REMOS AIRCRAFT

REMOS GX

Pilot Operating Handbook for LSA

Edition for **GX**NXT Revision **GX**NXT -01

Introduction

Light Sport Aircraft REMOS GX

The REMOS GX was manufactured in accordance with the Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

Serial No.: _____

Built: _____

Call Sign: _____

Engine-Type: _____

Serial No. Engine: _____

Propeller-Type: _____

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Introduction

List of Content and List of Effective Pages

This POH consists of the following listed pages and sections. You will find a marking indicating the revision and date of issue at the top border of each page. Insert the latest changed pages.

Introduction

List of Revisions

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Introduction

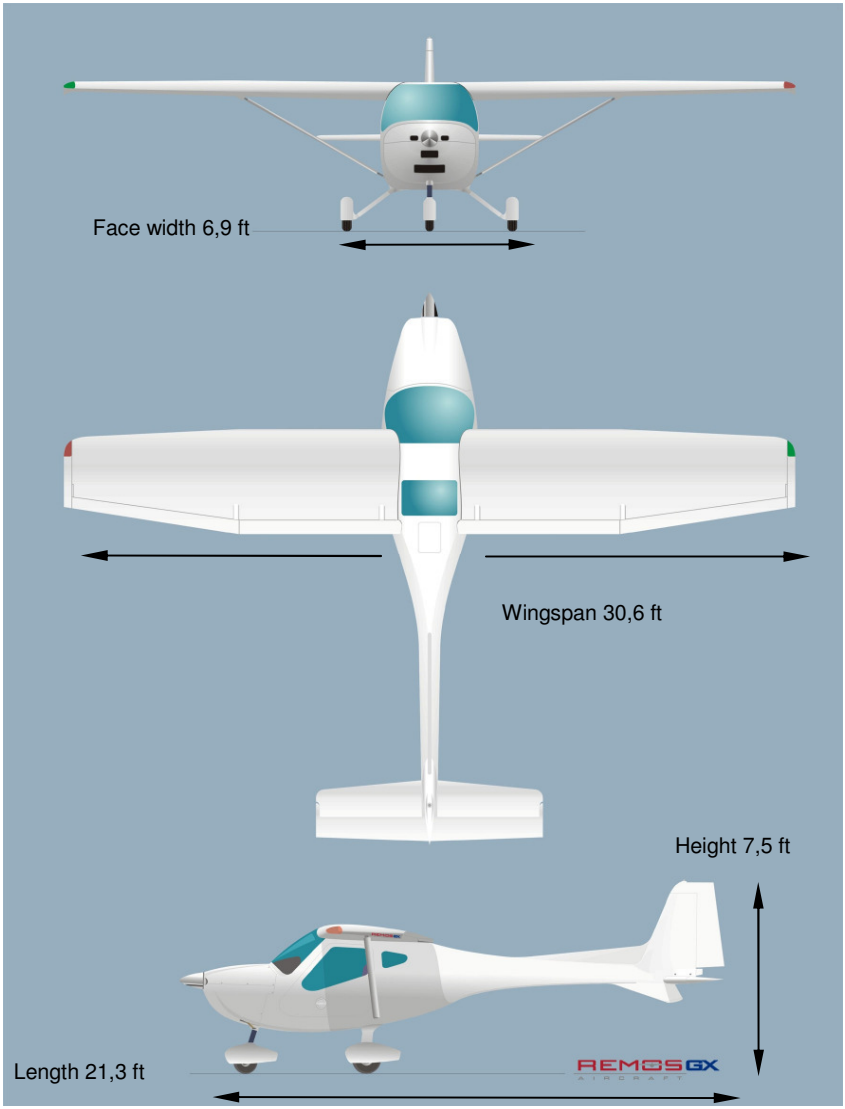
Remarks and Alterations

Please make a notation below if any changes have been made to this manual or to the plane. This manual is an important document for the pilot in command to ensure safe operation of the aircraft. Therefore it is recommended to keep this Operating Handbook updated with the newest information available. You can get the latest updates of this manual from your dealer or directly from the manufacturer's homepage.

no.	page	concern	date	sign

Introduction

Views



1 General Information

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1 General Information

1.1 Introduction

This Operating Handbook is designed to help enable a safe and successful completion of each flight with the REMOS GX. It provides you with all necessary information for regular maintenance and operation of the aircraft. Therefore we recommend that the pilot keep this Operating Handbook updated with the newest information available. You can get the latest version of this Handbook from your local dealer or directly from the manufacturer's homepage.

1.2 Certification

The REMOS GX was manufactured in accordance with the Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

1.3 Continued Airworthiness

Technical publications for continued airworthiness are released on the REMOS website www.remos.com and they may be downloaded free of charge.

Bombardier-Rotax releases technical publications on their website www.rotax-aircraft-engines.com from which they may be downloaded free of charge. Documentation update for avionics may be downloaded on www.dynonavionics.com and www.garmin.com.

It is the responsibility of the owner/operator of the aircraft to keep the aircraft and its documentation up to date and to comply with all technical publications.

1 General Information

1.4 Quick Reference

Type: Full composite carbon fiber aircraft with two seats.

Design: High wing design with struts, front mounted engine and propeller, traditional stabilizer concept, differential ailerons. Electrically operated flaps (0° to 40°), electric elevator trim, three-wheel landing gear with steerable nose wheel. Main gear with hydraulic disc brakes. The cabin is equipped with two seats side by side and can be entered and exited by doors on the left and right side of the fuselage.

Layout: Main components are built in half shells from composite fiber material, which are bonded together (carbon fiber, Kevlar and glass fiber).

1.5 Technical Specifications

wingspan	30 ft 6 in
length	21 ft 3 in
height	7 ft 5 in
wing area	118 sq ft
MTOW	1,320 lb
wing loading	11 lb /sq ft

1 General Information

1.6 Engine

manufacturer		Bombardier-Rotax
engine type		912 UL-S
max. power	**take-off**	73.6 kW / 100 HP
	max. cont.	69.9 kW / 95 HP
fuel qualities		AVGAS, MOGAS or min. AKI 91, ideally free of ethanol
usable fuel quantity		21 US gallons
total fuel quantity		22 US gallons
engine oil		synthetic or semi-synthetic
oil rating		API-SG or higher
engine oil capacity		min. 2.1 qts max. 3.1 qts
recommended oil		AeroShell Sport PLUS 4 10W-40
coolant		BASF Glysantin Protect Plus/G48
mixing ratio		1:1 (Glysantin : water)

NOTE	Please refer to REMOS notification NOT-001 and ROTAX SI-912-016/SI-914-019 for further information on fuel containing ethanol and on suitable engine oils. Have a frequent look on www.rotax-engines.com and on www.remos.com for the latest information.

1 General Information

1.7 Propeller

manufacturer	1. Flii. Tonini 2. Woodcomp 3. Sensenich 4. Neuform
type and number of blades	1. GT-169,5/164 2-blade, wood 2. SR38+1 2-blade, wood 3. 2A0R5R70EN 2-blade, composite 4. CR3-65-47-101,6 3-blade, composite
gear ratio	2.43 : 1
slipper clutch	optional

1.8 ICAO Designator

ICAO Designator: GX (as per ICAO Doc. 8643)

1.9 Noise Certification

According to noise requirements for Ultralight aircraft (LS-UL) dated August 1996, the REMOS GX is certified to a noise level of 60 dB (A).

2 Operating Limitations

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2 Operating Limitations

2.1 Reference Airspeeds

speed		CAS	description
V_{NE}	Never exceed speed	155 mph (134 kts)	Airspeed which may never be exceeded
V_H	Maximum speed in level flight	137 mph (119 kts)	Maximum airspeed at maximum continuous power setting
V_{NO}	Maximum speed in turbulence	123 mph (107 kts)	Airspeed which shall never be exceeded in gusty weather conditions
V_A	Maneuvering speed	108 mph (94 kts)	Maximum airspeed for all permissible maneuvers
V_{FE}	Speed range flaps fully extended	81 mph (70 kts)	Airspeed which may never be exceeded in flaps down configuration
V_{APP}	Approach airspeed	75 mph (65 kts)	Recommended airspeed for approach with full payload
V_X	Airspeed for best angle of climb	56 mph (49 kts)	Airspeed for the greatest altitude gain in the shortest horizontal distance
V_Y	Airspeed for best rate of climb	75 mph (65 kts)	Airspeed for the greatest altitude gain in the shortest time
V_{S1}	Minimum airspeed flaps retracted (0°)	51 mph (44 kts)	Minimum permissible airspeed in flaps up configuration
V_{S0}	Minimum airspeed flaps extended (40°)	44 mph (38 kts)	Minimum permissible airspeed in flaps down configuration

2 Operating Limitations

2.2 Stalling Speeds at Maximum Takeoff Weight

stall speed with flaps extended	VS0 = 44 mph = 38 kts
stall speed with flaps retracted	VS1 = 51 mph = 44 kts

2.3 Flap Extended Speed Range

For deflected flaps following speed restrictions apply as a function of airspeed:

δ [deg]	VFE [mph]	VFE [kts]
10	155	134
15	132	115
20	115	100
30	94	81
40	81	70

With flaps set to any deflection the safe load factor is limited to 2.

