1	Hexnut M10x1	All
	3	100562	G3-8 REP-20-00-00	1	Assembly fastener old version	Till 321
	3	100562	G3-8 REP-20-00-00	1	Assembly fastener new version	321 ff
	4	100564	G3-8 REP-20-01-00	1	Fastener Clevis Connector	All
	5	100231		2	Washer 6.4 DIN 125 Form A Steel	All
	6	100221		1	Self-locking Hexagon Nut M6	All
	7	100150		1	Cylinder Head Screw with Hexagon Socket M6x25 8.8	All
8-3	1	102967	G3-8 REP-00-02-07	2	Hexagon Bolt M6x25	All
	2	100231		2-6	Washer 6.4 DIN 125 Form A Steel	All
	3	100558	G3-8 CS-11-00-03	1	Assembly Elevator Bell Crank	All
	4	100221		1-3	Self-locking Hexagon Nut M6	All
	5	102061	G3-8 CS-10-01-02	1	Clevis Bolt	All
	6	100140		3	Cylinder Head Screw with Hexagon Socket M5x14 8.8	All
	7	100232		6	Washer 5.3 DIN 125 Form A Steel	All
	8	100218		3	Self-locking Hexagon Nut M5	All
	9	100559	G3-8 CS-60-01-01	1	Elevator Bell Crank Storing	All
	10	100682	G3-8 CS-60-01-02	1	Elevator Bell Crank Distance Cone	All
	11	102181	G3-8 REP-00-02-04	1	Hexagon Bolt M6x51	All
	12	101748	G3-8 CS-10-01-07	1	Hexnut M10x1	All
8-4	1	102967	G3-8 REP-00-02-07	1	Hexagon Bolt M6x25	All
	2	100231		2	Washer 6.4 DIN 125 Form A Steel	All
	3	100221		1	Self-locking Hexagon Nut M6	All
	4	100560	G3-8 CS-10-00-05	1	Control-Rod Elevator Front	All
	5	100625	G3-8 REP-10-00-00	1	Assembly Roller Guide	All

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Section 9

Elevator Trim Control System

Table of Contents **Section**

9.1 Elevator Trim Control System, Description

The elevator trim tab, located on the left elevator, is controlled by a trim switch mounted on the left side of the switch panel (blue). Power to operate the tab is transmitted from the trim control switch by wire. An LED-array indicator, located on the left side of the switch panel (below trim switch) indicates tab position. A “nose-up” setting results in a tab-down position.

9.1.1 Trouble Shooting

♦ **NOTE**	Due to remedy procedures in the following troubleshooting chart it may be necessary to re-rig system, refer to paragraph 9.1.6.

Trouble	Probable Cause	Remedy
Trim tab fails to move.	Blown fuse/circuit breaker	Replace fuse or reset circuit breaker.
	Defective trim switch.	Replace trim switch.
	Defective trim servo.	Replace trim servo.
	Broken or disconnected wiring.	Run a continuity check. Connect or repair wiring.
	Broken trim tab linkage	Replace linkage.
Trim indicator fails to indicate correct trim position.	Defective position sensor.	Replace trim servo.
	Broken or disconnected wiring.	Run a continuity check. Connect or repair wiring.
	Defective trim indicator.	Replace trim indicator.
Incorrect trim tab travel.	Incorrect push-pull rod adjustment.	Refer to paragraph 9.1.6.
	Defective trim servo.	Replace trim servo.

9.1.2 Trim Tab

9.1.2.1 Inspection and Repair

The trim tab panel is attached to the elevator by a flexible composite hinge, therefore it cannot be removed from the elevator. The flexible hinge should be inspected due to cracks during regular service intervals. It may be find that cracks in the paint of the hinge will occur which are not structural and does not need any servicing. If cracks are concerning the hinge structure itself, refer to Section 18 for repair.

9.1.3 Trim Tab Servo

9.1.3.1 Removal and installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Cotter pin (1.6 x 20 mm)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Prior to removal of the trim servo, removal of the elevator is necessary, refer to Section 8.

a. Disconnect push-pull rod (3) end from actuator bracket (2) on trim tab.

b. Remove securing cable tie of trim servo wiring.

c. Unscrew and remove trim servo from elevator.

d. Reverse preceding steps for reinstallation and use a new cotter pin to secure push-pull connection at trim tab bracket.

e. Re-rig the system in accordance with paragraph 9.1.6.

♦ **NOTE**	If push-pull rod is not turned, rigging of trim system should not be necessary after installation of the new trim servo.

▉ **CAUTION**	Check for correct movement of trim tab after reconnecting terminal wiring. A “nose-up” setting results in a tab-down position.

9.1.4 Trim Control System

9.1.4.1 Removal and installation

The trim control system consists of a trim servo located in the elevator (refer to paragraph 9.1.3) and a control switch on the switch panel. To remove or install a new switch, unscrew the switch panel. Refer to Section 15 for detailed information about removal and installation of the switch panel.

9.1.5 Indicating system

To indicate the position of trim tab, an LED-indicator is installed in the switch panel (Only Explorer and Aviator). The indication for the trim tab position for the eLITE is given in the Dynon D180 and for the NXT/NXES the Sky View will provide this information. Power to the indicator is supplied by the trim tab servo.

9.1.5.1 Removal and Installation

- **Required Tools:** Standard metric tools, edge-cutter
- **Required Parts:** Insulating tape, cable ties,
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Disconnect battery leads and insulate as safety precaution.

b. Unscrew throttle lever knob, clamp nut, friction knob and ignition key retaining ring.

c. Unscrew and withdraw switch panel.

d. Unplug and remove LED trim tab position indicator.

e. Reverse preceding steps for reinstallation.

f. Check for correct indication of trim tab position and re-rig as required.

♦ **NOTE**	Rigging of trim system should not be necessary after installation of a new trim indicator.

9.1.6 Rigging

- Required Tools: Standard metric tools
- Required Parts: None
- Level of Maintenance: Line
- Certification required: A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

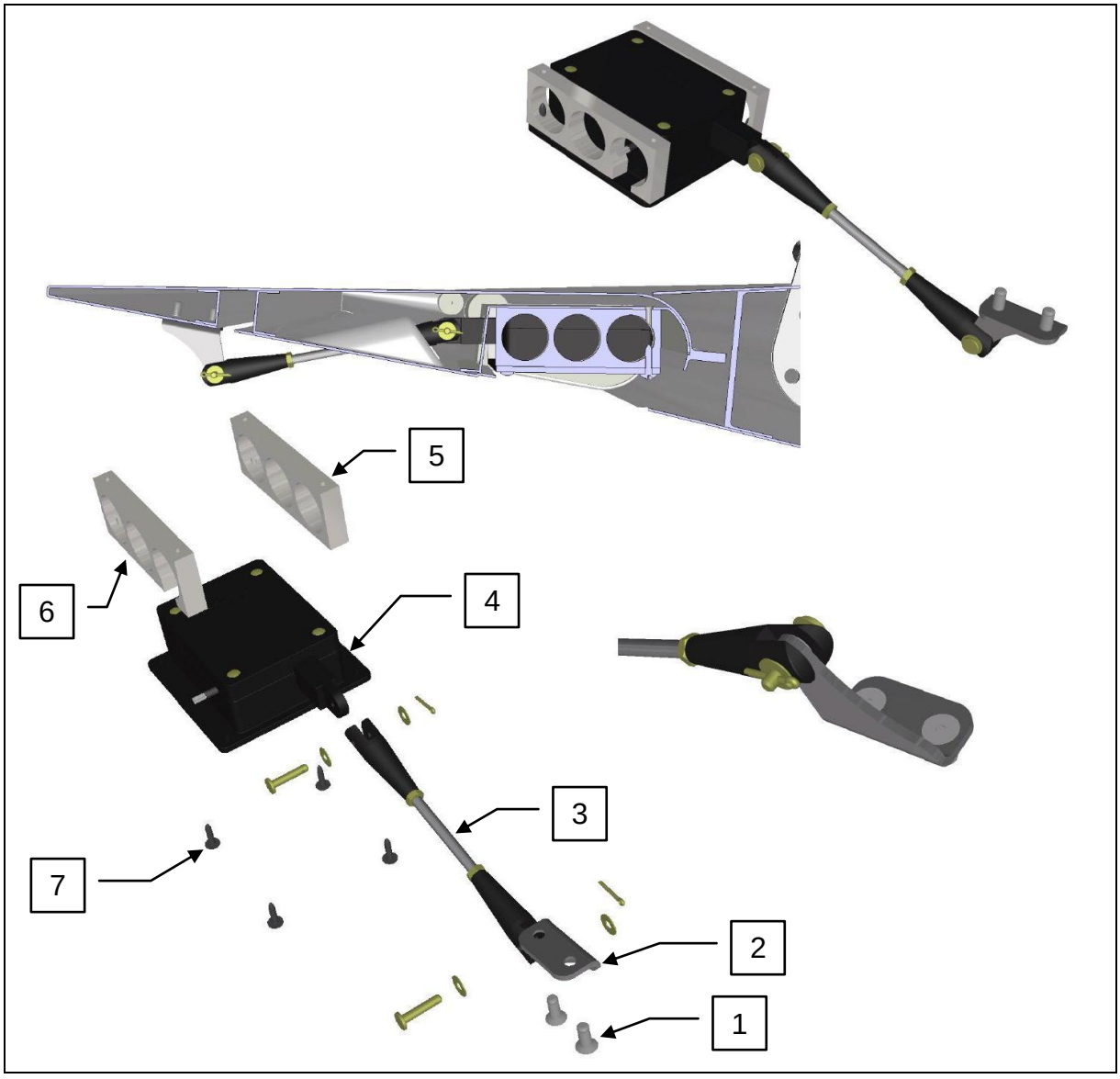
a. Move trim indicator needle-pointer to center position.

b. Adjust push-pull rod end at trim tab connection to achieve a neutral setting of trim tab.

c. Check for correct movement of trim tab. Pushing the control button to "up" position (downward) must result in a "up" reading on the indicator and a tab-down movement.

♦ **NOTE**	Always use a new cotter pin when reestablishing the connection of push-pull rod at the trim tab bracket.

Figure 9-1



9.2 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
9-1	1	101740		2	Counter Sunk Rivet 4x8 A2K	All
	2	100678	G3-8 HT-20-01-02	1	Trim Tab Actuator Bracket	All
	3	101110		1	Clevis Pushrod Trim Tab	All
	4	102545		1	Trim Servo	All
	5	100669	G3-8 HT-20-01-04	1	Trim Servo Bracket B	All
	6	100668	G3-8 HT-20-01-05	1	Trim Servo Bracket A	All
	7	101975		4	Tapping Screw 2.9x13	All

Section 10

Rudder Control System

Table of Contents **Section**

10.1 Rudder Control System, Description

Rudder control is maintained through use of conventional rudder pedals which also control nose wheel steering. The system is comprised of rudder pedals, a steering rod (sliding translator), cables and pulleys, all of which link the pedals to the rudder and nose wheel steering.

10.1.1 Trouble Shooting

♦ **NOTE**	Due to remedy procedures in the following trouble shooting chart it may be necessary to re-rig system, refer to paragraph 10.1.5.

Trouble	Probable Cause	Remedy
Rudder does not respond to pedal movement.	Broken or disconnected cables.	Connect or replace cables.
Binding or jumpy movement of rudder pedals.	Cables too tight.	Adjust cable tension in accordance with paragraph 10.1.5.
	Cables not riding properly on pulleys.	Route cables correctly over pulleys.
	Binding, broken or defective pulleys or cable guards.	Replace defective pulleys and install guards properly.
	Defective pedal bar bearings.	Replace bearings.
	Worn nose gear bearings.	Replace bearing sleeves of dip tube.
Lost motion between rudder pedals and rudder.	Insufficient cable tension.	Adjust cable tension in accordance with paragraph 10.1.5.
Incorrect rudder travel.	Incorrect rigging.	Rig system in accordance with paragraph 10.1.5.

10.1.2 Rudder Pedal Assembly

10.1.2.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** 10x self-locking nut (M6), 4x self-locking nut (M10)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Disconnect cables (6) from rudder pedals.

b. Disconnect connecting link (7) from rudder pedals.

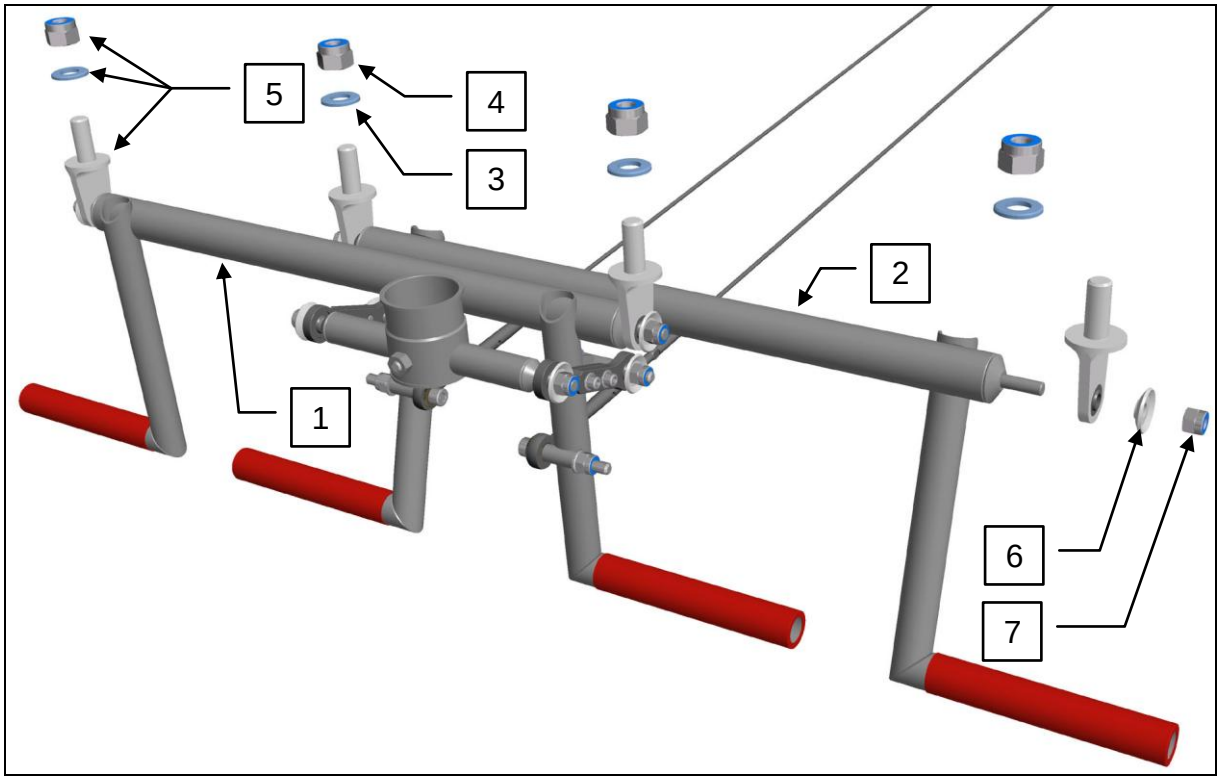
c. Unscrew brackets (8) from fuselage and remove pedal assemblies (1 & 2).

d. Reverse preceding steps for reinstallation.

e. Rig system in accordance with applicable paragraph in this section, safety cable tensioners and reinstall all items removed in step a.

♦ **NOTE**	Rudder bar assemblies should be checked for excessive wear before installation. All bearings used are maintenance free and must not be lubricated. Replace bearings if binding or slackness is determined. Do not reuse self-locking nuts.

Figure 10-1



10.1.3Rudder

10.1.3.1 Removal and Installation

- **Required Tools:** Standard metric tools, edge cutter
- **Required Parts:** Safety wire (1.0 mm)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Disconnect tail navigation light quick-disconnect.

b. Relieve cable tension at cable tensioner (Figure 10-3).

c. Disconnect cables from rudder.

d. Remove lower hinge bolt and slide rudder upward to disengage upper hinge bolt.

e. Reverse preceding steps for installation.

f. Rig system in accordance with applicable paragraph in this section and safety clevises, secure hinge bolt by wire.

10.1.3.2 Repair

Repair may be accomplished as outlines in Section 17. Further repair is limited to restoring dents or smaller cracks on edges. Since the elevator is designed as carbon fiber sandwich component, it is strongly recommended to replace or return to factory for repair, if larger damage or deterioration of the skin is dedicated.

10.1.4Cables and Pulleys

10.1.4.1 Removal and Installation

- **Required Tools:** Crimping tool
- **Required Parts:** 2 x 2.5 mm crimp sleeves
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Remove seats and baggage compartment (refer to Section 3).

b. Disconnect cables at rudder pedals (Figure 10-1).

c. Cut of crimp sleeves at the cable to rudder connection.

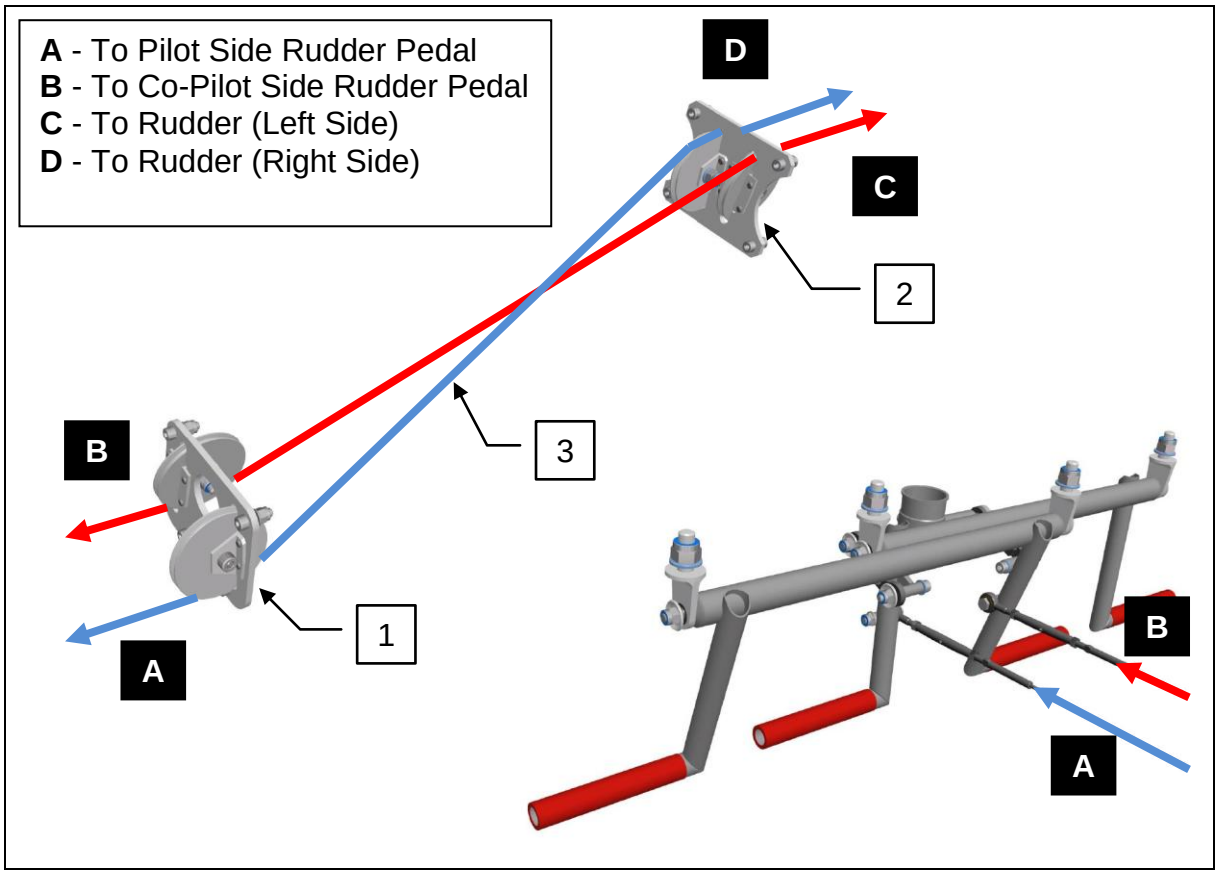
d. Remove pulleys and fairleads as necessary to work cables free of aircraft.

e. After cable is routed in position, install pulleys fairleads and cable guards. Ensure cable is positioned in pulley groove as illustrated in figure 10-2.

f. Rig system in accordance with applicable paragraph in this section, safety cable tensioners and reinstall all items removed in step “a”.

♦ NOTE	To ease routing of cables, a length of wire may be attached to end of cable before being withdrawn from aircraft. Leave wire in place, routed through structure, attach cable being installed and pull cable into position.

Figure 10-2



10.1.5Rigging

- **Required Tools:** Standard metric tools
- **Required Parts:** Safety wire (1.0 mm)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Align rudder with fin to neutral position.

b. Adjust cables at cable tensioners (Figure 10-3) to achieve a neutral pedal setting.

c. Adjust cable tension for proper operation and pedal motion without binding.

d. Safety cable tensioners with safety wire.

e. Adjust length of connecting links (1 / figure 10-4) to achieve alignment of nose wheel and rudder.

▲ WARNING	Be sure rudder moves in correct direction when operated by pedals.

Figure 10-3

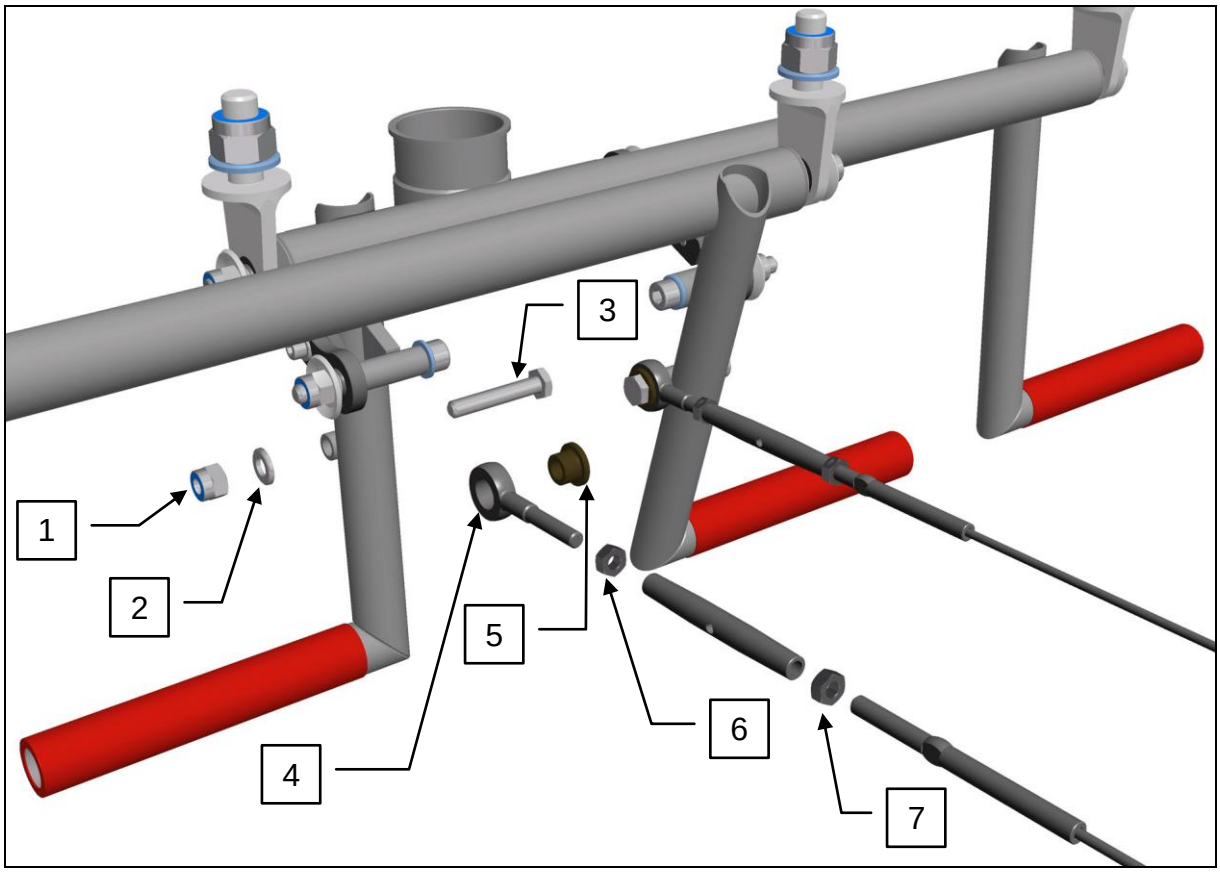
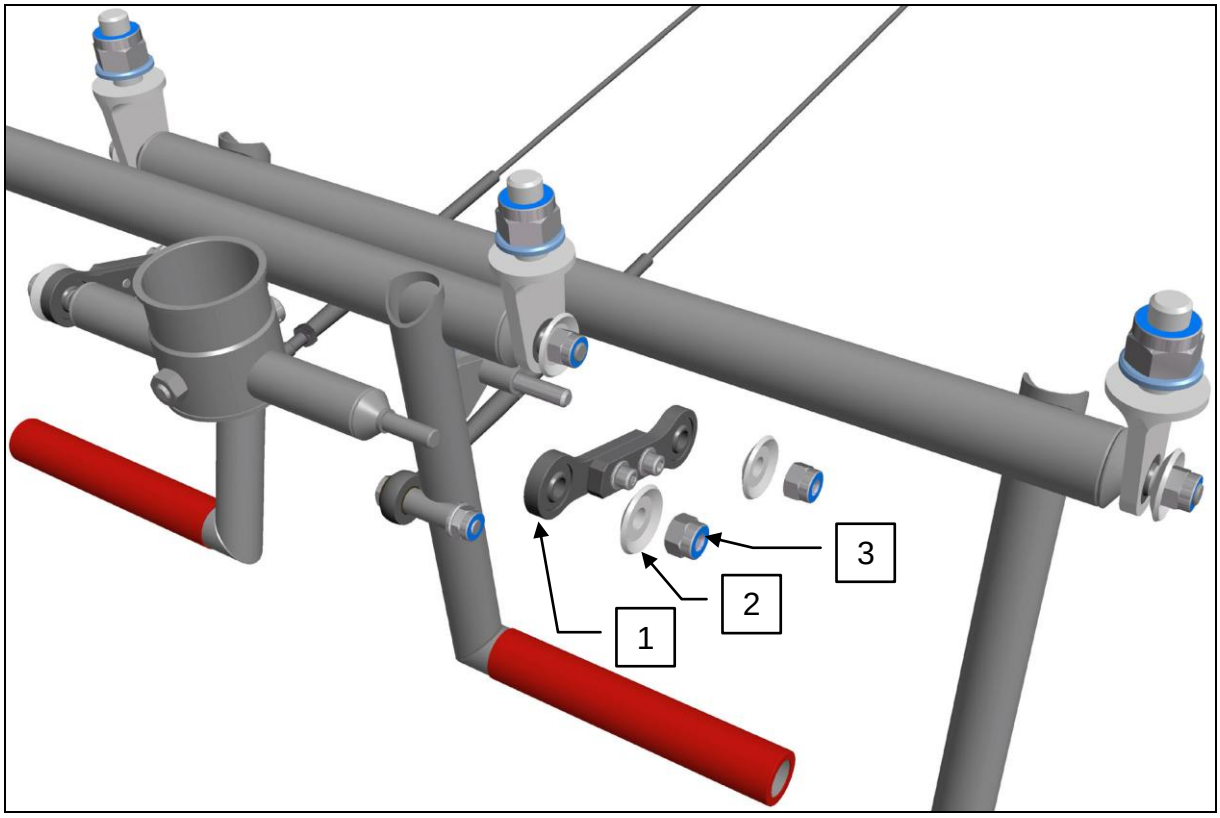


Figure 10-4



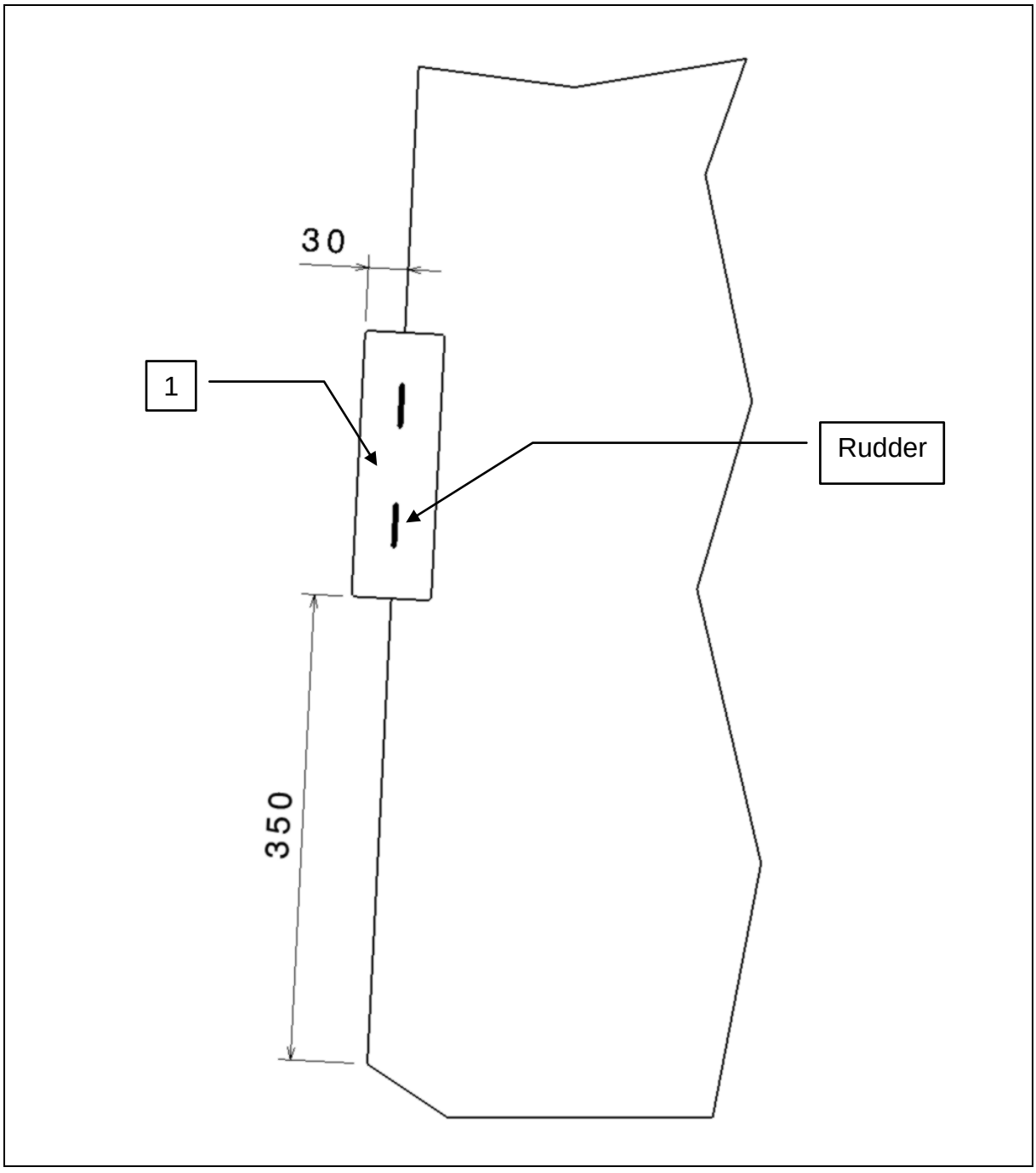
10.2 Rudder Trim Tab

A trim tab is attached to the right side of the rudder. The trim tab is 60mm wide (30mm of it are attached to the rudder) and 200mm long. The trim tab is located on the trailing edge of the rudder, 350mm from the lower edge. Bond Teroson Terostat MS9380 is used in the process of manufacturing. Alternative bonds may be used. It is recommended to use bond that keep certain flexibility after the curing process.

Bend the tab slightly in case the aircraft does not fly straight. In case left rudder is required bend the tab to the left and vice versa. Use small steps of app. 10deg in bending and several trials to find out the optimum position of the tab.

Keep in mind: The amount of left or right rudder differs not only with tolerances of the aircraft, but also with the flight regime. At low airspeeds with high power more right rudder is required than in flight at high speed with the same power setting. This has aerodynamic reasons and shall not be associated with airframe tolerances.

Figure 10-5



10.3 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
10-1	1	100688	G3-8 CS-20-00-03	1	Assembly Pedal Right	All
	2	100687	G3-8 CS-20-00-02	1	Assembly Pedal Left	All
	3	100229		1	Washer 10.5 ISO 7090	All
	4	100226		1	Self Locking Nut M10x1 DIN 985	All
	5	100686	G3-8 CS-20-00-04	1	Assembly Pedal Storing	All
	6	100683	G3-8 REP-00-00-06	1	Plate Washer 20x6	All
	7	100221		1	Self Locking Nut M6 DIN 985 vz	All
10-2	1	100695	G3-8 CS-50-00-00	1	Assy Fairlead Front	All
	2	100696	G3-8 CS-50-00-01	1	Assy Fairlead Rear	All
	3	100697	G3-8 CS-50-00-02	1	Control Wire Rudder	All
10-3	1	100221		1	Self Locking Nut M6 DIN 985 vz	All
	2	100231		1	Washer 6.4 ISO 7091 vz	All
	3	102178	G3-8 REP-00-02-02	1	Hexagon Bolt M6x37	All
	4	102215	G3-8 CS-50-04-04	1	Cable Tensioner Collar Bushing	All
	5	102384	G3-8 CS-50-04-01	1	Clamp Wire Ring Eye	All
	6	102388		1	Nut M5 DIN934 8.8 vz Drilled, Left-Hand Thread	All
	7	102387		1	Nut M5 DIN934 8.8 vz Drilled	All
10-4	1	100684	G3-8 CS-20-00-05	1	Assembly Nose Wheel Drive	All
	2	100683	G3-8 REP-00-00-06	2	Plate Washer 20x6	All
	3	100221		2	Self Locking Nut M6 DIN 985 vz	All
10-4	1	102337	G3-8 FU-03-01-10	1	Trim Tab Rudder	All

Section 11

Engine

Table of Contents **Section**

11.1 Preamble

This chapter only deals with the engine integration and not with the engine itself. If you need further information about the engine and its components, please refer to the ROTAX Manuals.

NOTE	Hereby REMOS approves all publications, modifications and updates released by ROTAX.

NOTE	Hereby REMOS defines contrary to the ROTAX Maintenance Manual that all hoses do **NOT** need to be replaced after 5 years. REMOS approves that all hoses are used **ON CONDITION**.

11.2 Engine Cowling, Description

The engine cowling is comprised of an upper and lower cowl segment. A small access door on the upper cowl provides access to the oil filler cap, and oil dipstick, as well as to check cooling fluid level. Quick-release fasteners are used at the cowling-fuselage mount attach points to facilitate detachment of the cowling at the firewall. Quick-release fasteners are used along the side parting surfaces to hold cowling segments together. Both cowl segments are constructed from carbon fiber composites.

11.2.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Removal and installation of engine cowling is accomplished by releasing the quick-release fasteners at side parting surfaces. Disconnect electrical wiring to landing light in lower cowling (if installed). First remove the upper cowling by disengaging it from the lower cowling at the nose of the cowling, then lift up upper cowling segment. Loosen quick-release fasteners of the lower cowling segment and remove to the front. When installing the cowling, be sure to connect landing light, disconnected during removal.

11.2.2 Cleaning and Inspection

Wipe the inner surfaces of the cowling segments with a cloth saturated with cleaning solvent. If the inside surface of the cowling is coated heavily with oil and dirt, allow solvent to soak until foreign material can be removed. Wash painted surfaces of cowling with a solution of mild soap and water and rinse thoroughly. After washing, a coat of wax applied to painted surface is recommended to prolong paint life. After cleaning, inspect cowling for cracks. Repair all defects to prevent spread of damage.

11.3 Engine, Description

The ROTAX 912 Series engines are 4-stroke, 4 cylinders horizontally opposed, spark ignition engines, featuring one central camshaft with push rods and OHV (overhead valves). Cylinder heads are liquid cooled. Lubrication system is a dry sump forced type. It is equipped with dual breakerless capacitor discharge ignition and two constant velocity carburetors. Prop drive is via reduction gear with integrated shock absorber and overload clutch. Specific engine data are given in the latest ROTAX Manual.

11.3.1 Trouble Shooting

Refer to Rotax 912 UL/S Maintenance Manual, latest issue. This table should be understood as a general guide to locate engine failures.

Trouble	Probable Cause	Remedy
Engine will not start.	Fuel tank empty.	Fill with proper grade of gasoline.
	Improper use of starting procedure.	Review starting procedure.
	Fuel shut-off valve closed.	Set shut-off valve “Open”.
	Tank screen or fuel lines plugged.	Remove and clean thoroughly. Remove moisture.
	Engine flooded.	Refer to paragraph 11.11.2
	Defective ignition system.	Refer to paragraph 11.7.1
	Excessive induction air leaks.	Correct the cause of leaks.
	Defective magneto switch or grounded magneto leads.	Check continuity. Repair or replace switch or wiring.
	Defective carburetor.	Repair or replace carburetor.
	Spark plugs fouled or improperly gapped.	Remove and clean: Check gaps and insulators. Check cables to persistently fouled plugs. Replace defective plugs.
	Defective magnetos or ignition amplifiers.	Replace defective parts in accordance with Rotax maintenance manual.
	Spark plugs loose.	Tighten to specified torque.
	Water in fuel system.	Drain fuel tank sump, fuel lines and carburetors.
	Excessive starter slippage.	Replace starter motor.
Engine will not run at idling speed.	Idle speed incorrectly adjusted.	Refer to paragraph 11.5.2
	Carburetor idling jet plugged.	Clean carburetor.
	Air leak in intake manifold.	Tighten loose connections or replace damaged parts.
	Spark plugs fouled by oil escaping past piston rings.	Top overhaul engine.
Rough idling.	Idle speed incorrectly adjusted.	Refer to paragraph 11.5.2
	Fouled spark plugs.	Remove and clean, adjust gaps. Test harness cables. If persistent perform top overhaul.
	Small air leak into induction system.	Tighten connections or replace damaged parts.
	Defective engine.	Check compression and listen for unusual engine noises. Engine repair is required.
Engine does not accelerate properly.	Cold engine.	Warm up longer.
	Restriction in carburetor air intake.	Remove restriction and clean filter.
	Restriction in carburetor jets, low float level.	Clean and repair carburetor.
	Incorrect carburetor synchronizing.	Synchronize carburetors in accordance to Rotax maintenance manual.
	Incorrect idle setting.	Refer to paragraph 11.5.2
Engine does not shut off with ignition key in off-position.	Broken wiring or defective magneto switch.	Repair wiring or replace magneto switch.

Engine runs rough at high speed.	Loose mounting bolts or rubber pads defective.	Tighten bolts or replace mounting pads.
	Propeller out of balance.	Remove and balance.
	Spark plug gap too large or insulator damaged.	Replace damaged parts.
	Ignition cable insulation damaged.	Test for leakage at high voltage and replace damaged ignition lead.
	Float chamber bleed hoses disconnected or broken.	Connect or replace bleed hoses.
Sluggish operation and low power.	Throttle not opening completely.	Rig per paragraph 11.8.1.1
	Spark plugs fouled or improperly gapped.	Remove, clean and regap or install new plugs.
	Incorrect carburetor synchronizing.	Synchronize carburetors in accordance to Rotax maintenance manual.
	Incorrect carburetor mixture setting.	Adjust carburetors in accordance with Rotax maintenance manual.
High cylinder head temperature.	Low grade fuel.	Drain and fill with correct grade of fuel. Refer to Section 2.
	Excessive carbon deposits in cylinder head and on pistons.	Install new cylinders and piston rings or new engine.
	Low water level in cooling system.	Refill with suitable coolant and check for leaks.
	Dirt between cylinder fins.	Clean thoroughly.
High oil temperature.	Low oil supply.	Replenish.
	Oil viscosity too high.	Refer to Section 2 for seasonal grades.
	Oil regulator flap closed.	Set oil regulator flap to open position.
	Prolonged high speed operation on ground.	Hold ground running above 2500 rpm to a minimum.
Low oil pressure.	Low oil supply.	Replenish.
	Oil viscosity too low.	Drain and refill with correct seasonal grade. Refer to Section 2.
	Foam in oil due to emulsification of alkaline solids.	Drain and refill with fresh oil. Refer to Section 2 for seasonal grade.
	Defective pressure sensor.	Replace pressure sensor.
	Oil pump defective.	Remove and inspect. Examine engine. Metal particles from damaged pump may have entered engine oil passages.
	Oil pressure line broken, disconnected or pinched.	Inspect, replace or connect line.
	Internal leak, burned bearings, or damaged gasket.	Major overhaul.
Oil leak at propeller shaft.	Damaged propeller driveshaft seal.	Replace in accordance with Rotax maintenance manual.
Low compression.	Cylinder wall-coating worn.	Replace cylinder and rings.
	Intake valves guides worn.	Top overhaul.
	Valves seats and faces worn.	Top overhaul.
	Piston rings excessively worn.	Top overhaul.
	Valves sticking in guides.	Top overhaul.

11.3.2 Removal

- **Required Tools:** Standard metric tools, edge cutter, gripper
- **Required Parts:** Insulating tape
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

If the engine is to be placed in storage or returned to the manufacturer for overhaul, proper preparatory steps should be taken prior to beginning the removal procedure. Refer to Temporary Storage in Section 2 for preparation of the engine for storage. The following engine removal procedure is based upon the engine being removed from the aircraft with the engine mount attached to the engine and all engine hose and lines being disconnected at the firewall. The reason for engine removal will determine where components are to be disconnected.

♦ **NOTE**	Tag each item disconnected to aid in identifying wires, hoses, lines and control cables when engine is being installed. Protect openings, exposed as a result of removing or disconnecting units, against entry of foreign material by installing covers or sealing with tape.

a. Place all cabin switches and fuel valves in the OFF position.

b. Remove engine cowlings. (See paragraph 11.1.1)

c. Open battery circuit by disconnecting battery cable(s) at the battery. Insulate cable terminal(s) as a safety precaution.

d. Disconnect all wiring at the terminals on the firewall (located in the REMOS Connector-Box on the left-hand side of the firewall).

e. Disconnect wiring at voltage regulator terminal (located on lower left-hand side of the firewall) and remove cable ties and clamps as required.

f. Disconnect ground wiring from center of firewall.

g. Drain oil from engine (refer to the REMOS GX POH, Section 8).

h. Remove propeller and spinner (see Section 13).

i. Drain water from the engine cooling system by disconnecting one water radiator hose and opening the expansion tank cap.

j. Disconnect hose connection to overflow bottle at upper right side of the firewall.

k. Disconnect throttle and choke control at carburetor and oil-temperature control from regulation flap assembly at oil cooler. Pull these controls free of engine and engine mount, using care not to damage them by bending too sharply.

l. Disconnect carburetor heat control from arm on carburetor heat air intake housing assembly. Remove cable ties and pull control aft clear of the engine and disconnect cabin heat hose from heater shell at exhaust system.

m. Disconnect oil hoses from oil tank (located on the right-hand side of the firewall.

n. Disconnect fuel-, fuel-return- and fuel pressure (if installed) hose from firewall.

o. Attach a hoist to the inlet manifolds on top of the engine and take up engine weight on hoist.

p. Remove bolts attaching mount-to-firewall. Note direction of bolt installation and position and numbers of washers. Balance the engine by hand as the last of the bolts are removed.

q. Disengage exhaust retaining springs and remove exhaust system.

r. Remove exhaust downpipes from cylinder head (mark each downpipe location for reinstallation.

s. Unscrew engine-to-mount screws and remove engine mount.

t. Carefully guide disconnected components out of engine assembly.

♦ NOTE	During the following procedures, remove any clamps or cable ties which secure controls, wires, hose, or lines to the engine, engine mount, or attached brackets, so that they will not interfere with removal of the engine. Omit any of the items which are not present on a particular engine installation.

▲ WARNING	Residual fuel and oil draining from disconnected lines and hose is a fire hazard. Use care to prevent accumulation of such fuel and oil when lines or hose are disconnected.

▉ CAUTION	Attach a tail stand to the tail before removing the engine. The loss of engine weight will allow the tail to drop. Do not raise engine higher than necessary when removing mount-to-firewall bolts. Raising the engine too high places a strain on the attach bolts and hinders their removal.

▉ CAUTION	Hoist engine slowly and ascertain that all items attaching engine and accessories to airframe are disconnected.

11.3.3 Cleaning

The engine may be cleaned with a suitable solvent, then dried thoroughly.

▉ CAUTION	Particular care should be given to electrical equipment before cleaning. Solvent should not be allowed to enter magnetos, starter, alternator and the like. Hence, protect these components before saturating the engine with solvent. Cover any fuel, oil and air openings on the engine and accessories before washing the engine with solvent. Caustic cleaning solutions should be used cautiously and should always be properly neutralized after their use.

11.3.4 Accessories Removal

Removal of engine accessories for overhaul or for engine replacement involves stripping the engine of parts, accessories, and components to reduce the engine assembly to the bare engine. During removal, carefully examine removed items and tag defective parts for repair or replacement by a new part.

♦ **NOTE**	Items easily confused with similar items should be tagged to provide a means of identification when being installed on a new engine. All openings exposed by the removal of an item should be closed by installing a suitable cover or cap over the opening. This will prevent entry of foreign particles. If suitable covers are not available, tape may be used to cover the opening.

11.3.5 Inspection

For specific items to be inspected refer to engine manufacturer's manual.

a. Visually inspect the engine for loose nuts, bolts, cracks and fin damage.

b. Inspect brackets for cracks, deterioration and breakage.

c. Inspect all hoses for internal swelling, chafing through protective plies, cuts, breaks, stiffness, damaged threads and loose connections. Excessive heat on hoses will cause them to become brittle and easily broken. Hoses and lines are most likely to crack or break near the end fittings and support points.

d. Inspect for color bleaching of the end fittings or severe discoloration of the hoses.

e. All flexible fluid carrying hoses in the engine compartment should be replaced at engine overhaul or every five years, whichever occurs first.

f. For major engine repairs, refer to the manufacturer's overhaul and repair manual.

♦ **NOTE**	Avoid excessive flexing and sharp bends when examining hoses for stiffness.

11.3.6 Engine Build-Up

Engine build-up consists of installation of parts, accessories and components to the basic engine to build-up an engine unit ready for installation on the aircraft. All safety wire, lockwashers, pal nuts, elastic stop nuts, gaskets and rubber connections should be new parts.

11.3.7 Installation (refer to figure 11-1)

- **Required Tools:** Standard metric tools
- **Required Parts:** On condition
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Before installing the engine on the aircraft, install any items that were removed from the engine after it was removed from the aircraft.

♦ **NOTE**	Remove all protective covers, plugs, caps and identification tags as each item is connected or installed.

a. Hoist engine assembly at the inlet manifold on top of the engine.

b. Install new shock mounts to the engine mount (refer to figure 11-1.)

c. Place engine mount to the engine brackets and tighten engine-to-mount bolts to a torque value of 40 Nm/350 in.lb. Secure screws by wire, refer to figure 11-1 for installation details.

d. Install exhaust downpipes and exhaust system, do not tighten retaining screws at that time.

e. Move complete assembly to firewall and align screw holes of the engine mount-to-firewall.

f. Install engine-to-firewall screws and tighten to a torque value of 40Nm/350 in.lb.

g. Remove hoist and stand placed under the tail.

h. Connect carburetor heat control to arm on carburetor heat air intake housing assembly and secure by cable tie to air intake hose.

i. Connect oil temperature control to oil regulator flap assembly and secure by cable tie to air intake hose (if fitted).

j. Route throttle and mixture controls to the carburetor and connect as noted in step “k” of paragraph 11.2.3.

k. Connect lines and hoses as follows:

    1) Fuel- and fuel-return hose at firewall

    2) Fuel pressure hose at firewall (if fitted)

    3) Oil hoses to oil tank

    4) Cooling fluid hose from overflow bottle to expansion tank

    5) Cabin heat hose to heater shell on exhaust system

    6) Install all clamps attaching lines and hoses to engine, engine mount or attached brackets

l. Connect wires and cables as follows:

    1) Ground wiring to firewall

    2) Wiring to voltage regulator at firewall

    3) Engine wiring to terminal at Remos Connector-Box on firewall

m. Install all clamps attaching wires and cables to engine, engine mount or attached brackets

n. Install propeller and spinner (refer to Section 13).

o. Make sure that routing of exhaust pipes does not interfere with surrounding components and tighten retaining screws on cylinder heads to a maximum torque value of 26 Nm/230 in.lb.

p. Service engine with proper grade and quantity of engine oil. Refer to engine manufacturers manual or the REMOS GX Pilot Operating Handbook.

q. Make sure all switches are in the OFF position, and connect battery cable(s) to battery.

r. Rig throttle, choke and carburetor heat controls in accordance with paragraph 11.8.1 through 11.8.1.4.

s. Check engine installation for security, correct routing of controls, lines, hoses and tightness of all components.

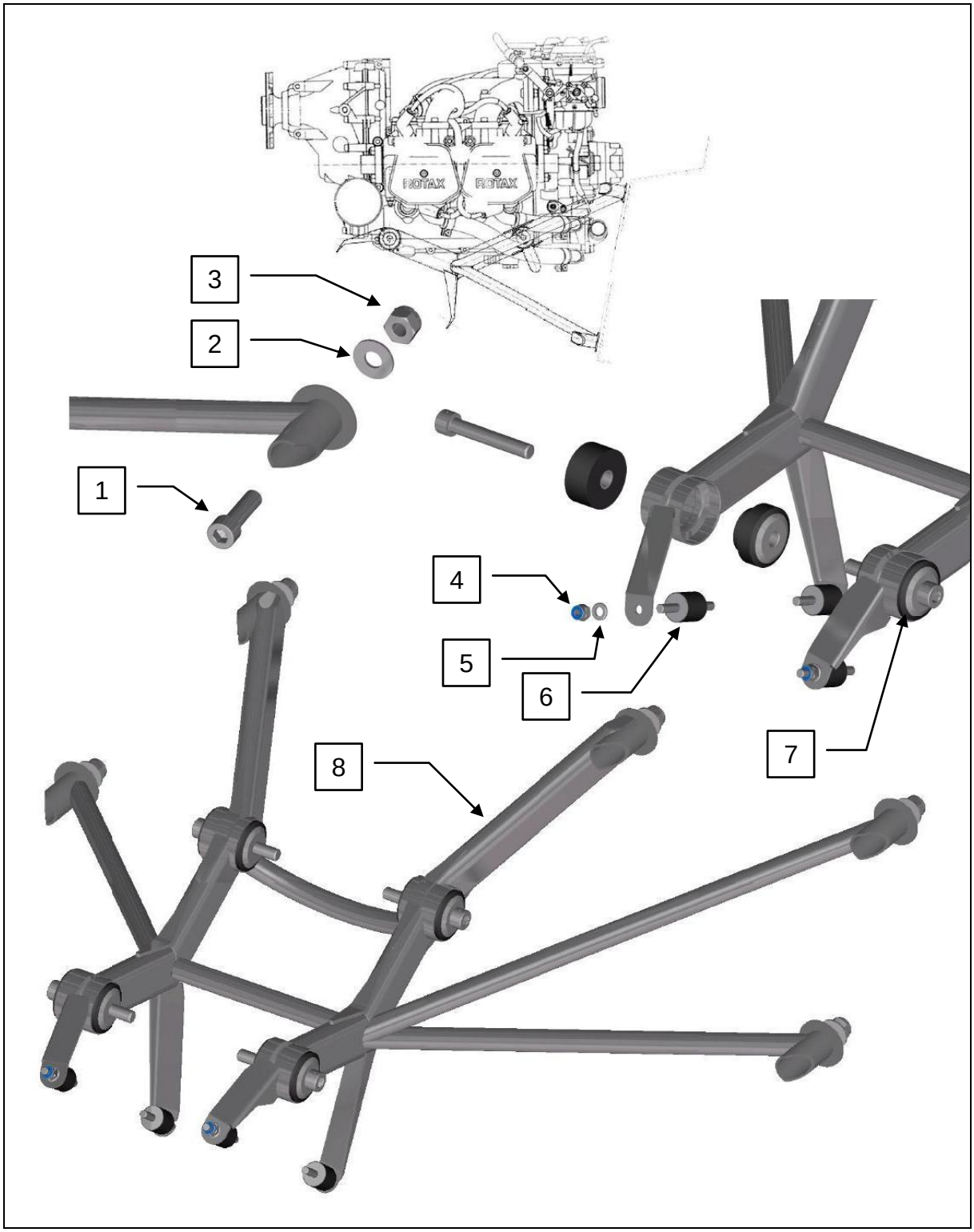
t. Bleed engine oil system in accordance with engine manufacturer maintenance manual.

u. Clean and install carburetor air filter. Be sure all hot and cold air ducts are installed and connected.

v. Perform engine run-up and make final adjustments on engine controls.

w. Install engine cowling.

Figure 11-1



11.3.8 Flexible Fluid Hoses

11.3.8.1 Leak Test

After each 100 hours of engine operation, all flexible fluid hoses in the engine compartment should be checked for leaks as follows:

a. Examine the exterior of hoses for evidence of leakage or wetness.

b. Hoses found leaking should be replaced.

c. Refer to paragraph 11.2.6 for detailed inspection procedures for flexible hoses.

11.3.8.2 Replacement

a. Hoses should not be twisted on installation. Pressure applied to a twisted hose may cause failure or loosening of the nut.

b. Provide as large a bend radius as possible.

c. Hoses should have a minimum of one-half inch clearance from other lines, ducts, hoses or surrounding objects or be butterfly clamped to them.

d. Rubber hoses will take a permanent set during extended use in service.

e. Straightening a hose with a bend having a permanent set will result in hose cracking. Care should be taken during removal so that hose is not bent excessively, and during reinstallation to assure hose is returned to its original position.

11.3.9 Static Run-Up Procedure

In a case of suspected low engine power, a static RPM run-up should be conducted as follows:

a. Run-up engine, using take-off power, with the aircraft facing 90° right and then left to the wind direction.

b. Record the RPM obtained in each run-up position.

c. Average the result of the RPM obtained. At all models it should be within 100 RPM of 5000 RPM.

d. If the average results of the RPM obtained are lower than stated above, the following recommended checks may be performed to determine a possible deficiency:

   1) Check carburetor heat control for proper rigging. If partially open it would cause a slight power loss.

   2) Check choke control for proper rigging.

   3) Check spark plugs and ignition harness for settings and conditions.

   4) Check both magnetos are working properly.

   5) Check condition of induction air filter. Clean if necessary.

   6) Perform an engine compression check. (Refer to engine Manufacturer's Manual.)

♦ **NOTE**	Daily changes in atmospheric pressure, temperature and humidity will have a slight effect on static run-up.

11.4 Engine Mount, Description (refer to figure 11-1.)

The engine mount is composed of sections of tubing welded together and reinforced with welded gussets. The purpose of the engine mount is to support the engine and attach the engine to the airframe. The engine is attached to the mount with shock-mount assemblies which absorb engine vibrations.

11.4.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Safetying wire (1.0 mm)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

Removal of the engine mount necessitates removal of the engine, followed by removal of the bolts attaching the engine-to-mount. The engine and engine mount may be removed from the aircraft and then engine removed from the mount. Refer to paragraph 11.2.8 for detailed information.

11.4.2 Repair

Perform engine mount repair as outlined in Section 18. The mount should be painted with heat-resistant grey enamel after welding or whenever original finish has been removed.

11.4.3 Shock-Mount Pads

The rubber shock-mounts are designed to reduce transmission of engine vibrations to the airframe. The rubber parts should be wiped with a clean dry cloth. Inspect rubber parts for swelling, cracking, or pronounced set of the part. Replace with new parts all parts that show evidence of wear or damage.

11.5 Engine Oil System, Description

The Rotax 912 Series engine is provided with a dry sump forced lubrication system with a main oil pump with integrated pressure regulator and oil pressure sensor. The oil pump is driven by the camshaft. The oil pump sucks the motor oil from the oil tank via the oil cooler and forces it through the oil filter to the points of lubrication in the engine. The surplus oil emerging from the points of lubrication accumulates on the bottom of crankcase and is forced back to the oil tank by the blow-by gases. A vent line on the oil tank provides venting of the circuit. An oil temperature sensor for reading of the oil inlet temperature is located on the oil pump housing. Refer also to the latest engine Operators Manual for detailed information.

11.5.1 Trouble Shooting

The following listing should be understood as quick reference guide to locate particular trouble which may occur to the engine oil system. For detailed information refer to the latest engine manufacturers Maintenance Manual.

Trouble	Probable Cause	Remedy
No oil pressure.	No oil in system.	Fill system with proper grade and quantity of oil. Refer to Section 1.
	Oil pressure line broken, disconnected or pinched.	Replace or connect.
	Defective oil pressure sensor.	Replace oil pressure sensor.
	Wiring of oil pressure sensor broken or disconnected.	Connect or repair wiring.
	Oil pump defective.	Remove and inspect in accordance with the Rotax Maintenance Manual.
Low oil pressure.	Defective oil pressure sensor.	Replace oil pressure sensor.
	Defective oil pressure gauge.	Replace or repair Rotax Flydat.
	Low viscosity oil.	Drain oil and refill with proper grade and quantity of oil.
	Oil pump defective.	Remove and inspect in accordance with the Rotax Maintenance Manual.
	Oil pump suction tube screen plugged or internal oil leak.	Engine overhaul required.
	Secondary result of high oil temperature.	Observe oil temperature gauge for high indication. Determine and correct reason for high oil temperature.
	Oil system not bled correctly.	Bleed oil system in accordance with Rotax Maintenance Manual.
	Oil filter element not tight.	Tighten oil filter in accordance with Rotax Operators Manual.
High oil pressure.	Defective oil pressure sensor.	Replace oil pressure sensor.
	Defective oil pressure gauge.	Replace or repair Rotax Flydat.
	High viscosity oil.	Drain oil and refill with proper grade and quantity of oil
Low oil temperature.	Defective oil temperature sensor.	Replace oil temperature sensor.
	Defective oil temperature gauge.	Replace or Repair Rotax Flydat.
High oil temperature.	Excessive rate of climb.	Avoid low airspeed.
	Closed oil cooler flap.	Move flap to "open" position.
	Defective oil temperature sensor.	Replace oil temperature sensor.
	Defective oil temperature gauge.	Replace or Repair Rotax Flydat.
	Low oil supply.	Refer to Rotax Maintenance Manual.
	Oil viscosity too high. Dirty oil.	Drain oil and refill with proper grade and quantity of oil.
	Prolonged high speed operation on the ground.	Hold ground running above 2500 rpm to a minimum.

11.5.2 Filter Element Removal and Installation

- **Required Tools:** Standard metric tools, edge cutter
- **Required Parts:** Cable ties
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove engine cowling as necessary for access.

b. Unscrew oil filter from oil pump at the front of the engine. Oil will drain from oil filter as it is removed from engine.

c. Inspect engine gasket seat for gouges, deep scratches, wrench marks, and mutilation.

d. Lubricate gasket of the new filter and screw to engine, do not overtighten filter element.

e. Install parts removed for access, and service the engine with proper grade and quantity of engine oil.

f. Start engine and check for proper oil pressure. Check for oil leaks after warming up engine.

g. Again check for oil leakage after engine has been run at a high power setting (preferably a flight around the field).

♦ **NOTE**	Before discarding removed filter element, cut the outer skin and check inside for evidence of internal engine damage such as chips or particles from bearings. In new or newly overhauled engines, some small particles or metallic shavings might be found, these are generally of no consequence and should not be confused with particles produced by impacting, abrasion, or pressure. Evidence of internal engine damage found in the oil filter element justifies further examination to determine the cause.

♦ **NOTE**	When installing a new filter element, it is important that the gasket is clean, lubricated and positioned properly, and that the correct amount of torque is applied to the filter. If the filter is under-torqued, oil leakage will occur. If the filter is over-torqued, the filter can possibly be deformed, again causing oil leakage.

Lubricate rubber gasket of new filter element with clean engine oil. A dry gasket can cause a false torque value, again resulting in oil leakage.

11.6 Engine Fuel System, Description

The engine is equipped with two carburetors mounted at the upper side of the engine. The carburetors are of the constant velocity type, installed to each manifold of the engine. For overhaul and repair of the carburetors refer to the manufacturer´s maintenance and repair manual.

11.6.1 Carburetor Removal and Installation

- **Parts required:** Standard metric tools
- **Required Parts:** Self-locking nut (M6), cable ties, lock screws
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Place fuel shut-off valve in the OFF position.

b. Remove engine cowling.

c. Disconnect flexible hose from intake airbox.

d. Remove manifold temperature sensor from top of the airbox.

e. Disconnect throttle and choke controls from arms on carburetor. Note EXACT position and size of bushings for reference on reinstallation.

f. Disconnect and plug the fuel and air lines at carburetors.

g. Remove screws and clamps that attach the airbox to carburetors and engine bracket and remove airbox.

h. Loosen bolts and clamps attaching carburetor to intake manifold. Remove carburetors.

i. Reverse the preceding steps for reinstallation.

j. Rig controls in accordance with applicable paragraph in this Section.

k. Check carburetor throttle arm to idle stop arm attachment for security and proper safetying at each normal engine inspection.

11.6.2 Idle Speed Adjustment

- **Parts required:** Standard metric tools
- **Required Parts:** Lock screw
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Set the throttle stop screws to obtain between 1700 and 1800 rpm, with throttle control pulled full out against idle stop.

b. Check that both idle stop screws contact its idle stop brackets at the same time and readjust if necessary.

c. Apply lacquer to each idle stop screw to secure proper locking.

♦ **NOTE**	Idle speed adjustment should be accomplished after the engine has been warmed up. Engine idle speed may vary among different engines. An engine should idle smoothly, without excessive vibration, and the idle speed should be high enough to maintain idling oil pressure and to preclude any possibility of engine stoppage in flight when the throttle is closed.

11.6.3 Carburetor Synchronizing

Synchronizing the carburetors is essential to achieve a smooth engine operation, free from vibrations. Refer to Rotax maintenance manual for advisory about correct synchronization of carburetors.

11.7 Induction Air System, Description

Ram air to the engine enters the induction airbox through an opening in the forward part of the upper engine cowling nose. The air is filtered through a filter which is located at the inlet of the airbox. From the induction airbox the filtered air is directed to the inlet of each carburetor, mounted on the upper side of the engine, and through the carburetor, where fuel is mixed with the air, to the intake manifold. From the intake manifold, the fuel-air mixture is distributed to each cylinder by separate intake pipes. The intake pipes are attached to the cylinders with a two bolt flange which is sealed with a gasket. A distributor box on the air intake contains a valve, operated by a carburetor heat control in the cabin, which permits air from an exhaust heated source to be selected in the event carburetor icing or filter icing should be encountered.

11.7.1 Removal and Installation

Remove and install induction airbox system as outlined in paragraph 11.5.1.

11.8 Ignition System, Description

The Rotax 912 Series engines are equipped with a dual ignition unit of a breakerless, capacitor discharge design, with an integrated generator. The ignition unit is completely free of maintenance and needs no external power supply. Two independent charging coils located on the generator stator supply one ignition circuit each. The energy is stored in capacitors of the electronic modules. At the moment of ignition 2 each of the 4 external trigger coils actuate the discharge of the capacitors via the primary circuit of the dual ignition coils.

♦ **NOTE**	The 5th trigger coil is used for revolution counter signal.

11.8.1 Magneto Removal and Installation

Magnetos are located at the back side of the engine, and to replace them it is necessary to remove the induction airbox first (refer to paragraph 11.5.1). After removing the protection cover on the engine back, access to the magnetos is enabled. Replace Magnetos in accordance to the engine manufacturer's maintenance manual. Install all items removed for access to the magnetos again.

11.8.2 Magneto Check

Because the whole ignition system is designed to need no servicing, it is not possible to adjust timing of the ignition system. Therefore checking proper operation of the system is reduced to the drop in engine speed at specified rpm using each magneto separately.

a. Start and run engine until the oil and cylinder head temperatures are in the normal operating ranges.
b. Advance engine speed to 4000 rpm.
c. Turn the ignition switch to the “R” position and note the rpm drop, then return the switch to the “BOTH” position to clear the opposite set of plugs.
d. Turn the switch to the “L” position and note the rpm drop, then return the switch to the “BOTH” position.
e. The rpm drop should not exceed 300 rpm on either magneto.

For more detailed information refer to the engine manufacturer´s maintenance manual.

11.8.3 Spark Plugs

Two spark plugs are installed in each cylinder. The spark plugs are shielded to prevent spark plug noise in the radio and the spark plugs have an internal resistor to provide longer terminal life. Spark plug life will vary with operating conditions. A spark plug that is kept clean and properly gapped will give better and longer service than one that is allowed to collect lead deposits and is improperly gapped. The correct spark plug and gap setting is given in the latest ROTAX Maintenance Manual.

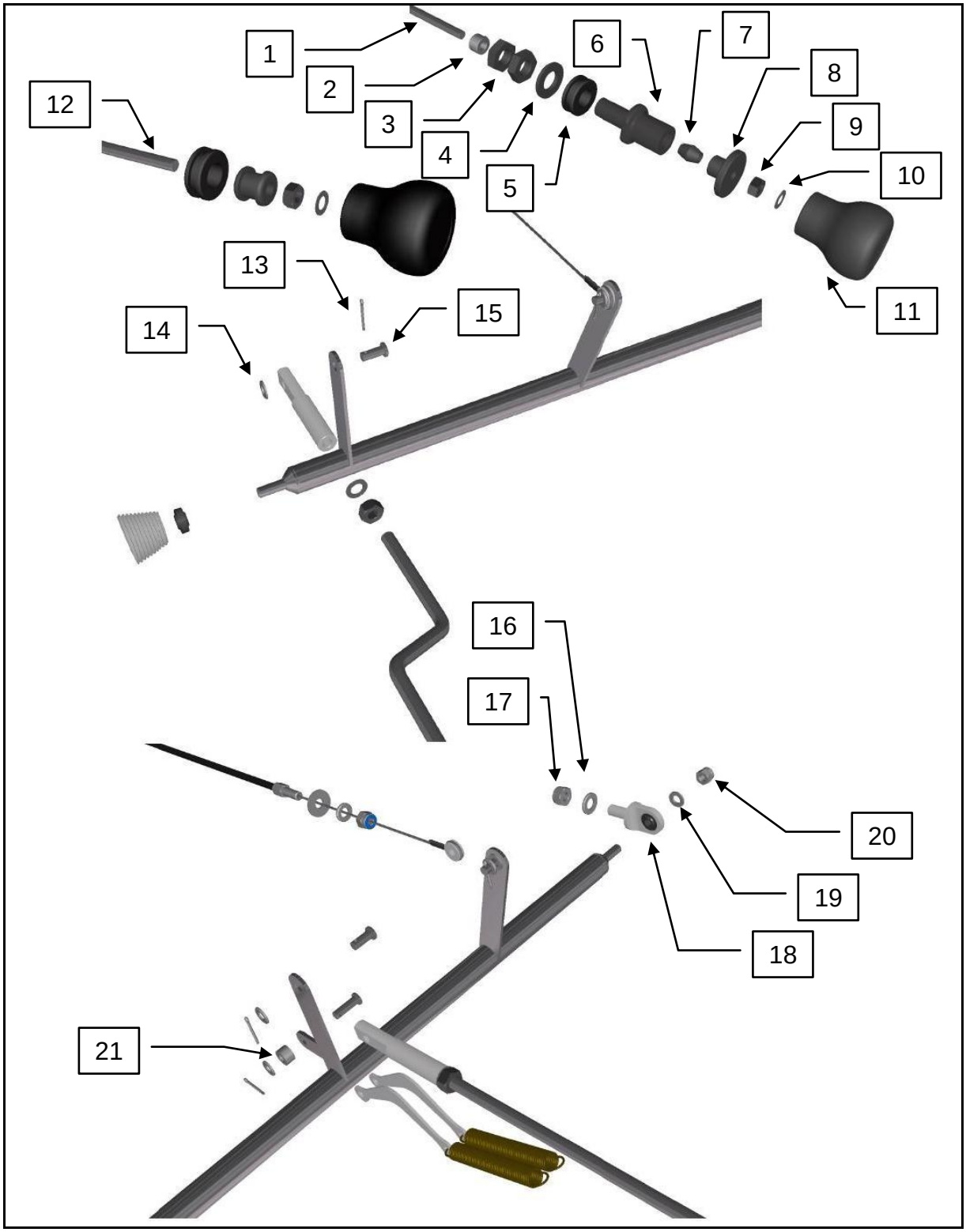
♦ **NOTE**	At each 100-hour inspection, remove, clean, inspect, and regap all spark plugs. Install lower spark plugs in upper portion of cylinder and install upper spark plugs in lower portion of cylinder at each 100-hour inspection. Since deterioration of lower spark plugs is usually more rapid than of the upper spark plugs, rotating them helps prolong spark plug life.

11.9 Engine Controls, Description

Engine controls of the push-pull type include the throttle, choke, oil temperature regulator and carburetor heat controls. The engine controls are equipped with position-locking devices which prevent vibration-induced “creeping” of the controls.

Figure 11-2

Figure 11-3



11.9.1 Rigging

When adjusting any engine control, it is important to check that the control slides smoothly throughout its full range of travel, that it locks securely if equipped with a locking device, and the arm or lever which it operates moves through its full arc of travel.

▌CAUTION	Whenever engine controls are being disconnected, pay particular attention to the exact position, size, and number of attaching washers, spacers or bushings. Be sure to install attaching parts as noted when connecting controls.

11.9.1.1 Throttle Control

- **Required Tools:** Standard metric tools
- **Required Parts:** Lock screw
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Push throttle to full throttle position and check that both actuator arms on carburetor achieve maximum position.

b. Adjust locknut at carburetor end of control as required to achieve the maximum travel of each actuator lever.

c. Pull throttle control to idle position.

d. Check that both idle stop screws contact its idle lock and adjust if required.

e. Check idle speed in accordance with paragraph 11.5.2.

f. Check carburetor synchronizing in accordance with paragraph 11.5.3.

g. Tighten rod end locknuts at carburetor end of control. Be sure to maintain sufficient thread engagement between rod end and control.

♦ NOTE	Before rigging throttle control ensure that control cables are in proper condition.

♦ NOTE	Refer to the inspection chart in Section 2 for inspection and / or replacement interval for the throttle control.

11.9.1.2 Choke Control

a. Push choke control to off-position.

b. Check cable tension for proper setting on carburetor end of control, adjust if required (choke arms on each carburetor must touch to its locks in the off-position).

c. Pull choke control to on-position.

d. Check that both arms on carburetor achieve their maximum travel at the same time. If required readjust controls at the locknut on carburetor arm.

e. Tighten rod end locknuts at carburetor end of control. Be sure to maintain sufficient thread engagement between rod end and control.

♦ **NOTE**	Before rigging choke control ensure that control cables are in proper condition.

♦ **NOTE**	Refer to the inspection chart in Section 2 for inspection and / or replacement interval for the choke control.

11.9.1.3 Carburetor Heat Control

a. Insert a new control wire to the carburetor heat conduit.

b. Push the carburetor heat control full in, then pull it out approximately 1/8 inch from panel for cushion.

c. Bend and engage end of control wire at carburetor heat lever, to fix the full open position of the air intake control flap.

♦ **NOTE**	Rigging the carburetor heat control is only possible, if a new control is installed to the aircraft. To replace, cut off the control wire at the carburetor heat housing end and pull out the control knob with the attached control wire from its cover tube.

♦ **NOTE**	Minor adjustments could be done, by loosening the conduit fixing at the carburetor heat housing bracket. Cable ties and a shrink hose is used to reconnect. Refer to the inspection chart in Section 2 for inspection and / or replacement interval for the choke control.

11.9.1.4 Oil Temperature Regulator Control

a. Loosen clamp securing the control to the bracket on the flap assembly.

b. Push control full in, then pull it out approximately 1/8 inch from panel for cushion.

c. Shift the control conduit in its clamp so that flap will come to its most downward position and fix the clamp.

d. Adjust friction of the flap at its hinge bolt to achieve binding-free operation.

♦ **NOTE**	Before rigging oil temperature regulator control ensure that control cable is in proper condition.

♦ **NOTE**	Refer to the inspection chart in Section 2 for inspection and / or replacement interval for the choke control.

11.10 Starting System, Description

The automatically engaged starting system employs an electric starter motor mounted at the rear of the engine housing. A starter solenoid is activated by the ignition key on the instrument panel. When the solenoid is activated, its contacts close and electrical current energizes the starter motor.

11.10.1 Trouble Shooting

Trouble	Probable Cause	Remedy
Starter will not operate.	Defective master switch or circuit.	Install new switch or wires.
	Defective starter switch or switch circuit.	Install new switch or wires.
	Defective starter motor.	Remove, repair or install new starter motor.
Starter motor runs, but does not turn crankshaft.	Starter motor shaft broken.	Install a new starter motor.
Starter motor drags.	Low battery.	Charge or install a new battery.
	Starter switch or relay contacts burned or dirty.	Install serviceable unit.
	Defective starter motor power cable.	Install new cable.
	Loose or dirty connections.	Remove, clean and tighten all terminal connections.
	Defective starter motor.	Repair or install a new starter motor.

11.10.2 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Insulating tape
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove cowling as required for access.

b. Disconnect starter power cable at starter. Insulate terminal on power cable to prevent accidental shorting.

c. Remove bolts, attaching starter to crankcase.

d. Withdraw starter motor from engine housing.

e. Reverse preceding steps for reinstallation.

f. Torque starter motor retaining bolts to a torque value in accordance to the engine manufacturer´s maintenance manual.

11.11 Exhaust System, Description

The exhaust system consists of a muffler with an exhaust pipe from each cylinder to the muffler. The muffler assemblies are enclosed in shrouds which captures ram air to be heated by the exhaust gases in the muffler. This heated air is used to heat the aircraft cabin. A tail pipe from the muffler routes exhaust gases overboard through the lower cowling. The complete exhaust system is manufactured from stainless steel. Refer to figure 11-5 as a general overview of the exhaust system assemblies.

11.11.1 Removal

- **Required Tools:** Standard metric tools
- **Required Parts:** Heat resistant silicone
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove engine cowling as required for access.

b. Disconnect flexible hose from heater shell on muffler assembly.

c. Disengage retaining springs from muffler and remove muffler.

d. Remove nuts securing the downpipes to the cylinders.

e. Carefully remove downpipes and unscrew exhaust probes from each of the downpipes.

11.11.2 Inspection

Inspection of the exhaust system must be very thorough because the cabin heating system uses air heated by the heat exchangers of the exhaust system. Since exhaust system of this type are subject to burning, cracking, and general deterioration from alternate thermal stresses and vibration, inspection is very important and should be accomplished every 100-hour of operation. In addition, an inspection of the exhaust system shall be performed anytime exhaust fumes are detected in the cabin area.

a. Remove engine cowling, and remove muffler and heater shell so that ALL surfaces of the exhaust system can be visually inspected. Especially check areas adjacent to welds. Look for exhaust gas deposits in surrounding areas, indicating that exhaust gas is escaping through a crack or hole.

b. For a more thorough inspection, or if fumes have been detected in the cabin, the following inspection is recommended.

    1) Remove exhaust pipe and mufflers

    2) Use rubber expansion plugs to seal openings

    3) Using a manometer or gauge, apply approximately 1-1/2 psi air pressure while the mufflers and each exhaust pipe are submerged in water. All leaks will appear as bubbles and can be readily detected.

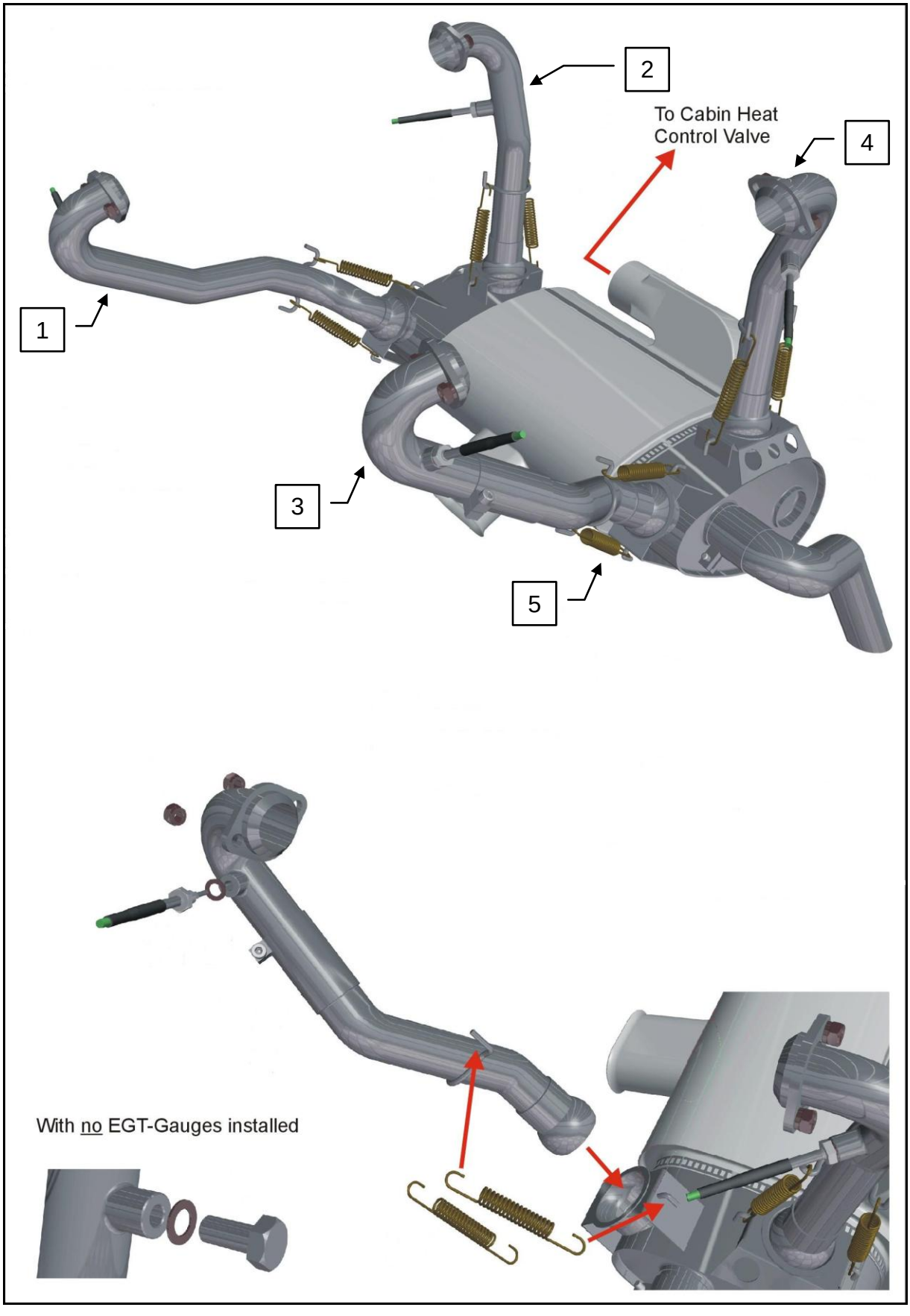
c. It is recommended that any exhaust pipe or muffler found defective be replaced with a new part before the next flight.

11.11.3 Installation

Reverse procedure outlined in paragraph 11.10.1 to install exhaust system. Apply high-temperature copper grease to each connection of the exhaust system.

♦ **NOTE**	Figure 11-4 shows exhaust silencer with 4 EGT probes with screwed inserts. If aircraft is equipped with DYNON Avionics there are only 2 EGT probes fixed with hose clamps.

Figure 11-4


2
To Cabin Heat
Control Valve
4
1
3
5
With no EGT-Gauges installed

11.12 Extreme Weather Maintenance

11.12.1 Cold Weather

Generally, an engine service should be carried out before the start of the cold season. For selection of coolant and mixing ratio refer to the Rotax operator manual. For selection of oil refer to Section 1.

Start engine with throttle closed and choke activated (open throttle renders starting carburetor ineffective). As performance of electric starter is greatly reduced when cold, limit starting to periods not longer than 10 seconds and with a well charged battery (adding a second battery will not improve cold starts).

11.12.2 Hot Weather

Engine misfire characterized by weak, intermittent explosions followed by puffs of black smoke from the exhaust are caused by flooding. This situation is more apt to develop in hot weather or when the engine is hot. If it occurs, repeat the starting routine with the throttle full OPEN. As the engine fires, decrease the throttle setting to desired idling speed.

CAUTION	Never operate the starting motor more that 10 seconds at a time. Allow starter motor to cool between cranking periods to avoid shortening the life of the starter.

11.12.3 Dusty Conditions

Dust inducted into the intake system of the engine is probably the greatest single cause of early engine wear. When operating under high dust conditions, the induction air filter should be serviced daily as outlined in paragraph 2.2.4.

11.12.4 Seacoast and Humid Areas

In salt water areas, special care should be taken to keep the engine and accessories clean to prevent oxidation. In humid areas, fuel and oil should be checked frequently and drained of condensed moisture.