2.4 Maximum Maneuvering Speed

maximum maneuvering speed	VA = 108 mph = 94 kts

2 Operating Limitations

2.5 Never Exceed Speed

never exceed speed VNE = 155 mph = 134 kts

Due do the reduced density of air at altitude, true airspeed is higher than calibrated or indicated airspeed. Therefore VNE is limited to 155 mph = 134 kts true airspeed in order to prevent flutter. With increasing altitude VNE is limited to lower values than indicated by redline according to the following table.

altitude [ft]	CAS [mph]	CAS [kts]
0	155	135
5,000	147	128
10,000	137	119
15,000	125	110

2.6 Maximum Wind Velocity for Tie-Down

max. wind velocity for tie-down in the open VR = 44 mph = 38 kts

2.7 Crosswind and Wind Limitations

maximum demonstrated cross wind component for take-off and landing 15 knots

The maximum demonstrated crosswind component is not a limitation. The pilot may exceed this demonstrated crosswind component on his or her own discretion. In case the pilot operates the aircraft in crosswind components higher than demonstrated he or she shall be aware of the fact that this flight regime has not been tested.

A general wind limitation is not defined for the REMOS GX.

2 Operating Limitations

2.8 Maximum Parachute Deploy Airspeed

maximum parachute deploy airspeed	138 mph = 120 kts

2.9 Service Ceiling

service ceiling	15,000 ft

2.10 Load Factors

safe load factors	+4.0 g / -2.0 g

With flaps set to any deflection the safe load factor is limited to 2.

2.11 Maximum Structure Temperature

max. certified structure temperature	130°F = 54°C

2.12 Prohibited Maneuvers

Flight maneuvers not permitted

- aerobatics
- spins
- flight in icing conditions

2.13 Permissible Flight Maneuvers

The following maneuvers are permitted

- all non-aerobatic maneuvers,
  including stalls and departure stalls
- flight with the doors off

2 Operating Limitations

2.14 Weight and Balance

front limit of C.G.	9.6 in	(245 mm)
rear limit of C.G.	16.3 in	(415 mm)

maximum take-off weight (MTOW)	1,320 lb	(600 kg)
typical empty weight	710 lb	(322 kg)
max. baggage in baggage compartment	66 lb	(30 kg)
max. baggage in each bin	4.4 lb	(2 kg)
max. fuel	126 lb	(57 kg)

2.15 Crew

The REMOS GX is certified to be operated with a minimum of 1 occupant (the pilot in command) and a maximum of 2 occupants.

If not otherwise defined by regulations or by the owner/operator, the pilot in command is normally seated on the left.

2.16 Flight Conditions and Minimum Equipment List

operation	minimum equipment
Day-VFR	as per D-VFR Minimum Equipment List
Night-VFR	as per N-VFR Minimum Equipment List
IFR in VMC	as per IFR/VMC Minimum Equipment List
IFR in IMC	not approved
Aerobatics	not approved

2 Operating Limitations

D-VFR minimum equipment list

- engine ROTAX 912 UL-S
- silencer
- airbox
- propeller as defined in chapter 2
- carburetor heating system
- compass with compass card
- altimeter
- airspeed indicator
- safety belts
- ELT
- electrical system including circuit breakers
- master, avionics and engine kill (ignition) switch
- engine instruments (one DYNON SV-700 screen and the EMS module DYNON SV-EMS-220)
- AeroLEDs SUNTAIL taillight with integrated ACL
- AeroLEDs NS90 position lights with integrated ACL

N-VFR Minimum equipment list

- as per D-VFR minimum equipment list, plus
- electrical artificial horizon (ADAHRS module DYNON SV-ADAHRS-200)
- instrument panel lighting
- AeroLEDs AEROSUN 1600 landing light
- communication radio (GARMIN SL40 or SL30)
- transponder (DYNON SV-XPNDR-261)

2 Operating Limitations

IFR/VMC Minimum equipment list

- as per N-VFR minimum equipment list, plus
- navigation radio (GARMIN SL30)
- audio panel (ps-engineering PM7000B or PM8000BT)

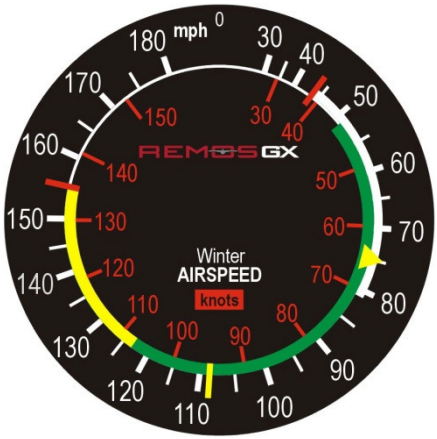
2.17 Engine

engine manufacturer		Bombardier-Rotax
engine type:		912 UL-S
max. power	**take-off**	73.6 kW / 100 HP
	continuous	69.9 kW / 95 HP
max. engine speed	**take-off**	5,800 rpm
	continuous	5,500 rpm
idle speed		1,400…1,600 min-1
cylinder head temperature	**minimum**	not defined
	maximum	275°F (135°C)
oil temperature	**minimum**	120°F (50°C)
	maximum	266°F (130°C)
oil pressure	**minimum**	22 psi (1,5 bar)
	maximum	73 psi (5,0 bar)
oil pressure below 3,500 rpm	**minimum**	12 psi (0,8 bar)
during cold start	**maximum**	101 psi (7,0 bar)
max. fuel pressure		6 psi (0,4 bar)

2 Operating Limitations

2.18 Airspeed Indicator Range and Markings

Marking	CAS Airspeed / Range		Description
Red Line, low	44 mph	V_{S0}	Minimum airspeed with flaps extended
White Arc	44 to 81 mph	V_{S0} - V_{FE}	Airspeed range for flaps extended
Yellow Line	108 mph	V_A	Maximum airspeed for full maneuverability
Green Arc	51 to 123 mph	V_{S1} - V_{NO}	Normal use
Yellow Arc	123 to 155 mph	V_B - V_{NE}	Caution in gusty conditions
Red Line, high	155 mph	V_{NE}	Maximum permissible airspeed
Yellow Triangle	75 mph	V_{APP}	Recommended airspeed for approach and best angle of climb



2 Operating Limitations

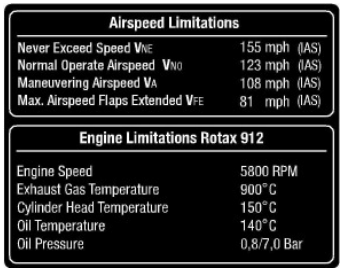
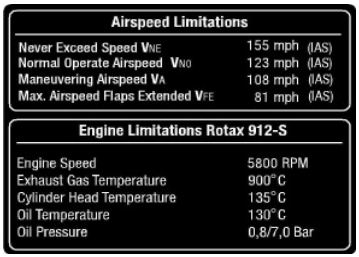
2.19 Placards and Markings

The required placards and markings are created with the following color codes.

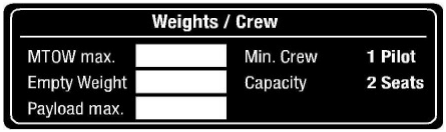
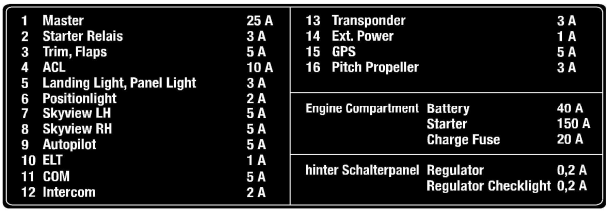
Type	Inside	Outside
Information	white lettering on a black background - white framed	black lettering on a white background - black framed
		
Safety	white lettering on a black background - red framed	red lettering on a white background - red framed
		
Warning	white lettering on a red background - white framed	red lettering on a white background - red framed
		

2 Operating Limitations

The following placards are mandatory and define operational limitations. They are located on the instrument panel. The list below does not define the layout but the content and intent of the placards.

placards	location
	right cockpit
	right cockpit
 (callsign example)	center console
 or 	center console

2 Operating Limitations

placards	location
	center console
	center console
	right rocker panel
	baggage compartment

2 Operating Limitations

The following safety placards are mandatory. They are located on the instrument panel. The list below does not define the layout but the content and intent of the placards.

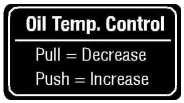
placard	location
	right cockpit

The following safety placard is located on the left side of the panel. This placard is mandatory.