11.13 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
11-1	1	101722		5	Cylinder Head Screw M10x35 vz DIN912 10.9	All
	2	102092		5	Washer M10 ISO7090-200HV-A2K	All
	3	100226		5	Selflocking Nut M10 DIN 985	All
	4	100221		4	Selflocking Nut M6 DIN 985	All
	5	100231		4	Washer M6 vz	All
	6	100875		4	Rubber Buffer cylindric 20x20 - M6x15	All
	7	100390	G3-8_EN-20-00-01	4	Engine Mount Rubber Parts Assembly	All
	8	100680	G3-8_EN-10-00-01	1	Engine Mounting	All
11-3	1	100457	G3-8_FU-12-01-07	1	Throttle Rod Main	All
	2	103159		1	Adjusting Ring DIN 705A	All
	3	100437		2	Fuselage Throttle Rod Nut M12x1,5	All
	4	101966		1	Washer M12 DIN125 Plastic PA6	All
	5	100972		1	Cable Bushing 12x20x24	All
	6	100716	G3-8_FU-12-01-10	1	Throttle Rod Lever Bearing	All
	7	100460	G3-8_FU-12-01-11	1	Throttle Rod Clamping Sleeve	All
	8	100459	G3-8_FU-12-01-12	1	Throttle Rod Locking Screw	All
	9	100222		1	Hexagon Nut M6 DIN934	All
	10	100268		1	Toothed Lock Washer M6 DIN6797 Form A	All
	11	100458	G3-8_FU-12-01-13	1	Throttle Lever	All
	12	100717	G3-8_FU-12-01-08	1	Throttle Rod Second	-
	13	100284		1	Splint 1,6x12 DIN94 Steel vz	All
	14	100232		1	Washer M5 DIN125 FormA Steel vz	All
	15	100711	G3-8_FU-12-01-05	1	Throttle Controls Bolt	All
	16	100239		1	Washer M8 DIN126 Steel vz	All
	17	100224		1	Selflocking Nut M8 DIN985 vz	All
	18	100703	G3-8_REP-40-00-00	1	Swivel Bracket 16mm	All
	19	100231		1	Washer M6 DIN125 FormA Steel vz	All
	20	100221		1	Selflocking Nut M6 DIN985 vz	All
	21	101863		1	Distanzhülse Metall 5,3x6	All
11-4	1	103548	G3-8 EN-90-01-04	1	Exhaust manifold front right	All
	2	103549	G3-8 EN-90-01-01	1	Exhaust manifold rear right	All
	3	100894	G3-8 EN-90-00-01	1	Exhaust manifold front left	All
	4	103547	G3-8 EN-90-01-00	1	Exhaust manifold rear left	All
	5	100893		8	Extension Spring Exhaust System	All

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Section 12

Fuel System

Table of Contents **Section**

12.1 Fuel System Description

The fuel flows from the tank via a coarse filter, a fine filter through the electric fuel pump to the fuel shut-off valve. From there it is routed via the mechanical fuel pump to the fuel distributor and passes on to both carburetors. Via a return line, surplus fuel flows back to the fuel tank. An additional line is routed from the distributor block to the fuel pressure gauge inside the cabin. The return line provides a compensating jet to ensure required fuel pressure, which is fitted at the connection return line-to-distributor.

An advanced layout may be installed, containing a fuel flow sensor and a fuel pressure sensor to provide information for a multifunctional display. Refer to figure 12-1 as a general overview.

12.1.1 Precautions

♦ **NOTE**	There are certain general precautions and rules concerning the fuel system which should be observed when performing the operations and procedures in this section.

These are as follows:

a. During all fueling, defueling, tank purging, and tank repairing or disassembly, ground the aircraft to a suitable ground stake. Use the engine or negative battery terminal grounding.

b. Residual fuel draining from lines and hose constitutes a fire hazard. Use caution to prevent the accumulation of fuel when lines or hoses are disconnected.

c. Cap open lines and cover connections to prevent thread damage and the entrance of foreign matter.

12.1.2 Trouble Shooting

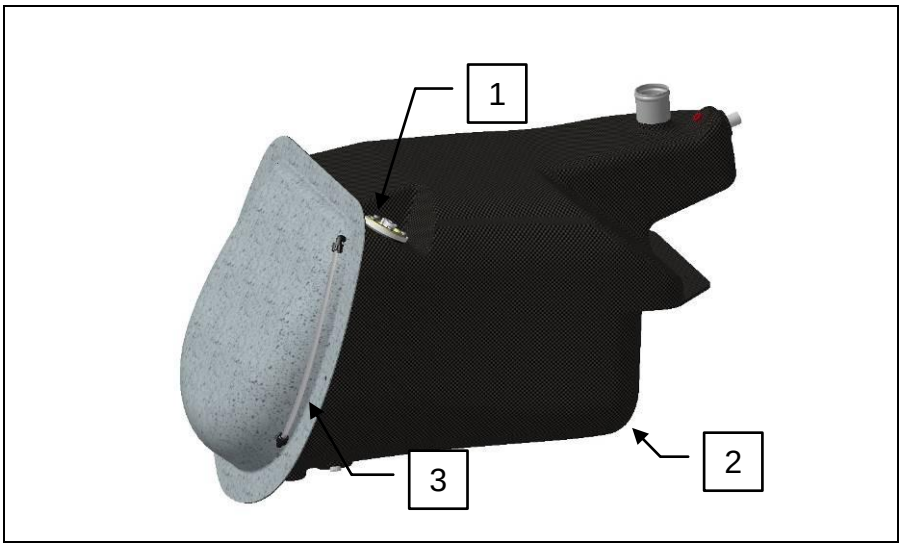
Trouble	Probable Cause	Remedy
No fuel to Carburetor.	Fuel shut-off valve not turned on.	Turn valve on.
	Fuel tanks empty.	Service with proper grade and amount of fuel.
	Fuel line disconnected or broken.	Connect or repair fuel lines.
	Fuel tank outlet screen plugged.	Drain fuel, remove outlet screen and clean thoroughly.
	Fuel filter plugged.	Replace fuel filter.
	Defective shut-off valve.	Replace shut-off valve.
	Fuel line plugged.	Clean out or replace fuel line.
No fuel to Carburetor.	Defective mechanical fuel pump.	Replace fuel pump.
Fuel starvation after starting.	Partial fuel flow from the preceding causes.	Use the preceding remedies.
	Plugged fuel vent.	See paragraph 12.1.7.1.
	Water in fuel.	Drain fuel tank sumps, fuel lines and carburetors.
No fuel quantity indication.	Fuel tanks empty.	Service with proper grade and amount of fuel.
	Blown fuse / circuit breaker.	Replace fuse / reset circuit breaker.
	Loose connection or open circuit.	Tighten connections, repair or replace wiring.
	Defective fuel quantity indicator or transmitter.	Refer to Section 15.
Fuel overflow from carburetor.	Binding float valve or dirt in floater chamber.	Clean and repair carburetor.
	Plugged fuel distributor or fuel return line jet.	Clean fuel distributor thoroughly.
Pressurized fuel tank.	Plugged fuel vent.	See paragraph 12.1.7.1.

Figure 12-1

12.1.3Fuel Tank Description

A rigid carbon fiber tank is installed behind the right side of the cabin bulkhead inside the fuselage. A fuel tank sump drain valve is provided for draining trapped water and sediment.

Figure 12-2



12.1.3.1 Removal and Installation (refer to figure 12-3)

- **Required Tools:** Standard metric tools, pliers
- **Required Parts:** Fuel resistant sealant fluid, safetying wire (0.8 mm)
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Push up sump drain valve and rotate 90° to lock, to drain fuel completely from the tank. (Observe precautions outlined in paragraph 12.1.1)

b. Remove seats and baggage compartment as outlined in Section 3.

c. Disconnect electrical leads and ground strap from fuel quantity transmitter.

d. Disconnect fuel vent from tank.

e. Disconnect fuel filler hose from fuel filler neck at the fuselage.

f. Remove plastic adapter tube and rubber sealing from drain valve and unscrew drain valve from the bottom of the tank.

g. Unscrew and remove fuel line and fuel hose fitting/screen from the bottom of the fuel tank.

h. Remove all tank retaining screws from the tank and withdraw the tank to the front.

i. To install tank, reverse the preceding steps. Be sure grounding is secure in accordance with paragraph 12.1.1.

♦ **NOTE**	Apply appropriate liquid sealant to the threads of drain valve and fuel line connector at reassembling.

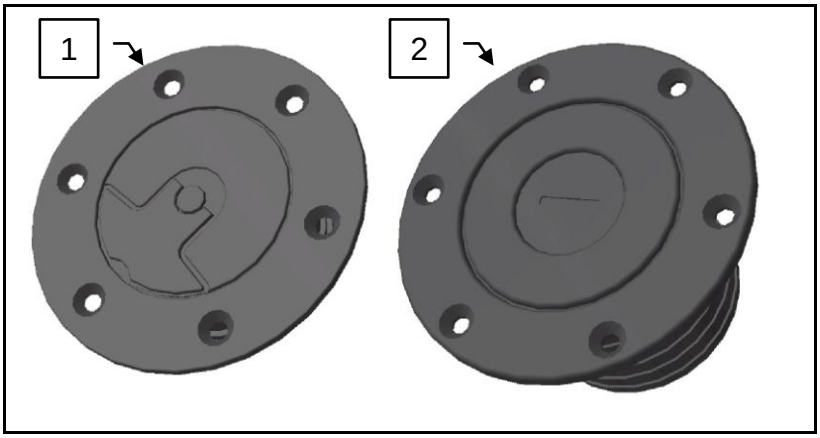
Figure 12-3

Fuel Tank Removal and Installation

Step A: Disconnect Fittings, Hoses and fixing Screws as illustrated

Step B: Withdraw tank from bulkhead as shown. Fuel return hose may be bent backwards or removed to ease tank removal

Figure 12-4



12.1.4Fuel Quantity Transmitter

A fuel quantity transmitter is installed in the top of the fuel tank. A complete description, along with procedures for calibration and troubleshooting are contained in Section 15.

12.1.4.1 Removal and Installation (refer to figure 12-4 and 12-5)

- **Required Tools:** Standard metric tools
- **Required Parts:** Cable ties
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

To remove the fuel quantity transmitter, the fuel tank has to be removed first, refer to paragraph 12.1.3.1 for detailed information. Remove screws attaching transmitter and carefully work transmitter from tank. Do not bend float arm!

Install transmitter by reversing preceding steps. Service fuel tank and check for leaks and correct quantity indication.

Figure 12-5

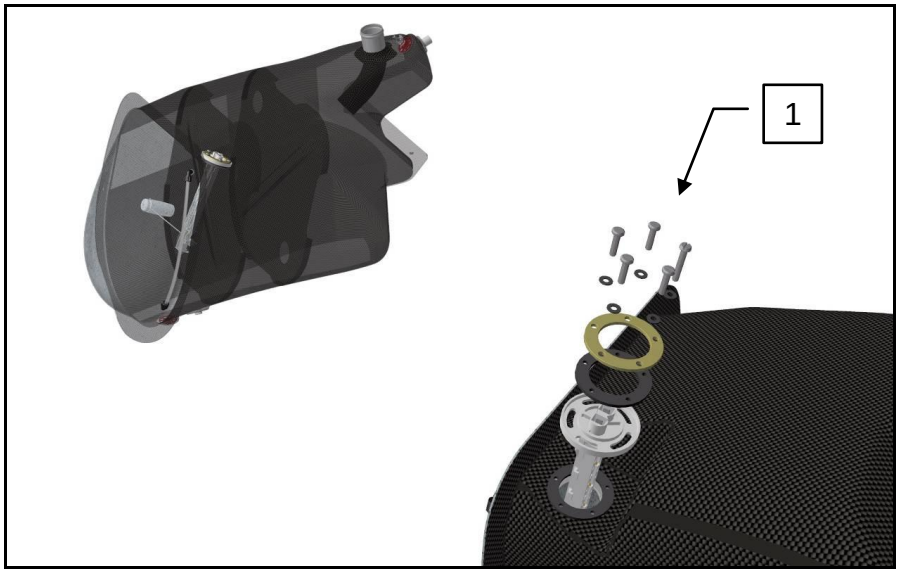
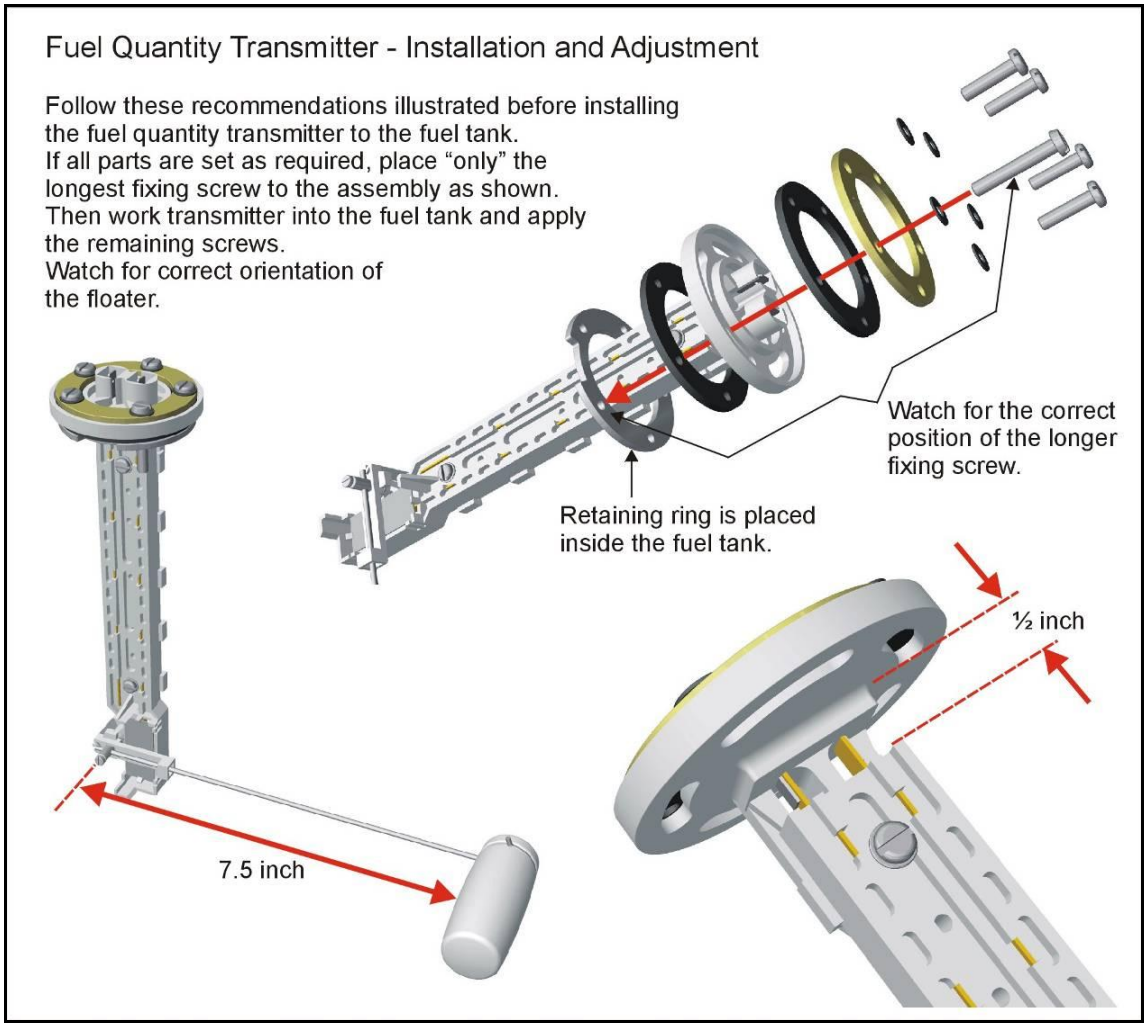


Figure 12-6



12.1.5Electrical Fuel Pump

An electrical fuel pump is installed to the fuel line, located adjacent to the fuel tank. Power to the pump is provided by a switch at the switch panel.

12.1.5.1 Removal and Installation (refer to figure 12-6)

- **Required Tools:** Standard metric tools
- **Required Parts:** Hose clamps
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Plug fuel hoses connected to the pump by the use of two hose clamps.

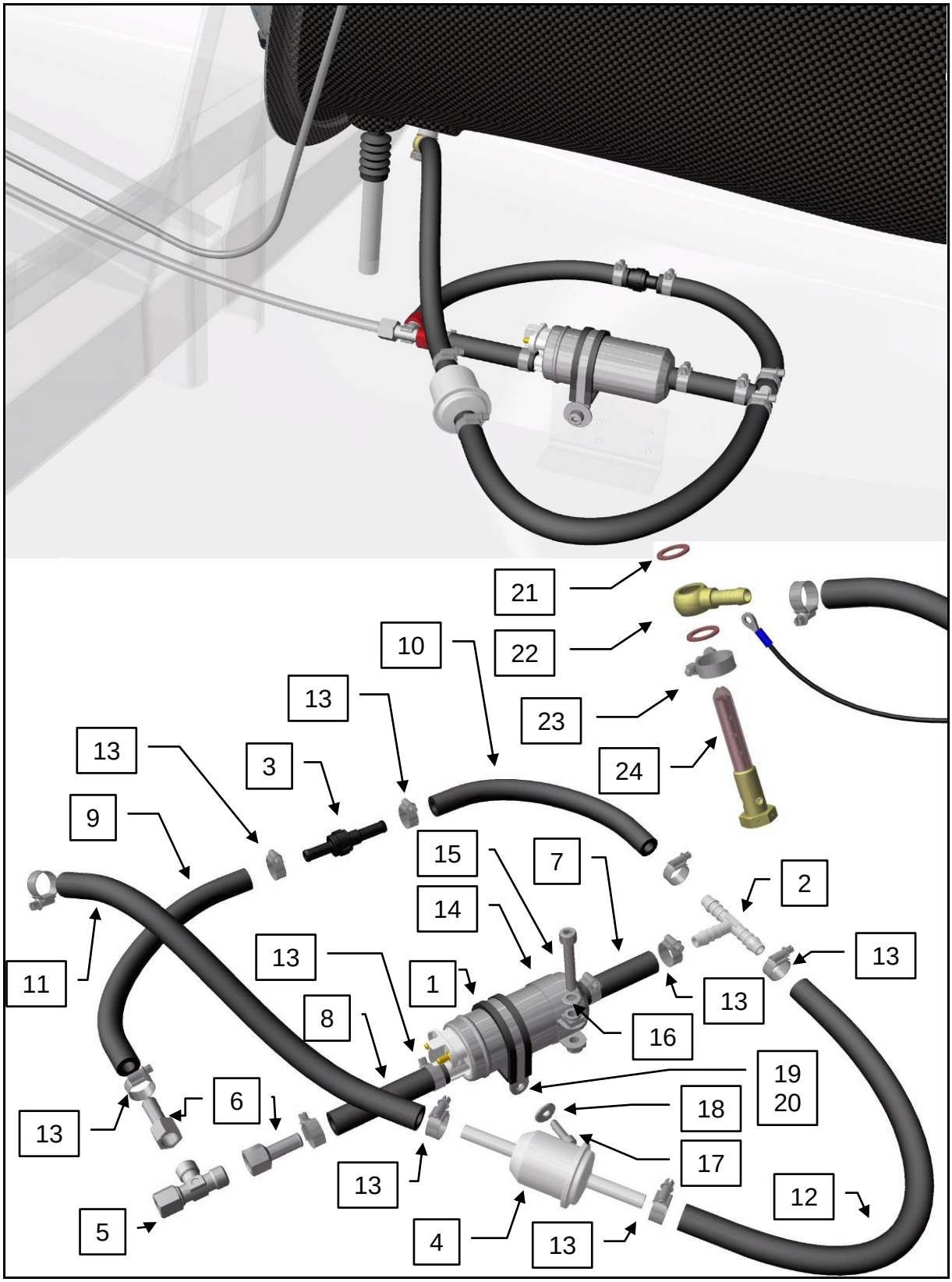
b. Disconnect fuel hoses from the pump.

c. Disconnect electrical leads and ground strap from fuel pump.

d. Loosen the retaining clamp and remove fuel pump.

e. To install fuel pump, reverse the preceding steps. Be sure grounding is secure in accordance with paragraph 12.1.1.

Figure 12-7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12.1.6Fuel Filter

An additional screen type fuel filter is attached to the fuel hose at the inlet of the electrical fuel pump. Refer to Section 2 for replacement intervals of the fuel filter.

12.1.6.1 Removal and Installation (refer to figure 12-6)

- **Required Tools:** Standard metric tools, clamp tongs
- **Required Parts:** Hose clamps, fuel filter
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Plug fuel hoses connected to the filter by the use of two hose clamps

b. Disconnect fuel hoses from the filter

c. Replace filter

d. To install filter, reverse the preceding steps. Be sure grounding is secure in accordance with paragraph 12.1.1

12.1.7Fuel Vent and Fuel Return Line

A vent line is installed to the fuel tank and extends overboard down through the lower fuselage skin. A fuel return line provides a steady fuel flow to avoid vaporization.

12.1.7.1 Checking

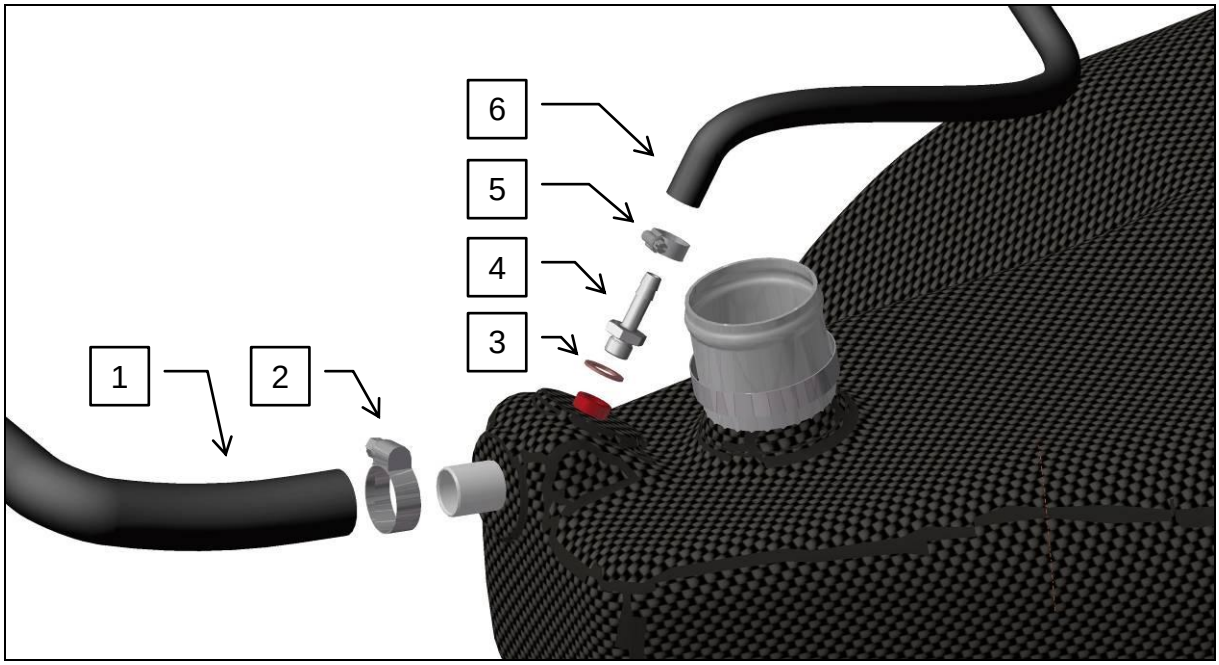
Dirt may cause the fuel vent to become plugged, with possible fuel starvation of the engine or collapse of the fuel tank. The following procedure may be used to check the vent line.

a. Attach a rubber tube to the end of vent line beneath the fuselage.

b. Blow into tube to slightly pressurize the tank. If air can be blown into tank, vent line is open.

c. After tank is slightly pressurized, insert end of rubber tube into a container of water and watch for a continuous stream of bubbles, which indicates the vent line is clear from obstacles.

Figure 12-8



12.1.8Fuel Shut-Off Valve

The fuel shut-off valve is a two-position ON-OFF valve, located in the center section of the cabin in front of the brake lever. It is recommended that the valve be replaced and not repaired.

12.1.8.1 Removal and Installation (refer to figure 12-8)

- **Required Tools:** Standard metric tools, edge cutter
- **Required Parts:** Fuel line fittings, cable ties
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Completely drain all fuel from tank and fuel lines (Observe the precautions in paragraph 12.1.1)

b. Remove seats and baggage compartment (refer to Section 3)

c. Remove shut-off valve handle, parking brake valve handle and brake reservoir filler cap. Take care that no brake fluid will get contact with painted surfaces.

d. Disconnect fuel line at the firewall and at the rear end hose connection.

e. Remove access flaps and center cover panel as far as the forward (located beneath the cockpit) side covers of the center tunnel.

f. Remove screws attaching shut-off valve.

g. Remove securing cable ties as required from the fuel line located inside the center tunnel.

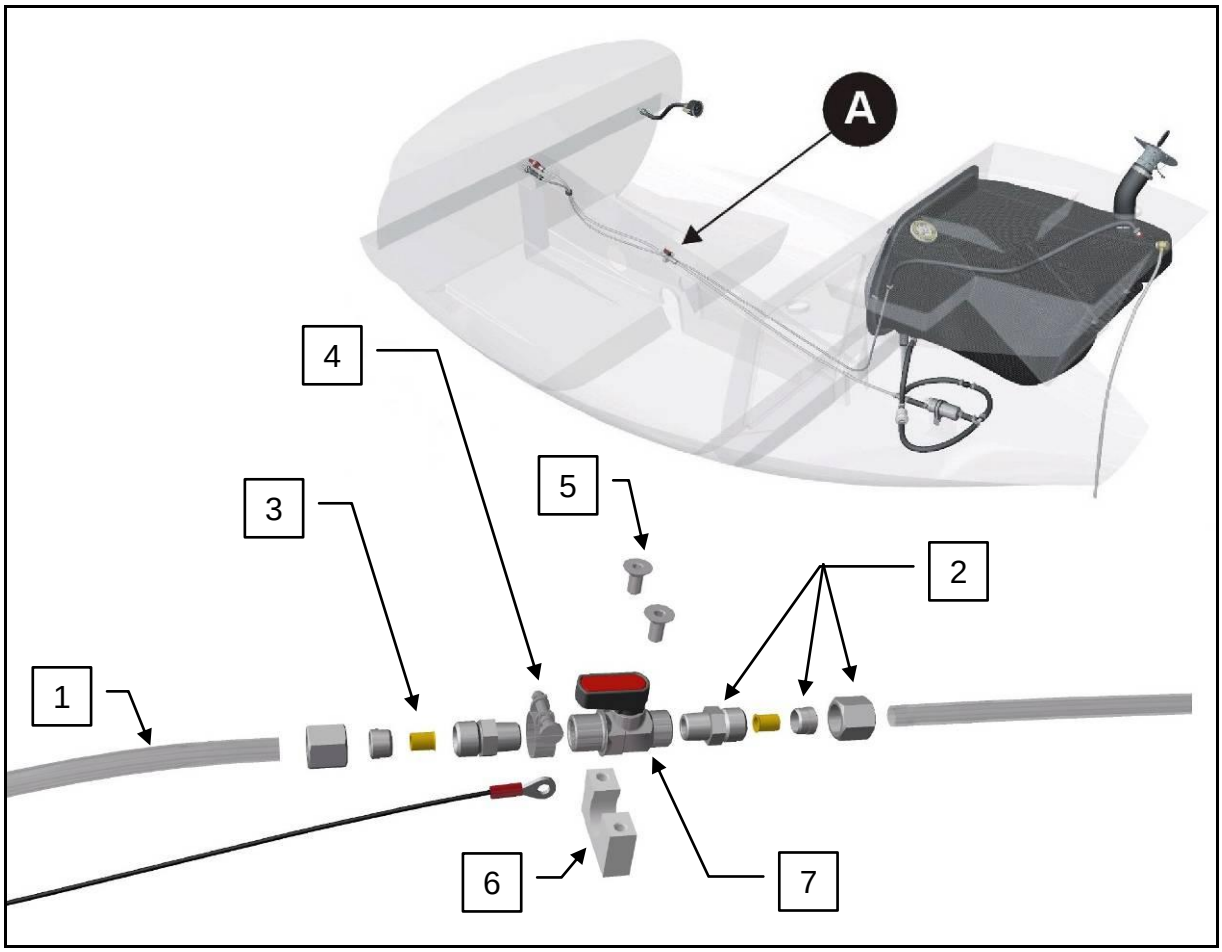
h. Withdraw shut-off valve assembly from the center tunnel.

i. Disconnect fuel lines from shut-off valve.

j. Reverse the preceding steps for installation.

CAUTION	For reconnection of fuel line to firewall a new fuel line fitting has to be used, to avoid leakage.

Figure 12-9



12.1.9Fuel Drain Valve

A fuel drain valve is installed to the bottom of the fuel tank. Access is possible from beneath the fuselage adjacent to the main gear. To drain fuel, push up the white plastic tube. If draining of the whole system is required, push up the plastic tube and rotate 90° to lock the open position of the drain valve.

12.1.9.1 Removal and Installation (refer to figure 12-9)

- **Required Tools:** Standard metric tools
- **Required Parts:** Fuel resistant sealant fluid
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

a. Push up sump drain valve and rotate 90° to lock, to drain fuel completely from the tank (Observe precautions outlined in paragraph 12.1.1)

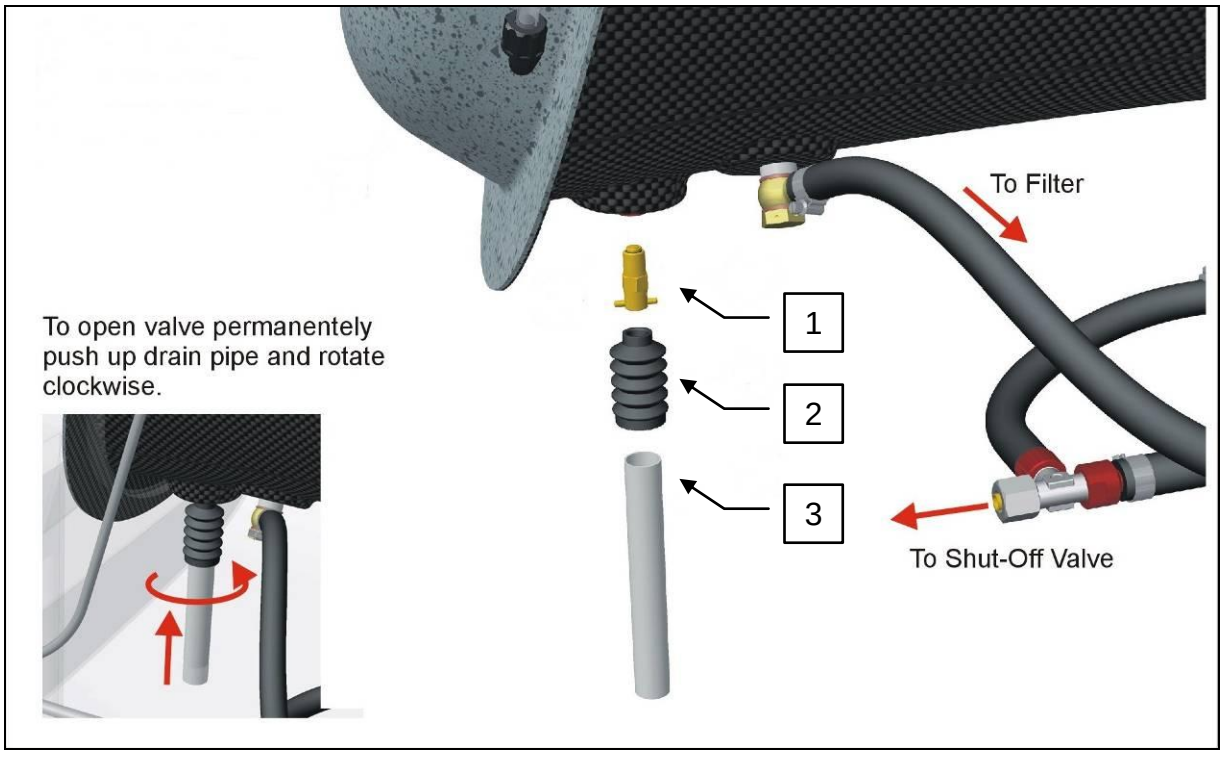
b. Remove seats and baggage compartment as outlined in Section 3

c. Remove plastic adapter tube and rubber sealing from drain valve and unscrew drain valve from the bottom of the tank

d. Reverse the preceding steps for installation. Be sure grounding is secure in accordance with paragraph 12.1.1

♦ **NOTE**	Apply appropriate liquid sealant to the threads of drain valve at reassembling.

Figure 12-10



12.1.10 Fuel Distributor System

12.1.10.1 Description (refer to figure 12-10 and 12-11.)

A fuel distributor is installed to provide fuel for both carburetors. The fuel distributor is located on top of the engine. Pressurized fuel from the fuel pump is routed to both carburetors while surplus of fuel flows back to the fuel tank through a return hose. A 0.02 inch compensating jet is built into each rearward side-ports of the distributor to ensure the required fuel pressure. A fuel pressure gauge may be connected to check fuel pressure at the opposite side of the return hose connection.

12.1.10.2 Removal and Installation

- **Required Tools:** Standard metric tools, wire-cutting pliers
- **Required Parts:** Lock screw, copper sealings, hose clamps.
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Drain fuel from fuel lines (Observe precautions outlined in paragraph 12.1.1).

b. Disconnect hoses from fuel distributor block.

c. Remove clamp securing distributor block to engine.

d. Unscrew hose fittings from distributor

e. Reverse preceding steps for reinstallation (Observe precautions outlined in paragraph 12.1.1)

CAUTION	Remember position of return hose fitting for reinstallation.

CAUTION	Always use new copper sealing for reinstallation of hose fittings and new hose clamps for hose connections.

12.1.10.3 Inspection

Inspect fuel distributor for clean condition, especially check jet drillings for return hose and fuel pressure gauge connection to be unplugged. Clean thoroughly before reassembling with hose fittings. Check also the jet provided in the return hose fitting for clean and unplugged condition.

Figure 12-11

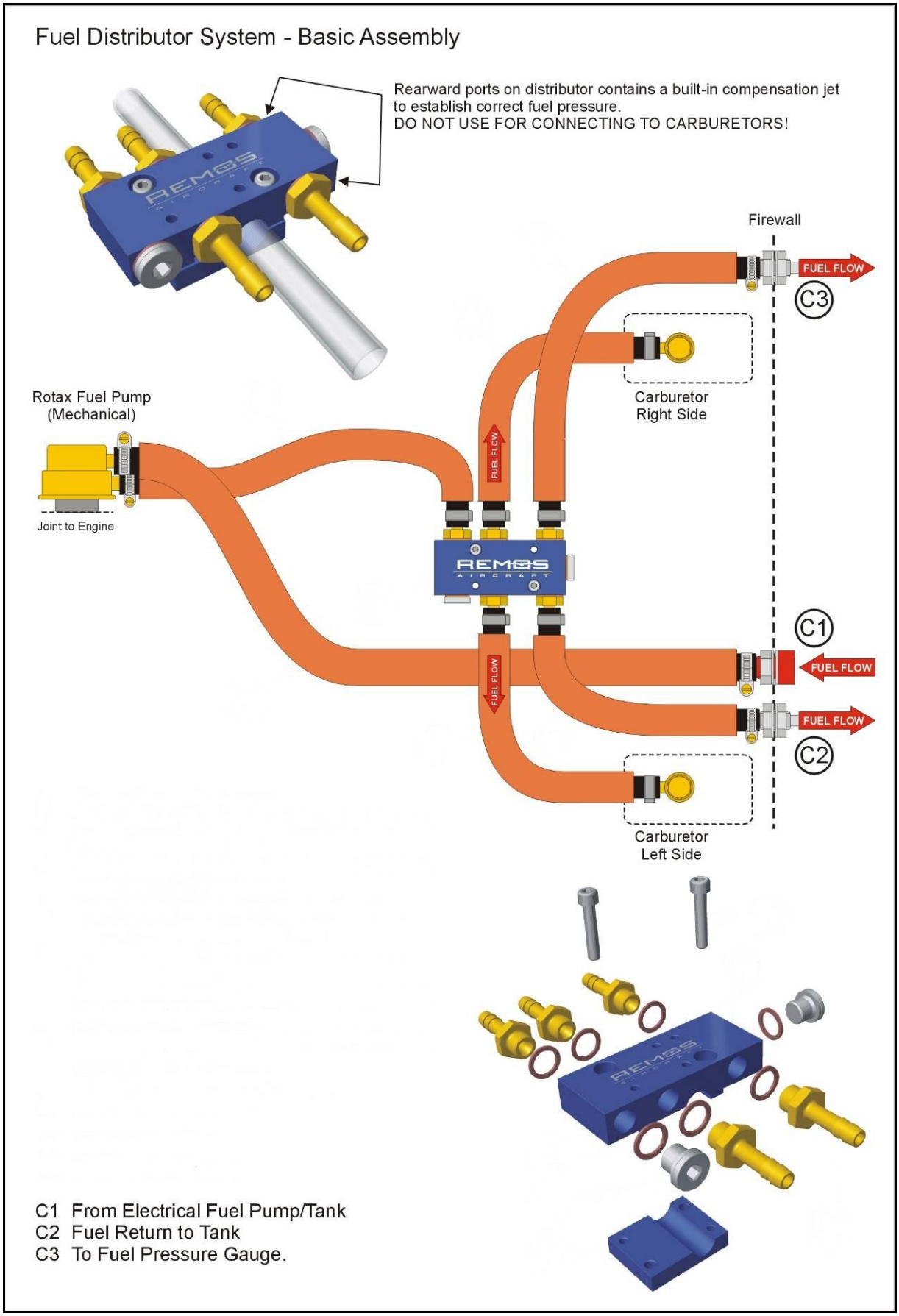
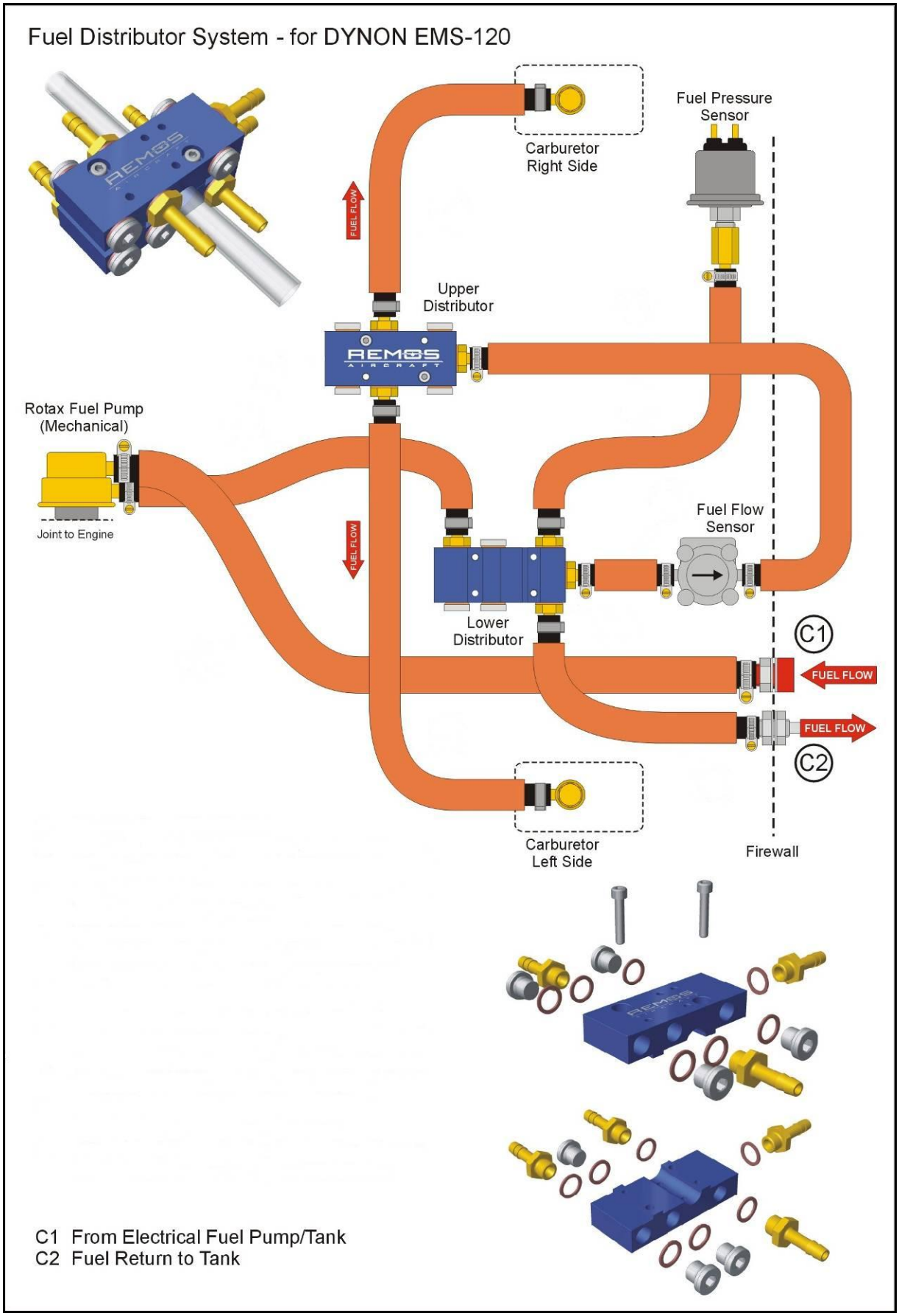

Fuel Distributor System - Basic Assembly
Rearward ports on distributor contains a built-in compensation jet to establish correct fuel pressure.
DO NOT USE FOR CONNECTING TO CARBURETORS!
Firewall
FUEL FLOW
C3
Carburetor Right Side
Rotax Fuel Pump (Mechanical)
Joint to Engine
FUEL FLOW
C1
FUEL FLOW
FUEL FLOW
C2
Carburetor Left Side
C1 From Electrical Fuel Pump/Tank
C2 Fuel Return to Tank
C3 To Fuel Pressure Gauge.

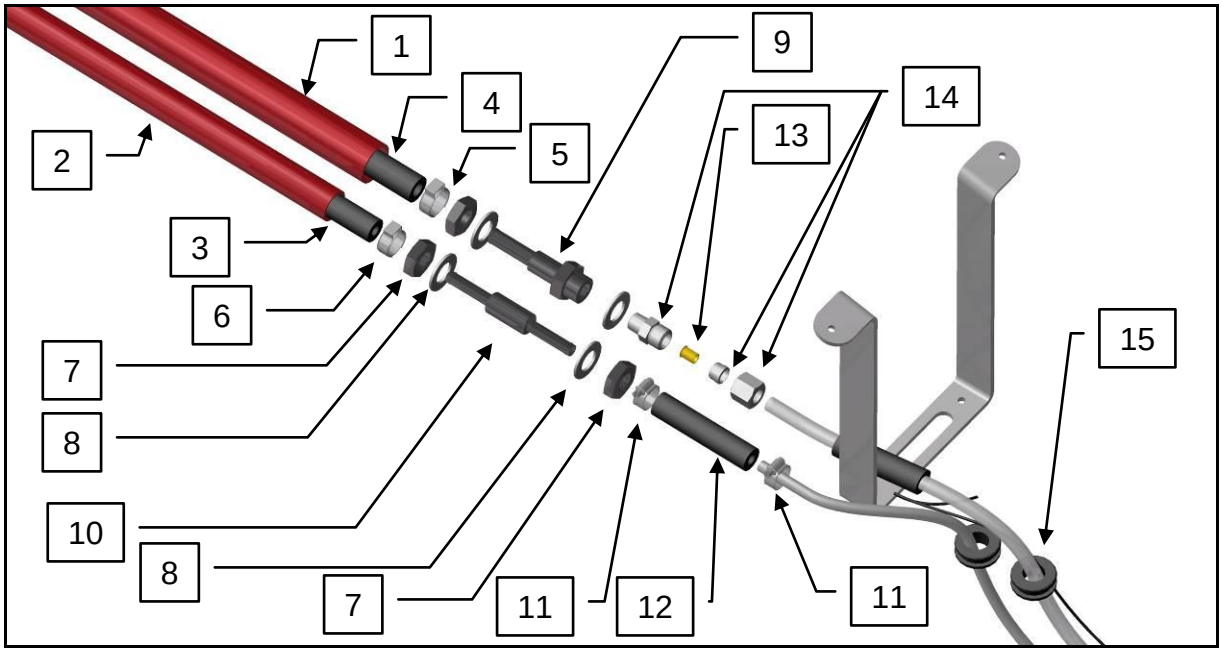
Figure 12-12


Fuel Distributor System - for DYNON EMS-120
Carburetor Right Side
Fuel Pressure Sensor
FUEL FLOW
Upper Distributor
Rotax Fuel Pump (Mechanical)
Joint to Engine
Fuel Flow Sensor
Lower Distributor
C1
FUEL FLOW
FUEL FLOW
C2
Carburetor Left Side
Firewall
C1 From Electrical Fuel Pump/Tank
C2 Fuel Return to Tank

12.1.11 Firewall Ports and Fuel Pressure Gauge

The fuel distributor system is connected to fuel lines routed inside the cabin using the ports C1 and C2 (see paragraph 12.1.10). With the basic installation of the aircraft a fuel pressure gauge is provided, connected to port C3.

Figure 12-13



12.2 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
12-2	1	101126		1	Fuel Quantity Transmitter	All
	2	700392	G3-8 FU-04-00-00	1	Tank	All
	3	101145		1	Hose 8x6x1 Oil-resistant Transparent	All
12-4	1	103237		1	Filler Cap AERO 200 A26NS	All
	2	103109		1	Filler Cap Newton Zero 200	All
12-5	1	101126		1	Fuel Quantity Transmitter	All
12-7	1	101135		1	Electric Fuel Pump 7.21440.0	All
	2	101714		1	T-Piece Norma TS 8mm	All
	3	101140		1	Non Return Valve	All
	4	101680		1	Fuel Filter	All
	5	101141		1	T-Piece With Screw Joint TS-8	All
	6	100734	G3-8 FU-04-01-51	2	Fuel System Hose Nipple 8xM12x1,5	All
	7	100923		1	Fuel Hose WP8; 65mm	All
	8	100923		1	Fuel Hose WP8; 65mm	All
	9	100923		1	Fuel Hose WP8; 180mm	All
	10	100923		1	Fuel Hose WP8; 170mm	All
	11	100923		1	Fuel Hose WP8; 270mm	All
	12	100923		1	Fuel Hose WP8; 250mm	All
	13	101163		12	Hose Clamp 12-22	All
	14	102313		1	Hose Clamp Norma 35	All
	15	100147		1	Cylinder Head Screw M6x35 vz DIN912 8.8	All
	16	100231		1	Washer 6,4 DIN125 Form A Steel vz	All
	17	100129		1	Cylinder Head Screw M5x16 vz DIN912 8.8	All
	18	100249		1	Washer 5,3x15x1,5 DIN522 A2	All
	19	100232		1	Washer 5,3 DIN125 Form A Steel vz	All
	20	100218		1	Self Locking Nut M5 DIN985	All
	21	101820		1	Seal Ring Copper DIN7603 Form C 12x18x2	All
	22	100387		1	Ring Nipple RS8-12 DN06 DIN7642	All
	23	101820		1	Seal Ring Copper DIN7603 Form C 12x18x2	All
	24	100731		1	Fuel Strainer M12x1,5	All
12-8	1	103227		1	Fuel Hose ID=18mm	All
	2	100878		1	Hose Clamp 20-32	All
	3	100912		1	Seal Ring Copper 10x16x1	All
	4	100733		1	Fuel System Hose Nipple 8xR1/8	All
	5	100921		1	Hose Clamp 8-16	All
	6	101142		1	Fuel Hose WP6	All
12-9	1	101145		1	Hose 8x6x1 Oil-resistant Transparent	All
	2	102937		2	Straight Screw In Connection G1/8	All
	3	102002		2	Support Sleeve C-EH-8/6- MS	All
	4	101175		1	Hose Clamp Norma 17	All
	5	101731		2	Countersunk Screw M5x16 DIN7991 A2-70	All
	6	100735	G3-8 FU-04-01-53	1	Fuel Valve Mounting	All
	7	101042		1	Fuel Valve 1/8"	All
12-10	1	101128		1	Drain Valve 1/8" NPT Bayonet Style	All
	2	101127		1	Drain Valve Sleeve	All
	3	101129	G3-8 FU-04-01-54	1	Fuel System Drain Tube	All

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
12-13	1	100924		1	Hose DN20 Fire Protection 750mm	All
	2	100914		1	Hose DN15 Fire Protection 540mm	All
	3	101142		1	Fuel Hose WP6 540mm	All
	4	100923		1	Fuel Hose WP8 750mm	All
	5	100902		1	Ear Clamp D 15,5mm A2	All
	6	100901		1	Ear Clamp D 13,8mm A2	All
	7	102882		3	Nut M12x1,5 ISO8675 A2K	All
	8	101931		4	Washer 12 DIN125-A2K blank	All
	9	100733	G3-8 FU-04-01-50	1	Fuel System Hose Nipple 8xR1/8	All
	10	102907	G3-8 FU-04-01-55	1	Return Flow Passage	All
	11	100921		2	Hose Clamp 8-16	All
	12	101142		1	Fuel Hose WP6	All
	13	102002		1	Support Sleeve C-EH-8/6- MS	All
	14	102937		1	Straight Screw In Connection G1/8	All
	15	100972		2	Cable Passage 12x20x24	All

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Section 13

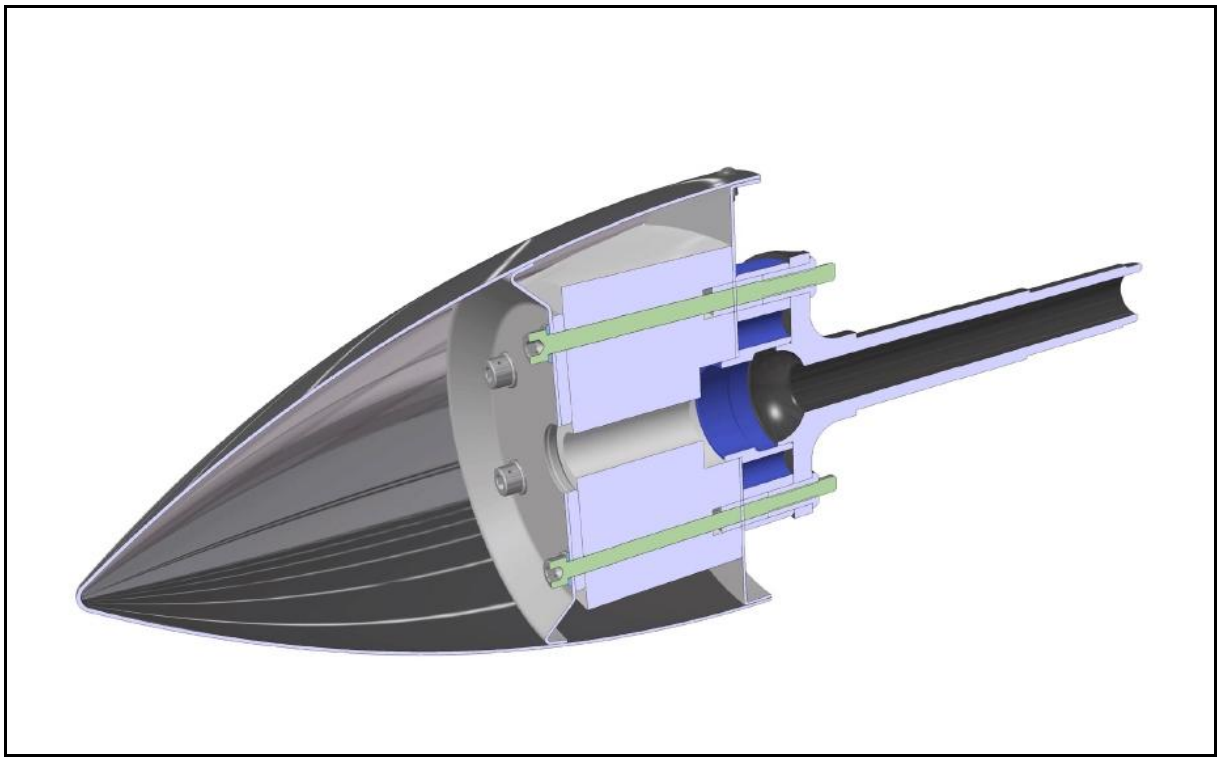
Propeller

Table of Contents **Section**

13.1 Propeller Fixed Pitch

A composite-wood, fixed-pitch propeller, equipped with either aluminum or a plastic spinner, is used on the REMOS GX aircraft.

Figure 13-1



13.1.1 Repair

Repair of a wood propeller first involves evaluating the damage and determining whether the repair is to be a major or minor one. In general all damages except defective paint or small dents has to be rated as major repair. Refer also to propeller manufacturer's manual for further instruction.

We strongly recommend to replace propeller if any cracks, deteriorations of the skin or extended dents are determined.

13.1.2 Removal (refer to figure 13-2)

- **Required Tools:** Standard metric tools
- **Required Parts:** Safetying wire (1.0 mm), silicone compound
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove spinner by unscrewing its retaining screws.

b. Remove safety wire from mounting bolt heads (**2**).

c. Remove bolts and pull propeller forward to remove. Use care to avoid damage to bulkheads as propeller is removed.

▲ **WARNING**	Be sure master switch is in OFF position and key removed from starter switch before turning propeller.

♦ **NOTE**	The spinner (**1**) is attached to the rear bulkhead with a forward supporting bulkhead. These bulkheads are secured by the propeller mounting bolts (**2**) and will be free by removal of the bolts as the propeller is removed. A pressure plate (**5**) is used between the forward support bulkhead and the propeller.

13.1.3 Installation (refer to figure 13-2)

Clean mating surfaces of propeller, gearbox flange and spinner bulkheads.

a. Install propeller and spinner bulkheads. The spinner bulkheads must be positioned so propeller blades will emerge from the spinner with ample clearance.

b. Tighten the mounting bolts (**2**) evenly to a torque value of 20 Nm / 176 in.lb.

c. Safety wire propeller mounting bolts (**2**).

d. Apply a bead of silicone compound on the rim of the support bulkhead (**4**).

e. Install spinner. When installing the plastic (ABS) type spinner, add a collar bush (**13**) to each of the fixing screws, to prevent the spinner from cracking around it´s fixing holes. Do not overtighten the fixing screws. Hand tight is sufficient!

▲ **WARNING**	Be sure master switch is in OFF position and key removed from starter switch before turning propeller.

♦ **NOTE**	Tighten the mounting bolts (**11**) only hand tight or ABS spinner will be damaged.

Figure 13-2

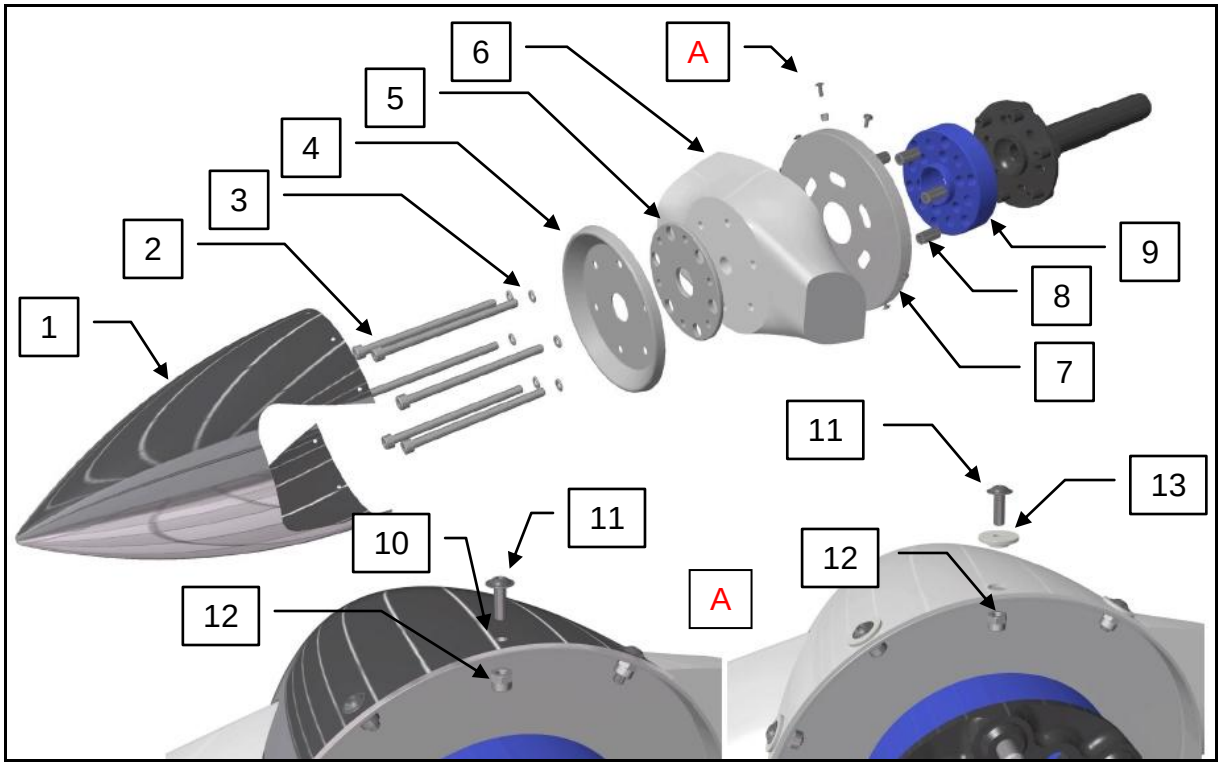
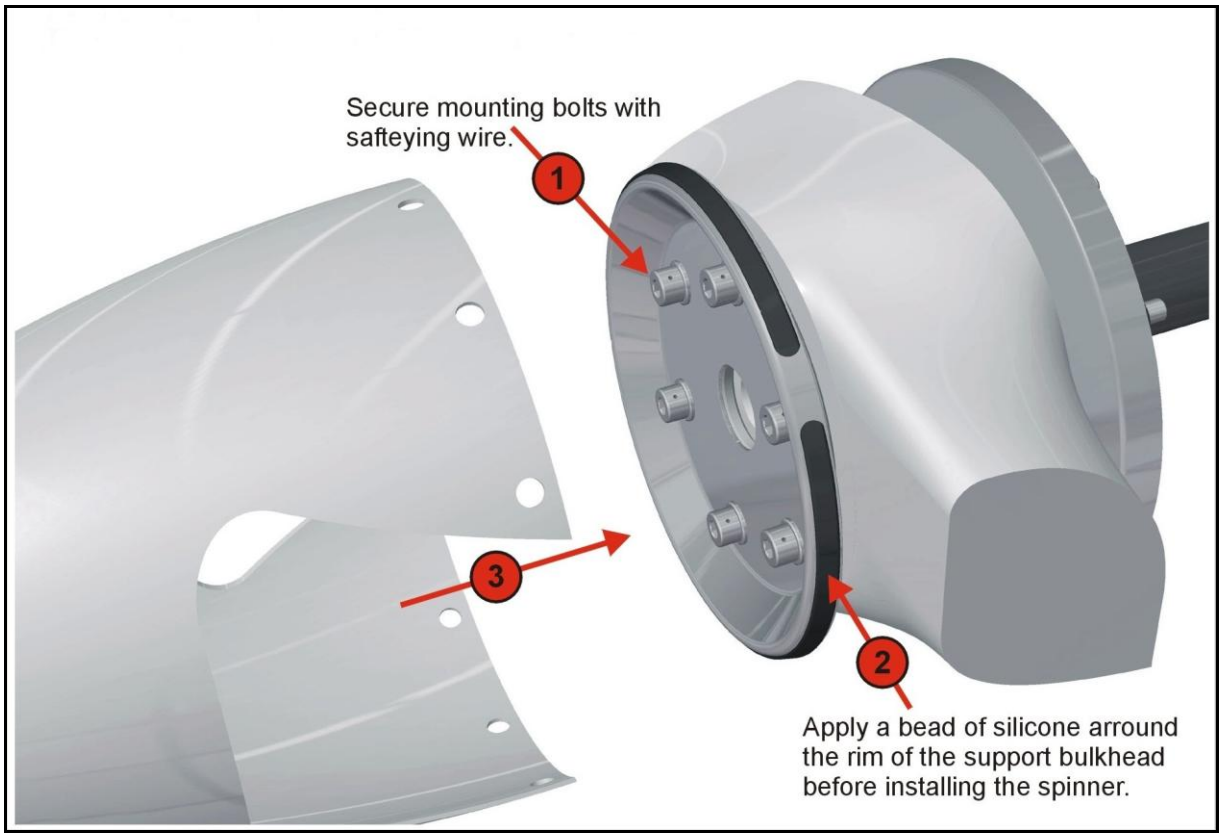


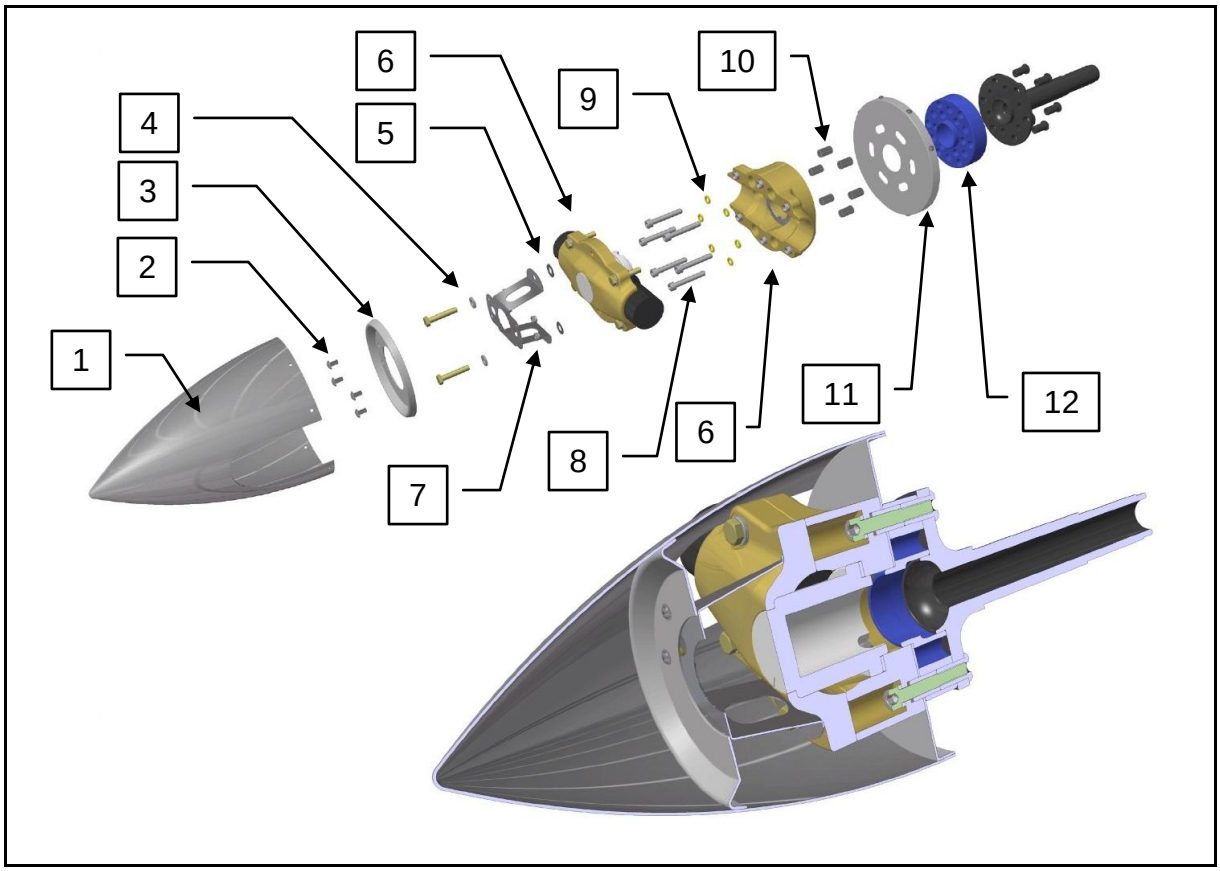
Figure 13-3



13.2 Propeller Ground Adjustable (Sensenich)

A carbon fiber, ground adjustable propeller, equipped with either aluminum or a plastic spinner, is used on the REMOS GX aircraft as standard equipment. It is mandatory to maintain the servicing intervals given in the propeller manufacturer's manual. Figure 13-4 gives a general overview of the propeller installation.

Figure 13-4



13.2.1 Repair

Repair of a carbon fiber propeller first involves evaluating the damage and determining whether the repair is to be a major or minor one. In general all damages except defective paint or small dents has to be rated as major repair. Refer also to propeller manufacturer's manual for further instruction.

We strongly recommend to replace propeller blades if any cracks, deteriorations of the skin or extended dents are determined.

13.2.2 Removal (refer to figure 13-4)

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove spinner by unscrewing its retaining screws.

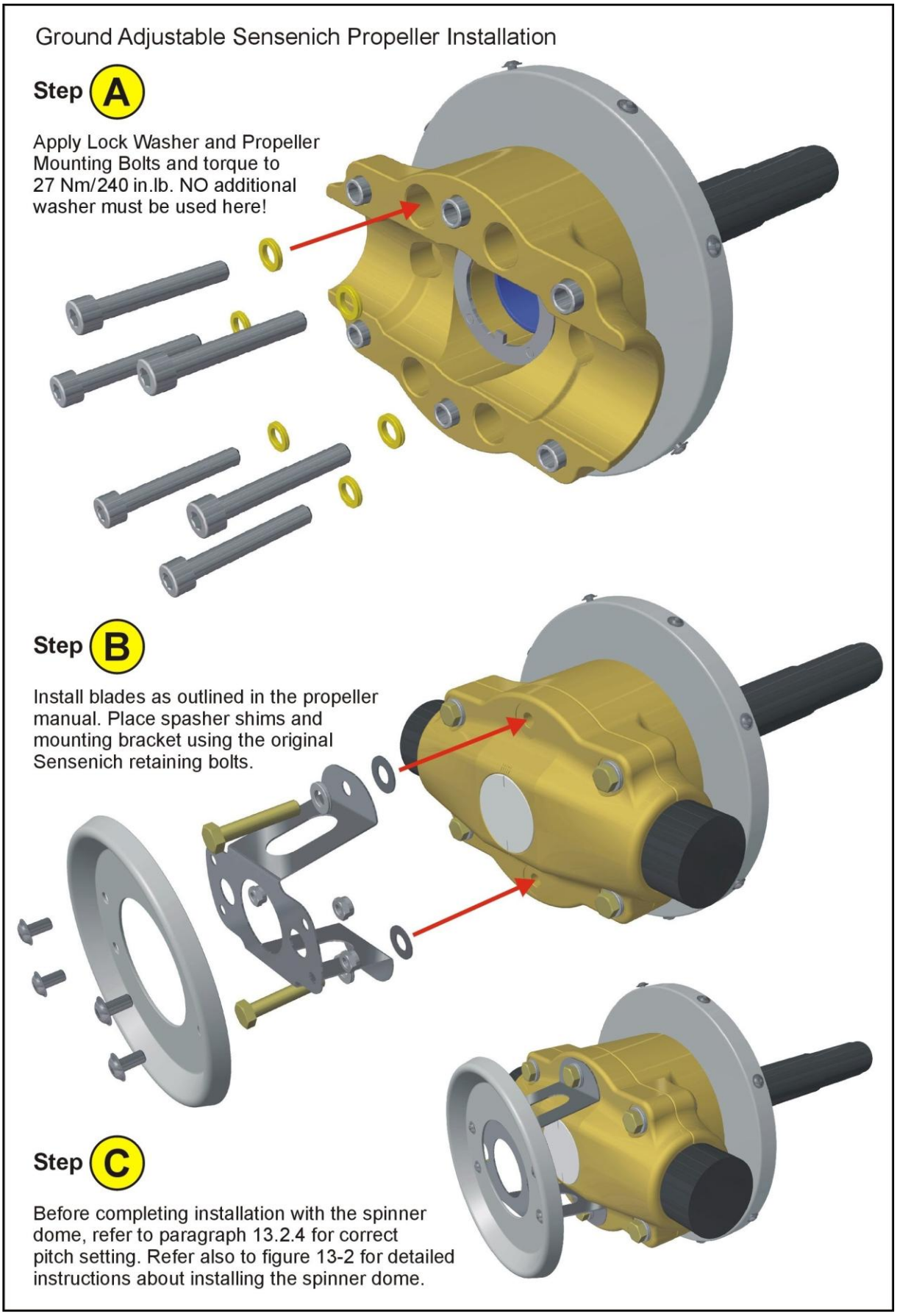
b. Remove all bolts on propeller hub and remove hub and blades.

c. Remove mounting bolts (**3**) and pull propeller hub forward to remove. Use care to avoid damage to bulkheads as propeller is removed.

▲ WARNING	Be sure master switch is in OFF position and key removed from starter switch before turning propeller.

♦ NOTE	The spinner (**1**) is attached to the rear bulkhead with a forward supporting bulkhead. These bulkheads are secured by the propeller mounting bolts (**3**) and retaining screws (**11**) and will be free by removal of the bolts as the propeller is removed. A mounting bracket (**4**) is used between propeller hub and the forward support bulkhead which is fixed to the hub by the original Sensenich fixing bolts

Figure 13-5


Ground Adjustable Sensenich Propeller Installation
Step A
Apply Lock Washer and Propeller Mounting Bolts and torque to 27 Nm/240 in.lb. NO additional washer must be used here!
Step B
Install blades as outlined in the propeller manual. Place spasher shims and mounting bracket using the original Sensenich retaining bolts.
Step C
Before completing installation with the spinner dome, refer to paragraph 13.2.4 for correct pitch setting. Refer also to figure 13-2 for detailed instructions about installing the spinner dome.

13.2.3 Installation (refer to figure 13-5)

- **Required Tools:** Standard metric tools
- **Required Parts:** Silicone compound, Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Clean mating surfaces of propeller, gearbox flange and spinner bulkheads.

a. Install propeller spacer, guide sleeves and rearward spinner bulkhead. The spinner bulkheads must be positioned so propeller blades will emerge from the spinner with ample clearance.

b. Install lock washer and propeller mounting bolts as shown in figure 13-5.

c. Tighten the mounting bolts evenly to a torque value of 27 Nm / 240 in.lb.

d. Apply propeller blades and pitch cylinder as outlined in the propeller manufacturer's manual and install the hub cover half. Do not apply both center clamp bolts yet.

e. Install the mounting bracket as described in figure 13-5. and tighten clamp bolts to a torque value of 27 Nm / 240 in.lb.

f. Apply a bead of silicone compound on the rim of the support bulkhead.

g. Install spinner. When installing the plastic (ABS) type spinner, add a collar bush to each of the fixing screws, to prevent the spinner from cracking around it´s fixing holes. Do not overtighten the fixing screws.

▲ WARNING	Be sure master switch is in OFF position and key removed from starter switch before turning propeller.

▲ WARNING	Special lock washers are required for all bolts on the propeller hub, in no case additional washers are needed!

♦ NOTE	Before proceeding with the next steps, refer to paragraph 13.2.4 for correct pitch setting of the propeller blades.

13.2.4 Rigging (refer to figure 13-6)

- **Required Tools:** Standard metric tools
- **Required Parts:** Silicone compound, Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

.

a. If rigging is not done as step of the propeller installation process, propeller spinner dome has to be removed first (refer to paragraph 13.2.2).

b. Set pitch to 23.0 +/- 1 deg at radius station 0.66m = 26.0 in and torque all 6 clamp bolts to 27 Nm / 240 in.lb.

c. Run the engine without moving the aircraft, applying full throttle position (warm up the engine to normal operation temperature before conducting that procedure). Check that engine speed at sea level is 4.900 RPM.

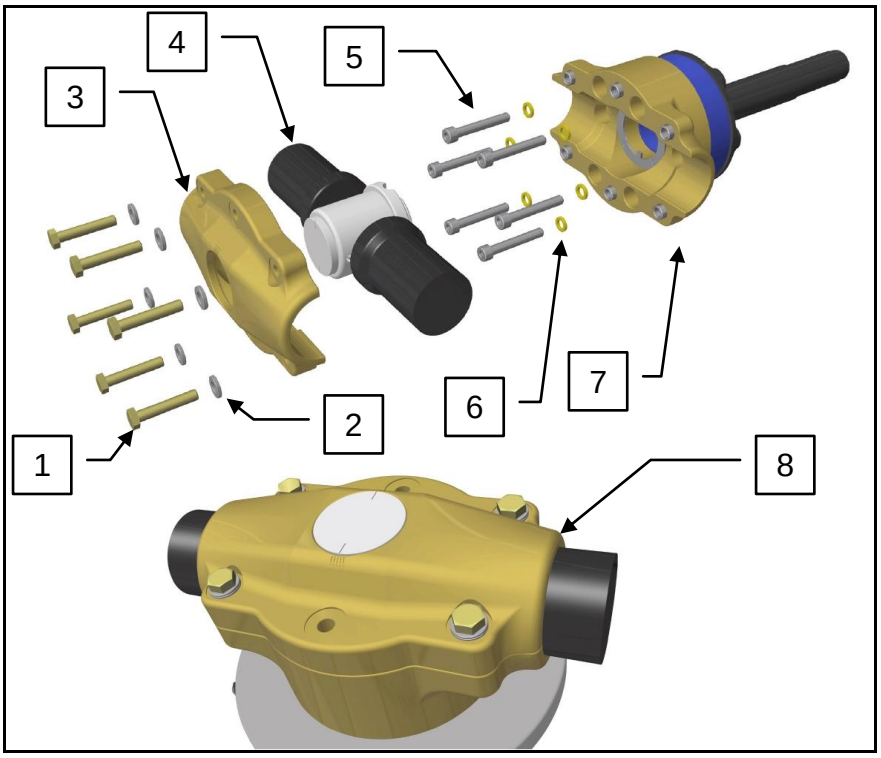
d. Perform a check flight and ensure that engine speed does not exceed 5.800 RPM at never exceed airspeed (V_{NE}).

e. Adjust pitch if necessary, but not more than +/- 1 deg as per pitch setting procedure above.

f. Proceed with installing the spinner dome like described in paragraph 13.3.3.

▲ WARNING	Be sure master switch is in OFF position and key removed from starter switch before turning propeller.

Figure 13-6



13.3 Propeller Ground Adjustable (Neuform)

A carbon fiber, ground adjustable propeller equipped with a GFRP spinner is used on the REMOS GX. It is mandatory to maintain the servicing intervals given in the propeller manufacturer's manual.

Figure 13-7 (only two blades shown on photo for better overview)

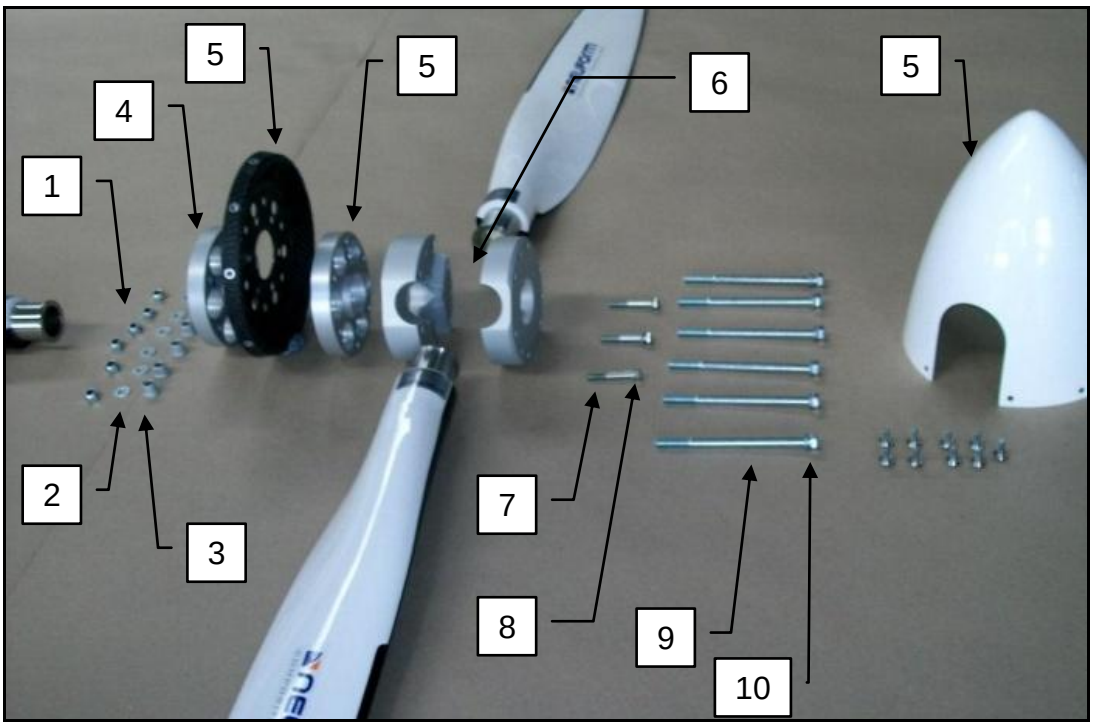


Figure 13-8

13.3.1 Repair

Repair of a carbon fiber propeller first involves evaluating the damage and determining whether the repair is to be a major or minor one. In general all damages except defective paint or small dents has to be rated as major repair. Refer also to propeller manufacturer's manual for further instruction.

We strongly recommend to replace propeller blades if any cracks, deteriorations of the skin or extended dents are determined.

13.3.2 Removal (refer to figure 13-7)

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove spinner by unscrewing its retaining screws.

b. Remove the M6 bolts first.

c. Remove all bolts on propeller hub and remove hub and blades.

d. Remove mounting bolts and pull propeller hub forward to remove. Use care to avoid damage to bulkheads as propeller is removed.

♦ **NOTE**	Make sure to remove the M6 bolts first, followed by the M8 bolts. In case the M8 bolts are removed with the small M6 bolts still in place the bolt heads might shear off.

▲ **WARNING**	Be sure master switch is in OFF position and key removed from starter switch before turning propeller.

13.3.3 Installation (refer to figure 13-7)

- **Required Tools:** Standard metric tools
- **Required Parts:** Silicone compound, Loctite 243 (medium strength)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Clean mating surfaces of propeller, gearbox flange and spinner bulkheads.

b. The propeller hub comes in two parts. For the delivery it is only loosely screwed with M6 screws. On the outside of each half of the hubs you will find an imprinted number. Both halves must display identical numbers!

c. Loosen the screws and lift the two halves apart from each other. The delivery consists of 3 or 4 M6 screws respectively, 6 M8 screws, Nordlock lock washers in two sizes as well as 6 M8 lock nuts.

d. Mounting of the blades into the hub. Put the half of the hub, that shows screw threads, on a table and place the propeller blades in the fitted areas. At this moment the angles of incidence of the blades are not yet of importance. Now place the second half of the hub on the first one. Tighten the M6 bolts just very loose, so that the blade angle can be adjusted, but so tight that they do not shake.

e. Set pitch to 23.0 +/- 1 deg at radius station 0.62 m = 24.4 in.

f. Mount the propeller to the engine flange using the M8 screws. Torque is 27 Nm / 240 in.lb. Tighten the M6 bolts to 10 Nm / 90 in.lb.

g. Adjusting the blade angle is not that simple and requires some patience. Ask somebody to help you in order to simplify the procedure. While tightening the propeller bolts the blade angle may change a little. Make sure the blade angles are identical and correct.

♦ **NOTE**	The blade angles need to be adjusted very thoroughly in order to avoid aerodynamic unbalanced masses later on.

♦ **NOTE**	The blade angles need to be adjusted very thoroughly in order to avoid aerodynamic unbalanced masses later on.

13.4 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
13-2	1	100423	G3-8 PR-20-01-01	1	Spinner Aluminium Fixed Pitch	-
		100422	G3-8 PR-20-01-00-GX	1	Spinner ABS Fixed Pitch	-
	2	100157		6	Cylinder Head Screw M8x140 vz DIN912 8.8	-
	3	100272		6	Spring Washer 8,1 DIN127 Form B	-
	4	100418	G3-8 PR-20-01-05	1	Spinner Front Plate	-
	5	100425	G3-8 PR-20-01-02	1	Spinner Pressure Plate 80 PS	-
		100427	G3-8 PR-20-01-03	1	Spinner Pressure Plate 100 PS	
	6	100426	G3-8 PR-11-01-01	1	Propeller Tonini 100 PS	-
		100424		1	Propeller Tonini 80 PS	-
		102373	G3-8 PR-11-01-01	1	Propeller Woodcomp 100PS	-
	7	100419	G3-8 PR-20-01-04	1	Spinner Rear Bulkhead	-
	8	100417	G3-8 PR-01-00-02	6	Prop-Spacer Guide-Tube long	-
	9	100420	G3-8 PR-01-00-00	1	Propeller Spacer	-
	10	100275		8	Washer 4,3x9x0,8 Nylon Natur	-
	11	100189		8	Lens Head Screw Hexagon Socket M4x12 vz ISO7380 A2-70	-
	12	100212		8	Self Locking Nut M4 DIN985 vz	-
	13	101860		8	Collar Bush white 4x15x1,5 Nylon-6	-
13-4	1	102540	G3-8 PR-30-01-04	1	Spinner Alu Ground Adjustable Sensenich	-
		102546		1	Spinner Variable Pitch Sensenich	-
	2	102158		4	Lens Head Screw Hexagon Socket M6x16 ISO7380 A2	-
	3	100583	G3-8 PR-30-01-02	1	Spinner Front-Bulkhead Adjustable-Prop	-
	4	101880		2	Securing Washer M8	-
	5	102863		2	Washer 8,4x18x2 DIN134 Stahl vz	-
	6	102518		1	Sensenich Propeller	-
	7	102507	G3-8 PR-01-00-06	1	Popeller Mounting Bracket Sensenich	-
	8	102326		6	Cylinder Head Screw M8x60 DIN912 10.9	-
	9	101880		6	Securing Washer M8	-
	10	102508	G3-8 PR-01-00-05	6	Propeller Flange Guide Sleeve Sensenich	-
	11	100419	G3-8 PR-20-01-04	1	Spinner Rear Bulkhead	-
	12	100420	G3-8 PR-01-00-00	1	Propeller Spacer	-
13-6	1	100224		6	Self Locking Nut M8 DIN985 vz	-
	2	5632		6	Washer DIN 125 A-140-HV	-
	3	5570		6	Head Bushing Aluminium	-
	4	7325		1	Propeller Flange Spacer	-
	5	0168		1	Spinner Neuform Including Carbon Plate And Intern Spacer	-
	6	0171		1	3 Blade Propeller Neuform Ground Adjustable With Hub, Screws, Manual	-
	7	5253		3	Hexagon Head Bolt DIN 933 8.8 M6x45	-
	8	5421		3	Washer Nordlock M6 vz	-
	9	7633		6	Hexagon Head Bolt DIN 931 8.8 A2K M8x130	-
	10	5420		6	Washer Nordlock M8 vz	-

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Section 14

Utility Systems

Table of Contents **Section**

14.1 Heating System

14.1.1 Description (refer to figure 14-1)

The heating system is comprised of the heat exchange section of the exhaust muffler, a shut-off valve, mounted on the right forward side of the firewall, a push-pull control on the instrument panel, outlets, and flexible ducting connecting the system.