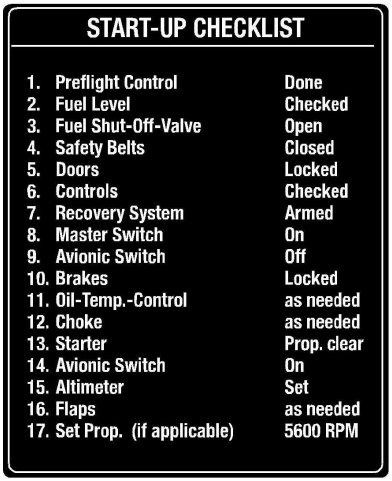
placard	location
	left cockpit

2 Operating Limitations

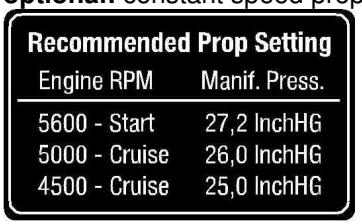
The following information placards and markings are found inside the cabin and on the instrument panel. Attaching these placards is not mandatory; these placards provide additional information to the pilot. The list below does not define the layout but the content and intent of the placards.

placards	location
	left cockpit
 	right cockpit
	switchboard
	switchboard

2 Operating Limitations

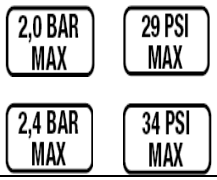
placards	location
	center console
	center console
	switchboard
	switchboard

2 Operating Limitations

placards	location
	switchboard
	switchboard
	switchboard
	switchboard
optional: constant speed prop 	switchboard

2 Operating Limitations

The following information placards and markings are found outside the cabin. Attaching these placards is not mandatory; these placards provide additional information to the pilot. The list below does not define the layout but the content and intent of the placards.

placards	location
	fuel tank filler cap
	wheel fairings
	static port

2 Operating Limitations

The following safety placards and markings are found inside the cabin. Attaching these placards is not mandatory; these placards provide additional information to the pilot. The list below does not define the layout but the content and intent of the placards.

placards	location
	center stack
	aileron pushrod
	cabin side at aileron pushrod cut out
	baggage compartment
	baggage compartment
	fuel tank sight hose

2 Operating Limitations

The following safety placards and markings are found outside the cabin. Attaching these placards is not mandatory; these placards provide additional information to the pilot. The list below does not define the layout but the content and intent of the placards.

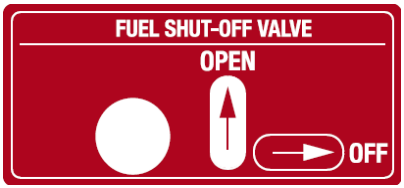
placards	location
	center of elevator
	next to the opening for aileron pushrod, covered by wing if not folded
	center of fixed surface of elevator, covered if elevator is installed
	wing main bolt
	wing

2 Operating Limitations

placards	location
	strut

2 Operating Limitations

The following warning placards and markings are found inside the cabin. Attaching these placards is not mandatory; these placards provide additional information to the pilot. The list below does not define the layout but the content and intent of the placards.

placards	location
	center console
	door
	door

The following warning placards and markings are found outside the cabin. Attaching these placards is not mandatory; these placards provide additional information to the pilot. The list below does not define the layout but the content and intent of the placards.

placards	location
	recovery system egress area

3 Emergency Procedures

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3 Emergency Procedures

3.1 Definitions

Procedures

are instructions that must be performed in the given sequence, as far as possible without interruption.

Checklists

are lists for items to be checked in the applicable phase of flight (taxi, take-off, climb, etc.). Timing and sequence of the steps to be executed may vary according to the individual flight.

Briefings

are guidelines for upcoming procedures. With the help of briefings, the pilot and passenger should recapitulate those procedures.

3 Emergency Procedures

3.2 Jettison of Doors — Procedure

1.	door lock	OPEN
2.	hinge pin	PULL
3.	door	JETTISON

3.3 Spin Recovery — Procedure

1.	control stick	NEUTRAL
2.	rudder	OPPOSITE SPIN DIRECTION
3.	after stopping of rotation	RECOVER

3.4 Recovery System — Procedure

1.	engine	STOP
2.	recovery system	RELEASE
3.	fuel valve	CLOSE
4.	declare emergency	MAYDAY MAYDAY MAYDAY
5.	master switch	OFF
6.	safety belts	TIGHTEN

3 Emergency Procedures

3.5 Voltage Drop Procedure

1. engine speed MORE THAN 4.000 RPM
2. non essential systems OFF
3. land on appropriate airfield

NOTE	During day VFR Operations, nonessential systems are all systems except for the radio and intercom. During night VFR or IFR operations, essential systems also include transponder, areal navigation (GPS or SL30 and HS34), instrument lights, position lights, ACL and the artificial horizon (also applicable are Dynon D-100 or D-180 instead of the artificial horizon).

3.6 Engine Stoppage during Take-Off Procedure

during take-off run (aborted take-off)

1. engine speed IDLE
2. brakes AS REQUIRED
3. engine OFF

during climb out (altitude below 500ft)

1. AVIATE – NAVIGATE – COMMUNICATE
2. engine speed IDLE
3. engine OFF
4. fuel valve CLOSE
5. declare emergency MAYDAY MAYDAY MAYDAY
6. master switch OFF
7. safety belts TIGHTEN
8. emergency landing APPROPRIATE TERRAIN

NOTE	No course deviations should be made in excesss of 30° to the left or right. Do not return to the airfield.

3 Emergency Procedures

3.7 Engine Stoppage in Flight Procedure

case 1: altitude not enough for engine re-start

1.	AVIATE – NAVIGATE – COMMUNICATE	
2.	landing site	IDENTIFY
3.	engine	OFF
4.	fuel valve	CLOSE
5.	declare emergency	MAYDAY MAYDAY MAYDAY
6.	master switch	OFF
7.	safety belts	TIGHTEN
8.	emergency landing	APPROPRIATE TERRAIN

case 2: altitude sufficient for engine re-start

1.	AVIATE – NAVIGATE – COMMUNICATE	
2.	landing site	IDENTIFY
3.	carburetor heat	PULL
4.	electric fuel pump	ON
5.	choke	OFF
6.	starter	ENGAGE
7.	if engine does not start continue with case 1	
8.	if engine starts, continue flight and land at the nearest appropriate airfield to determine the reason for engine failure	

3.8 Carburetor Icing Procedure

1.	carburetor heat	PULL
2.	electric fuel pump	ON
3.	power setting	FULL POWER

3 Emergency Procedures

3.9 ENGINE ON FIRE Procedure

1.	AVIATE – NAVIGATE – COMMUNICATE	
2.	landing site	IDENTIFY
3.	fuel valve	CLOSE
4.	carburetor heat	PULL
5.	electric fuel pump	OFF
6.	power setting	FULL until ENGINE STOPS
7.	declare emergency	MAYDAY MAYDAY MAYDAY
8.	master switch	OFF
9.	slip	AS REQUIRED
10.	safety belts	TIGHTEN
11.	emergency landing	APPROPRIATE TERRAIN

NOTE	Never release the recovery system in case of fire.

3.10 Emergency Landing on Land Procedure

1.	AVIATE – NAVIGATE – COMMUNICATE	
2.	landing site	IDENTIFY
3.	direction of wind	IDENTIFY
4.	approach airspeed	V_{APP} = 75 mph = 65 kts
5.	max. flap speed	V_{FE} = 80 mph = 70 kts
6.	flaps	DOWN
7.	trim	AS REQUIRED
8.	declare emergency	MAYDAY MAYDAY MAYDAY
9.	master switch	OFF
10.	safety belts	TIGHTEN
11.	landing direction	INTO THE WIND or UPHILL

12. touchdown with full elevator on main wheels first
13. after landing, release safety belts and vacate aircraft

3 Emergency Procedures

3.11 Emergency Landing on Water Procedure

1. AVIATE – NAVIGATE – COMMUNICATE
2. direction of wind IDENTIFY
3. approach airspeed V_{APP} = 75 mph = 65 kts
4. max. flap speed V_{FE} = 80 mph = 70 kts
5. flaps DOWN
6. trim AS REQUIRED
7. declare emergency MAYDAY MAYDAY MAYDAY
8. master switch OFF
9. safety belts TIGHTEN
10. doors JETTISON
11. touchdown with full elevator on water surface
12. after landing release safety belts and vacate aircraft

4 Normal Procedures

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4 Normal Procedures

4.1 Definitions

Procedures

are instructions that must be performed in the given sequence, as far as possible without interruption.

Checklists

are lists for items to be checked in the apropriate phase of flight (taxi, take-off, climb, etc.). Timing and sequence of the steps to be executed may vary according to the individual flight.

Briefings

are guidelines for upcoming procedures. With the help of briefings, the pilot and passenger should recapitulate those procedures.

4 Normal Procedures

4.2 Fuel Draining Procedure

Since auto fuel contains a significant amount of ethanol nowadays, draining of the fuel system is more and more important. Draining of the aircraft must be performed before moving the aircraft at all. After re-fueling the aircraft, draining is also required. Give the fuel several minutes to rest after filling it up and do not move the aircraft prior to draining.

The drainer is located underneath the belly, just behind the main landing gear. From the outside only a plastic hose with 0.5 in diameter is visible. To drain the fuel tank, press on the plastic hose. Capture the released fuel and analyze it for water.

If AVGAS or MOGAS is used, water will clearly deposit underneath the fuel. Continue draining until no more water can be detected.

In the case of auto fuel containing ethanol, water can be absorbed by the fuel up to a certain amount, so no water will be detected during draining. If the fuel looks like a milky dispersion, the fuel is saturated with water. In this case dump all of the fuel, do not use this fuel for flying! After dumping fuel, fill up the fuel tank completely with fuel without ethanol.

To dump fuel, press in the plastic drainer hose and turn it counter-clockwise (as seen from bottom) about ¼ of a turn. To close the drainer, turn the plastic hose back. Be sure the drainer is properly closed. If dust or dirt particles get inside the drainer, the drainer will not close properly. In this case, open the drainer again to clean the drainer.

When draining the aircraft take care that no fuel contaminates the environment. Dispose of drained or dumped fuel in an environmental correct manner.

For further information about fuel containing ethanol please refer to the REMOS Notification NOT-001-ethanol-fuel.

4 Normal Procedures

4.3 Preflight Check Checklist

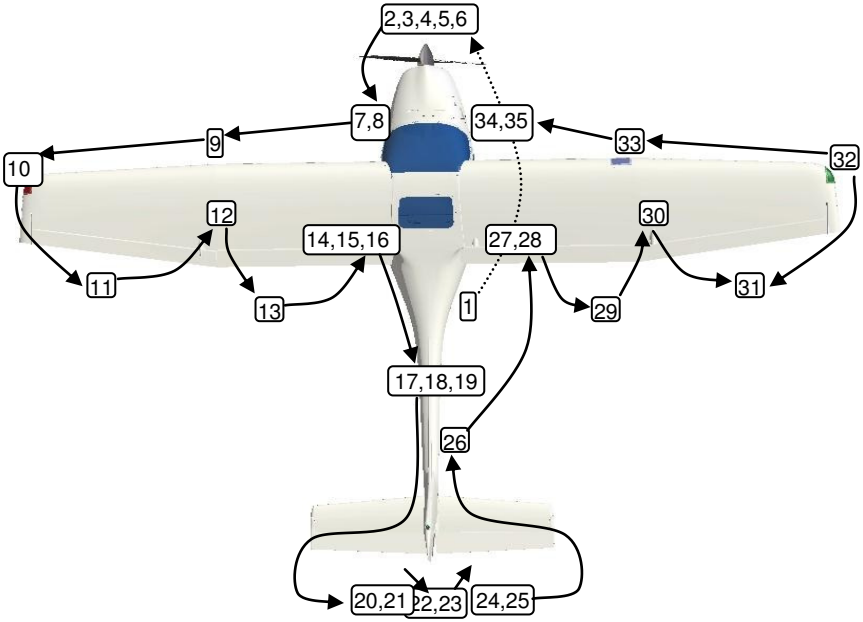
Checks outside the aircraft

1. fuel system drained before moving the aircraft at all
2. engine oil level (between min. and max. markings)
3. level of engine coolant (between min. and max. markings)
4. cowling is closed and properly secured
5. propeller has no damage or wear
6. nose gear and wheel/tire have no damage or wear, air pressure is correct and suspension is free
7. static port is clean
8. main wing bolt properly secured with Fokker needle
9. pitot tube is clean and properly fixed
10. wingtip and cover glass are securely mounted and not damaged
11. aileron, linkage and hinges have free travel and no damage, counterweights are securely fixed
12. upper wing strut attachment is secured
13. flap, linkage and hinges have no damage, rubber stops (flutter damper) on outer hinges are in place
14. lower wing strut attachment is secured
15. belly top antennas are securely mounted and free of damage
16. left main gear and wheel/tire have no damage or wear, air pressure is correct and suspension is free
17. cover of ejection opening has no damage
18. top antennas are securely mounted and free of damage
19. fuselage has no damage
20. horizontal tail, elevator, linkage and hinges have free travel and no damage
21. trim actuator linkage securely mounted and not damaged
22. elevator quick-fastener is securely locked
23. rudder linkage and hinges have free travel and no damage
24. horizontal tail attachment bolts are secured
25. horizontal tail, elevator, linkage and hinges have free travel and no damage
26. fuselage has no damage

4 Normal Procedures

27. right main gear and wheel/tire have no damage or wear, air pressure is correct and suspension is free
28. lower wing strut attachment is secured
29. flap, linkage and hinges have no damage, rubber stops (flutter damper) on outer hinges are in place
30. upper wing strut attachment is secured
31. aileron, linkage and hinges have free travel and no damage , counterweights are securely fixed
32. wingtip and cover glass are securely mounted and not damaged
33. landing light glass is not damaged
34. static port is clean
35. main wing bolt properly secured with Fokker needle

It is suggested to perform the outside check according to the following flow diagram:



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

Checks inside the aircraft

4 Normal Procedures

1. aileron quick-fasteners are securely locked

2. enough fuel on board for the flight
3. both seats are properly secured in intended position
4. both doors can be locked
5. check proper functioning of the flap drive and gauge

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

4 Normal Procedures

4.4 Before Start-Up Checkliste

1.	doors	LOCKED
2.	safety belts	FASTENED
3.	parking brake	SET
4.	recovery system	ARMED
5.	fuel valve	OPEN

4.5 Engine Start Procedure

cold engine

1.	master switch	ON
2.	anti-collision-light (ACL)	ON
3.	oil cooler flap	CLOSED
4.	electric fuel pump	ON
5.	engine power	CRACKED OPEN
6.	choke	PULL
7.	propeller	FREE
8.	starter	ENGAGE max.10 sec.

warm engine

1.	master switch	ON
2.	anti-collision-light (ACL)	ON
3.	oil cooler flap	AS REQUIRED
4.	electric fuel pump	ON
5.	engine power	CRACKED OPEN
6.	choke	OFF
7.	propeller	FREE
8.	starter	ENGAGE max.10 sec.

NOTE	Do not hold the key in the “START” position for more than 10 seconds, in order to avoid overheating the starter. If the engine does not start, release the key to position "0", wait 2 minutes and repeat the procedure.

4 Normal Procedures

4.6 After Start-Up Procedure

9. engine has started	STARTER DISENGAGE
10. choke	OFF
11. oil pressure	OK
12. position-lights	ON
13. avionics switch	ON
14. intercom	ON
15. radios	ON and FREQUENCY SET
16. transponder	AS REQUIRED
17. electric fuel pump	OFF
18. engine speed for warm-up	2,500 rpm

NOTE	By having the electric fuel pump switched off after starting the engine, only the mechanical pump is providing the engine with fuel. Make sure that the engine is running without the electric pump for at least two minutes. In that time, the engine burns all fuel in the fuel system behind the mechanical fuel pump. If the engine keeps running, the mechanical fuel pump is operational.

4.7 Engine Run Up Checklist

1. oil temperature	min. 50°C / 120°F
2. engine speed	4,000 rpm
3. magneto check	max. 300 rpm DROP
4. carburetor heat	TEMPERATURE RISES
5. engine speed	IDLE
6. electric fuel pump	ON

4 Normal Procedures

4.8 Taxi Procedure

1.	landing light	RECOMMENDED
2.	parking brake	RELEASE
3.	engine speed	AS REQUIRED
4.	control on ground	VIA PEDALS
5.	min. turn radius	ca. 20 ft = 7 m
6.	braking	AS REQUIRED
7.	taxi speed	APPROPRIATE

4.9 Departure Briefing

1.	wind, weather, visibility	OK
2.	ATIS	CHECKED
3.	runway	CORRECT DIRECTION
4.	traffic pattern	ALTITUDE and ROUTING

4 Normal Procedures

4.10 Take-Off Procedure

short field take-off

1.	oil cooler flap	AS REQUIRED
2.	carburetor heat	OFF
3.	electric fuel pump	ON
4.	brakes	SET
5.	flaps	UP, ON GRASS 15 deg
6.	elevator trim	2/3 UP
7.	rudder and aileron	NEUTRAL
8.	engine power	FULL POWER
9.	brakes	RELEASE
10.	rotate and lift-off	VX = 56 mph = 49 kts
11.	steepest climb	VX = 56 mph = 49 kts
12.	best climb	VY = 75 mph = 65 kts

NOTE	Take-off distances given in chapter 5 have been determined with this procedure. It is required to rotate and lift off the aircraft with significant elevator input. Take care not to stall the aircraft during this maneuver.

NOTE	It is recommended to keep the electric fuel pump switched on during the entire flight.

NOTE	Full power engine speed on ground is approx. 4,900 rpm with the Sensenich prop and approx. 5,000 rpm with the Tonini and Neuform props.

NOTE	Take-off with reduced power is possible, though not recommended. No take-off shall be performed with engine speed lower than 4,000 rpm. A drastically reduced take-off performance must be taken into account.

4 Normal Procedures

comfort take-off

1.	oil cooler flap	AS REQUIRED
2.	carburetor heat	OFF
3.	electric fuel pump	ON
4.	flaps	UP, ON GRASS 15 deg
5.	elevator trim	2/3 UP
6.	rudder and aileron	NEUTRAL
7.	engine power	FULL POWER
8.	rotate	49 mph = 43 kts
9.	lift-off	62 mph = 54 kts
10.	best climb	VY = 75 mph = 65 kts

NOTE	Take-off distance with this procedure can easily be two times or more longer than the short field take-off, but is much more comfortable.

NOTE	It is recommended to keep the electric fuel pump switched on during the entire flight.

NOTE	Full power engine speed in ground is approx. 4,900 rpm with the Sensenich prop and approx. 5,000 rpm with the Tonini and Neuform props.

NOTE	Take-off with reduced power is possible, though not recommended. No take-off shall be performed with engine speed lower than 4,000 rpm. A drastically reduced take-off performance must be taken into account.