14.1.2 Operation

Ram air is ducted through a heat exchange section of the exhaust muffler, to the shut-off valve into a chamber on the aft side of the firewall, where it is distributed into the cabin. The shut-off valve operated by a push-pull control marked “Warm”, located beneath the switch panel, regulates the volume of heated air entering the system. Pulling the control full out supplies maximum flow, and pushing control in gradually decreases flow, shutting off flow completely when the control is pushed full in.

14.1.3 Trouble Shooting

Most of the operational troubles in the heating and ventilating systems are caused by a sticking or binding air valve and its control, damaged air ducting, or defects in the exhaust muffler. In most cases, the valve or control can be freed by proper lubrication. Damaged or broken parts must be repaired or replaced. When checking control, ensure valve respond freely to control movement, that they move in the correct direction, and that they move through their full range of travel and seal properly. Check that hoses are properly secured, and replace hoses that are burned, frayed or crushed. If fumes are detected in the cabin, a thorough inspection of the exhaust system should be accomplished. Refer to applicable paragraph in Section 11 for this inspection. Since any holes or cracks may permit exhaust fumes to enter the cabin, replacement of defective parts is imperative because fumes constitute an extreme danger.

Figure 14-1

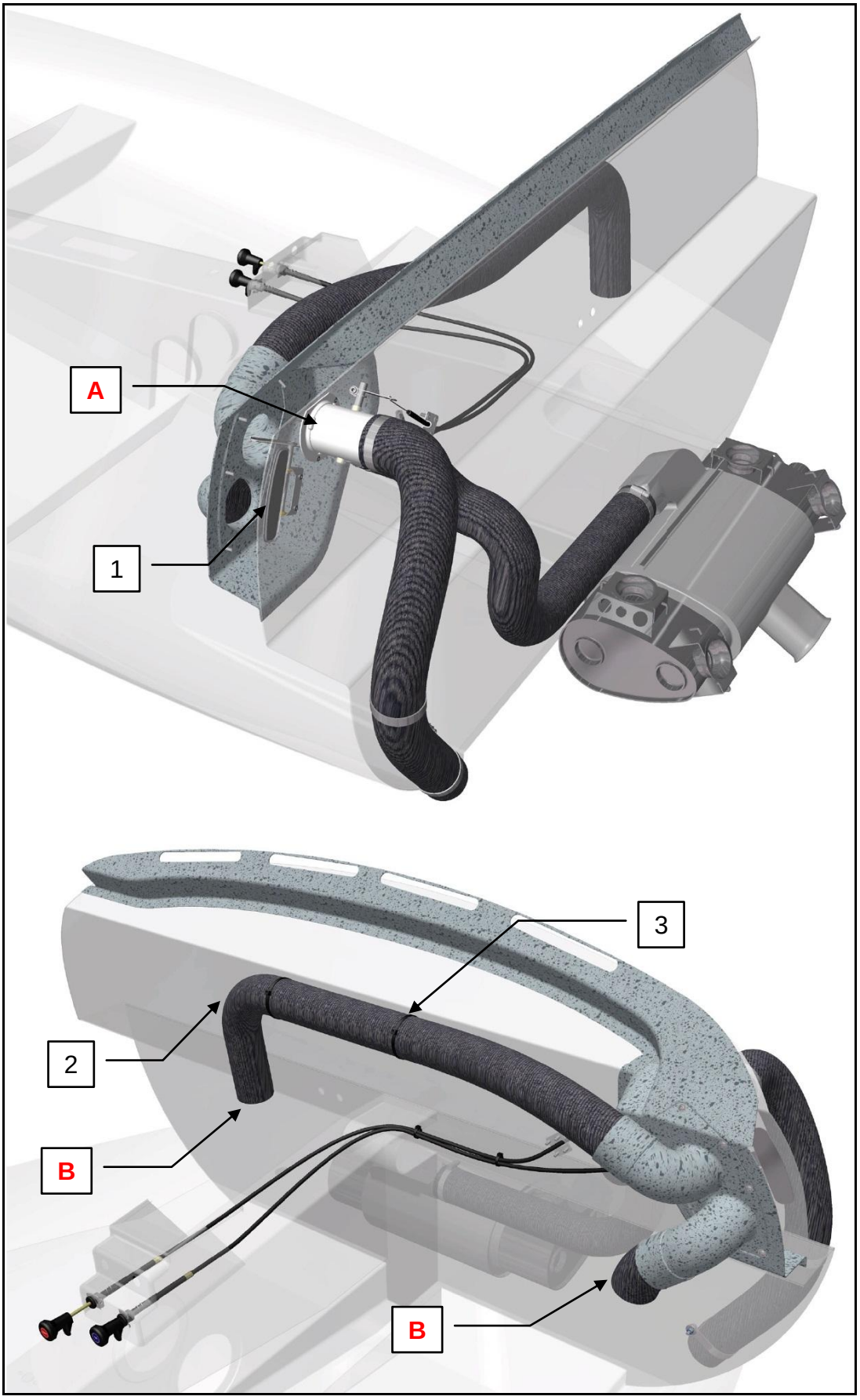
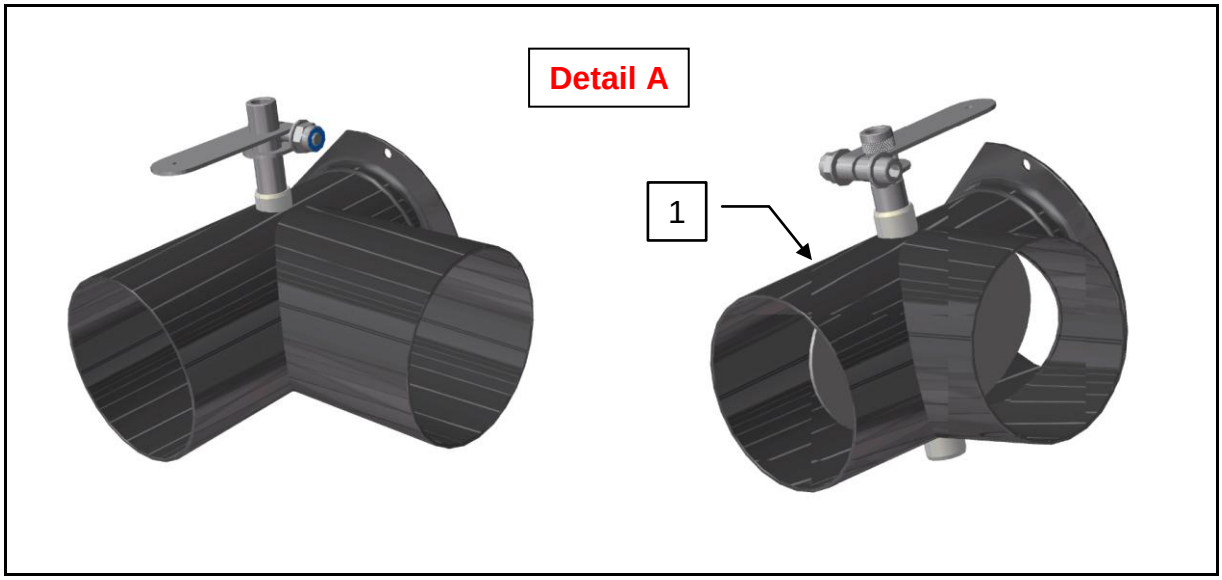
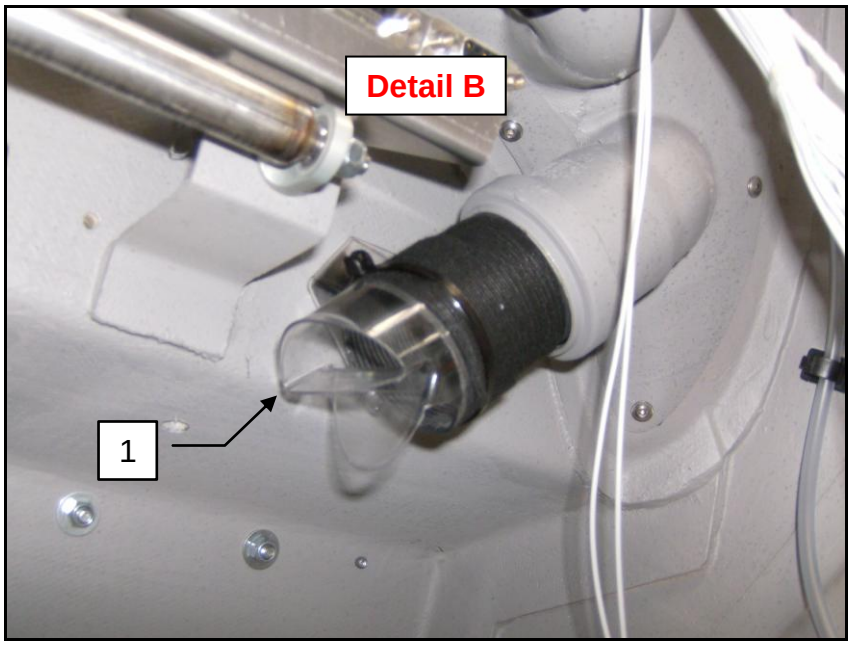


Figure 14-2



♦ **NOTE**	New Warm Air Control shown on right hand side. If plane is equipped with older Warm Air Control, change with new model.

Figure 14-3



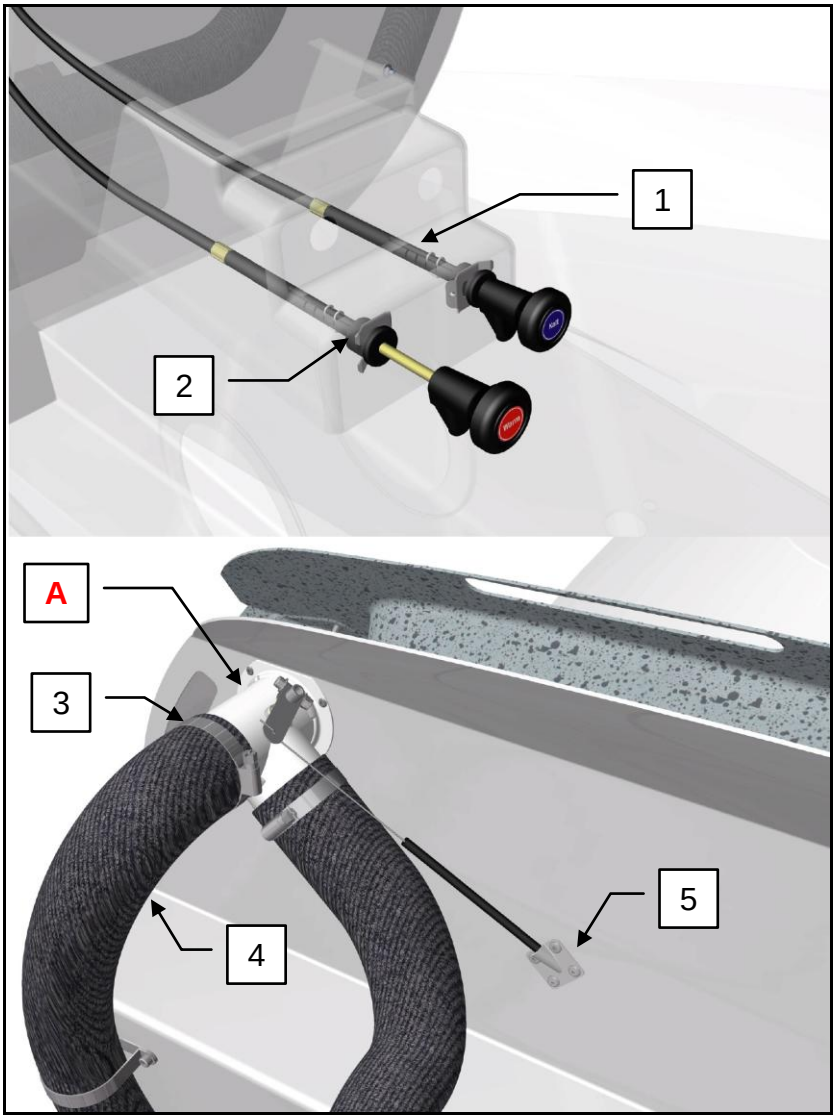
♦ **NOTE**	There is an air jet at the heating valve, which is standard from serial number 378 on. The air jet can be retrofitted.

14.1.4 Removal, Installation and Repair

- **Required Tools:** Standard metric tools, riveting pliers
- **Required Parts:** Hoses and hose clamps as required, rivets 3x8mm (3x)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Figure 14-1 and 14-6 illustrates the heating and ventilating systems, and may be used as a guide during removal, installation and repair of heating system components. Burned, frayed, or crushed hoses must be replaced with new hoses, cut to length and installed in the original routing. Trim hose winding shorter than the hose to allow clamps to be fitted. A defective air valve must be repaired or replaced. Check for proper operation of valve and its control after repair or replacement.

Figure 14-4



♦ **NOTE**	The push-pull controls for warm and cold air are located in the middle of the standard instrument panel (Figure 14-4) or on the right hand side of the small panel (Figure 14-5), depending on instrument panel installed.

Figure 14-5

14.2 Ventilating System, Description

The ventilating system is comprised of a naca-style fresh air-scoop mounted in the right side of the upper cowling. A shut-off valve is located on the right side of the firewall, operated by a push-pull control marked “Cold”, located beneath the switch panel, regulates the volume of fresh air entering the system.

14.2.1 Operation

Air received from the scoop mounted in the right side of the upper cowling is routed through a distributor located on the aft right side of the firewall to the windshield and bottom of the cabin. As long as the “Warm” control is pushed in, no heated air can enter the firewall duct; therefore, when the “Cold” control is pulled out, only fresh air from the scoop will flow through the distributor into the cabin. As the “Warm” control is gradually pulled out, more and more heated air will blend with the fresh air from the scoop and be distributed into the cabin. Either one or both of the controls may be set at any position from pull open to full closed.

14.2.2 Trouble Shooting

Most of the operational troubles in the ventilating system are caused by sticking or binding of the shut-off valve or its control. In most cases, valve or control can be freed by proper lubrication. Damaged or broken parts must be repaired or replaced. When checking control, ensure valve respond freely to control movement and that it moves through its full range of travel and seal properly.

14.2.3 Removal, Installation and Repair

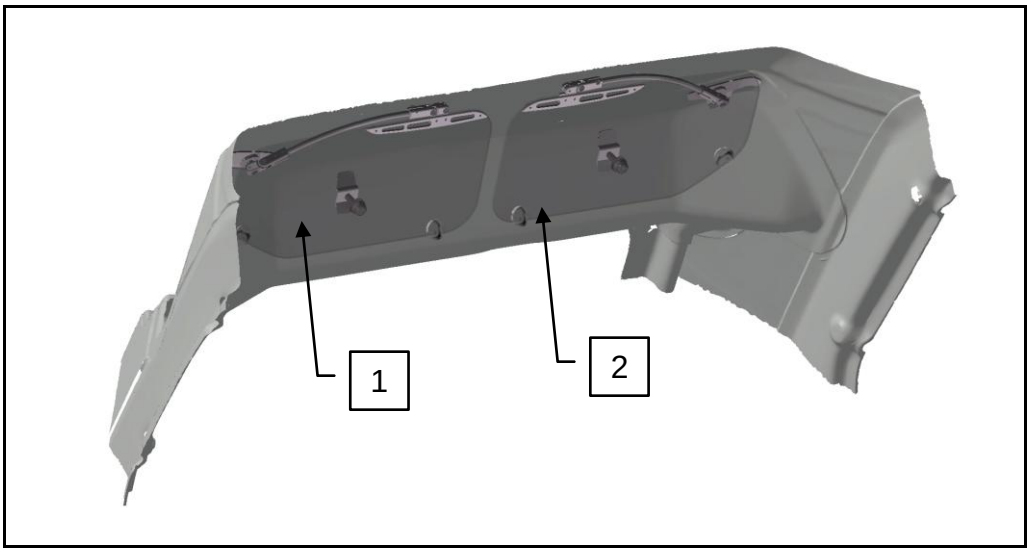
- **Required Tools:** Standard metric tools, riveting pliers
- **Required Parts:** Rivets 3x8mm (2x); cable ties as required
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Figure 14-6

14.3 Sun Visors

The sun visors are a component of the airplane just above the windshield. (If equipped) There are two sun visors, one for the pilot's side and a second for the passenger's side. Each visor can be lowered to help block light from the sun entering through the windshield. They can also be turned towards the front side passenger window, covering a small part of the window at the top to block sunlight shining on the side of the passenger's face.

Figure 14-7



14.3.1 Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Washers if needed
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

How to install the sun visors:

a. Check mounting bolts.

b. There should be no rests of paint. If so: clean mounting bolts with solvent. Do not use abrasive paper.

c. Roof liner installation with small parts (if ordered): Stamp holes into the roof liner. Mount the roof liner and then the EPDM-windows with O-Rings.

d. Mount sun visors (RH and LH): Disconnect screw from I-hinge. Grease mounting bolts with Molykote FB 180 (Keep grease away from drill hole). Connect I-hinge to mounting bolts. Provide some Loctite 262 on bolts and screw in. Tighten screws so that there is a torque of 0.6 to 0.7 Nm between mounting bolts and I-hinge. (It is not the tightening torque of the screws). Verify torque moment with the help of a spring balancer. Spring balancer should indicate 250 to 290 gram when I-hinge is moved. Move hinge before verification to provide a lubrication film

e. Balancing sun visors: Fix both sun visors. If one of the sun visors has a different high, it is possible to balance the parts. If roof liner is installed at least one washer at each sun visor is necessary. A maximum of 4 washers can be used to balance the parts. If balancing is finished, Tenax lower parts have to be removed. Provide them with Loctite 262 and screw them in again.

f. Foam pads: It is necessary to mount 4 foam pads if there is no roof liner. Foam pads prevent noises of vibration.

14.4 Interior Pads

The REMOS GX is equipped with different interior pads that are helpful and embellish the airplane. Refer to the following tables to get further information about the interior pads that can be used.

14.4.1 Earlier Interior Pads

Item	SAP
Seat complete, RH fabric blue	102494
Seat complete, LH fabric blue	102492
Floor covering leather, RH	102316
Floor covering leather, LH	102317
Floor mat (carpet), RH	102162
Floor mat (carpet), LH	102163
Map-case RH GX	102347

Map-case LH GX	102346
Cover door panel RH GX	102349
Cover door panel LH GX	102348

14.4.2 Newer Basic Interior Pads

Item	SAP
Seat shell complete black painted, RH	102752
Seat shell complete black painted, LH	102753
Seat fabric/leather RH	102758
Seat fabric/leather LH	102759
Map-case black leather, RH GX	102754
Map-case black leather, LH GX	102755
Cover door panel grey fabric, RH	102756
Cover door panel grey fabric, LH	102757
Floor mat carpet standard large, RH	102788
Floor mat carpet standard large, LH	102787
Luggage locker carpet standard, RH	102762
Luggage locker carpet standard, LH	102763

14.4.3 Additional Interior Pads Aviator 2 / Cruizer

Item	SAP
Cover center console, RH leather	102770
Cover venter console, LH leather	102771
Floor covering, RH fabric	102772
Floor covering, LH fabric	102773
Cover center tunnel leather	102774
Cover spar bridge fabric	102775
Cover back wall fabric	102776

14.4.4 Optional Interior Pads With Leather Seats

Item	SAP
Seat complete leather RH	102764
Seat complete leather LH	102765
Floor mat carpet DELUXE, RH	102766
Floor mat carpet DELUXE, LH	102767
Luggage locker carpet DELUXE, RH	102768
Luggage locker carpet DELUXE, LH	102769

14.4.5 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
14-1	1	100704	G3-8 FU-14-00-01	1	Heater Ventilation Flap	All
	2	100999		1	Heating Hose 45mm	
	3	101013		4	Cable Tie 4,5x290 black	All
14-2	1	100705	G3-8 FU-14-00-02	1	Warm Air Control	All
14-3	1	103058	G3-8 FU-14-01-23	1	Air Vent Left Hand Side	-
		103059	G3-8 FU-14-01-24	1	Air Vent Right Hand Side	-
14-4	1	101829		1	Bowden Wire 2108-1108100	All
	2	101828		1	Clamp Bowden Wire	All
	3	100900		3	Hose Clamp 40-60	All
	4	101147		1	Hose Air Flow	All
	5	100700	G3-8 FU-14-01-16	1	Ventilating Clamping Sheet	All
14-7	1	103029	G3-8 FU-19-00-06	1	Sun Visor Left Hand Side	-
	2	103030	G3-8 FU-19-00-06	1	Sun Visor Right Hand Side	-

Section 15

Instruments and Instrument System

Table of Contents **Section**

15.1 *Preamble*

This chapter only deals with the avionics integration and not with the avionics itself. If you need further information about the avionics and its components, please refer to the related manuals.

NOTE	Hereby REMOS approves all publications by the avionics manufacturers.

NOTE	Hereby REMOS approves all software updates and product updates by the avionics manufacturers

Updating software might lead to malfunction or total failure of the component. Only qualified persons shall perform software updates. In doubt contact the manufacturer or REMOS before attempting to update a component or a system.

15.2 *Instrument and Instrument Systems, General*

This section describes typical instrument installations and their respective operating systems. Emphasis is placed on trouble shooting and corrective measures only. It does not deal with specific instrument repairs since this usually requires special equipment and data and should be handled by instrument specialists. Malfunctioning instruments are required to be sent to an approved instrument overhaul and repair station or returned to manufacturer for servicing. Our concern here is with preventive maintenance on various instrument systems and correction of system faults which result in instrument malfunctions.

The descriptive material, maintenance and troubleshooting information in this section is intended to help the mechanic determine malfunctions and correct them, up to the defective instrument itself, at which point an instrument technician should be called in. Some instruments, such as fuel quantity and oil pressure gauges, are so simple and inexpensive, repairs usually will be more costly than a new instrument. On the other hand, aneroid and gyro instruments usually are well worth repairing. The word “replace instrument” in the text, therefore, should be taken only in the sense of physical replacement in aircraft. Whether replacement is to be with a new instrument, a refurbished one, or original instrument is to be repaired must be decided on basis of individual circumstances.

15.3 *Instrument Panel*

15.3.1 Description

The instrument panel assembly consists of stationary and shock-mounted panels. The stationary panels are containing switches and LED-gauges, which are not sensitive to vibration. The shock-mounted panels are containing major flight instruments such as airspeed indicator, altitude indicator, EFIS-Systems, avionics components, and horizontal and directional gyros which are affected by vibration. Most of the instruments are bolted on aluminum frame backs.

There are two different instrument panels, a standard panel and a small panel. Refer to figure 15-1 for further information.

Figure 15-1

Standard Panel

Small Panel

15.3.2 Standard Panel

15.3.2.1 *Removal and Installation*

- **Required Tools:** Standard metric tools, wire cutting pliers, bleed kit
- **Required Parts:** Cable ties, insulating tape.
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

15.3.2.2 *Switch Panel*

The stationary switch panel is located at the center section of the cockpit frame. It consists of an aluminum support frame and a decorative ABS cover. To remove the stationary panels proceed as follows:

a. Disconnect battery and insulate as safety precaution.

b. Loosen and unscrew throttle lever knob, clamp nut, friction knob and ignition key union nut.

c. Unscrew and withdraw switch panel from cockpit frame.

d. Unplug switch and LED-Indicator wiring.

e. Reverse preceding steps for reinstallation.

♦ **NOTE**	Do not overtighten panel fixing screws at reinstallation, because this would cause the ABS decorative cover to crack. Do not tighten more than hand tight. Use Locktite or equivalent for screw fixation rather than tightening.

15.3.2.3 *Left and Right Panel*

The shock mounted panels consist of an aluminum support frame and a decorative ABS cover attached to the cockpit main-frame via rubber shock mounts. To remove a shock-mount panel proceed as follows:

a. Disconnect battery leads and insulate as safety precaution.

b. Unscrew retaining screws and remove decorative ABS cover.

c. Remove shock-mount screws in both upper corners of the aluminum frame.

d. Pull out upper edge of the frame and lift up to disengage the lower shock-mounts from cockpit main-frame.

e. Disconnect wiring and hoses and remove panel.

f. Reverse preceding steps for reinstallation.

♦ **NOTE**	Do not overtighten panel fixing screws at reinstallation, because this would cause the ABS decorative cover to crack. Do not tighten more than hand tight. Use Locktite or equivalent for screw fixation rather than tightening.

15.3.3 Small Panel

15.3.3.1 *Removal and Installation*

- **Required Tools:** Standard metric tools, wire cutting pliers, bleed kit
- **Required Parts:** Cable ties, insulating tape.
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

15.3.3.2 *Panels*

The panels consist of decorative covers that are screwed to shock mounts and fixed at the cockpit frame. To remove the panels proceed as follows:

a. Disconnect battery leads and insulate as safety precaution.

b. Loosen and unscrew throttle lever knob, clamp nut, friction knob and ignition key union nut.

c. Unscrew and withdraw panel from cockpit frame.

d. Unplug switch and LED-Indicator wiring.

e. Reverse preceding steps for reinstallation.

♦ **NOTE**	Do not overtighten panel fixing screws at reinstallation, because this would cause the decorative cover to crack. Do not tighten more than hand tight. Use Locktite or equivalent for screw fixation rather than tightening.

15.3.4 Shock Mounts

Service life of instruments is directly related to adequate shock-mounting of panel. If removal of panel is necessary, check mounts for deterioration.

15.3.5 Instruments and Avionics

15.3.5.1 *Standard Panel*

15.3.5.1.1 Left Hand Side

Configuration TRAVELLER / EXPLORER			
Serial Number	**Equipment**	**Mounting Frame/ Order Number**	**Cover Panel/ Order Number**
up to SN 297	Airspeed indicator Vertical speed indicator Altimeter Slip indicator Rotax FLYdat	G3-8 CP-10-01-26 102260	G3-8 CP-10-01-66 102228
up to SN 297	Airspeed indicator Vertical speed indicator Altimeter Slip indicator Analogue engine instruments	G3-8 CP-10-01-26 102260	G3-8 CP-10-01-65 102227
SN 298ff	Airspeed indicator Vertical speed indicator Altimeter Slip indicator Analogue engine tachometer	G3-8 CP-10-01-39 102717	G3-8 CP-10-01-85 102704
SN 298ff	Airspeed indicator Vertical speed indicator Altimeter Directional gyro Artificial horizon Turn/bank indicator Analogue engine tachometer	G3-8 CP-10-01-39 102717	G3-8 CP-10-01-84 102703
SN 298ff	Airspeed indicator Vertical speed indicator Altimeter Directional gyro Artificial horizon Turn/bank indicator Analogue engine tachometer additional 57mm instrument	G3-8 CP-10-01-39 102717	G3-8 CP-10-01-96 102716

Configuration VOYAGER / AVIATOR I			
Serial Number	**Equipment**	**Mounting Frame/ Order Number**	**Cover Panel/ Order Number**
up to SN 297	Dynon EFIS D-100 Rotax FLYdat Airspeed indicator Altimeter	G3-8 CP-10-01-21 102082 G3-8 CP-10-01-23 102086 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-62 102077
up to SN 297	Dynon EFIS D-100 Rotax FLYdat Airspeed indicator Altimeter HS34	G3-8 CP-10-01-21 102082 G3-8 CP-10-01-23 102086 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-62 102077
SN 298ff	Dynon FlightDEK D-180 Airspeed indicator Altimeter	G3-8 CP-10-01-28 102887 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-80 102699
SN 298ff	Dynon FlightDEK D-180 Airspeed indicator Altimeter HS 34	G3-8 CP-10-01-28 102887 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-94 102714
SN 298ff	Dynon FlightDEK D-180 Airspeed indicator Altimeter HS 34 additional 57mm instrument	G3-8 CP-10-01-28 102887 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-93 102713
SN 298ff	Dynon FlightDEK D-180 Airspeed indicator Altimeter HS 34 AP 74	G3-8 CP-10-01-28 102887 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-29 700763

From SN298 on the remote compass is installed underneath the stick cover on the right side or in the left wing root.

Configuration CRUIZER / AVIATOR II			
Serial Number	**Equipment**	**Mounting Frame/ Order Number**	**Cover Panel/ Order Number**
up to SN297	Dynon EFIS D-100 Dynon EMS D-120 HS34 slip indicator optional 57mm instrument	G3-8 CP-10-01-23 102086 G3-8 CP-10-01-20 102081 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-64 102079
SN 298ff	Dynon EFIS D-100 Dynon EMS D-120 HS 34	G3-8 CP-10-01-20 102081 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-82 102702
SN 298ff	Dynon EFIS D-100 Dynon EMS D-120 HS 34 optional 57mm instrument	G3-8 CP-10-01-20 102081 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-81 102700
SN 298ff	Dynon EFIS D-100 Dynon EMS D-120 HS 34 AP 74	G3-8 CP-10-01-20 102081 DYNON mounting frame for D100 series (trim as required)	G3-8 CP-10-01-30 102880

From SN298 on the remote compass is installed underneath the stick cover on the right side or in the left wing root.

15.3.5.1.2 Center Stack

15.3.5.1.2.1 Aircraft up to SN297

Three different center stacks are available, providing space for a GPS, up to two radios, an intercom and a transponder. The following matrix gives an overview of which avionics suite provides which equipment for each model of aircraft.

equipment	Traveller	Explorer	Voyager	Aviator-I	Cruiser	Aviator-II
Garmin GPS 296	●	●	----	----	----	----
Garmin GPS 495	○	○	----	----	----	----
Garmin GPS 496	○	○	●	●	----	●
FlymapL GPS	○	----	○	----	●	----
PM-1000 intercom	●	●	●	●	●	----
Garmin GMA340 Audio Panel	---	----	----	----	----	●
Garmin SL30 NAV/COM	---	----	○	○	●	●
Garmin SL40 COM	●	●	●	●	----	●
Garmin GTX327 XPDR	----	●	----	●	----	●
Garmin GTX328 XPDR	●	----	●	----	●	----
Garmin GTX 330 XPDR	----	○	----	○	----	○

○ optional ● basic equipment --- not available

Center stack, all variants shown

Equipment	Mounting Frame Order Number	Cover Panel Order Number
Flymap L PSE PM 1000 SL40 or SL30 GTX 327/328/330	G3-8 CP-10-01-42 102084 G3-8 CP-10-01-43 102088 G3-8 CP-10-01-44 102089 G3-8 CP-10-01-45 102090 G3-8 CP-10-01-46 102085 SL 30 Tray GTX 327 Tray	G3-8 CP-10-01-71 101792
Garmin x96 series PSE PM 1000 SL40 or SL30 GTX 327/328/330	G3-8 CP-10-01-42 102084 G3-8 CP-10-01-43 102088 G3-8 CP-10-01-44 102089 G3-8 CP-10-01-45 102090 G3-8 CP-10-01-46 102085 SL 40 Tray GTX 327 Tray AirGizmo	G3-8 CP-10-01-71 101792
Garmin x96 series GMA 340 GTX 327/328/330 SL 40 SL 30	G3-8 CP-10-01-42 102084 G3-8 CP-10-01-43 102088 G3-8 CP-10-01-44 102089 G3-8 CP-10-01-45 102090	G3-8 CP-10-01-70 101791

15.3.5.1.2.2 Aircraft from SN298 on

Three different center stacks are available, providing space for a GPS, up to two radios, an intercom and a transponder. The following matrix gives an overview which avionics suite provides which equipment for each model of aircraft.

equipment	Traveller	Explorer	Voyager	Aviator-I	Cruiser	Aviator-II
Garmin GPS 495	○	○	----	----	----	----
Garmin GPS 496	●	●	●	●	----	●
Flymap L GPS	○	----	○	----	●	----
Garmin GMA240 Audio Panel	●	●	●	●	●	----
Garmin GMA340 Audio Panel	---	----	----	----	----	●
Garmin SL30 NAV/COM	---	----	○	○	●	●
Garmin SL40 COM	●	●	●	●	----	●
Garmin GTX328 XPDR	●	●	●	●	●	●
Garmin GTX 330 XPDR	----	○	----	○	----	○

○ optional ● basic equipment --- not available

Center stack, all variants shown

Equipment	Mounting Frame Order Number	Cover Panel Order Number
Flymap L SL40 or SL30 GTX 327/328/330 GMA 240/340	G3-8 CP-10-01-42 102084 G3-8 CP-10-01-43 102088 G3-8 CP-10-01-44 102089 G3-8 CP-10-01-45 102090 G3-8 CP-10-01-46 102085 G3-8 CP-10-01-47 102091	G3-8 CP-10-01-89 102708
Garmin x96 series SL40 or SL30 GTX 327/328/330 GMA 240/340	G3-8 CP-10-01-42 102084 G3-8 CP-10-01-43 102088 G3-8 CP-10-01-44 102089 G3-8 CP-10-01-45 102090 G3-8 CP-10-01-46 102085	G3-8 CP-10-01-87 102706
Garmin x96 series SL40 SL30 GTX 327/328/330 GMA 240/340	G3-8 CP-10-01-42 102084 G3-8 CP-10-01-43 102088 G3-8 CP-10-01-44 102089 G3-8 CP-10-01-45 102090	G3-8 CP-10-01-88 102707

15.3.5.1.3 Right Hand Side

Configuration TRAVELLER / EXPLORER			
Serial Number	**Equipment**	**Mounting Frame/ Order Number**	**Cover Panel/ Order Number**
up to SN 297	OAT Fuel gauge Fuel pressure Volt meter Compass optional 57mm instrument	G3-8 CP-10-01-00 102080	G3-8 CP-10-01-11 100446
SN 298ff	Dynon EMS D-10	G3-8 CP-10-01-01 100853	G3-8 CP-10-01-92 102712

Configuration VOYAGER / AVIATOR I			
Serial Number	**Equipment**	**Mounting Frame/ Order Number**	**Cover Panel/ Order Number**
up to SN 297	OAT Fuel gauge Fuel pressure Volt meter Compass optional 57mm instrument	G3-8 CP-10-01-00 102080	G3-8 CP-10-01-11 100446
SN 298ff	Dynon EMS D-10	G3-8 CP-10-01-01 100853	G3-8 CP-10-01-90 102710

Configuration VOYAGER / AVIATOR I			
Serial Number	**Equipment**	**Mounting Frame/ Order Number**	**Cover Panel/ Order Number**
up to SN 297	Altimeter Airspeed indicator Compass Fuel gauge	G3-8 ET-0100014 102080	G3-8 CP-10-01-11 100446
SN 298ff	Altimeter Airspeed indicator	G3-8 CP-10-01-01 100853	G3-8 CP-10-01-91 102711

15.3.5.2 *GXeLITE Panel*

15.3.5.2.1 Left Hand Side

Configuration GXeLITE	
Equipment	**Panel / Order Number**
DYNON Flight DEK D-180 BECKER radio AR6201 BECKER transponder BXP6401 Intercom ps engineering PM3000	G3-8 CP-10-01-11 100446

15.3.5.2.2 Center Stack

Configuration GXeLITE	
Equipment	**Panel / Order Number**
Garmin aera 500 series	G3-8 CP-50-01-07 103364 airGizmo aera 500
Garmin 695/696	G3-8 CP-50-01-08 103365 airGizmo 696
Flymap L	G3-8 CP-50-01-05 103363 G3-8 CP-50-01-50 103311

Center stack, all variants shown

15.3.5.2.3 Right Hand Side

Configuration GXeLITE	
Equipment	**Panel / Order Number**
Airspeed indicator Altimeter Circuit breakers Fresh and heated air 12V receptacle	G3-8 CP-50-01-03 103264
Airspeed indicator Altimeter Circuit breakers Fresh and heated air 12V receptacle ELT remote switch	G3-8 CP-50-01-06 103358

15.3.5.3 *GXnXES Panel*

15.3.5.3.1 Left Hand Side

Configuration GXnXES **Equipment**	**Panel / Order Number**
DYNON SV D700 Garmin SL30 or SL40 Altimeter Airspeed indicator Engine power, carburetor heat, choke, oil cooler flap	G3-8 CP-50-01-52 103313 G3-8 CP-50-01-53 103314 G3-8 CP-50-01-54 103315 G3-8 CP-50-01-09 103319
DYNON SV D700 Garmin SL30 or SL40 Altimeter Airspeed indicator Engine power, carburetor heat, choke, oil cooler flap optional 57mm instrument	G3-8 CP-50-01-52 103313 G3-8 CP-50-01-53 103314 G3-8 CP-50-01-54 (2 ea.) 103315 G3-8 CP-50-01-09 700950

15.3.5.3.2 Center Stack

Configuration GXnXES	
Equipment	**Panel / Order Number**
Garmin aera 500 series	G3-8 CP-50-01-07 103364 airGizmo aera 500
Garmin 695/696	G3-8 CP-50-01-08 103365 airGizmo 696
Flymap L	G3-8 CP-50-01-11 103366 G3-8 CP-50-01-50 103311

Center stack, all variants shown

15.3.5.3.3 Right Hand Side

Configuration GXnXES	
Equipment	**Panel / Order Number**
Intercom / Audio Panel Circuit breakers Fresh and heated air 12V receptacle	G3-8 CP-50-01-54 103315 G3-8 CP-50-01-55 103316 G3-8 CP-50-01-56 103317 G3-8 CP-50-01-12 700953
DYNON SV D700 Intercom / Audio Panel Circuit breakers Fresh and heated air 12V receptacle	G3-8 CP-50-01-54 103315 G3-8 CP-50-01-55 103316 G3-8 CP-50-01-56 103317 G3-8 CP-50-01-16 700957
Intercom / Audio Panel Circuit breakers Fresh and heated air 12V receptacle ELT Remote Switch	G3-8 CP-50-01-54 103315 G3-8 CP-50-01-55 103316 G3-8 CP-50-01-56 103317 G3-8 CP-50-01-13 700954
DYNON SV D700 Intercom / Audio Panel Circuit breakers Fresh and heated air 12V receptacle ELT Remote Switch	G3-8 CP-50-01-54 103315 G3-8 CP-50-01-55 103316 G3-8 CP-50-01-56 103317 G3-8 CP-50-01-17 103320

15.3.5.3.4 Removal

- **Required Tools:** Standard metric tools, wire cutting pliers
- **Required Parts:** Cable ties, self-locking nuts (M4) as required for reinstallation
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

Most instruments are secured to panel with screws inserted through panel face. To remove an instrument, remove decorative cover, disconnect wiring or plumbing to instrument, remove mounting screws and take instrument out from behind, or in some cases, from front of panel.

15.3.5.3.5 Installation

Generally, installation procedure is the reverse of removal procedure. Ensure mounting screw nuts are tightened firmly, but do not over-tighten, particularly on instruments having plastic cases. The same rule applies to connecting plumbing and wiring.

Figure 15-2a

Instrument System - Removal and Installation

Step A

Remove Retaining Screws and Decorative Panel
Remove Retaining-Screws
from Support Bracket (only applicable at Avionics Frame).

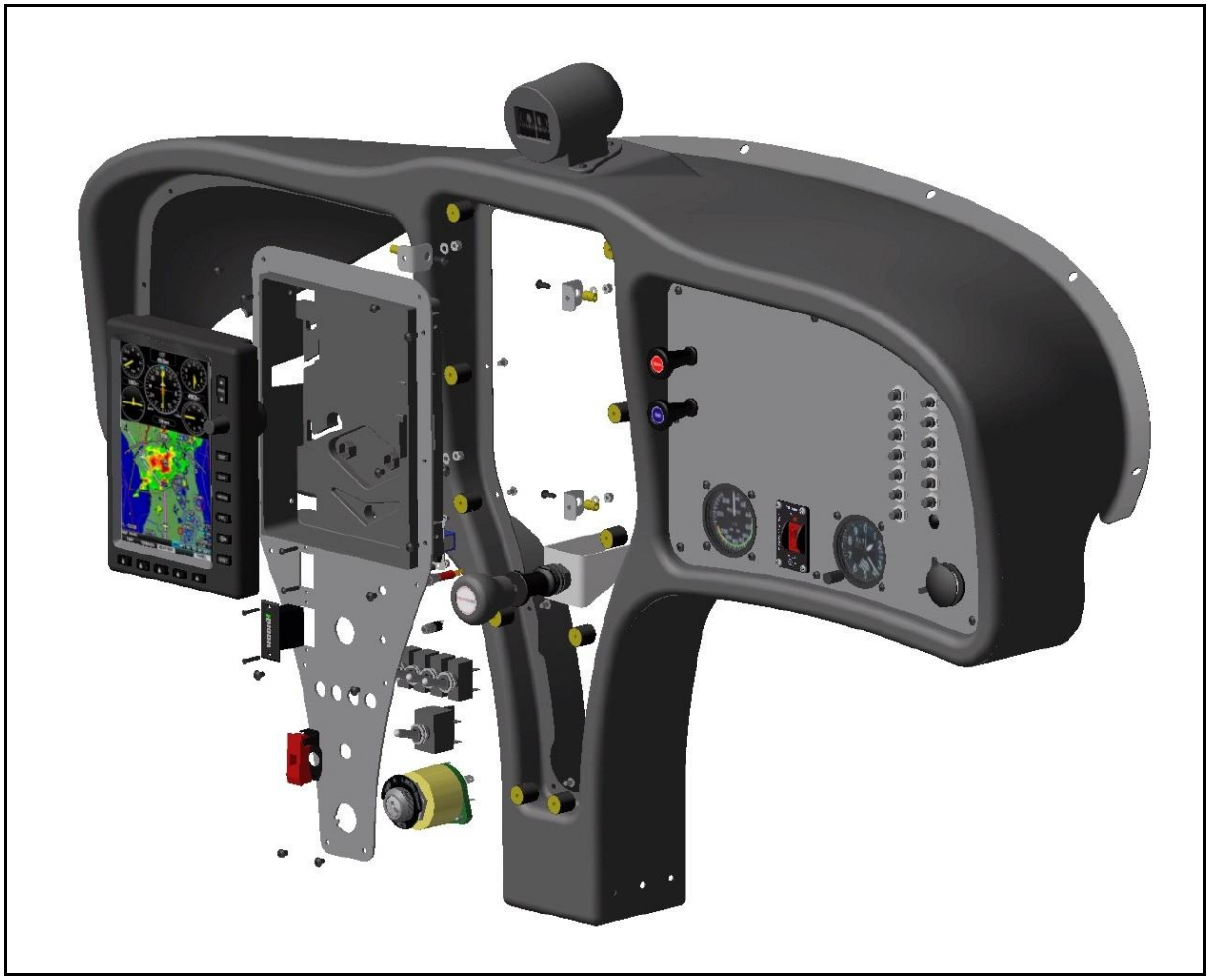
Step B

Remove Support Frame Retaining Screws

Step C

The whole Rack can be swung out of the Cockpit Main Frame.
Pull out the Rack and Disconnect all Harnesses from the installed Devices.