4 Normal Procedures

4.11 Best Angle of Climb Speed (VX) Checklist

1.	flaps	CLEAN
2.	electric fuel pump	ON
3.	steepest climb	VX = 56 mph = 49 kts
4.	engine power	FULL POWER
5.	carburetor heat	OFF
6.	oil cooler flap	AS REQUIRED
7.	CHT	max. 275°F = 135°C
8.	oil temperature	120…266°F = 50…130°C

4.12 Best Rate of Climb Speed (VY) Checklist

1.	flaps	CLEAN
2.	electric fuel pump	ON
3.	best climb	VY = 75 mph = 65 kts
4.	engine power	FULL POWER
5.	carburetor heat	OFF
6.	oil cooler flap	AS REQUIRED
7.	CHT	max. 275°F = 135°C
8.	oil temperature	120…266°F = 50…130°C

4 Normal Procedures

4.13 Cruise Checklist

1.	flaps	CLEAN
2.	landing light	OFF
3.	engine speed	AS REQUIRED
4.	maneuvering speed	VA = 108 mph = 94 kts
5.	normal operating speed	VNO = 123 mph = 107 kts
6.	never exceed speed	VNE = 155 mph = 135 kts
7.	max. cont. engine speed	5,500 rpm
8.	carburetor heat	OFF
9.	oil cooler flap	AS REQUIRED
10.	CHT	max. 275°F = 135°C
11.	oil temperature	120…266°F = 50…130°C

NOTE	It is recommended to keep the electric fuel pump switched on during the entire flight.

reasonable cruise configurations

with Tonini or Woodcomp fixed pitch propeller:

With an engine speed of 4,800 rpm, an airspeed of 99 mph = 86 kts is achieved at 3,000ft. Fuel consumption is approx. 4.8 US gal.

with Sensenich ground adjustable propeller:

With an engine speed of 4,800 rpm, an airspeed of 112 mph = 97 kts is achieved at 3,000ft. Fuel consumption is approx. 4.8 US gal.

with Neuform ground adjustable propeller:

With an engine speed of 4,800 rpm, an airspeed of 112 mph = 97 kts is achieved at 3,000ft. Fuel consumption is approx. 4.8 US gal.

4 Normal Procedures

4.14 Flying in Rain — Checklist

1.	electric fuel pump	ON
2.	carburetor heat	ON
3.	engine speed	AS REQUIRED
4.	oil cooler flap	AS REQUIRED
5.	CHT	max. 275°F = 135°C
6.	oil temperature	120…266°F = 50…130°C

NOTE	• visibility to the front is very limited • windscreen may need defogging • flight performance is reduced • fuel consumption increases • stall speed increases • braking efficiency during landing is reduced

4.15 Flying Without Doors — Procedure

1.	door lock	OPEN
2.	gas spring on door	DETACH
3.	hinge pin	PULL
4.	door	TAKE OUT CAREFULLY

NOTE	VNE is reduced to 115 mph = 100 kts when flying without doors.

NOTE	Flying without doors leads to high wind velocities inside the cabin.

NOTE	For flight without doors, either one door or both doors must be taken out before flight.

NOTE	Unlocking and opening doors in flight is prohibited.

4 Normal Procedures

4.16 Recovery from Stall Procedure

1.	stick back pressure	RELEASE
2.	rudder	OPPOSITE to BANK
3.	aileron	NEUTRAL
4.	engine power	AS REQUIRED

4.17 Descent Checklist

1.	flaps	CLEAN
2.	engine speed	AS REQUIRED
3.	electric fuel pump	ON
4.	maneuvering speed	VA = 108 mph = 94 kts
5.	normal operating speed	VNO = 123 mph = 107 kts
6.	never exceed speed	VNE = 155 mph = 135 kts
7.	max. cont. engine speed	5,500 rpm
8.	carburetor heat	RECOMMENDED
9.	oil cooler flap	AS REQUIRED
10.	CHT	max. 275°F = 135°C
11.	oil temperature	120…266°F = 50…130°C

4 Normal Procedures

4.18 Approach Briefing

1.	wind, weather, visibility	OK
2.	ATIS	CHECKED
3.	runway	CORRECT DIRECTION
4.	traffic pattern	ALTITUDE and ROUTING
5.	radios	ON and FREQUENCY SET
6.	transponder	AS REQUIRED
7.	full flaps	BELOW 81 mph = 70kts
8.	electric fuel pump	ON
9.	airspeed in pattern	95…125 mph = 80…110 kts
10.	approach airspeed	AS RECOMMENDED

The approach airspeed marked on the airspeed indicator refers to a max. take-off weight of 1,320lb = 600 kg. The recommended approach airspeed varies with the actual aircraft weight. Please refer to the following table to select the correct approach airspeed.

aircraft weight	recommended approach speed
880 lb	58 mph = 50 kts
990 lb	62 mph = 54 kts
1,100 lb	66 mph = 58 kts
1,200 lb	70 mph = 61 kts
1,320 lb	75 mph = 65 kts

4 Normal Procedures

4.19 Landing Procedure

short field landing

1.	approach airspeed	V_{APP} = 65 mph = 57 kts
2.	full flaps airspeed	V_{FE} = 80 mph = 70 kts
3.	flaps	DOWN
4.	landing light	RECOMMENDED
5.	engine power	AS REQUIRED
6.	elevator trim	AS REQUIRED
7.	electric fuel pump	ON
8.	carburetor heat	RECOMMENDED
9.	oil cooler flap	AS REQUIRED
10.	CHT	max. 275°F = 135°C
11.	oil temperature	120…266°F = 50…130°C
12.	touch down on main wheels first with very little flare.	
13.	brakes	IMMEDIATELY

NOTE	Landing distances given in chapter 5 have been determined with this procedure. Hold the nose landing gear just clear of the ground and touch down with very little flare. Take care not to overload the landing gear during this maneuver.

4 Normal Procedures

normal landing

1.	approach airspeed	AS RECOMMENDED
2.	full flaps airspeed	V_{FE} = 80 mph = 70 kts
3.	flaps	DOWN
4.	landing light	RECOMMENDED
5.	engine power	AS REQUIRED
6.	elevator trim	AS REQUIRED
7.	electric fuel pump	ON
8.	carburetor heat	RECOMMENDED
9.	oil cooler flap	AS REQUIRED
10.	CHT	max. 275°F = 135°C
11.	oil temperature	120…266°F = 50…130°C

12. touch down on main wheels first with elevator fully held back.

NOTE	Landing distance with this procedure can easily be two times or more longer than the short field landing, but is much more comfortable.

NOTE	In high wind or gusty conditions or for training purposes, less than full flap setting or clean flaps permitted.

4 Normal Procedures

4.20 Balked Landing Procedure

1.	engine power	FULL POWER
2.	carburetor heat	OFF
3.	flaps	RETRACT
4.	steepest climb	VX = 56 mph = 49 kts
5.	best climb	VY = 75 mph = 65 kts
6.	electric fuel pump	ON
7.	oil cooler flap	AS REQUIRED
8.	CHT	max. 275°F = 135°C
9.	oil temperature	120…266°F = 50…130°C

4.21 After Landing Checklist

1.	landing light	RECOMMENDED
2.	flaps	UP
3.	electric fuel pump	OFF
4.	radio and transponder	AS REQUIRED

4.22 Shutdown Procedure

1.	avionics switch	OFF
2.	landing light	OFF
3.	position lights	OFF
4.	engine	OFF
5.	ACL	OFF
6.	cockpit lights	OFF
7.	master switch	OFF
8.	recovery system	SECURED
9.	parking brake	SET

NOTE	It is permissible to switch avionics (GPS, radio, transponder, intercom) together with the avionics switch rather than separately.

5 Performance

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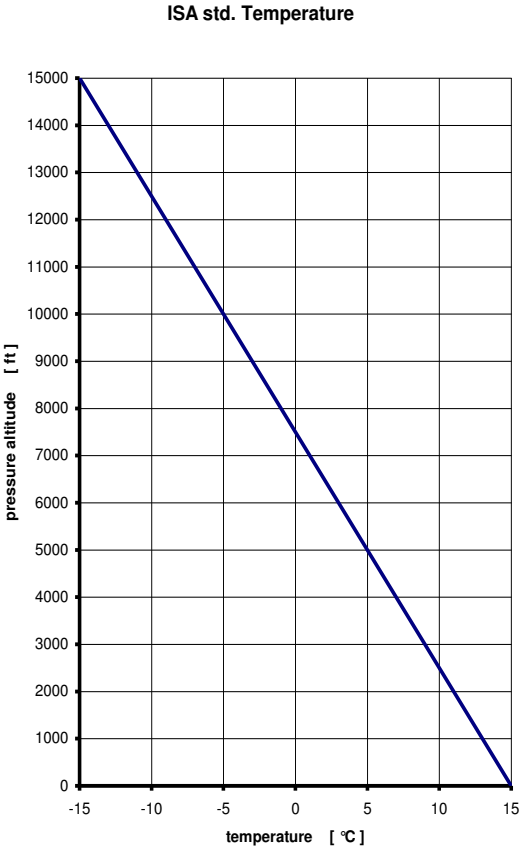
5 Performance

5.1 General

All flight performance data are given for ISA standard atmosphere at sea level and standard temperature. To determine temperature in relation to ISA conditions please refer to the following chart:



Flight performance can vary significantly due to tolerances, setting of propeller and engine, flight without doors, deviation of temperature and air density from standard ISA conditions, etc.