Figure 15-2b



15.3.6 Pitot and Static System, Description

The pitot system conveys ram air pressure to the airspeed indicator. The static system vents vertical speed indicator, altimeter and airspeed indicator to atmospheric pressure through plastic hoses connected to a static port on each side of the fuselage. The system is similar in both panels. Refer to the POH Section7 for further information about the systems and instruments that are equipped.

15.3.7 Maintenance

Proper maintenance of pitot and static system is essential for proper operation of altimeter, vertical speed and airspeed indicator. Leaks, moisture and obstructions in pitot system will result in false airspeed indications, while static system malfunctions will affect readings of all three instruments. Cleanliness and security are the principal rules for system maintenance. The pitot tube and static ports MUST be kept clean and unobstructed.

15.3.8 Static Pressure System Inspection, Leakage Test

The following procedure outlines inspection and testing of static pressure system, assuming the altimeter has been tested and inspected in accordance with current Federal Aviation Regulations.

a. Ensure static system is free from entrapped moisture and restrictions.

b. Ensure no alterations or deformations of airframe surface have been made which would affect the relationship between air pressure in static pressure system and true ambient static air pressure for any flight configuration.

c. Attach a source of suction to one static pressure source opening while covering the static pressure vent on the opposite side of the fuselage.

d. Slowly apply suction until altimeter indicates a 1000-foot increase in altitude.

e. Cut off suction source to maintain a “closed” system for one minute. Leakage shall not exceed 100 feet of altitude lose as indicated on altimeter.

f. If leakage rate is within tolerance, slowly release suction source.

g. Disconnect static pressure line from airspeed indicator and vertical speed indicator. Use suitable fittings to connect hoses together so altimeter is the only instrument still connected into static pressure system.

h. Repeat leakage test to check whether static pressure system or the bypassed instruments are cause of leakage. If instruments are at fault, they must be repaired by an “appropriated rated repair station” or replaced. If static pressure system is at fault, use following procedure to locate leakage.

i. Attach a source of positive pressure to static source opening.

j. Slowly apply positive pressure until altimeter indicates a 500-foot decrease in altitude and maintain this altimeter indication while checking for leaks. Coat line and static source connections with solution of mild soap and water, watching for bubbles to locate leaks.

k. Repair or replace parts found defective.

l. Reconnect airspeed and vertical speed indicators into static pressure system and repeat leakage test per steps **c** through **f**.

CAUTION	When applying or releasing suction, do not exceed range of vertical speed indicator or airspeed indicator.

♦ NOTE	If leakage rate exceeds maximum allowable, first check all connections, then repeat leakage test. If leakage rate still exceeds maximum allowable, use following procedure.

CAUTION	Do not apply positive pressure with airspeed indicator or vertical speed indicator connected to static pressure system.

15.3.9 Pitot System Inspection, Leakage Test

To check pitot system for leaks, fasten a piece of rubber or plastic tubing over pitot tube, close opposite end of tubing and slowly roll up tube until airspeed indicator registers in cruise range. Secure tube and after a few minutes recheck airspeed indicator. Any leakage will have reduced the pressure in system, resulting in a lower airspeed indication. Slowly unroll tubing before removing it, so pressure is reduced gradually. Otherwise instrument may be damaged. If test reveals a leak in system, check all connections.

15.3.10 Blowing out Lines

Condensation may collect in the system and produce a partial obstruction. To clear hose, disconnect at airspeed indicator. Using low pressure air, blow from indicator end of line toward pitot tube.

CAUTION	Never blow through pitot or static lines towards instruments.

Like pitot lines, static pressure lines must be kept clear and connected safely. When necessary, disconnect static line at first instrument to which it is connected, then blow line clear with low-pressure air. Check all static pressure line connections. If hose or hose connections are used, check for general condition and security. Replace any hose which has cracked, hardened or show other signs of deterioration.

Figure 15-3

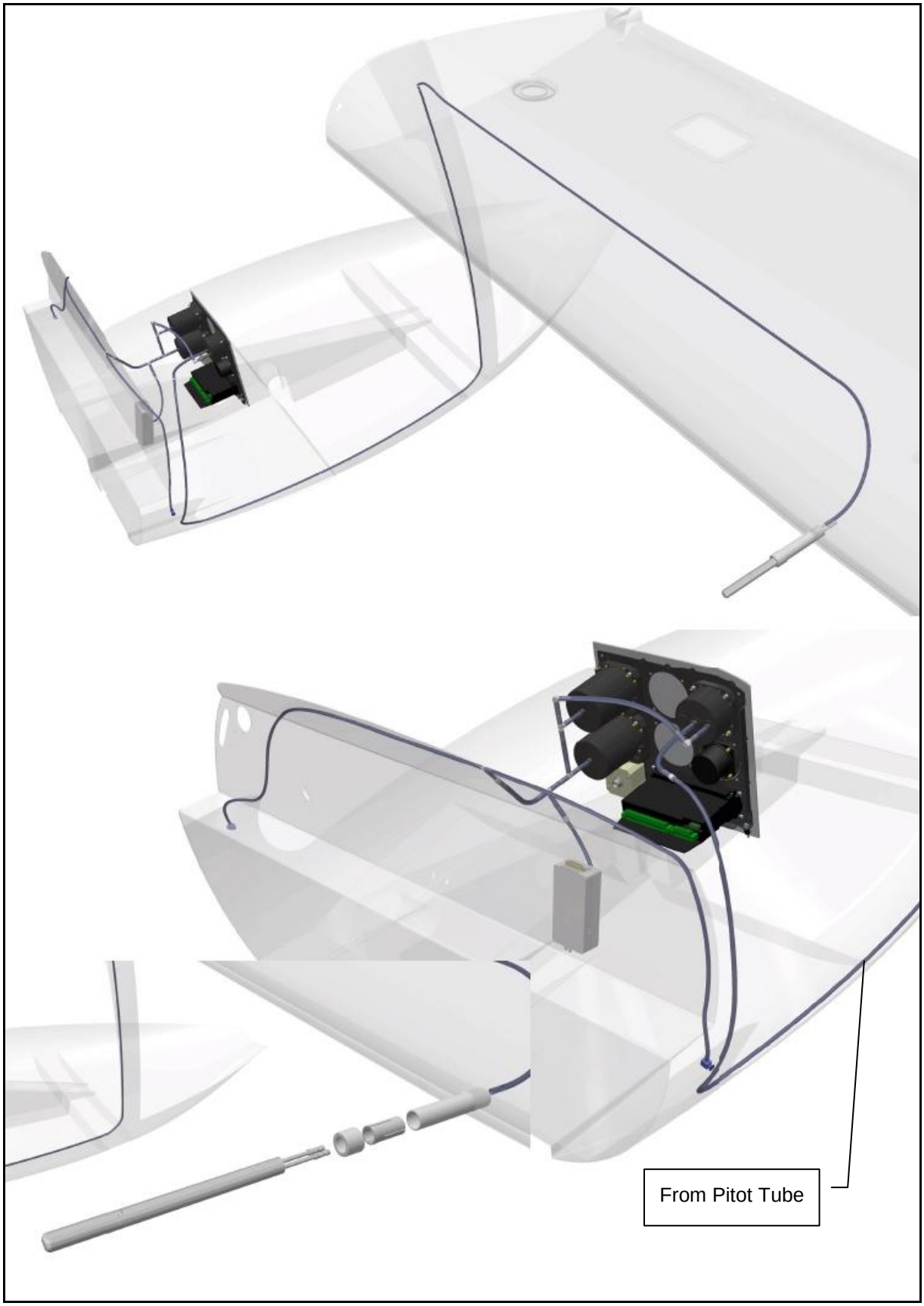


Figure 15-4

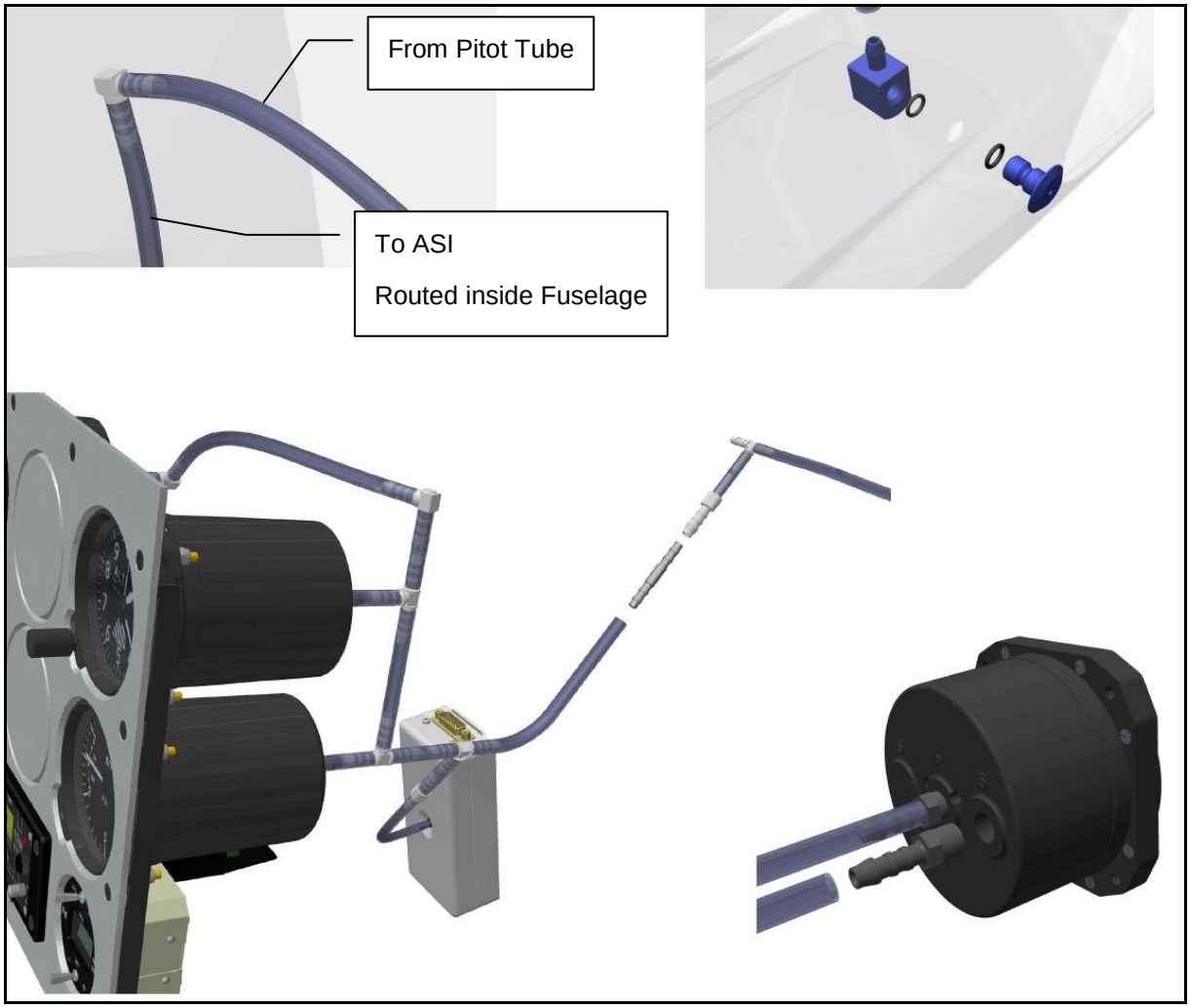


Figure 15-5

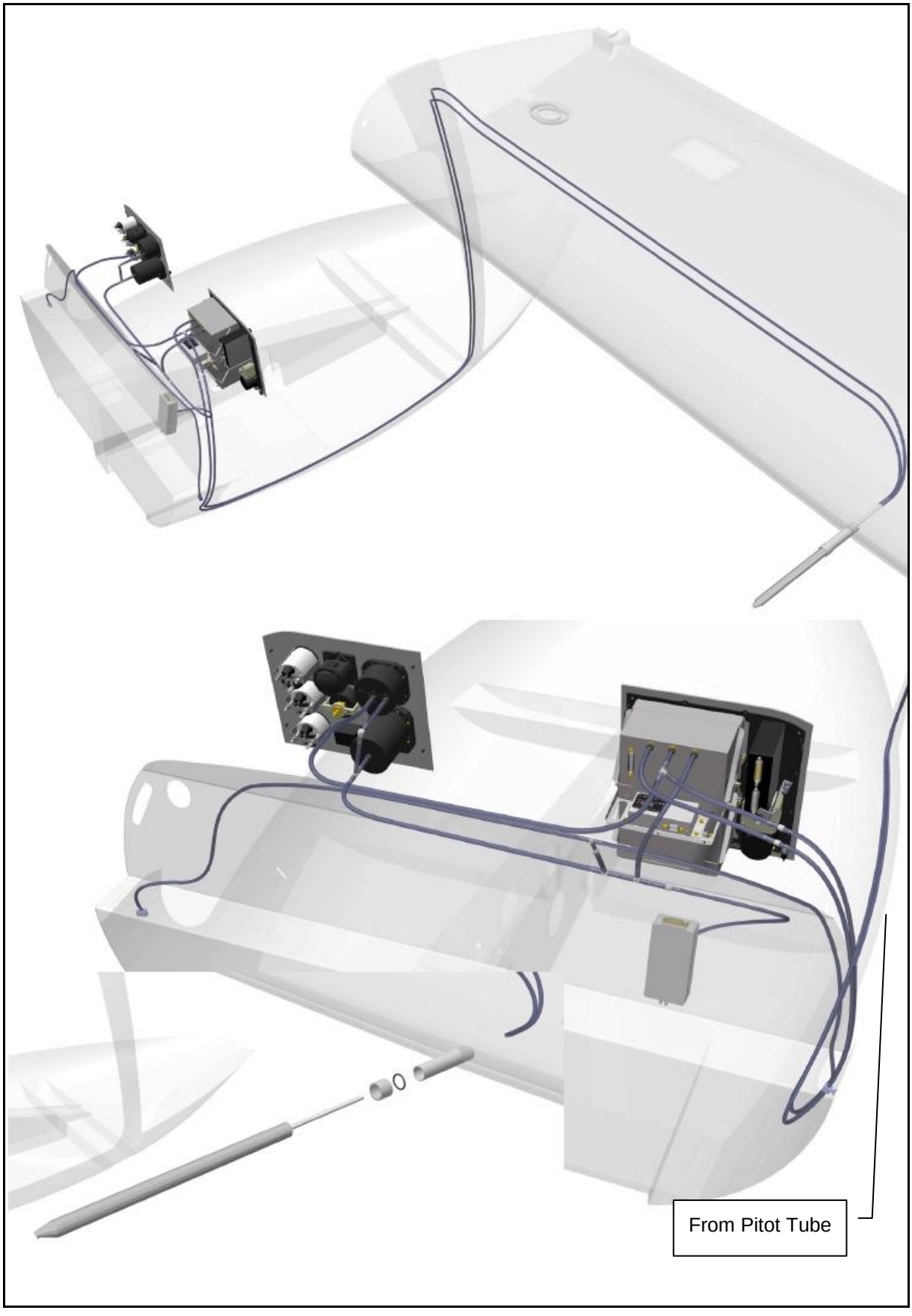


Figure 15-6

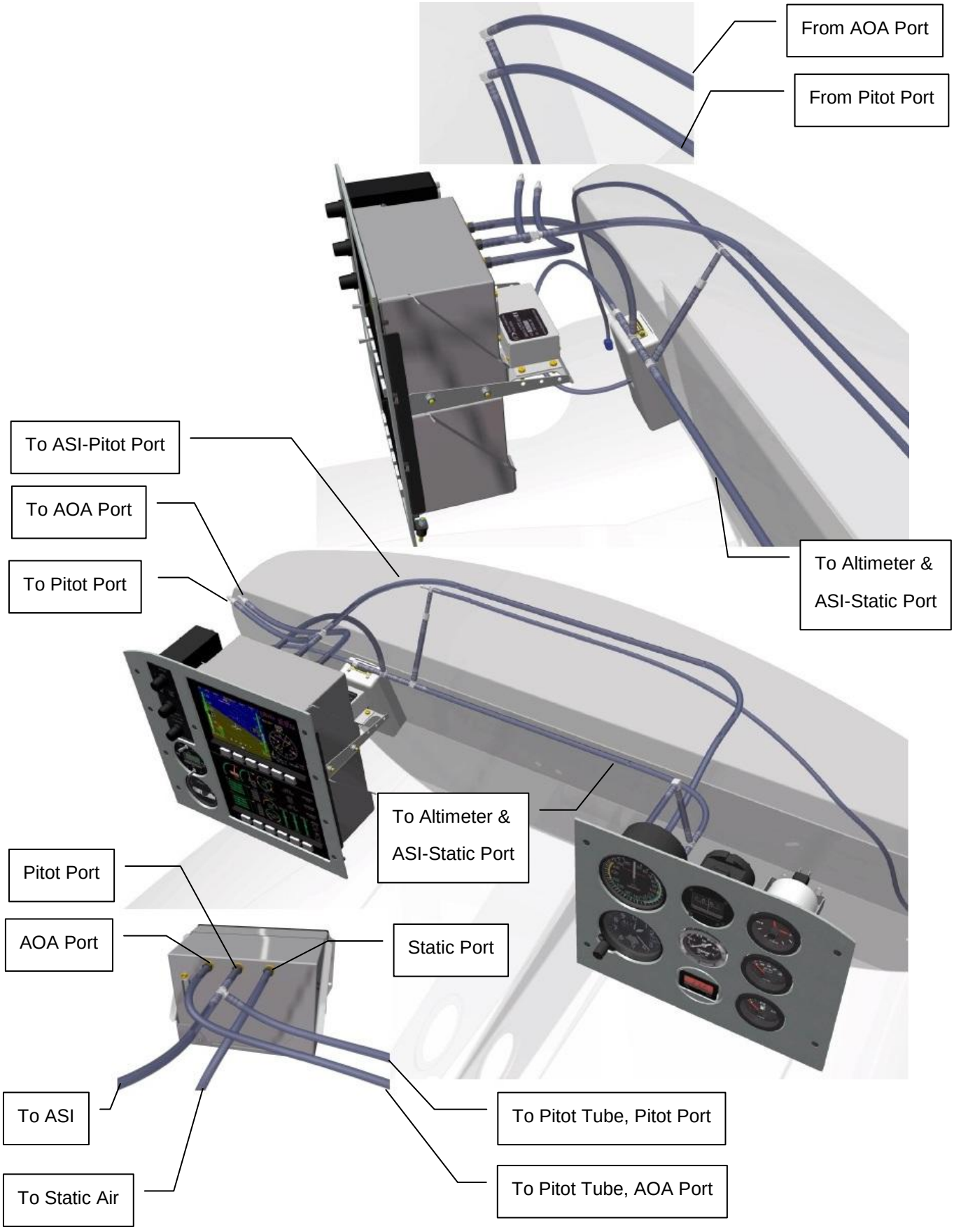
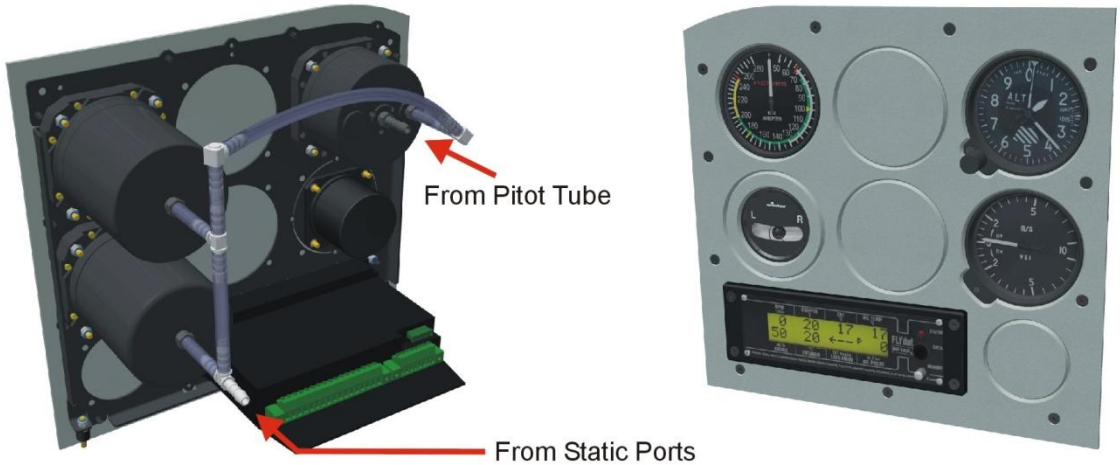

From AOA Port
From Pitot Port
To ASI-Pitot Port
To AOA Port
To Pitot Port
To Altimeter &
ASI-Static Port
To Altimeter &
ASI-Static Port
Pitot Port
AOA Port
Static Port
To ASI
To Static Air
To Pitot Tube, Pitot Port
To Pitot Tube, AOA Port

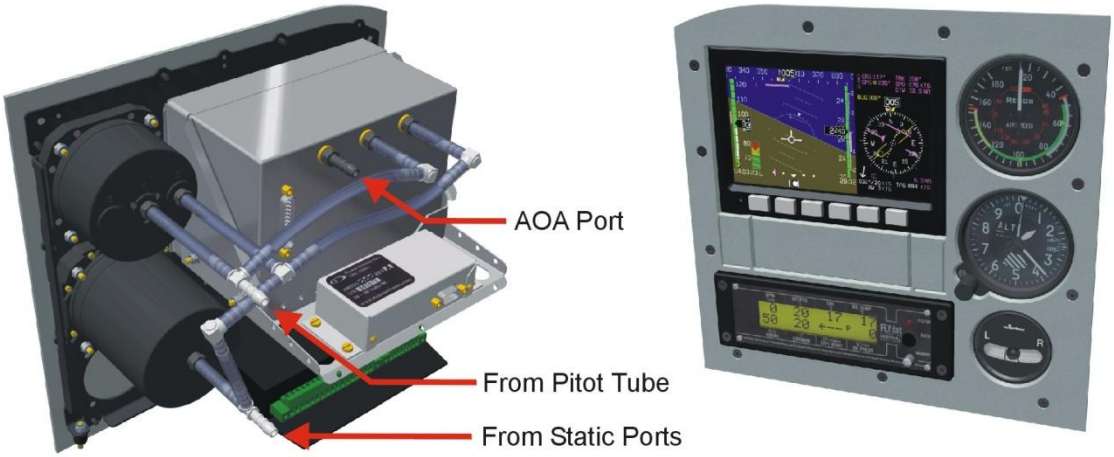
Figure 15-7

Pitot and Static Air System - Indicator Hose Routing

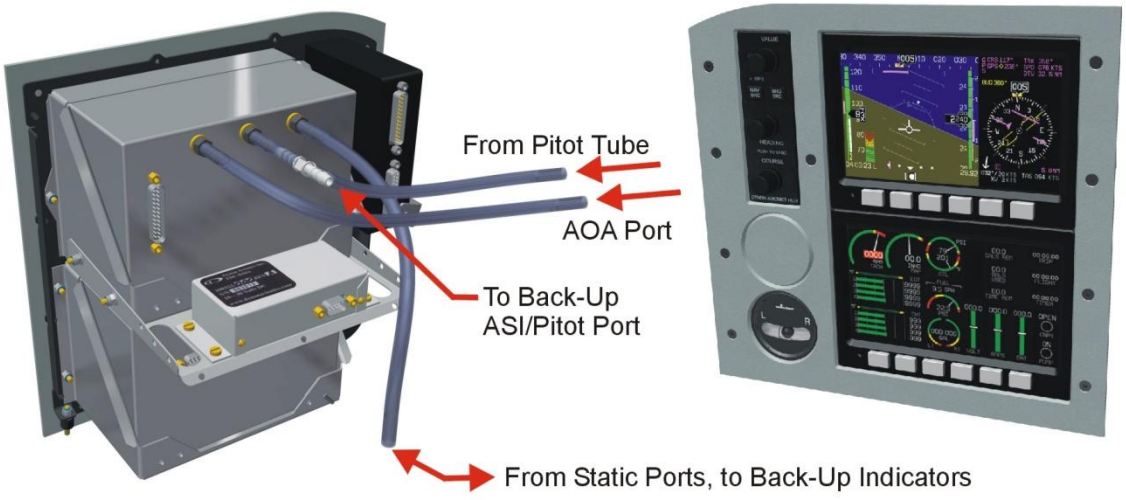
Non-Electronic Standard Indicator System



Dynon EFIS D-100 with Back-Up Indicator System



Dynon EFIS D-100 + Dynon EMS D-120 Engine Montior, with Back-Up Indicator System



15.3.11 Removing and Installation of Components

- **Required Tools:** Standard metric tools, edge cutter
- **Parts required:** Cable ties, hoses as required.
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

To remove pitot tube, unscrew union nut and withdraw tube from support tube. A pitot line running within the left wing is fixed inside the wing and cannot be removed. A backup line is routed along the pitot line, which may be used if damage to the original pitot line inside the wing is detected. The pitot line is connected to the fuselage adjacent to the root rib, access is possible when the left wing is folded back (refer to Pilot Operating Handbook, Section 8). The unused line is secured by a cable tie inside the wing, access is possible thru a hole in the wing root, while the opposite end of this line is connected to the "static-air" port at the pitot tube (the "static-air" port on the pitot tube is not used in the system). If an advanced instrument system is installed (Dynon Glass Cockpit), the second line is used for the AOA (angle of attack) port with the Dynon AOA pitot tube (refer to figure 15-10).

15.3.12 Trouble Shooting-Pitot Static System

Trouble	Probable Cause	Remedy
Low or sluggish airspeed indication (normal altimeter and vertical speed).	Pitot tube obstructed, leak or obstruction in pitot line.	Test pitot tube and line for leaks or obstructions. Blow out tube and line, repair or replace damaged line.
Incorrect or sluggish response (all three instruments).	Leaks or obstructions in static line.	Test line for leaks and obstructions. Repair or replace line, blow out obstructed line.

15.3.13 Trouble Shooting Airspeed Indicator

CAUTION	In case of exchanged airspeed indicator refer to airspeed speed markings according to POH and current status of notices of continued airworthiness.

Trouble	Probable Cause	Remedy
Pointer fails to respond.	Pitot pressure connection not properly connected to pressure line from pitot tube.	Test line and connection for leaks. Repair or replace damaged line.
	Pitot or static lines clogged.	Check line for obstructions. Blow out lines.
Incorrect indication or pointer oscillates.	Leak in pitot or static lines.	Test lines and connections for leaks. Repair or replace damaged lines.
	Defective mechanism or leaking diaphragm.	Substitute known-good indicator and check reading. Replace indicator.
Pointer vibrates.	Excessive vibration.	Check panel shock mounts and replace if required.
	Excessive tubing vibration.	Check clamps, cable ties and line connections for security.

15.3.14 Trouble Shooting Altimeter

Trouble	Probable Cause	Remedy
Instrument fails to operate.	Static line plugged.	Check line for obstructions. Blow out lines.
	Defective mechanism.	Substitute known-good altimeter and check reading. Replace indicator.
Incorrect indication.	Pointer not carefully set.	Reset hands with knob.
	Leaking diaphragm.	Substitute known-good altimeter and check reading. Replace indicator.
	Pointers out of calibration.	Compare reading with known-good altimeter. Replace indicator.
Pointer oscillates.	Static pressure irregular.	Check lines for obstruction or leaks. Blow out lines.
	Leak in airspeed or vertical speed indicator installations.	Check other instruments and system plumbing for leaks. Blow out lines.

15.3.15 Trouble Shooting Vertical Speed Indicator

Trouble	Probable Cause	Remedy
Instrument fails to operate.	Static line plugged.	Check line for obstructions. Blow out lines.
	Static line broken	Check line for damage, connections for security. Repair or replace damaged line.
Incorrect indication.	Partially plugged static line.	Check line for obstructions. Blow out line.
	Ruptured diaphragm.	Substitute known-good indicator and check reading. Replace indicator.
	Pointer off zero.	Reset pointer to zero.
Pointer oscillates.	Partially plugged static line.	Check line for obstructions. Blow out lines.

15.4 *Engine Indicators*

15.4.1 Rotax FLYdat System

The FLYdat represents an instrument specially developed for Rotax Aircraft engines for the indication and acquisition of engine operating data readily accessible for the pilot. The FLYdat provides the following indicators:

Engine speed, cylinder head temperature, oil temperature, oil pressure, exhaust gas temperatures, operation hours.

The operating data is being permanently compared with the specific engine operating limit. If the signaled operating data exceeds the stored operating limits, the FLYdat will warn the pilot.

15.4.1.1 *Removal and Installation*

- **Required Tools:** Standard metric tools, wire-cutting pliers
- **Parts required:** Cable ties, 4 x self-locking nut (M4)
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Disconnect battery leads and insulate as safety precaution.

b. Unscrew retaining screws and remove decorative ABS cover.

c. Remove shock-mount screws in both upper corners of the aluminum frame.

d. Pull out upper edge of the frame and lift up to disengage the lower shock-mounts from cockpit main-frame.

e. Disconnect wiring and hoses and remove panel.

f. Unscrew and remove FLYdat.

g. Reverse preceding steps for reinstallation.

♦ NOTE	Do not overtighten cover fixing screws at reinstallation, because this would cause the ABS decorative cover to crack.

15.4.1.2 *Trouble Shooting*

Trouble	Probable Cause	Remedy
FLYdat fails to operate.	Low battery voltage.	Check, recharge or replace battery. Refer to Section 2.
	Blown fuse or circuit breaker.	Replace fuse or reset circuit breaker.

	Defective FLYdat.	Substitute known-good FLYdat and check operation. Replace FLYdat.
Incorrect Indication	Defective sensor.	Replace Sensor.
	Improper connection.	Check terminals, repair or replace defective parts.
No reading / dashes	Broken wiring or damaged connectors.	Check wiring and connections, repair or replace defective parts.
	Defective FLYdat.	Substitute known-good FLYdat and check operation. Replace FLYdat.

15.4.2 Fuel Quantity Indicating System, Description

The electric type fuel quantity indicator is used in conjunction with a float – operated variable – resistance transmitter in the fuel tank. The full position of float produces a maximum resistance (~180 ohms) through transmitter, permitting maximum pointer deflection. As fuel level is lowered, resistance in transmitter is decreased, producing a smaller pointer deflection. The transmitter provides a resistance of ~3 ohms in its lower position (fuel empty).

15.4.2.1 *Removal and Installation*

- **Required Tools:** Standard metric tools
- **Parts required:** Cable ties
- **Level of Maintenance:** Heavy
- **Certification required:** A&P Mechanic, LSA Repairman, Part 145 Repair Station, REMOS Service Center

To remove the fuel quantity transmitter, the fuel tank has to be removed first, refer to Section 12 for detailed information. Remove screws attaching transmitter and carefully work transmitter from tank. Do not bend float arm!

Install transmitter by reversing preceding steps. Service fuel tank and check for leaks and correct quantity indication.

♦ NOTE	Ensure transmitter is properly grounded in accordance with Section 12.

15.4.2.2 *Trouble Shooting*

Trouble	Probable Cause	Remedy
Failure to indicate.	No power to indicator (pointer stays below 0).	Check fuse/circuit breaker and inspect for open circuit. Repair or replace defective wire.

	Grounded wire (pointer stays below 0).	Check for partial ground between transmitter and gauge. Repair or replace defective wire.
	Disconnected or broken wire (pointer stays above 1/1).	Inspect wire for partial damage. Inspect terminal connection on gauge and transmitter.
	Defective indicator.	Substitute known-good indicator. Replace indicator.
	Defective transmitter.	Check resistance of transmitter as outlined in paragraph 15.4.2.
Off calibration.	Defective indicator.	Substitute known-good indicator. Replace indicator.
	Defective transmitter.	Substitute known-good indicator. Recalibrate or replace.
Sluggish indicator operation.	Defective indicator.	Substitute known-good indicator. Replace indicator.
Erratic readings.	Loose or broken wiring.	Inspect circuit wiring. Repair or replace defective wire.
	Defective indicator or transmitter.	Substitute known-good device. Replace indicator or transmitter.

15.4.2.3 *Transmitter Calibration*

▲ WARNING	Use extreme caution while working with electrical components of fuel system. The possibility of electrical sparks around an “empty” fuel tank creates a hazardous situation.

Before installing transmitter, attach electrical wires and place master switch in “ON” position. Allow float arm to rest against lower float arm stop and read indicator. The pointer should be on 0 (empty) position. Raise float until arm is against upper stop and permit indicator pointer to be on 1/1 (full). If any other reading is dedicated, replace transmitter. Check that floater arm moves without friction.

Adjust float arm to a length of 7.5 inch (measured between floater and float arm fixing screw). Note floater orientation before adjusting arm length.

15.4.3 Manifold Temperature Gauge, Description

An electronic type manifold/outside temperature gauge, featuring a LCD-display is installed on the right cockpit panel. Temperatures are measured by two sensors installed to the airbox (manifold temperature) and beneath the main gear-fairing at the bottom of the fuselage (outside temperature).

Pressing the "in/out" button will alternate the display between outside and manifold temperature. Refer to the manufacturer´s user manual for detailed information.

If the aircraft is equipped with an electronic primary flight display system (Dynon Glass Cockpit System), the temperature gauge is contained within the EMS D-120.

15.4.3.1 *Removal and Installation*

a. Disconnect battery leads and insulate as safety precaution.

b. Unscrew retaining screws and remove decorative ABS cover.

c. Remove shock-mount screws in both upper corners of the aluminum frame.

d. Pull out upper edge of the frame and lift up to disengage the lower shock-mounts from cockpit main-frame.

e. Disconnect wiring and hoses and remove panel.

f. Remove manifold temperature indicator.

g. Reverse preceding steps for reinstallation.

♦ NOTE	Do not overtighten cover fixing screws at reinstallation, because this would cause the ABS decorative cover to crack.

15.4.3.2 *Trouble Shooting*

Trouble	Probable Cause	Remedy
Instrument fails to operate.	No power to indicator.	Check fuse/circuit breaker and inspect for open circuit. Repair or replace defective wire.
Failure to indicate.	Defective sensor.	Replace indicator.
	Defective indicator.	Replace indicator.

15.5 *Magnetic Compass, Description*

The magnetic compass is liquid-filled, with expansion provisions to compensate for temperature changes. It is equipped with compensating magnets adjustable from front of case. No maintenance is required on compass except on occasional check on a compass rose for adjustment of compensation.

15.6 *Slip Indicator*

The slip indicator needs no servicing. If damaged, it needs to be replaced

15.7 *Bill of Materials Standard Parts*

Order No.	Description	applicable SN or configuration
103139	Circuit Breaker 3A	GXeLITE, GXnXES
103142	Circuit Breaker 25A	GXeLITE, GXnXES
103140	Circuit Breaker 5A	GXeLITE, GXnXES
103281	Circuit Breaker 7,5A	GXeLITE, GXnXES
103137	Circuit Breaker 1A	GXeLITE, GXnXES
103133	Covering Black A= 9.3	GXeLITE, GXnXES
103258	Covering Black A= 12,8	GXeLITE, GXnXES
103272	Lever Switch Unipolar (system switches)	GXeLITE, GXnXES
103340	Lens Head Screw V2A ISO7380 M3x10 Painted	GXeLITE, GXnXES
103338	Lens Head Screw V2A ISO7380 M4x6 Painted	GXeLITE, GXnXES
100367	Shock Mount 15x15 Internal Thread M4	all
100234	Washer 3,2 DIN125 Form A blue vz	all
100212	Self-Locking Nut M4 DIN985 vz	all
100973	LED Indicator RP3	all
103287	Lens Head Screw Hexagon Socket M3x16 ISO7380 A2-70	GXeLITE, GXnXES
103328	Distance Bush 3,1x5x5 POM	GXeLITE, GXnXES
103280	Flaps Switch	all
100211	Self-Locking Nut M3 DIN985 vz	all
102276	DYNON OAT Sensor	all
102076	12 Volt Socket With Cover	all
103273	Lever Switch bipolar (master and avionic switch)	GXeLITE, GXnXES
103249	Rubber Buffer cylindrical 10x15 M4	all
103274	3,5 mm stereo jack	all
103276	LED Signal Lamp 5mm red	GXeLITE, GXnXES
103275	Safety Cover for Main Switch	GXeLITE, GXnXES

Order No.	Description	applicable SN or configuration
103337	Lens Head Screw V2A ISO 7380 M4x6 painted	GXeLITE, GXnXES
103341	Lens Head Screw V2A ISO7380 M4x10 painted	GXeLITE, GXnXES
101862	Pitot Tube WINTER	all
101914	Pitot Tube DYNON	
100569	Clamp Sleeve	all
101829	Bowden Cable Choke	all
101829	Bowden Cable Warm/Cold Air	all
100570	Nut Pitot Tube	all
101025	circuit breaker 3A	all but GXnXES and GXeLITE
101026	circuit breaker 10A	all but GXnXES and GXeLITE
101024	circuit breaker 25A	all but GXnXES and GXeLITE
100969	trim switch	up to SN 297
102167	wire protection 3x5x8	all but GXnXES and GXeLITE
102146	cockpit light bracket large	all but GXnXES and GXeLITE
102147	cockpit light bracket large	all but GXnXES and GXeLITE
102093	LED stripe 12V/DC red	all but GXnXES and GXeLITE
102153	sink bolt ISO7380 M4x10	all but GXnXES and GXeLITE
100214	rivkle M4x7,05x10,5	all but GXnXES and GXeLITE
102131	round nut M10x0,75	all but GXnXES and GXeLITE
102050	knob 12/6mm	all but GXnXES and GXeLITE
100116	sink bolt DIN7991 M4x16	all but GXnXES and GXeLITE

15.8 *Bill of Materials Instruments*

Order No.	Description	applicable SN or configuration
100991	Compass C-2300 L4P North	up to 297
101654	Compass C-2300 L4P South	up to 297
102777	Compass C-2400 L4P North	298ff
102865	Compass C-2400 L4P South	298ff
102335	Airspeed Indicator 3-1/8”	Explorer, AVIATOR-I, AVIATOR-II
103307	Airspeed Indicator 2-1/4”	GXeLITE, GXnXES
103170	Altimeter 3-1/8”	Explorer, AVIATOR-I, AVIATOR-II
103310	Altimeter 2-1/4”	GXeLITE, GXnXES
102217	Slip Indicator	Explorer, AVIATOR-I and –II up to SN297
102698	DYNON EMS D-10	298ff, Explorer
101650	DYNON EMS D-120	AVIATOR-II
102696	DYNON FlightDEK D-180	298ff, AVIATOR-I
101904	DYNON EFIS D-100	AVIATOR-II
101649	Remote Compass EDC D-10A	AVIATOR-I, AVIATOR-II
103300	SkyView SV-D700	GXnXES
103301	SkyView SV-ADAHRS-200	GXnXES
103302	SkyView SV-EMS-220	GXnXES
103305	SkyView SV-BAT-320	GXnXES
103303	SkyView SV-GPS-250	GXnXES
101898	Garmin SL40	all but GXeLITE
101634	Becker AR4201	GXeLITE
101897	Garmin SL30	all but GXeLITE
101635	Garmin GTX327	Explorer, AVIATOR-I, AVIATOR-II
102010	Garmin GTX328	Explorer, AVIATOR-I, AVIATOR-II
101636	Garmin GTX330	Explorer, AVIATOR-I, AVIATOR-II
101922	Becker BXP6401-2-(01)	GXeLITE
103304	DYNON SV-XPNDR-261	GXnXES

Order No.	Description	applicable SN or configuration
103537	ACK A-30	Explorer
101992	TCI SSD120	Explorer
101923	Becker BE-6400-01	GXeLITE
102011	Garmin GPSMAP 295/296	all
102340	Garmin GPSMAP 495/496	all
103299	Garmin GPSMAP 695/696	GXeLITE, GXnXES
101014	VHF Antenna CI121 o.e.	all
102512	VHF Antenna CI122 o.e.	AVIATOR-II
102054	VOR Antenna CI157P o.e.	all
101006	XPDR Antenna AV22 o.e.	all
102697	Garmin GMA-240	SN298ff, Explorer, AVIATOR-I, GXnXES
101836	Garmin GMA-340	AVIATOR-II
101647	ps-engineering PM-1000	up to SN297, no AVI-II
103324	ps-engineering PM-3000	GXeLITE
103322	ps-engineering PMA-8000BT	GXnXES
102786	ELT ACK AFE-01	all
103131	ELT ARTEX ME406	all
102786	ELT KANNAD AF406 compact	all
102517	ELT KANNAD AF406 integra	all
100992	Flydat US	up to SN297 but AVI-II
103325	Garmin aera 500	all

Section 16

Electrical Systems

Table of Contents **Section**

16.1 Electrical System, General

This section contains service information necessary to maintain the Aircraft Electrical Power Supply System, Battery, Alternator Power System, Aircraft Lighting System and Electrical Load Analysis.