Range applies to the 22 gallon fuel tank system (21 gallons usable) without reserve, within the ICAO standard atmosphere at given altitude.

5 Performance

5.2 Take-Off and Landing Distances

Take-Off		Woodcomp or Tonini	Sensenich or Neuform
Take-off roll distance (Flaps 0°)	ft m	n/a	495ft 151m
Take-off air distance (Flaps 0°)	ft m	n/a	226ft 69m
Take-off distance (Flaps 0°)	ft m	n/a	721ft 220m
Take-off roll distance (Flaps 15°)	ft m	580ft 177m	525ft 160m
Take-off air distance (Flaps 15°)	ft m	325ft 99m	200ft 61m
Take-off distance (Flaps 15°)	ft m	905ft 265m	725ft 215m

Landing		all propellers
Landing roll distance (Flaps 40°)	ft m	341ft 104m
Landing air distance (Flaps 40°)	ft m	335ft 102m
Landing distance (Flaps 40°)	ft m	676ft 206m

NOTE	Take-off/landing conditions have been determined at ISA standard conditions at mean sea level and over a virtual 50ft obstacle.

NOTE	Short field procedures apply. Diverting from the short field procedures defined in section 4 will lead to significant longer take-off and landing distances.

5 Performance

Performance data apply under ISA conditions on a dry, hard runway surface. Various circumstances have an effect on take-off and landing performance. According to ICAO-circular 601AN/55/2, it is recommended to use following add-ons on roll- and air distances:

add-ons on take-off roll distance	
for dry grass	+ 20%
for wet grass	+ 30%
for soft surface	+ 50%
per 2 knots tailwind component	+ 10%
per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

add-ons on take-off air distance	
for dirty wings/raindrops	+ 15%
per 2 knots tailwind component	+ 10%
per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

5.3 Rate of Climb

Propeller		**Woodcomp or Tonini**	**Sensenich**	**Neuform**
best angle of climb	mph	56	56	56
airspeed V_X	kts	49	49	49
best rate of climb	mph	75	75	75
airspeed V_Y	kts	65	65	65
best rate of climb at MSL	fpm	600	710	710

climb is flown with flaps retracted, see section 4

5 Performance

5.4 Cruise Speed, RPM, Fuel Consumption, Range

Rotax 912 UL-S, 100 hp engine, Woodcomp or Tonini Fixed Pitch Prop

Engine Speed rpm	Fuel Consumption gph	True Airspeed 3,000 ft, mph / kts	Maximum Endurance hr	Maximum Range NM
5,400	6.7	113 / 98	3.2	311
5,200	6.0	109 / 95	3.5	332
5,000	5.4	104 / 91	3.9	353
4,800	4.9	100 / 87	4.3	375
4,600	4.4	95 / 83	4.8	401
4,400	3.9	91 / 79	5.4	425
4,200	3.5	86 / 75	6.0	446

Rotax 912 UL-S, 100 hp engine, Sensenich Ground Adjustable Prop

Engine Speed rpm	Fuel Consumption gph	True Airspeed 3,000 ft, mph / kts	Maximum Endurance hr	Maximum Range NM
5,400	6.7	130 / 113	3.2	362
5,200	6.0	123 / 107	3.5	375
5,000	5.4	117 / 102	3.9	398
4,800	4.9	111 / 97	4.3	417
4,600	4.4	105 / 91	4.8	437
4,400	3.9	98 / 85	5.4	459
4,200	3.5	92 / 80	6.0	480

Rotax 912 UL-S, 100 hp engine, Neuform Ground Adjustable Prop

Engine Speed rpm	Fuel Consumption gph	True Airspeed 3,000 ft, mph / kts	Maximum Endurance hr	Maximum Range NM
5,400	6.7	130 / 113	3.2	362
5,200	6.0	123 / 107	3.5	375
5,000	5.4	117 / 102	3.9	398
4,800	4.9	111 / 97	4.3	417
4,600	4.4	105 / 91	4.8	437
4,400	3.9	98 / 85	5.4	459
4,200	3.5	92 / 80	6.0	480

5 Performance

5.5 Low Airspeed and Stall

If the center of gravity is within the permissible range, the aircraft will be fully controllable until reaching the stall speed. If stall speed is reached, the pilot should lower the nose of the aircraft to re-establish a safe airspeed.

level stall

CG at most rearward position (airspeeds at IAS)

Flap Position	0°	15°	30°	40°
$V_{min.}$ at idle	51 mph (44 kts)	47 mph (41 kts)	45 mph (39 kts)	44 mph (38 kts)
$V_{min.}$ at full power	50 mph (43 kts)	47 mph (41 kts)	44 mph (38 kts)	44 mph (38 kts)

CG at most forward position (airspeeds at IAS)

Flap Position	0°	15°	30°	40°
$V_{min.}$ at idle	50 mph (43 kts)	46 mph (40 kts)	44 mph (38 kts)	43 mph (37 kts)
$V_{min.}$ at full power	47 mph (41 kts)	46 mph (40 kts)	44 mph (38 kts)	43 mph (37 kts)

5 Performance

stall in turns

CG at most rearward position (airspeeds at IAS), 30° bank

Flap Position	0°	15°	30°	40°
$V_{min.}$ at idle	51 mph (44 kts)	47 mph (41 kts)	44 mph (38 kts)	44 mph (38 kts)
$V_{min.}$ at full power	53 mph (46 kts)	47 mph (41 kts)	44 mph (38 kts)	44 mph (38 kts)

CG at most forward position (airspeeds at IAS), 30° bank

Flap Position	0°	15°	30°	40°
$V_{min.}$ at idle	53 mph (46 kts)	49 mph (42 kts)	45 mph (39 kts)	44 mph (38 kts)
$V_{min.}$ at full power	54 mph (47 kts)	50 mph (43 kts)	46 mph (40 kts)	44 mph (38 kts)

As the aircraft approaches the stall speed, this will be indicated by slight aerodynamic buffeting. The stall speed is reached when the aircraft becomes unstable in flight, but should still be controllable. It is also possible to perform a stall while in a turn, but the stall speed will increase (see table above).

6 Weight-and-Balance-Information

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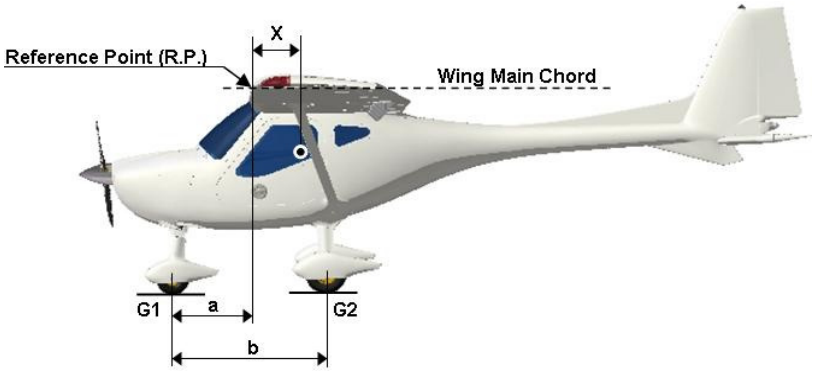
6 Weight-and-Balance-Information

6.1 Center of Gravity Range and Determination

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 between main wheels and scale beneath). 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.



6 Weight-and-Balance-Information

6.2 CG-Calculation

The following procedure must be used to correctly calculate the center of gravity “CG”.

Moment (lb-inch) = Weight (lb) x Arm (inch)

$$\text{Center of Gravity (inch)} = \frac{\text{Moment Total (lb-inch)}}{\text{Weight Total (lb)}}$$

	Weight lb	**Arm** Inch	**Moment** lb-Inch
Empty Weight	_____	_____	_____
Occupants	_____	8.3	_____
Fuel	_____	37.8	_____
Baggage	_____	37.4	_____
Weight Total:	_____	**Moment Total:**	_____

NOTE	The permissible CG range, measured from R.P., must be within the limits of 9.6 to 16.3 Inches.

6 Weight-and-Balance-Information

6.3 Calculation Example

The following example is given to show how to calculate the center of gravity “CG“. Do not use the weights and the empty C.G. in this example for your own flight preparation.

	Weight lb	**Arm** Inch	**Moment** lb-Inch
Empty Weight	670	12.5	8,375
Occupants	175	8.3	1,453
Fuel	120	37.8	4,536
Baggage	30	37.4	1,122
Weight Total:	995	**Moment Total:**	15,486

$$\textbf{Center of Gravity (inch)} = \frac{\textbf{Moment Total (lb-inch)}}{\textbf{Weight Total (lb)}} = \textbf{15.6 inch}$$

6 Weight-and-Balance-Information

6.4 Aircraft Specific Weights

Below are noted the aircraft specific data. Pilots must use this information to ensure a correct weight and balance calculation prior to every flight. This is essential for safe flight.