16.2 Electrical Power Supply System, Description

Electrical energy for the aircraft is supplied by a 14-volt, direct-current, single-wire, negative ground electrical system. A 12-volt battery supplies power for starting and furnishes a reserve source of power in the event of alternator failure. An engine-driven alternator is the normal source of power during flight and maintains a battery charge controlled by a voltage regulator.

16.2.1 Master Wiring System

The aircraft is equipped with a master wiring system (main bus), featuring various terminal connectors to provide an easy installation of additional electric equipment. The master wiring also provides a master power bus and an avionics power bus system. Detailed wiring diagrams on request at **www.remos.com**.

16.2.2 Switch Panel

A switch panel is located at the lower center section of the cockpit frame. The switch panel provides all switches including master and avionic master switch, flap drive switch, trim switch, as long as the indicators for flap- and trim tab position, ignition key, charge tell-tale and throttle lever.

16.2.3 Master Switch

The operation of the battery and alternator system is controlled by a master switch. The switch, when operated, connects the battery to the master wiring system, activating the power systems.

16.2.4 Avionics Master Switch

When the avionics master switch is operated, power to the avionics bus system is enabled. The avionics bus system provides power to all electronic devices like radio, intercom, transponder, GPS, attitude indicator, directional indicator, EFIS system (if fitted).

16.2.5 Flap Drive Switch

A 3-postion switch located on the switch panel provides power to the flap drive motor. Push down the switch will extend the flaps continuously to the desired angle, indicated on the gauge below. The switch will engage if pushed to upper position, while flaps will be retracted fully.

16.2.6 Device Switches

The switch panel also provides 2-position switches, to control ACL, fuel pump, position lights, instrument lighting and landing light. The right switch is not used with basic equipment.

16.2.7 Ignition and Magneto Switch

A key type switch installed in the switch panel controls the starter motor and both magnetos. Starting the engine is only possible after the master switch is switched on.

▲ WARNING	Switching off the master switch while engine running will damage the voltage regulator with serious damage to all installed electronic equipment.

16.2.8 Automatic Circuit Breakers Panel

On the lower edge of the right panel a circuit breaker panel is installed. The panel provides automatic circuit breakers for the master- and avionics bus system.

16.2.9 Optional Equipment

16.2.9.1 Connecting Optional Instruments

The master wiring system of the aircraft provides terminal connectors for various extensions like: Voltage indicator, exhaust gas indicators, oil temperature gauge, oil pressure gauge, rpm gauge, clock and more. Extension wiring systems are available for most instruments.

16.2.9.2 Connecting Avionics Devices

The avionics wiring system of the aircraft provides terminal connectors for various extensions like: Radio, intercom, transponder, GPS, attitude-gyro, directional-gyro, EFIS-display system, turn indicator. Extension wiring systems are available for most instruments (on request at www.remos.com).

16.3 Battery Power System, Description

The 12 V battery is mounted on left hand forward side of the firewall. The factory installed battery (lead or LiFePo4) requires no maintenance.

For aircraft up to S/N 377 with electrical equipment acc. to min. equipment list for Day-VFR operations install min. 13Ah. For aircraft up to S/N 377 with electrical equipment exceeding Day-VFR min. equipment list or equipped acc. to min. equipment list for Night-VFR operations install min. 16Ah. For S/N 378 ff use min. 7Ah for any equipment. Use Battery type HAWKER GENESIS or equivalent. Installation of LiFePO4 battery is approved.

16.3.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove top half of cowl.

b. Remove the battery retaining strap.

c. Disconnect the ground cable from the negative battery terminal.

d. Disconnect the cable from the positive terminal of the battery.

e. Lift the battery out of the battery box.

f. To replace the battery, reverse preceding steps.

CAUTION	When installing or removing battery, always observe the proper polarity with the aircraft electrical system (negative to ground). Reversing the polarity, even momentarily, will result in failure of semiconductor devices installed in avionics such as glass cockpit, COM or NAV/COM, LED devices, etc

16.3.2 Trouble Shooting Battery Power System

Trouble	Probable Cause	Remedy
Battery will not supply power to electrical system or crank engine.	Battery discharged.	1. Measure voltage at battery terminal with master switch and suitable load turned on. Normal battery will indicate 11.5 – 12.0 volts. If voltage is low, proceed to step 2. If voltage is normal, proceed to step 3.
	Battery faulty.	2. Charge battery in accordance with charging information found on the battery. If battery voltage drops below 11.5 volts 12 hours after charging, when connected to the aircraft with master switch turned on, replace battery.
	Faulty wiring.	3. Check voltage on master fuse/circuit breaker. Voltage shall not indicate more than 0.3 volts below battery voltage. Replace defective wiring, master switch or connectors.

16.3.3 Cleaning the Battery

For maximum efficiency the battery and connections should be kept clean at all times.

a. Remove the battery and connections in accordance with the preceding paragraph.

b. Wipe the battery cable ends, battery terminals and the entire surface of the battery with a clean cloth moistened with a solution of bicarbonate of soda (baking soda) and water.

c. Rinse with clear water, wipe off excess water and allow battery to dry.

d. Brighten up cable ends and battery terminals with emery cloth or a wire brush.

e. Install the battery according to the preceding paragraphs.

f. Coat the battery terminals with an ignition spray product to reduce corrosion.

16.3.4 Testing the Battery

When battery is disconnected from the electrical system of the aircraft, voltage measuring should indicate 12.2 volts or above (regular 12.5 volts). If battery voltage is below 12.2 volts, battery needs to be charged. When battery voltage is below 11.8 volts battery has to be replaced.

16.3.5 Charging the Battery

Battery shall be charged only when disconnected from the aircraft. Charge battery in accordance to the charging instructions found on the battery (lead battery) or in accordance with the manufacturers manual (LiFePO4 battery).

16.4 Alternator Power System, Description

The alternator is an integral part of the engine, rated at 14 volts at 20 amperes continuous output. The output signal is fed to an external rectifier regulator to be provided to the aircraft electrical system.

16.4.1 Removal and Installation

Refer to the Rotax maintenance manual for information about removal and installation of the engine alternator system.

16.4.2 Trouble Shooting

Refer to the Rotax maintenance manual for information about trouble shooting of the engine alternator system.

16.5 Voltage Rectifier Regulator, Description

The rectifier regulator is located on the left forward side of the firewall. Feeding wires from the alternator (left side of ignition housing on the engine) are routed directly to the regulator. The resulting dc output is applied to the aircraft battery and master wiring system. To protect the rectifier regulator a 30A slow blowing fuse is used in the regulator-to-battery wiring located adjacent to the regulator case.

16.5.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Insulating tape
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Remove cowling.

b. Disconnect battery leads and insulate as safety precaution.

c. Unplug terminal connector on regulator case.

d. Unscrew regulator from firewall and remove.

e. Reverse preceding steps for reinstallation.

16.5.2 Testing the Voltage Regulator

Measure system voltage on master fuse/circuit breaker (farthest left on fuse panel), and voltage should indicate 14.0 +/- 0.3 volts with engine running.

16.5.3 Trouble Shooting

Refer to the Rotax maintenance manual (latest issue) for information about trouble shooting of the engine alternator system.

16.6 Aircraft Lighting System, Description

The aircraft lighting system consists of navigation lights, a landing light (fitted to right wing), anti-collision strobe lights and an instrument lighting system. All electrical switches to control the lighting system are located on the switch panel as outlined in paragraph 16.2.2.

Following lighting systems are available.

Item	Manufacturer	Model	R / O / A (*)
Position Light LH	REMOS	G3-8_WG-21-00-01	R
Position Light RH	REMOS	G3-8_WG-21-00-02	R
Taillight	Thiessen	EPL	R
Taillight	Kuntzleman	TL-LED	A
Anti Collision Light Rudder	Thiessen	ACL	R
Anti Collision Light Belly	Thiessen	ACL	R
Anti Collision Light Rudder	Thiessen	ACL3	A

Anti Collision Light Belly	Thiessen	ACL3	A
ACL/NAV Light LH	AeroLEDs	PULSAR-NS 90 green	A (7*)
ACL/NAV Light LH	AeroLEDs	PULSAR-NS 90 red	A (7*)
ACL/Taillight	AeroLEDs	Suntail	A (7*)
Landing Light	Hella	FF75	R
Landing Light	Hella	2PT 00 94 96-801	A
Landing Light	AeroLEDs	AEROSUN	A
Cockpit Illumination LH/RH	REMOS	G3-8_CP-20-00-00	R (8*)
Cockpit Illumination Center	REMOS	G3-8_CP-20-00-01	R (8*)
Cockpit Illumination	divers	LED-5000MCD	R (9*)

(*) R = required, O = optional, A = alternative

(7*) in case of AeroLEDs PULSAR-NS 90 position lights, use taillight AeroLEDs SUNTAIL only, and do not use additional anti collision light of any kind in this case

(8*) in combination with standard cockpit only

(9*) in combination with eLITE/NXT cockpit only

16.6.1 Trouble Shooting

Trouble	Probable Cause	Remedy
Landing light out.	Landing light turned on?	Turn landing light switch to on position.
	Short circuit in wiring.	1. Inspect fuse/circuit breaker. If open, proceed to step 2. If OK, proceed to step 3.
	Defective wiring.	2. Test each circuit separately until short is located. Repair or replace wiring.
	Defective switch.	3. Check voltage at light with master switch and landing light switch ON. Should read battery voltage. Replace switch.
All nav lights out.	Short circuit in wiring.	1. Inspect fuse/circuit breaker. If open, proceed to step 2. If OK, proceed to step 3.
	Defective wiring.	2. Test each circuit separately until short is located. Repair or replace wiring.

	Defective switch.	3. Check voltage at nav lights with master switch and nav light switch ON. Should read battery voltage. Replace switch.
One nav light out.	Lamp burned out.	Inspect lamp, replace lamp.
	Open circuit in wiring.	Test wiring for continuity. Repair or replace wiring.
Anti-collision strobe light out.	Flash tube burned out.	Test with new tube, Replace tube.
	Faulty wiring.	Test for continuity, Repair or replace.
	Faulty power supply.	Test with new power supply, Replace power supply.
	Circuit breaker open or fuse blown.	Inspect, reset.
	Faulty switch.	Test for continuity, Repair or replace.
Instrument lights will not light.	Short circuit in wiring.	1. Inspect fuse/circuit breaker. If open, proceed to step 2. If OK, proceed to step 3.
	Defective wiring.	2. Test each circuit separately until short is located. Repair or replace wiring.
	Defective switch.	3. Check voltage at lights with master switch and instrument light switch ON. Should read battery voltage. Replace switch.
	Lamps burned out.	Inspect lamps, replace lamps.

16.6.2 Navigation Lights, Description

The navigation lights are located on each wing tip. The lights are controlled by a rocker type switch located on the switch panel.

♦ NOTE	There are two different types of position lights. Refer to figure 16-1 and 16-2 for further information.

16.6.2.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** None
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

a. Unscrew and remove colored protective cover.

b. Unscrew and replace LED Position Light Assembly.

c. Reverse preceding steps for reinstallation.

♦ **NOTE**	Do not overtighten cover fixing screws at reinstallation, to prevent the cover from cracking.

16.6.3 Anti Collision Strobe Lights, Description (refer to figure 16-3 & 16-4)

A red LED strobe light is installed on top of the rudder and light is vibration resistant, producing an extremely high intensity flash. A second LED type strobe light is found on the bottom of the fuselage, behind the main gear.

16.6.3.1 Removal and Installation

To replace flash lights, unscrew light from top of the rudder or the bottom of the fuselage and disconnect from power leads.

16.6.4 Instrument/Avionics Lighting, Description

All installed instruments, which are equipped with internal lights, are connected to the lighting system of the aircraft. Power to the instrument and avionics lights is provided by a rocker-type switch on the switch panel.

Additional the cockpit provides a LED lighting system, which is activated along with the instrument lights. A dim control on the left side of the cockpit allows adjustment of the intensity. Refer to Section 15 for detailed information.

16.6.4.1 Removal and Installation

Refer to the appropriate user manuals provided with the instruments and avionics devices for instructions about replacement of instruments and avionics lights.

The LED arrays can be removed easily by unscrewing them from the cockpit frame. Take care to switch of master switch before removal.

Figure 16-1

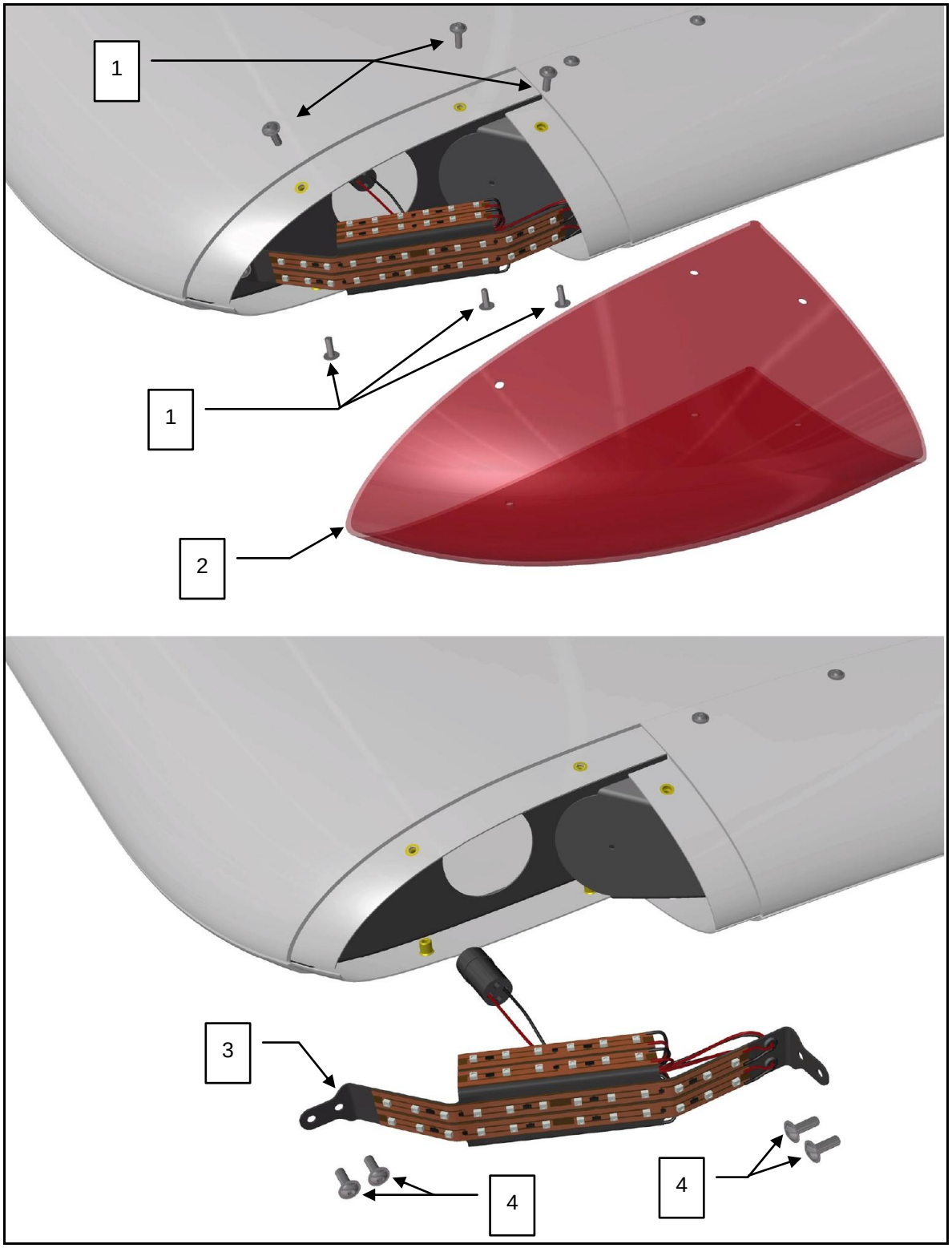


Figure 16-2

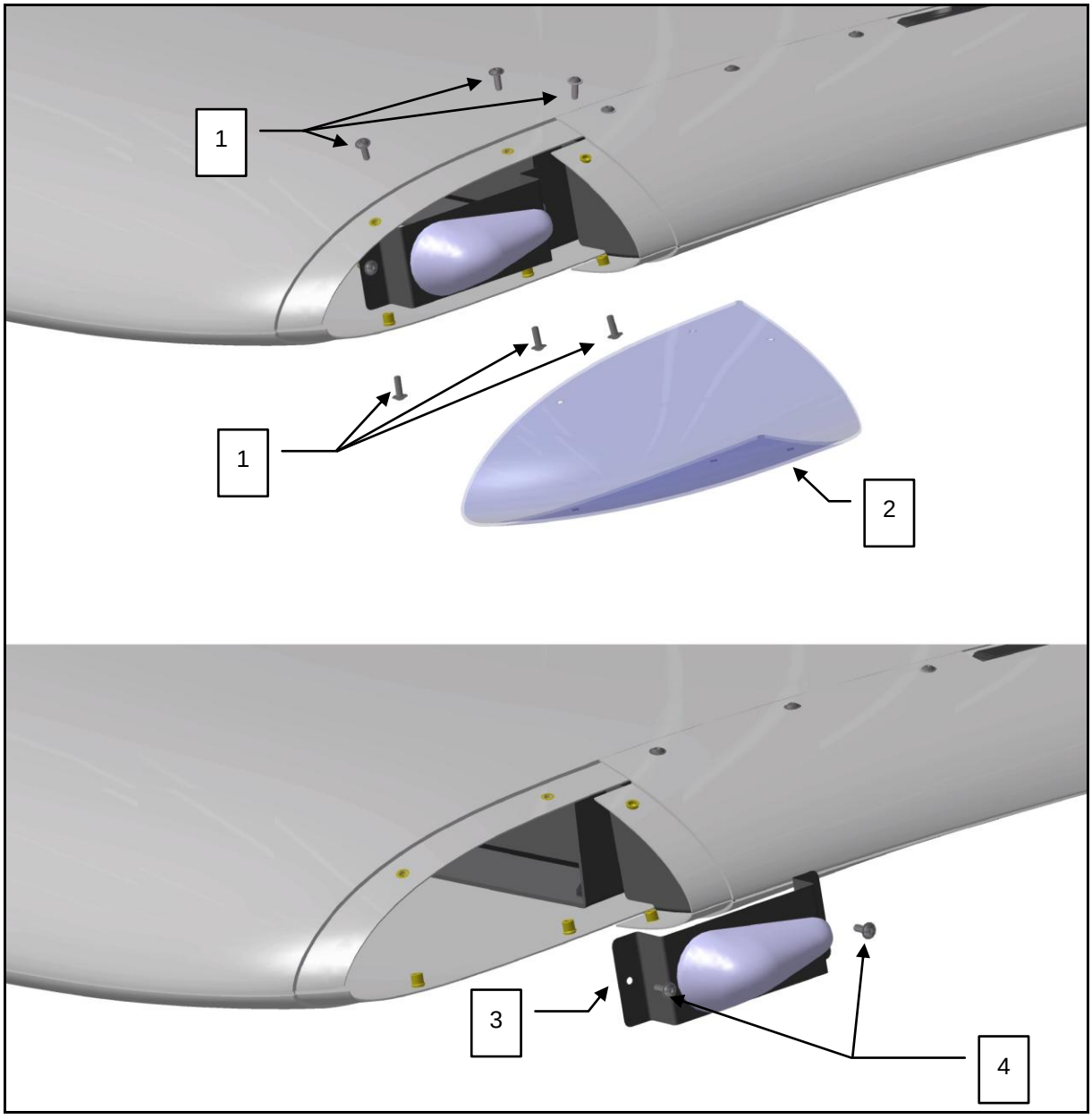


Figure 16-3

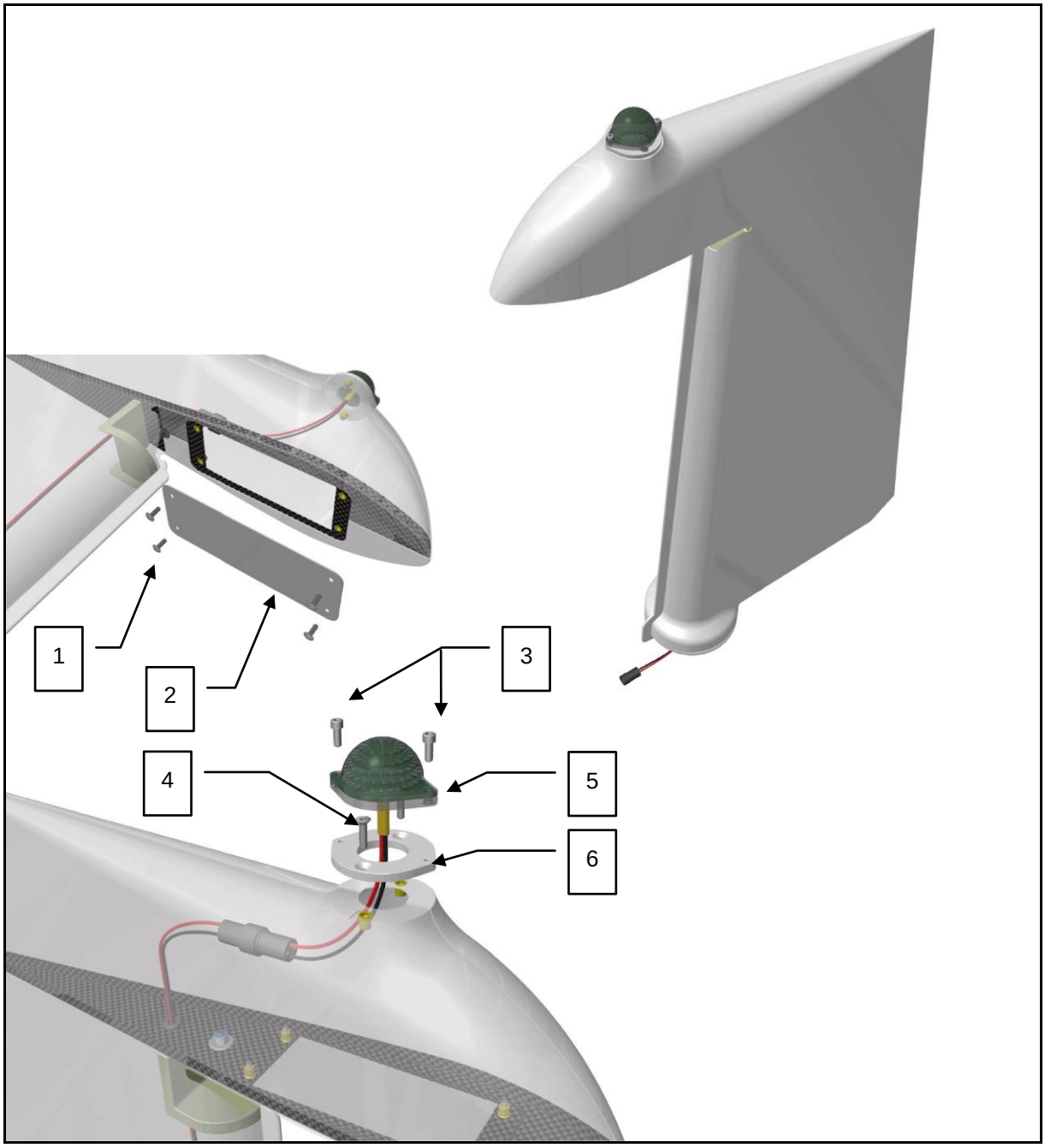
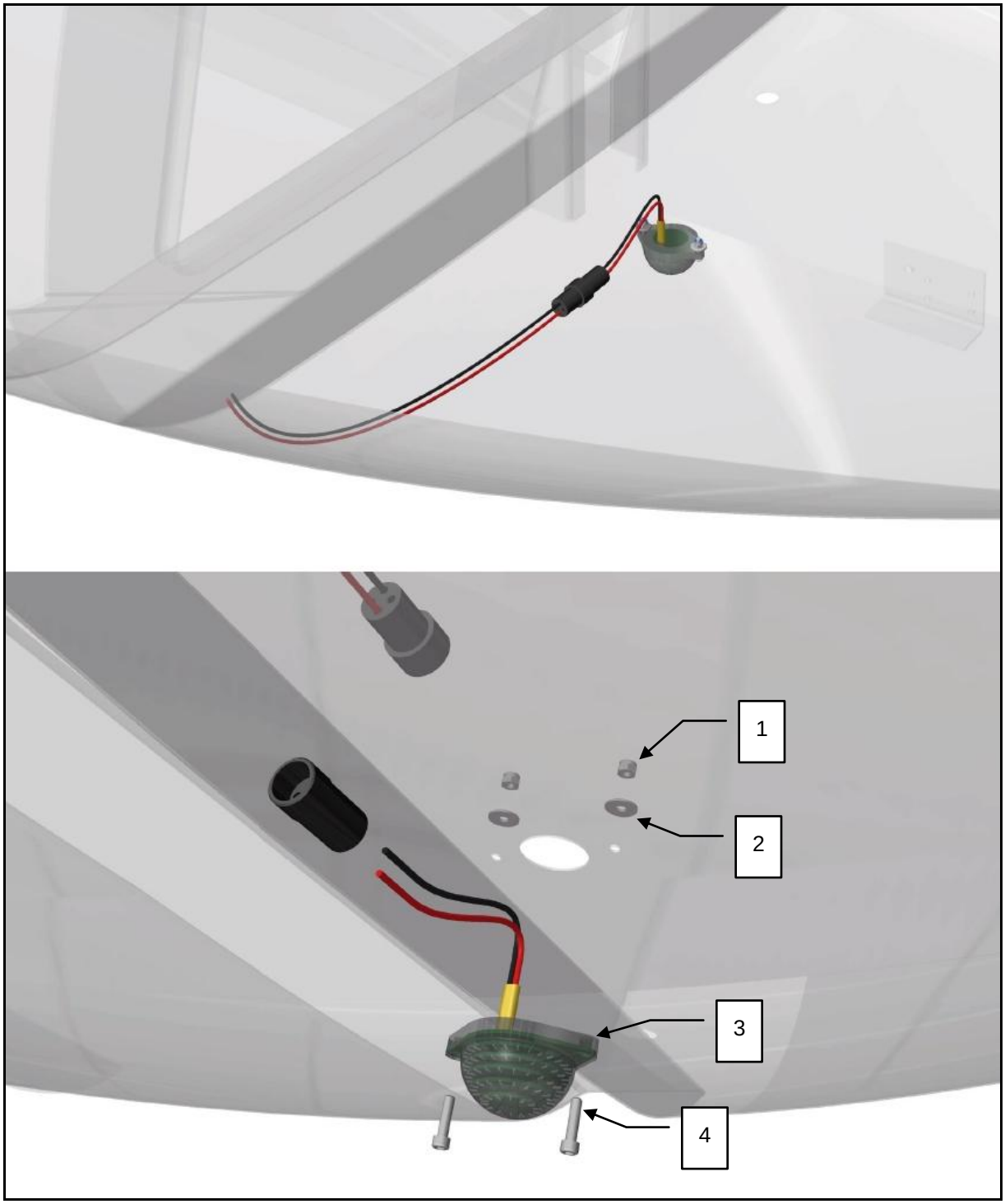


Figure 16-4



16.7 External Receptacle, Description

A receptacle for connecting external equipment like GPS is installed to the right side of the cockpit frame. The receptacle provides 12 volt (positive lead on center terminal). The receptacle is of a cigar lighter type. Current is limited to 1 A.

16.7.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Cable ties, insulating tape, solder
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

To remove the external receptacle proceed as outlined below.

a. Disconnect battery leads and insulate as safety precaution.

b. Unscrew the right hand side option-panel from the cockpit main frame.

c. Disconnect wiring from the receptacle, note wiring for reinstallation.

d. Unscrew and remove receptacle

e. Reverse preceding steps for reinstallation.

16.8 Emergency Locater Transmitter, Description

The ELT is a self-contained, solid state unit, with its own power supply, with an externally mounted antenna. The transmitter is designed to transmit a frequency of 121.5 Megahertz as long as 406 MHz. Alternatively a 121.5 MHz transmitter may be installed too.

Power is supplied to the transmitter by a battery-pack which has the service life of the batteries placarded on the batteries. A switch on the face plate of the ELT is provided to arm or manually operate the system (in example for testing purposes).

16.8.1 Removal and Installation

Open clamp at the transmitter bracket installed on top of the rear cabin bulkhead, unplug antenna cable and remove device from its bracket.

16.9 Landing Light, Description (refer to figure 16-4)

The landing light is mounted to the leading edge of the right wing. The landing light is a LED type lighting system, providing a multiple lens system to facilitate landing and taxiing light contained in one unit. A light cover provides weather protection for the device. The landing and taxi light is controlled by a rocker type switch located on the switch panel.

16.9.1 Removal and Installation

- **Parts required:** Standard metric tools
- **Required Parts:** Landing light kit including wiring, terminals and cable clamps
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

To remove the landing light, proceed as outlined below.

a. Disconnect battery leads and insulate as safety precaution.

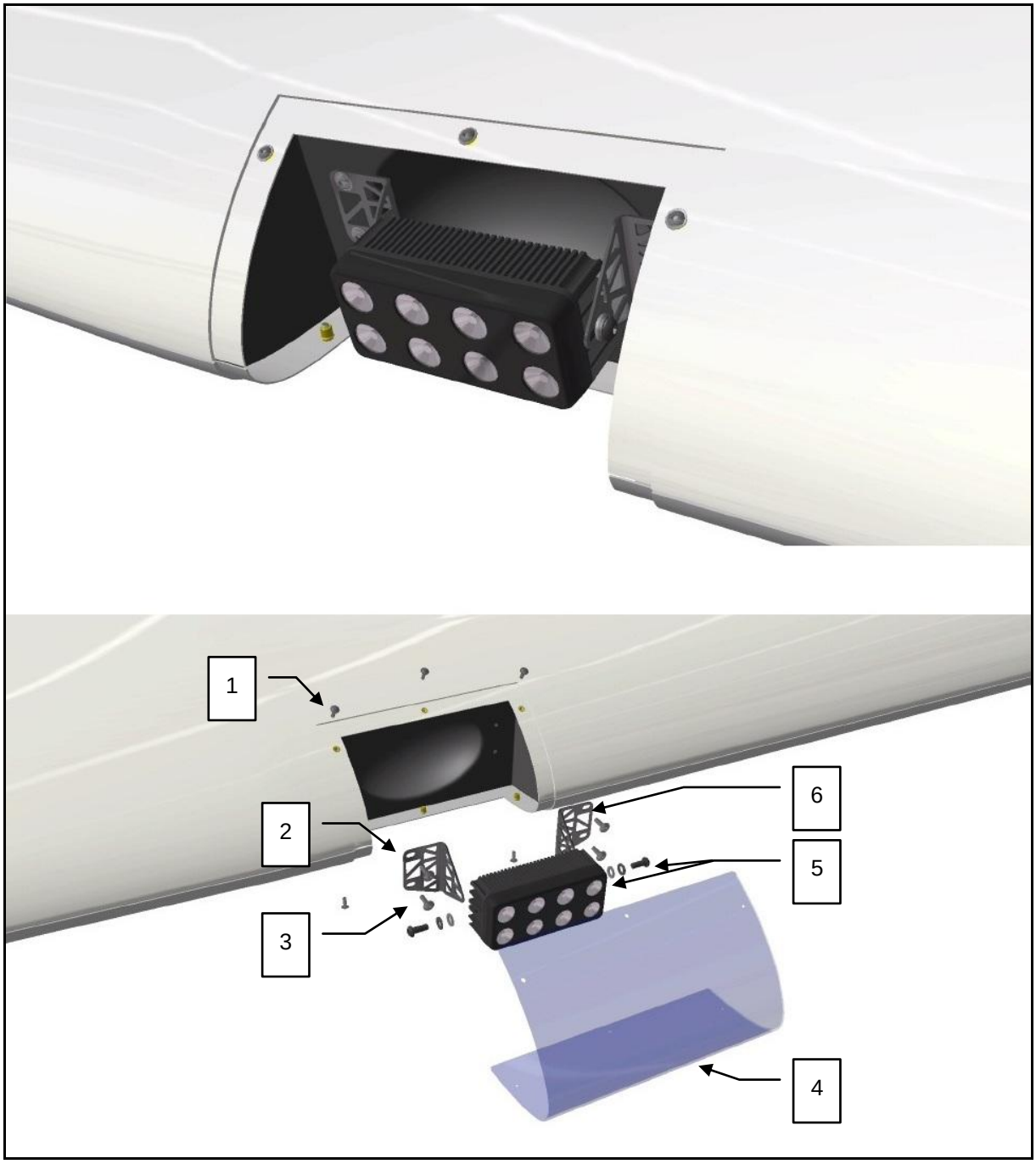
b. Unscrew the light cover from the leading edge of the right wing.

c. Unscrew and remove landing light.

d. Disconnect wiring from landing light LED device, note wiring for reinstallation.

e. Reverse preceding steps for reinstallation.

Figure 16-5



16.10 Tail Light, Description (refer to figure 16-5)

The tail light is mounted to a removable tail cover, fixed to the tail cone by two fixing screws. The tail light is a LED type lighting system, providing an angle of 140°. The tail light is controlled by a rocker type switch located on the switch panel (labeled NAV-Light).

16.10.1 Removal and Installation

- **Required Tools:** Standard metric tools
- **Required Parts:** Tail light kit including wiring, terminals and cable clamps
- **Level of Maintenance:** Line
- **Certification required:** A&P Mechanic, LSA Repairman, Owner/Operator with Sport Pilot certification or higher, Part 145 Repair Station, REMOS Service Center

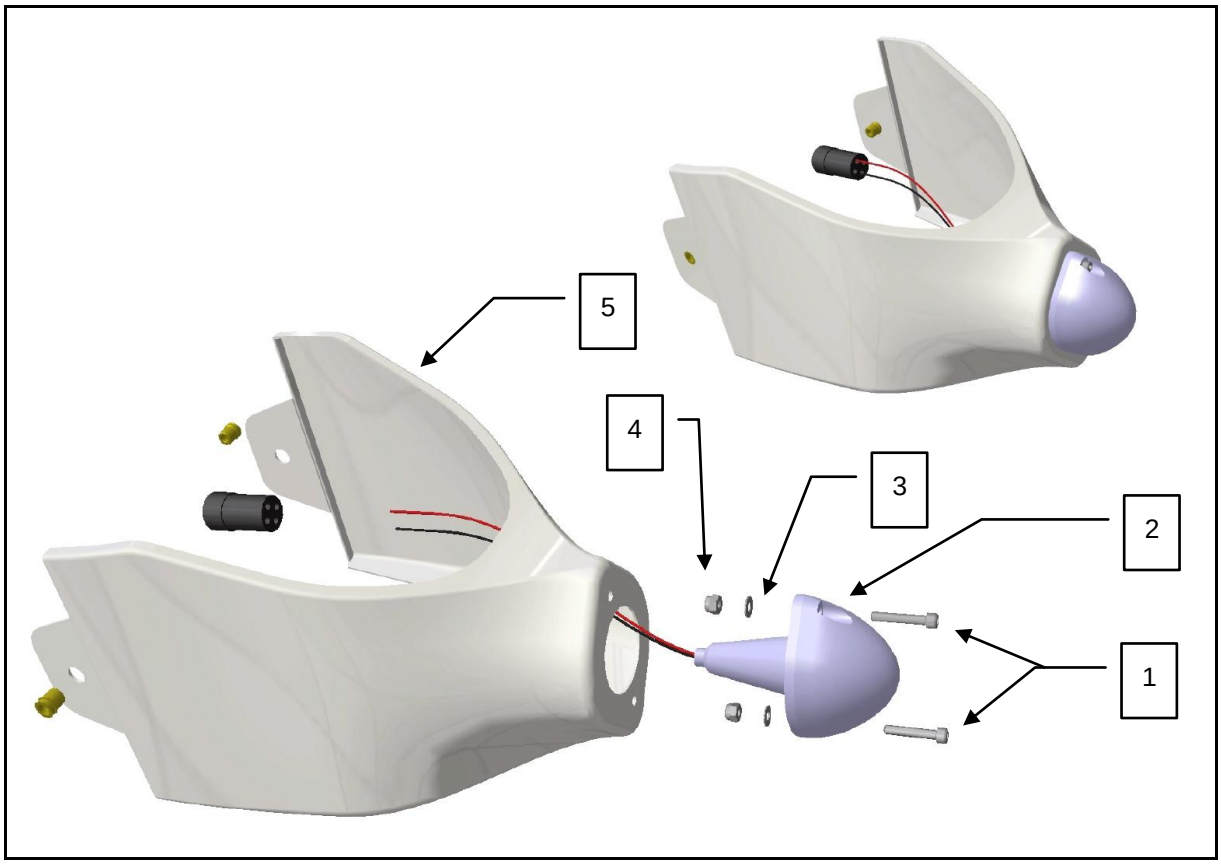
To remove the tail light, proceed as outlined below.

a. Disconnect battery leads and insulate as safety precaution.

b. Unscrew the tail cover from the tail cone and unplug from terminal. Unscrew and remove tail light.

c. Reverse preceding steps for reinstallation.

Figure 16-6



16.11 Electrical Load Analysis Chart

Refer to the POH to get further information about the load analysis for the REMOS GX flight instrumentation.

16.12 Bill of Materials

Fig. No.	Item No.	Order No.	Part No.	Qty. per Assy	Description	Appl. S/N
16-1	1	100189		6	Flat Head Screw 4x12 ISO-7380-A2	All
	2	100808	G3-8 WG-21-00-02	1	Position Light Cover LED left red	All
		100809	G3-8 WG-21-00-03	1	Position Light Cover LED right green	All
	3	700613	G3-8 WG-21-00-04	1	Wing Position Light LED Assy N-VFR left	All
		700614	G3-8 WG-21-00-05	1	Wing Position Light LED Assy N-VFR right	All
	4	100189		4	Flat Head Screw 4x12 ISO-7380-A2	All
16-2	1	100189		6	Flat Head Screw 4x12 ISO-7380-A2	All
	2	103177	G3-8 WG-20-01-04	1	Position Light Cover left colorless	All
		103178	G3-8 WG-20-01-05	1	Position Light Cover right colorless	All
	3	103113		1	Strobe Light Pulsar NS90 NAV left red	All
		103113		1	Strobe Light Pulsar NS90 NAV right green	All
	4	100189		2	Flat Head Screw 4x12 ISO-7380-A2	All
16-3	1	100189		4	Flat Head Screw 4x12 ISO-7380-A2	All
	2	100650	G3-8 FU-03-01-03	1	Cover Plate ACL	All
	3	100112		2	Cylinder Head Screw M4x10 DIN 912 vz	All
	4	101809		2	Countersunk Screw M4x16 A2	All
	5	700858		1	Thiessen ACL	All
	6	102549	G3-8 FU-20-01-05	1	ACL Adapter	All
16-4	1	100212		2	Self-locking Nut M4 DIN985 vz	-
	2	100233		2	Washer M4 DIN 125 vz	-
	3	102554		1	Anticollisonslight ACL 1	-
	4	100113		2	Cylinder Head Screw M4x16 DIN 912 vz 8.8	-
16-5	1	100189		6	Lens Head Screw FL M4x12 ISO 7380 A2	All
	2	102635	G3-8 WG-22-01-01	1	Bracket Landing Light Left Hand Side	All
	3	100199		4	Lens Head Screw FL M5x16 ISO 7380 A2	All
	4	100864	G3-8 WG-20-01-01	1	Cover Landing Light	All
	5	102614		1	Landing Light Aerosun 1600	All
	6	102636	G3-8 WG-22-01-02	1	Bracket Landing Light Right Hand Side	All
16-6	1	100105		2	Cylinder Head Screw M3x16 DIN 912 vz	All
	2	103112		1	Suntail Position Strobe Light	All
	3	100234		2	Washer M3 vz	All
	4	100211		2	Self-locking Nut M3 DIN 985 vz	All
	5	102497	G3-8 FU-02-83-02	1	Fuselage Tail End	All

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Section 17

Structural Repair

Table of Contents **Section**

17.1 *Structural Repair Criteria*

Although this section outlines repair permissible on structure of the aircraft, the decision of whether to repair or replace a major unit of structure will be influenced by such factors as time and labor available, and by a comparison of labor costs with the price of replacement assemblies. Past experience indicates that replacement, in many cases, is less costly than major repair. Certainly, when the aircraft must be restored to its airworthy condition in a limited length of time, replacement is preferable. Restoration of a damaged aircraft to its original design strength, shape, and alignment involves careful evaluation of the damage, followed by exacting workmanship in performing the repairs. This section suggests the extent of structural repair practicable on the aircraft, and supplements Federal Aviation Regulation, Part 43. Consult the factory when in doubt about a repair not specifically mentioned here.