For detailed information of the weight and balance data and the equipment installed on the aircraft refer to the individual aircraft weight and balance report, which includes the equipment list.

empty weight	payload	C.G.	date of weighing	date of list of equipment	sign

7 Airplane and Systems Description

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7 Airplane and Systems Description

7.1 Cockpit Overview

Cockpit example

7 Airplane and Systems Description

7.2 Left Panel

DYNON SV-D700

The instrumentation in the full spec consists of the DYNON SV D700, the Garmin SL30 and the heights and journey sensor. Moreover, the engine operation is appropriate on the left side.

The primary flight instrumentation and the indication of the Motorparameter are carried out via the DYNON SV D700. This is a large-scale integrated advertisement system, it unites this “Electronic Flight information display and this „Multinational Function display“ what does mean all conventional primary are found here, and secondary flight instruments and navigation instruments the engine instruments on a screen again.

Guaranteed functions of the DYNON SkyView system are airspeed indicator, altimeter, vertical speed indicator, slip indicator, magnetic compass, artificial horizon, trim and flap indication, g-meter, outside air temperature, stall warning. In case that a SL-30 NAV/COM is installed additional CDI, HSI, glideslope for ILS approaches. Engine tach, manifold pressure, oil pressure, oil temperature, fuel gauge,

7 Airplane and Systems Description

fuel pressure, fuel flow, voltmeter, ammeter, timer. The SkyView system may offer additional features that do not belong to the guaranteed functions.

For detailed data refer to the manufacturer's instruction manual that comes with your plane. The website of DYNON www.dynonavionics.com offers the possibility to download the manuals.

7 Airplane and Systems Description

Garmin SL 40

The Garmin SL40 is a 760-channel VHF COM transceiver. It incorporates active and standby flip-flop frequency tuning. Its frequency monitor function allows you to check ATIS or emergency frequencies – without leaving the assigned ATC channel

For detailed data refer to the manufacturer's instruction manual that comes with your plane. The website of GARMIN www.garmin.com offers the possibility to download the manuals.

7 Airplane and Systems Description

Garmin SL 30

The Garmin SL30 is a 760-channel VHF COM transceiver and 200-channel VOR/LOC/GS NAV receiver. The SL30 also incorporates workload-reducing functions such as automatic decoding of the Morse code station identifier for VOR/LOC/ILS, most-used frequency storage in unit memory, built-in course deviation indicator and more.

SL30 offers standby frequency monitoring feature providing the capability of two NAV/COMS in one.

Standby COM frequency monitoring lets the pilot listen to transmissions like ATIS or the emergency channel without leaving the active frequency.

With the primary VOR/LOC frequency selected as NAV source on the DYNON SV-700, the standby frequency can be tuned to a second VOR to display the current radial on which your aircraft is flying and be displayed as BEARING source on the SV-700. This allows you to cross check position fixes with just one receiver, the standby-VOR tuned in serves as an NDB in this case.

For detailed data refer to the manufacturer's instruction manual that comes with your plane. The website of GARMIN www.garmin.com offers the possibility to download the manuals.

7 Airplane and Systems Description

7.3 Engine Operation

Left Panel

Carburetor heating is activated by pulling the yellow knob on top

The oil temperature control is installed in the middle position. Push to increase temperature, pull to decrease temperature.

Pull the green knob to choke the engine.

The dual throttle control is located in the lower position. The left throttle lever does not feature a friction lock.

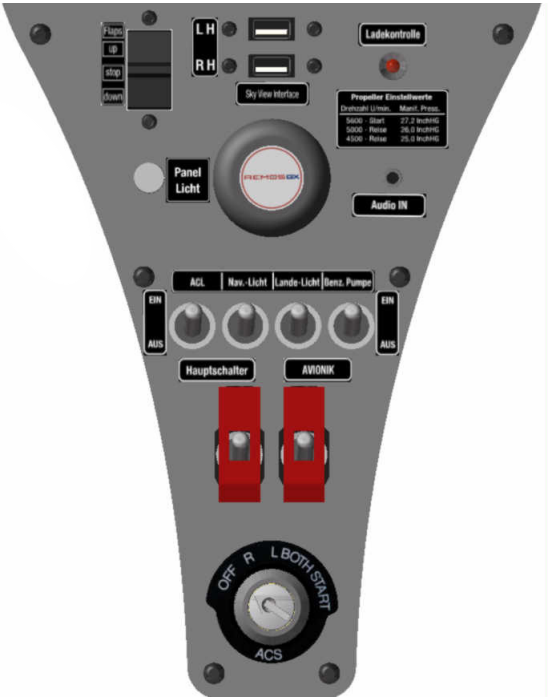
7 Airplane and Systems Description

7.4 Center Stack

The GPS is installed in the center stack. A Garmin aera 500, a Garmin 696 or the FlymapL is available.

7 Airplane and Systems Description

At the central control panel all controls of the REMOS GX are located. All switches are clearly labeled.



The switch panel incorporates the following:

- Switch for ACL
- Navigation lights
- Switch for landing lights
- Switch for fuel pump
- Throttle lever with locking device
- Charging indicator light of the generator
- Master and avionics switches
- USB sockets
- Dimmer LED Cockpit
- Audio connection

7 Airplane and Systems Description

7.5 Right Panel – Additional Instruments

The right cockpit panel takes different equipment and operating devices depending on equipment. The illustration below shows a possibility of variation. This contains the ELT switch as well as a second DYNON SV-700 screen. Standard equipment in the right panel includes the ventilation and heating knobs, circuit breakers, 12V receptacle and the intercom or audio panel.

7 Airplane and Systems Description

Garmin GMA 240

The Garmin GMA240 is an intercom with audio-in capability. Marker beacons cannot be received. Left and right volume and squelch can be adjusted separately. The center panel is equipped with an audio-in jack. Activate the audio-in signal by pressing “MUSIC” and then selecting “♫1”. To adjust the volume, pull the right knob and rotate it.

WARNING	Listening to music during flight may lead to inattention. Take care that you are always aware of the situation of the flight and stay ahead of the aircraft. If in doubt, switch off the audio entertainment, especially during take-off, landing and while talking with ATC.

The GARMIN GMA240 is a stereo intercom designed to be used in combination with stereo headsets. The wiring of the aircraft is designed to use stereo headsets, too. To allow the use of mono-headsets, the aircraft is equipped with stereo/mono switches at the headset jacks. Make sure the switch is in its correct position.

If mono headsets are plugged in while the switch is in stereo position, the signal for the right channel will short out with ground. This may lead to damage of the intercom, as described in the GARMIN GMA240 manual. Furthermore the radio may be damaged, too.

The intercom may be damaged, too, if the headset is plugged in or pulled or out while the intercom is switched on. Always shut down the intercom when connecting or disconnecting headsets.

NOTE	The warranty does not apply if the intercom or the radio fail when using mono headsets with the incorrect position of the stereo/mono switch or when plugging in or disconnecting headsets while the intercom is switched on.

For detailed data refer to the manufacturer's instruction manual that comes with your plane. The website of GARMIN www.garmin.com offers the possibility to download the manuals.

7 Airplane and Systems Description

ps-engineering PMA7000B and PMA8000BT

These are is an audio panels with marker beacon receiver. It incorporates audio-in capability with several muting modes. These audio panels may be used with mono or stereo headsets.

A common volume knob is provided for left and right seat. Setting squelch is not required as the audio panels incorporate INTELLIVOX that adjusts squelch automatically.

In addition to that the PMA8000BT audio panel incorporates BLUETOOTH ® interface to link your cellphone or iPOD ® without additional cables.

WARNING	Listening to music during flight may lead to inattention. Take care that you are always aware of the situation of the flight and stay ahead of the aircraft. If in doubt, switch off the audio entertainment, especially during take-off, landing and while talking with ATC.

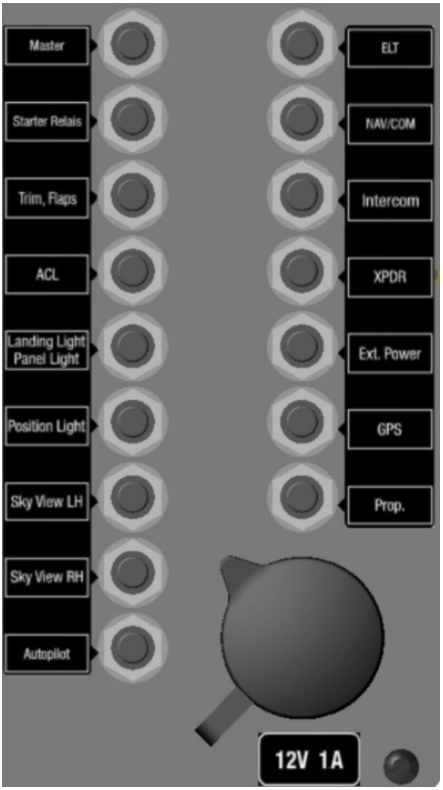
WARNING	National regulations may apply or using cell phones on board of aircraft.

For detailed data refer to the manufacturer's instruction manual that comes with your plane. The website of ps-engineering www.ps-engineering.com offers the possibility to download the manuals.

7 Airplane and Systems Description

7.6 Circuit Breakers

The electrical system of the REMOS GX consists of a BUS system, split into master-BUS and avionics-BUS. All electrical components are protected with circuit breakers (CB). The fuse for the charge control check light is located behind the switch panel. An additional fuse for charging and for the regulator is located in front of the fire-wall, beneath the battery bracket.