17.1.1 General Consideration for Composite Repair

All major and structural components of the aircraft are carbon-fiber or glass-fiber construction. We strongly recommend the replacement of components when structural damage is detected or return to factory for repair. Repair to non-structural components may be accomplished using factory specified materials. Observe the resin manufacturer's recommendations concerning mixing and application of the resin. Epoxy resin is mandatory for making repairs, since epoxy compounds are usually more stable and predictable than polyester and, in addition, give better adhesion.

17.1.2 Methods to classify damages

Following inspection methods are recommended to detect and classify damages at your plane.

Damage	**Inspection Method**
Scratches	Visual Inspection
Bump, Blowhole, Pressure Points	Visual Inspection
Loose Bondings	Tap Test
Delamination	Tap Test, Visual Inspection
Cracks	Visual Inspection
Deformation	Visual Inspection
Erosion	Measurement

Keep following questions in mind when classifying the damage.

- Any noticeable changes of the geometry of the plane or parts of it?
- Rudder, flaps difficult to move?
- Laminate smooth or bumps in laminate?
- Are there any delaminated areas?
- Are there any bumps or cracks in the topcoat?
- Is the GRP structure cracked or broken through?
- Are there any stress whitening?

17.1.3 Category of Damage

After classifying the damage it is necessary to put your damage into one of the three categories of damage.

After that you can read if you are allowed to repair your plane by your own or not.

Class 1:

Widely damaged areas that need to be repaired

Cracks and holes that are longer than 20 cm - 8“

All damages at flaps, aileron, elevator, and rudder

Class 2:

Cracks and holes that are not longer than 20 cm – 8“

It is not allowed that these damages are detected at primary flight controls, such as flaps, aileron, elevator or rudder

Class 3:

Small cracks or scratches at the outer GRP-skin of the plane

Small cracks and scratches that are detected in the topcoat

	A&P Mechanic	LSA Repairman	Owner/Operator with Sport Pilot certification	Part 145 Repair Station	REMOS Service Center
Class 1	Individual Repair Instruction needed	Individual Repair Instruction needed	**NOT** allowed to repair	Individual Repair Instruction needed	Individual Repair Instruction needed
Class 2	Allowed to repair	Allowed to repair	Allowed to repair	Allowed to repair	Allowed to repair
Class 3	Allowed to repair	Allowed to repair	Allowed to repair	Allowed to repair	Allowed to repair

For any class 1 damage an individual repair instruction and repair approval issued by REMOS AG is required. This is defined in the regulations (ASTM F2483).

REMOS AG always takes care of its customers and will provide support, documentation and re-certification of the aircraft.

Please keep in mind that without a written repair approval issued by REMOS AG the aircraft is considered not in compliance with the applicable regulations and may be subject to regulatory action by FAA. Therefore the aircraft may not be operated after an unauthorized repair. This is defined in the regulations ASTM F2295).

17.1.4 Repair Instructions

Applicable repair methods are written down in the AC 43.13-1B, Rotax Maintenance Manual (latest Issue) and the General Repair Instruction starting at 17.2 in this chapter.

17.2 *General Repair Instruction*

17.2.1 Requirements

17.2.1.1 *Labor*

Laminating of components is only permitted when the person is introduced in working procedures and firm whit all tools. Follow all safety instructions to tools and materials. Everybody working with tools or materials has to maintain the safety measures.

17.2.1.2 *Personnel*

The following repair procedure may be conducted by following personnel:

- A&P mechanic
- LSA Repairman
- Part 145 Repair Station
- REMOS Service Center

17.2.1.3 *Tools and Work Clothes*

All tools and work clothes that are necessary for repairing need to be free of oil and grease. The vessels, equipment and tools used for the resin and hardener must be clean. The tools and equipment used to handle release agent must be kept separate from the tools and equipment used for the resin and hardener. The risk of contamination can be reduced by covering the resin, hardener and mixtures, Tools should be cleaned after work is done

17.2.1.4 *Working Conditions Resin/Hardener*

Temperature – The optimal temperature is 20-35°C. Raising the temperature by 10°C halves the pot life and doubles the reactivity.

Important: Larger quantities should not be mixed at higher processing temperatures, above all with highly reactive systems (short pot life less than forty minutes). The mixing vessels exhibits very low heat dissipation, so its contents are very quickly heated by the reaction. This can give rise to temperatures in excess of 200 at which the resin compound burns up emitting a great quantity of smoke. This also affects large volume casts of highly reactive systems.

Air humidity – The relative air humidity during processing should not exceed 70%.

17.2.1.5 *Processing of Composites*

Attention! It is necessary that all components are free of:

- Fat and Grease
- Release Agent
- Dust
- Liquids
- Silicone. It is very important to protect all surfaces for gluing from silicone!

17.2.1.6 *Scarf Joints and Laps*

Scarf joints and laps transmit tensile- and shear forces through different laminate plies. Scarf joints are made by abrading transitions of laminate plies. Avoid concentrations of multi-layer parts. In case of damage, it is necessary to maintain a mounting rate of 1:30 for glass fibers and 1:80 for carbon fibers.

17.2.1.7 *Gluing of Composite Parts*

For a good connection between two or more composite parts, following prearrangements are necessary:

- Rough gluing surface with sand paper (grit 80-100)
- NOTE: Gluing surface is ready if there are no shiny spots to see.
- ATTENTION: Front sides and edges must be grinded very careful. Often there is some more paint or a lack of release agent. Bad grinded edges can crack, or they do not connect with resin.
- After preparation of the gluing surface, it is necessary to protect the surface from all the things listed in 1.4 “Processing of Composites”.
- Spread gluing surface with normal mixture of resin/hardener before working with mixture of cotton flocks/resin
- Set position of parts by devices that were build before
- Check position of glued parts by devices
- Remove overrun of resin/cotton flocks mixture accurate
- Check adhesion for air inclusions. Rework the adhesion in case of air locks.

17.2.1.8 *Gluing of Metal Parts*

The surface of metal parts must be rough for gluing. Sand blast or grind (sand paper grit 100-120) the surface that is needed for gluing. Clean the surface with acetone afterwards. Now it is allowed to spread the metal with resin.

It is wise to connect metal part and parts of the plane with a mixture of resin and cotton flocks. Cotton flocks mixed with resin enhance the tensile, compressive, and flexural strengths as well as the fracture behavior.

17.2.1.9 *Materials and Acquisition*

It is not allowed to use different materials than listed in this repair instruction.

Contact the manufacturer if it is not possible to supply materials or tools.

17.2.1.9.1 Resin/Hardener

All structure parts are made of resin and hardener. We recommend resin L20 and hardener EPH 573 for repairing. This resin/hardener system is specially made for hand lay-ups and has a relative short pot life (ca. 15 min.). Resin L20 and hardener EPH 573 are cold curing, that means that no annealing on higher temperatures is needed. EPH 161 has a longer pot life, if necessary. But notice that EPH 161 must be annealed under some conditions. Resin L285 with hardener EPH 285; EPH286; EPH 287 must be annealed at 80 °C (176 °F) to obtain their full mechanical strength and characteristics.

It is permitted to use equivalent epoxy laminating resin/hardener systems. Refer to the processing information, safety data sheet and technical data sheet to get further information about the

resin/hardener system. It is mandatory to follow the mixing ratios, annealing temperatures and safety information given in this data sheets.

The resin/hardener systems are unequal toxic. The L20 resin with hardener is low toxic and the L285 with hardener is toxic. Handle both with care. Please avoid direct contact to your skin (latex gloves) and protect your eyes. Have a closer look at the safety data sheet of this product for more information.

The resin/hardener mixture must be very exact. More hardener does not mean a faster reaction. More hardener leads to a lower mechanical strength or an imperfect curing.

Epoxy must be post cured at 50-60C for 15hrs per manufacturers specifications.

The resin/hardener mixing ratio for L20/EPH 573:

100 : 23 parts by weight of resin to hardener

100 : 25 parts by volume of resin to hardener

The resin/hardener mixing ratio for L20/EPH 161:

100 : 25 parts by weight of resin to hardener

100 : 29 parts by volume of resin to hardener

The resin/hardener mixing ratio for L285/EPH 285; L285/EPH 286; L285/EPH 287

100 : 40 parts by weight of resin to hardener

100 : 50 parts by volume of resin to hardener

No liability assumed! Check the data sheet for correct mixing ratio before.

Smallest-scale quantities should therefore be dosed according to volume with disposable injectors. At the same time, it is important to note that parts by weight are not the same as parts by volume, because the constituents exhibit different specific gravities (resins about 1.1 g/cm³, hardeners about 1.0 g/cm³).

The resin and hardener must be mixed with care. The service life (pot life, processing time) of the mixture is defined by the initial quantity (the larger, the faster) and by its history of experienced temperature effects. Larger quantities have an effect. The effects of their exothermal reaction (reaction heat) serve to reduce the open time. They should be transferred to flat dishes to prevent heat accumulation. They must be processed quickly. Small quantities under 100 g have an extended pot life. If the temperature in the mixing vessel should rise noticeably and exceed 40 °C, then the mixture may no longer be used for high-quality laminates. Unvarying quality in the manufacture of laminates can then no longer be guaranteed. Flat mixing vessels with smooth walls and base should be used. Ideal are PE mixing cups. For industrial hygiene reasons, the professional association of chemical workers recommends disposable receptacles. Adherent residue of completely cured resin is environmentally neutral and its disposal is permitted in solid domestic or commercial waste. In principle, reusable plastic receptacles (e.g. of PE) can also be used.

17.2.1.9.2 Reinforcing Fiber

Glass Fiber

- Glass fabric 163 g/m² (Aero) Interglasnumber: 92110 Twill weave
- Glass fabric 220 g/m² (Aero) Interglasnumber: 92145 Unidirectional
- Glass fabric 280 g/m² Interglasnumber: 92125 Twill weave

Carbon Fiber

- Carbon fabric 200 g/m² KDK 8042 or Interglas 98141 Twill weave

17.2.1.9.3 Aggregates

The fillers named below enhance the impact and compressive strength, but not the tensile strength. Owing to their ball-bearing effect they improve the flowability of resins when added in low quantities.

- Micro-Airballons
- Cotton flocks
- Spherical fillers
- Micro-Airballons

The fillers named below enhance the tensile, compressive, and flexural strengths as well as the fracture behavior. The weight of filled resin compounds is increased, the flowability reduced.

- Fibrous fillers
- Cotton flocks

17.2.1.9.4 Acquisition (example)

R&G Faserverbundwerkstoffe GmbH
Im Meißel 7 – 13
D-71111 Waldenbuch
Telephone: +49-7157-530460
Fax: +49-7157-530470
Internet: www.r-g.de

17.2.1.9.5 Top Coat

PPG Delfleet 350, Color-Code: 00225

Contact manufacturer for more information about the Top Coat.

Grind the surface with sand paper (grit 320-400) Clean the surface before you start painting the repairing. Keep surface clean of silicone, dust etc. Grind surface with sand paper (grit 320-400). Everything is well grinded if the underground is matt. A higher grid raises stress concentration and the Top Coat will crack.

17.2.1.10 *Laminate Plan*

In case of damage, it is necessary to maintain a mounting rate of 1:30 for glass fibers and 1:80 for carbon fibers. Therefore it is practicable to know the quantity, type and adjustment of all plies to repair.

Refer to the applicable laminate plan. All parts to be repaired should get their full strength afterwards. Quantity, fabrics, type of fabric and adjustment need to be concordant to the original part of the plane.

17.2.2 Typical Cases of Repair

Before a repair is started is must be ensured that there is a damage in the material. In a lot of cases a crack appears necessary to be repaired but in most cases it is not. This case happens if cracks are just superficial in the paint, in the filler, priming material or spackling paste. In this case start sanding into the crack and find out, if and where there is a damage. See the two pictures below for examples of cracks where there is no structural damage but only superficial cracks – optical damage only:

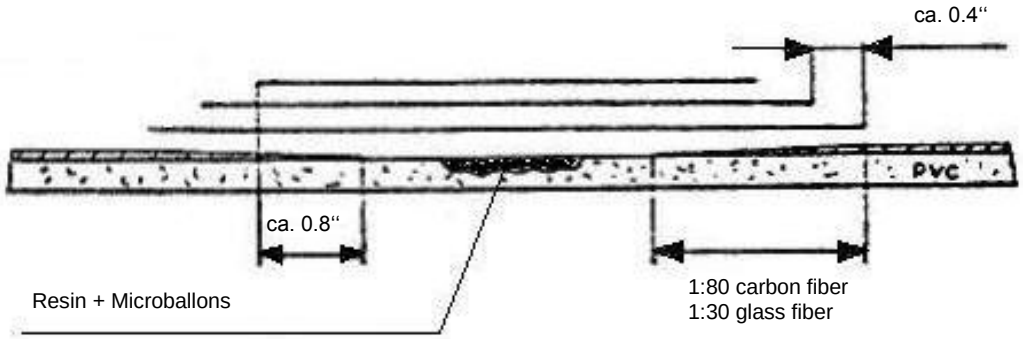
superficial crack in elevator leading edge

superficial crack in paintwork

17.2.2.1 *Uncontinuous Hole or Crack in Laminate*

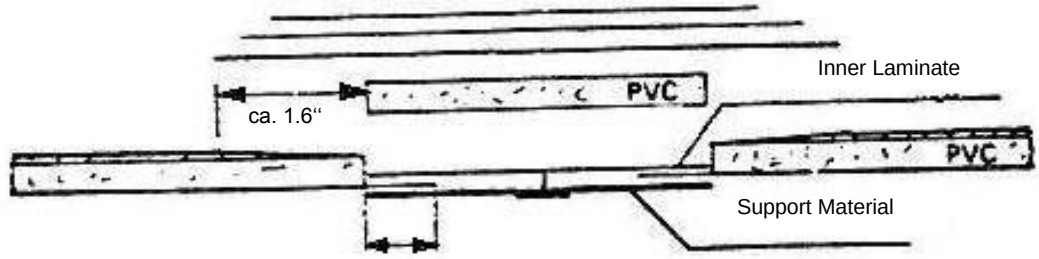
We recommend following repair method for damages in outer parts of laminate, where the sandwich construction is not damaged:

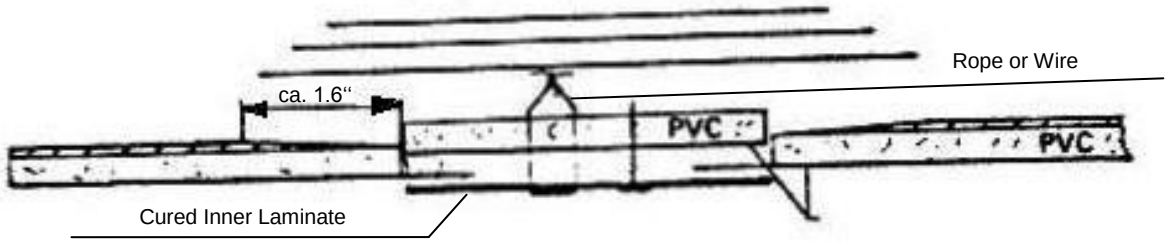
- Grind the crack manually with dry sand paper (grit 60-80) or an angle grinder. Work feeling and circular till Top Coat is removed. It is necessary to remove Top Coat about 1.2'' around the crack.
- Cut off the core material down to the inner laminate to ensure that the inner laminate is not harmed. Cut the core material circular. (If there is no core material, just start preparing a scarf joint)
- Take a piece of support material. Trim the support material a bit smaller than the original. (Up to 0.4''smaller) Clean the surface of the repairing. Now use a resin/Microballons/cotton flocks mixture to glue the support material into the repairing. Fulfill the gaps with some mixture of resin/Microballons/cotton flocks. Wait till the resin hardened.
- Grind transitions again.
- Refer to the laminate plan, cut some plies of carbon or glass for your repairing. Mind the type and adjustment of all plies needed. Cut the plies from big to small. That means that the last ply is smaller than the first ply.
- Spread the repairing with some resin. Take the first ply of carbon or glass (biggest ply first) and put it on the repairing. Attention: Regard adjustment and type of fabric.
- Use resin and impregnate the fabric carefully. Be particularly careful with carbon fabrics. It is very difficult to see an impregnation. Glass fabrics are well impregnated if there are no more white spots.
- If it is impossible to impregnate parts of fabrics, it could be that the fabric got wet. The fabric is no longer useful.
- Do not change the adjustment of the fabric while impregnating.
- Put on other fabrics. Refer to the adjustment and impregnate the fabrics.
- Normally it is not necessary to impregnate the last ply. It should be possible to impregnate the last ply only by dabbing with a laminating brush. The ply takes the resin overrun and so the fiber volume fraction is enhanced. The higher the fiber volume fraction, the higher the solidity.
- Put one peel ply fabric over the repairing, to secure the resin from dust, silicone etc. Fix the position of the repairing with some stress belts, or some weights. Wait until the structure is well cured.
- Take off the peel ply fabric when everything is well cured. (Well cured when outer fibers break off brittle)
- If necessary, grind transitions with sandpaper (grit 180) as long as needed to get a good surface.
- The grinded surface must be a bit deeper than the Top Coat. It could be helpful to proof it with the help of a steel rule.
- Prime and finish if necessary.



17.2.2.2 *Continuous Hole in Sandwich Construction*

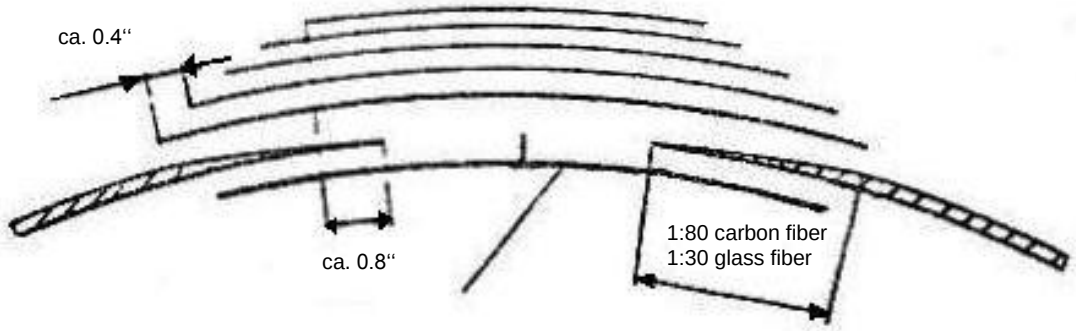
- If there are any damages trough the whole sandwich-construction, it is recommendable to rebuild the inner laminate first.
- Cut off the outer laminate and the support material on a length of about 1.2“around the damaged area. Now there should be a 1.2”area of intact inner laminate around the damaged area.
- Rebuild the inner laminate on a plate or form. It is important that the reconstructed laminate has the same form as the original part. Remind the type, adjustment, and quantity of fabrics. If the reconstructed part cured well, it can be glued with a mixture of resin/cotton flocks.
- Glue the support material with a mixture of resin/microballons. Fill the gaps with a mixture of resin/microballons and spread the support material with some resin
- Prepare a scarf joint referring to the part 2.1





17.2.2.3 *Damages in Solid Laminate*

- Cracks, breaks etc. in solid laminate shall be grinded with sand paper (grit 60-80) first.
- Prepare a scarf joint. Refer to the mounting rates (glass 1:30; carbon 1:80).
- Do not remove too much damaged laminate. The impregnated fabrics need some underground to keep their form.
- Bigger holes must be prepared with a cured part of laminate. The laminate must have the right size and form. This part is glued at the inside with a mixture of resin/cotton flocks (have a look at the picture). After curing, it is the same procedure as written down in the part “Uncontinuous hole or crack in laminate”.



17.2.2.4 *Cracks in Connections and Bondings between Laminate Plies*

- Cracks parallel to plies can be fixed with resin injections by syringes.
- Another method is filling the crack with a resin/cotton flock mixture. (If the cracks are bigger)
- It is possible to take and glue a fabric stripe over the repairing for strengthening. When everything cured well, start grinding the repairing.

17.2.2.5 *Loose or worn Bushings*

Bushings may get worn with time and even might become loose in the laminate. This might affect the following bushings (for example, this section is not limited to these examples but is valid for all bushings): main landing gear attachment, horizontal tail attachment, lower rudder hinge, etc. Follow these instructions:

- Disassemble the aircraft component affected from the aircraft
- Get the old bushes out of the laminate. Review the condition of the bushings thoroughly and judge if they can be used again or if they need to be replaced by new ones.
- The surface of the bushings must be rough for gluing. Sand blast or grind (sand paper grit 100-120) the surface of the bushings. Clean the surface with acetone afterwards.
- In case the laminate is worn so much, that the bushings cannot be inserted anymore (e.g. the hole is bigger than the collar of the bushing), rebuild the laminate. The original wall thickness shall be achieved. Rule: one layer of 200g/m2 carbon cloth has a thickness of 0.25mm. Once the new laminate is cured, drill new holes for the bushings.
- For installation of the bushings prepare a mixture of resin and cotton flocks. Apply this mixture on the bushings and insert them into their installation holes.
- Fix and adjust the position of the bushings with the help of the component related with the bushing. Make sure that there is no resin inside the bushes. Clean overrun of resin.

- Let everything cure well.
- Prime and finish if necessary.

17.2.2.6 *Finishing*

- If everything is cured well, start grinding the repairing. Start with grit 180-220. If there are any unwished holes or smaller roughness, it is recommendable to use some filler. Try to rebuild the structure with filler, if it is necessary.
- Prepare the surface for finishing by grinding an area of about 12'' around the repairing. Work with a grit of 400 or higher. Lower grits enhance the possibility of cracks in the new finish. The surface is well prepared if everything looks matt.
- The middle of the repairing must be a bit lower than the edge of the original finish. In fact it has to look like a mounting.
- After grinding the surface, everything must be cleaned with silicone remover.
- Mask everything around the matt edge so that it is impossible to paint something else than the repairing.
- Try to paint more finish in the middle of the repairing. Try to paint less finish at the edge.
- Depending on the size of the repairing, it is functional to work from the inside to the outside.
- Clean the spray gun with acetone after painting.
- The finish needs about two days to cure.

IF NECESSARY ONLY:

If the painting is not satisfying it is recommendable to grind the surface with a fine grit.

- Start grinding with grit 600 or 800 (depending on grade of roughness) and refine the finish with grit 1000 or 1200. After finishing the surface, there should be no more edges or transitions.
- If there are concave areas to grind, a piece of plastic could be a good sanding block.
- Remove the dust after grinding, and clean the surface.
- A satisfying finish needs at least a polish.

17.3 *Firewall Damage, Description*

The firewall is an integral part of the fuselage monocoque structure and cannot be replaced separately. The firewall is constructed from carbon- glass- and kevlar–materials, covered by a heat resistant ceramic at the forward side. The ceramic heat and fire protection layer is sealed by an aluminum protection skin.

Damage to the firewall has to be rated as structural to the whole fuselage necessitating a factory repair of the fuselage.

17.3.1 Negligible Damage

Damage to the aluminum skin of the firewall can be rated as negligible. A damaged aluminum protection skin should be replaced as soon as possible to prevent the ceramic fire protection layer beneath from damage.

17.4 *Engine Mount, Description*

The mount for the aircraft engine is constructed of 4130 chrome-molybdenum steel tubing, fastened to the firewall at five points. The mounting frame provides four lugs, equipped with rubber shock mounts to hold the engine.

17.4.1 General Considerations

All welding on the engine mount must be of the highest quality since the tendency of vibration is to accentuate any minor defect present and cause fatigue cracks. Engine mount members are preferably repaired by using a larger diameter replacement tube, telescoped over the stub of the original member using fish mouth and rosette type welds. However, reinforced 30- degree scarf welds in place of the fish mouth welds are considered satisfactory for engine mount repair work.

17.4.2 Damage at Engine Mounting Lugs and Engine Mount to Fuselage Attach Fittings

Engine mounting lugs and engine mount-to-fuselage attaching fittings should not be repaired but must be replaced.

17.5 *Residual Torque*

After bigger repairs at rudder or flaps it is necessary to measure the residual torque. Therefore REMOS provides the static moments, weight and residual torques of all rudders and flaps.

Flaps (retracted):

Weight: 2.00 - 2.40 kg (no mass balance)

Static Moment: 210 - 260 Ncm (no mass balance)

There is no mass balance mounted at the flaps. If the flaps are retracted they are driven to a stop that avoids flutter instability.

Aileron:

Weight: 2.30 - 2.60 Kg (with mass balance)

Static Moment: 0 - 6 Ncm (with mass balance)

Mass balance is mounted at the outer end of the elevator. The weight of the mass balance is 0.65 kg with a lever arm of 160 mm.

Elevator:

Weight: 4.30 - 4.75 Kg (with mass balance)

Static Moment: 35 - 45 Ncm (with mass balance)

Mass balance is mounted at both elevator tips. Each mass balance weights 0.45 kg with a lever arm of 165 mm.

Rudder:

Weight: 3.30 - 3.75 Kg (with mass balance)

Static Moment: (-10) - 10 Ncm (with mass balance)

Mass balance of 0.91 kg with a lever arm of 155 mm is mounted in the top of the rudder.

Section 18

Continued Airworthiness and Inspection

Table of Contents **Section**

18.1 Maintenance

Maintenance shall be performed according to the actual revision of the Service and Maintenance Checklist. This document is published on the website www.remos.com, which is the central means of communication of REMOS AG to its customers.

18.1.1 Maintenance Interval

Maintenance intervals of all REMOS aircraft are 25h for the first maintenance event, followed by 100h inspections. In case that AVGAS 100LL is used for more than 30% of the time, oil change interval is reduced to 50h.

ATTENTION!	REMOS AG hereby wants to provide the information that the 100h inspection is mandatory if the aircraft is in commercial use. REMOS AG recommends the 100h inspection for aircrafts in private use.

18.1.2 Annual Condition Inspection

Annual Condition Inspection shall be performed according to the actual revision of the Annual Condition Inspection Checklist. This document is published on the website www.remos.com, which is the central means of communication of REMOS AG to its customers.

18.1.3 Personal

REMOS AG hereby defines the following persons that may perform maintenance and repair as defined in the Maintenance Manual including 25h and 100h inspection:

- Owner/operator: with Sport Pilot Certificate or higher:
  preventative maintenance, or line maintenance.
- LSA Repairman Maintenance:
  preventative maintenance, line maintenance, or heavy maintenance.
- A&P Mechanic:
  preventative, maintenance, line maintenance, or heavy maintenance.
- Part 145 Repair Station with appropriate ratings:
  preventative maintenance, line maintenance, or heavy maintenance

REMOS AG hereby defines the following persons that may perform the annual condition inspection:

- LSA Repairman Maintenance
- A&P Mechanic
- Part 145 Repair Station with appropriate ratings

18.2 Lifetime Limits

Airframe

The airframe is not lifetime limited. The aircraft is operated on condition.

Control Systems

The control systems are not lifetime limited. The aircraft is operated on condition.

Engine

For commercial use the engines with SN lower than 4.427.532 have a TBO of 1200h or 10 Years, whatever comes first. Engines with SN between 4.427.533 and 6.775.789 have a TBO of 1,500h or 12 years, whatever comes first. Engines with SN 6.775.790 and higher have a TBO of 2,000h or 15 years, whatever comes first. Engines with SN lower than 6.775.790 may be modified according to ROTAX Service Bulletins so that a TBO of 2,000h/15yrs applies. See individual modification standard and engine documentation.

For private use the engine is operated on condition if maintained according to engine manufacturer's maintenance manual.

Propeller

Neither for commercial use nor for private use a TBO is defined for the different types of propellers, inspections acc. to manual apply.

Safety Belts

The safety belts are not lifetime limited. The aircraft is operated on condition.

Tubes and Hoses

Tubes and hoses on REMOS aircraft are operated on condition. A fixed time interval for replacement is not defined. Nevertheless, the ROTAX maintenance manual claims for replacement every 5 years. The replacement is not mandatory on REMOS aircraft, though recommended.

Towing Equipment

For commercial use the release clutch has a TBO of 4 years, or 2,000 take-offs, or 10,000 operations, whatever comes first. For private use the clutch is operated on condition if maintained according to clutch manufacturer's maintenance manual.

Misc. Equipment and Subsystems

Misc. equipment and subsystems are not lifetime limited. The aircraft is operated on condition.

18.3 Continued Airworthiness

Continued Airworthiness is everything that is required to keep an aircraft in a safe condition to fly. This does not only include the technical part like maintenance and annual condition inspection. It also includes update of documentation, e.g. Pilot Operating Handbook, issuing repair instructions and repair approvals, change on equipment and feedback of the customer to the manufacturer. Especially the latter one is really important as this is the only way that the manufacturer gets to know of potential issues of safety of flight.

In some areas the procedures of the continued airworthiness system of an LSA differ significantly from the ones of a standard category aircraft. This letter shall give guidance to the customer how to act correctly in the continued airworthiness system and how to keep his aircraft airworthy and legal to fly.

18.3.1 Continued Airworthiness System

REMOS AG shall be informed about potential issues of safety of flight or service difficulties by means of the Customer Feedback Form attached to the maintenance manual. Keep in mind that forms are subject to change; therefore check the website www.remos.com if there is a revised form available. If a customer does not inform the manufacturer by means of this form, REMOS AG also accepts any way of information as long as it contains at least following information:

- aircraft make and model
- serial number and callsign
- propeller make and model
- total time of aircraft and engine
- use of aircraft: private or commercial
- name and contact data of reporting person
- description of potential issue of safety or service difficulty

If the customer notifies REMOS AG directly, the information will be forwarded immediately to the Head of Design by means of the customer feedback form. Shall the customer opt for e-mail notification via service@remos.com then this e-mail will immediately be forwarded to the Head of Design.

Based on the information given in the customer feedback form, the Head of Design will perform a risk assessment. In most cases, the Head of Design will contact the customer to collect more and precise information. This includes eventual cooperation with authorities, e.g. in case of an accident. A risk assessment consists of:

- cause of accident/incident by pilot error or technical background
- safety effect determination
- risk assessment evaluation
- decision of required alerting of the public
- decision of corrective action

The continued airworthiness system of REMOS AG does not only cover events that have occurred during operation of the aircraft. Service difficulties, findings during maintenance events or annual condition inspections are also covered by the continued airworthiness system. In case that service staff identifies a potential safety of flight issue or a real service/maintenance problem, a customer feedback form must be filled out and handed forward to the Head of Design.

The customer shall not be afraid of consequences like revoking licenses. This is not the intention and not the job of an aircraft manufacturer. If there is no immediate danger for other customers or the flying public, REMOS AG will never notify authorities.

18.3.2 Owner/Operator Responsibilities

During handover of the aircraft the owner/operator is introduced into the continued airworthiness system of REMOS AG. The customer is informed about the following:

- The maintenance handbook provides all information that the customer needs to comply with the regulations, especially with continued airworthiness and maintenance.
- It is the owner/operator's responsibility to provide the manufacturer with current contact information. Only with current contact information the manufacturer is able to contact the customer in case service bulletins or safety alerts need to be sent out.
- In case a safety of flight issue or significant service difficulty reveals, it is the responsibility of the owner/operator to inform the manufacturer. The owner/operator shall not seek for solutions on his own and modify the aircraft I a way that is not covered by the maintenance manual.
- Shall the manufacturer release a notice of corrective action it is the responsibility of the owner/operator to comply with it. Furthermore the owner/operator has the responsibility to comply with all applicable aviation authority regulations in regard to maintaining the airworthiness of the LSA airplane.
- In case the manufacturer has released a notice of corrective action the owner complete it within the timeframe defined in the notice. If there is no timeframe defined, than the latest time to comply with it is the next annual condition inspection.
- In case the owner/operator does not comply with the maintenance manual and/or releases of corrective action, the LSA is not in compliance with the accepted ASTM consensus standards. This means that the aircraft is not airworthy and operating this aircraft is not legal. In case the responsible aviation authority (in case of the USA this is FAA) gets to know about this the owner/operator may be subject to regulatory action by the authority.

This information is provided by means of the customer commitment form, which is part of the maintenance manual. The owner/operator shall sign this form and send it to REMOS AG. On this form the owner/operator shall also provide the manufacturer with current contact data. Keep in mind that forms are subject to change; therefore check the website www.remos.com if there is a revised form available.

If the aircraft is sold to another customer a new customer commitment form needs to be signed, so that REMOS AG is informed about the new owner and is provided with the latest contact data.

18.3.3 Release of Notices to the Public

There are three different levels of notices to the public, each representing a different level of importance:

- SAFETY ALERT
  will be issued in case of an urgent safety of flight situations. Potentially an emergency safety of flight action is required in this case. Owner/operators will immediately be informed by postal mail and an immediate action is required. In addition, all safety alerts will be published on the website www.remos.com
- SERVICE BULLETIN
  will be issued in case a corrective action, a mandatory inspection or a modification of the aircraft is required. Owner/operators must be informed by postal mail. An immediate action is not required but a future action is required or recommended. In addition, all safety alerts will be published on the website www.remos.com
- NOTIFICATION
  will be issued in case service information is required, but owner/operators will not be informed by postal mail. The public is notified via the website www.remos.com only.

18.3.4 Documentation Update

Any documentation update will be released on the website www.remos.com. Owner/operators will not be informed by postal mail, unless such a documentation update is mandatory for safety of flight and is released by a safety alert or a service bulletin. Examples for documentation updates are new revisions of:

- Pilot Operating Handbook
- Service and Maintenance Checklist
- Annual Condition Inspection Checklist
- Type Design Datasheet

For copyright reasons a new revision of the maintenance handbook is not available on the website, but only on request as hardcopy.

18.3.5 Modifications or Change of Equipment

Certified equipment is listed in the maintenance manual and the actual revision of the Type Design Datasheet (TCDS). The TCDS in its actual revision is available on request or on the website www.remos.com. Only listed equipment may be installed on the aircraft without notifying REMOS AG. In case equipment that is described in the maintenance manual shall be exchanged on the aircraft, it is required to:

- update equipment list
- weight and balance

Modifying the aircraft or changing equipment may be performed by any competent person. Updating the equipment list and the weight and balance report may only be performed by

- LSA Repairman Maintenance
- A&P Mechanic
- Part 145 Repair Station with appropriate ratings

Any change that is not documented may not be performed on the aircraft without having it certified by REMOS AG. Nevertheless, it is possible to do so. Notify REMOS AG prior to the intended change of the aircraft. Engineering department will then decide which kind of documentation is required and will either prepare them or will ask the customer to have this documentation prepared. Followed by this a Letter of Approval (LOA) will be prepared that needs to be signed by either an A&P Mechanic or a Part 145 Repair Station with appropriate ratings after the work is accomplished. Then this LOA will be signed by REMOS AG and handed out to the customer. This procedure will be performed by e-mail.

The extent of work cannot generally be defined; it is always an individual project. Working hours of the engineering department will be charged by the hour according to actual pricelists.

This procedure is not intended and built up for the manufacturer to make money of it. In contrary, due to running projects within engineering department it usually costs more to prepare the documentation than it is charged for. This procedure is defined in the regulations, in this case ASTM F2483.

Without having updated the equipment list and weight and balance or not having changes approved by the manufacturer that are not part of the maintenance manual, the aircraft is considered not airworthy and unsafe to fly. It is not legal to operate an aircraft without a current equipment list and weight and balance and required approvals by the manufacturer. Make sure the change of equipment is signed off in the aircraft's logbook and is entered in the aircraft's permanent record.

18.3.6 Repairs

Repairs are handled similarly as change of equipment. Any repair that is performed with standard tools by replacing damaged parts may be performed by any competent person. To release the aircraft back to service the repair must be signed off by

- Owner/Operator with at least a Sport Pilot Licence
- LSA Repairman Maintenance
- A&P Mechanic
- Part 145 Repair Station with appropriate ratings

It is recommended to perform a standard maintenance event and an annual condition inspection once a repair has been performed that could affect safety of flight.

Structural repairs that are described in the maintenance manual are handled identically. In case the damage exceeds the described ones, an individual repair instruction is required. In this case notify REMOS AG by means of the customer feedback form. Engineering will then prepare individual and precise repair instructions. Repairing a composite aircraft is completely different from repairing a metal aircraft or a composite boat. Therefore only competent persons may perform the work. REMOS AG hereby defines the following persons that may perform the repair:

- LSA Repairman Maintenance with composite knowledge

- A&P Mechanic with composite knowledge
- Part 145 Repair Station with appropriate ratings

Notify REMOS AG prior to the intended repair. Engineering department will then decide which kind of repair and documentation is required and will either prepare them or will ask the customer to have this documentation prepared. Followed by this a Repair Approval (LOA) will be prepared that needs to be signed by either an A&P Mechanic or a Part 145 Repair Station with appropriate ratings after the work is accomplished. Then this Repair Approval will be signed by the Head of Design of REMOS AG and handed out to the customer. This procedure will be performed by e-mail.

The extent of work cannot generally be defined; it is always an individual project. Working hours of the engineering department will be charged by the hour according to actual pricelists.

This procedure is not intended and built up for the manufacturer to make money of it. In contrary, due to running projects within engineering department it usually costs more to prepare the documentation than it is charged for. This procedure is defined in the regulations, in this case ASTM F2483.

Without having the repair performed and approved according to the manufacturer's instruction the aircraft is considered not airworthy and unsafe to fly. It is not legal to operate an aircraft without current documentation and required approvals by the manufacturer. Make sure the repair is signed off in the aircraft's logbook and is entered in the aircraft's permanent record.

18.3.7 Contact Data

The manufacturer of the REMOS aircraft and the only responsible entity for continued airworthiness is

REMOS AG
Franzfelde 31
D-17309 Pasewalk
Tel: +49-3973-225519-0
Fax: +49-3973-225519-99
service@remos.com

To have more practical access to spare parts, assistance and guidance, REMOS has several partners worldwide. These partners, as well as the aircraft dealers, act as interface towards REMOS AG. Refer to the website www.remos.com.

18.3.8 Customer Feedback Form

CFB - _____
filled out by Engineering Department REMOS AG

Please use this feedback form to report any safety of flight or service difficulties to REMOS aircraft. It is important for the operational safety monitoring system and will guarantee the continued airworthiness of your aircraft.

Aircraft Make and Model	Date
Call Sign	Aircraft Serial Number
Propeller Make and Model	Engine Serial Number
TT Engine	TT Airframe
Use of Aircraft: Private, Commercial, Flight School, Special Use	

Name	Phone
First Name	Fax
Adress	e-mail
City/State	Web

Send either to **REMOS AG**
Franzfelde 31
D-17309 Pasewalk, Germany
Tel: +49-3973-225519-0
Fax: +49-3973-225519-99
service@remos.com

Before sending this form, please check on the website www.remos.com if a corresponding Safety Alert, Service Bulletin or Notification has already been released.

Notes and explanation of potential issue of safety or service difficulty items found

18.3.9 Customer Commitment Form

CCF - _____
filled out by Engineering Department REMOS AG

Please fill out this commitment form to confirm that you agree with the ASTM announced responsibilities for LSA aircraft owners/operators. This is mandatory to every customer to ensure a proper function of the manufacturer's operational safety monitoring system.

Aircraft Make and Model	Use of Aircraft (private or commercial)
Call Sign	Aircraft Serial Number
Propeller Make and Model	Engine Serial Number
TT Engine	TT Airframe

Name	Phone
First Name	Fax
Adress	e-mail
City/State	Web

Send to **REMOS AG**
Franzfelde 31
D-17309 Pasewalk, Germany
Tel: +49-3973-225519-0
Fax: +49-3973-225519-99
service@remos.com

Before sending this form, please check on the website www.remos.com if an update is available.

Agreed Owner/Operator Responsibilities

- The maintenance handbook provides all information that the customer needs to comply with the regulations, especially with continued airworthiness and maintenance.
- It is the owner/operator's responsibility to provide the manufacturer with current contact information. Only with current contact information the manufacturer is able to contact the customer in case service bulletins or safety alerts need to be sent out.
- In case a safety of flight issue or significant service difficulty reveals, it is the responsibility of the owner/operator to inform the manufacturer. The owner/operator shall not seek for solutions on his own and modify the aircraft in a way that is not covered by the maintenance manual.
- Shall the manufacturer release a notice of corrective action it is the responsibility of the owner/operator to comply with it. Furthermore, the owner/operator has the responsibility to comply with all applicable aviation authority regulations with regard to maintaining the airworthiness of the LSA airplane.
- In case the manufacturer has released a notice of corrective action the owner has to complete it within the timeframe defined in the notice. If there is no timeframe defined, then the latest time to comply with it is the next annual condition inspection.
- In case the owner/operator does not comply with the maintenance manual and/or releases of corrective action, the LSA is not in compliance with the accepted ASTM consensus standards. This means that the aircraft is not airworthy and operating this aircraft is not legal. In case the responsible aviation authority (in case of the USA this is FAA) gets to know about this the owner/operator may be subject to regulatory action by the authority.

Indoctrination

- Maintenance of an LSA may only be performed by personnel defined in the maintenance manual or in SD-006.
- Only equipment that is mentioned in the maintenance manual may be installed. According to the LSA regulations the installation of any other equipment is recognised as a major modification that needs to be approved by REMOS AG.
- Any repair that is not described in the maintenance manual is considered major according to the LSA regulations and need a repair instruction and an approval by REMOS AG.

I have read and understood the information given above. In case I sell my REMOS aircraft I will inform the future owner and have him signed a new customer commitment form.

_____

city, date, name and sign of owner