7 Airplane and Systems Description

All circuit breakers are labeled; additionally the placard shown below is applied inside the cockpit to give more detailed information. Here you can find detailed information about the rating of each CB.

1	Hauptsicherung	25 A	13	Transponder	3 A
2	Anlasserrelais	3 A	14	Ext. Power	1 A
3	Trimmung, Landeklappen	5 A	15	GPS	5 A
4	ACL	10 A	16	Verstellpropeller	3 A
5	Lande/ Cockpit	3 A			
6	Positionslichter	2 A			
7	Skyview 1	5 A	Motorraum	Batteriehauptsicherung	40 A
8	Skyview 2	5 A		Anlasser	150 A
9	Autopilot	5 A		Ladesicherung	20 A
10	ELT	1 A			
11	COM	5 A	hinter Schalterpanel	Laderegler	0,2 A
12	Intercom	2 A		Laderegler Kontrolleuchte	0,2 A

If a CB has been tripped, the black knob points out; in addition to this a white ring is visible. To reset the CB, push in the knob. To release a CB manually, push on it.

7 Airplane and Systems Description

7.7 Electrical System

The electrical system of the REMOS GX is powered by an alternator, which is capable of 250W at engine speeds of at least 4,000 RPM. At lower engine speeds the output of the alternator is lower. Below a certain engine speed the alternator is not able to support the power demand for all electrical equipment. The exact engine speed is not easily defined and varies base on the equipment installed. The critical engine speed is around 2,500 RPM.

If your REMOS GX is operated in an environment where you have long taxiways or you operate the aircraft a longer time with low RPM, switch off electrical equipment that are not essential in order to conserve battery power. The following table gives an overview of the power consumption of your electrical equipment.

consumer	average power consumption [W]	average current @ 12V [A]
SkyView SV-D700 (each)	28	2,3
SkyView SV-ADAHRS-200	1	0,1
SkyView SV-EMS-220	1	0,1
SkyView SV-GPS-250	1	0,1
SkyView SV-XPNDR-261	4	0,3
SkyView SV-32 (each)	17	1,4
Garmin SL30 (standby)	11	0,9
Garmin SL30 (TX)	50	4,2
Garmin SL40 (standby)	5	0,4
Garmin SL40 (TX)	40	3,3
Garmin aera500	6	0,5
GARMIN GPS-696	13	1,1
FlymapL	42	3,5
intercom / audio panel	5	0,4
fuel pump	17	1,4
instrument lighting	6	0,5
aeroLEDs position lights	40	3,3
aeroLEDs landing lights	24	2,0
flap motor	4	0,3
trim Motor	25	2,1
external receptacle	12	1,0

7 Airplane and Systems Description

The aircraft is equipped with an ammeter, so the energy balance can be read. The ammeter is installed in a way that only the current into and out of the battery is indicated. Below the critical engine speed the battery will be discharged, indicated by negative current. When reaching the critical engine speed the indicated current will become zero. Above that speed the battery is charged, indicated by positive current.

NOTE	With engine idling or when taxiing with low RPM the alternator is definitely not able to cover the electric power consumption and the battery will be discharged.

recommendations

Charge your battery on a regular basis, especially in the cold time of the year. Take care to use the correct charger. Standard equipment is a LiFePo4 battery that needs a special kind of charger. To avoid damage to the battery, do not use inappropriate or inexpensive chargers. Contact REMOS for recommendations of appropriate charging systems.

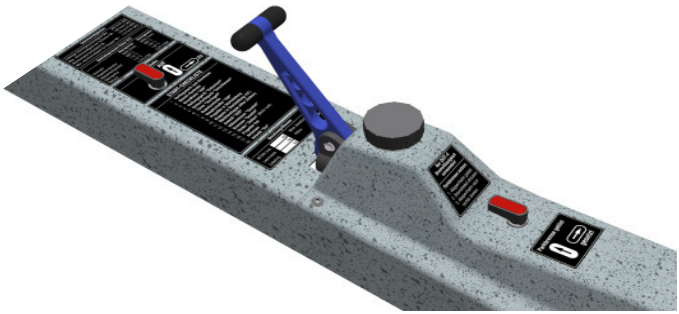
Take the battery out of the aircraft in winter time if you do not fly and stow it in a dry place at room temperature. Aircraft owners that operate their REMOS GX throughout the entire year, even in the cold winter time, are strongly recommended to use at least a 16Ah battery and to install a TANIS heater system for both the battery and the engine. Contact REMOS or your dealer for certified installation of the heater systems.

7 Airplane and Systems Description

7.8 Center Console

The following controls are located on the center console:

- Engine fuel shut off valve
- Brake lever including fluid reservoir
- Parking brake valve



All controls are labeled. On the center console you will find all important placards, which post the operational limits for a safe operation of the aircraft. In addition a start-up checklist is provided

7 Airplane and Systems Description

7.9 Cockpit Lighting

The REMOS GX cockpit features an effective LED panel lighting system, which can be dimmed independently from the instrument lights. It is a dazzle-free system designed for Night-VFR use.

The system is activated and dimmed by means of the control knob located on the center stack left of the power lever.

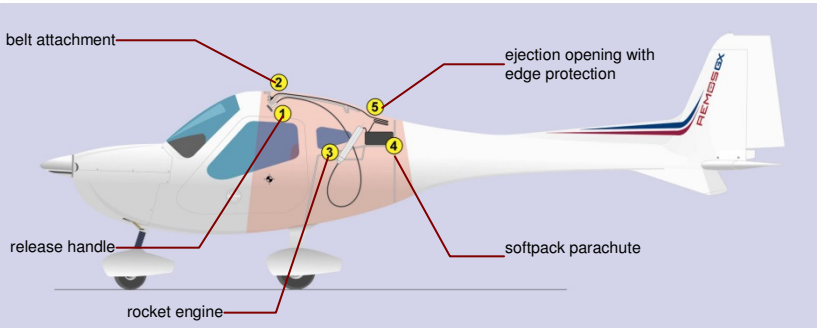
7 Airplane and Systems Description

7.10 Recovery System

The recovery system must be installed according to the approved procedures. The belts of the system are attached to the wing's main spar attachment fittings. They are protected against environmental conditions and are maintenance free. A check is neither required nor possible, as the belts are hidden within the airplane's structure.

The main belt is hanging inside the cabin. In case of an installed recovery system the parachute is connected to this belt by means of a snap hook.

NOTES	Any modification of the installation of the recovery system and any of its components is not authorized and will immediately lead into loss of certification of the airplane. Maintenance during the annual condition inspection must be performed according to the recovery system manufacturer's handbook.



8 Aircraft Ground Handling and Servicing

Table of Content

8 Aircraft Ground Handling and Servicing

8.1 Introduction

This section gives guidance how to service the aircraft and how to handle it on ground. This section does not provide maintenance instructions.

Maintenance procedures are defined in the maintenance manual that is specific to the individual aircraft. All maintenance shall be performed according to the REMOS Service and Maintenance Checklist, available directly at REMOS or on the website www.remos.com

8.2 Checking and Servicing Coolant

The REMOS GX is designed to be easily serviceable. A flap in the upper cowling allows checking the coolant level in the overflow bottle without removing the cowling.

Make sure there is app. 1 inch of coolant liquid visible in the overflow bottle. Exceeding this level is not required.

For filling up cooling liquid it is required to take off the cowling.

coolant	BASF Glysantin Protect Plus/G48
mixing ratio	1:1 (Glysantin : water)

NOTE	Please refer to REMOS notification NOT-001 and ROTAX SI-912-016/SI-914-019 for further information on fuel containing ethanol and on suitable engine oils. Have a frequent look on www.flyrotax.com and on www.remos.com for the latest information.

8 Aircraft Ground Handling and Servicing

8.3 Checking and Servicing Oil

The REMOS GX is designed to be easily serviceable. Access to all components which have to be lubricated or checked regularly is possible without detaching any panels. A flap in the upper cowling allows access to the oil bottle in order to check and add oil without removing the cowling.

For checking the oil remove the oil tank cap. Prior to oil check turn the propeller by hand in the direction of engine rotation several times to pump oil from the engine into the oil tank. It is essential to build up compression in the combustion chamber. Maintain the pressure for a few seconds to allow the pressure flow around the piston rings into the crankcase. The speed of rotation is not important for the pressure transfer into the crankcase.

This process is finished when air is returning back to the oil tank an can be noticed by a murmur from the open oil tank.

The oil level should be between the minimum and maximum marking on the oil dipstick. Avoid oil levels exceeding the maximum mark as excess oil will be poured through the venting line.

Difference between “min” and “max” marking is 0.95 US quart.

engine oil	synthetic or semi-synthetic
oil rating	API-SG or higher
engine oil capacity	min. 2.1 qts max. 3.1 qts
recommended oil	AeroShell Sport PLUS 4 10W-40

NOTE	Please refer to REMOS notification NOT-001 and ROTAX SI-912-016/SI-914-019 for further information on fuel containing ethanol and on suitable engine oils. Have a frequent look on www.flyrotax.com and on www.remos.com for the latest information.

8 Aircraft Ground Handling and Servicing

8.4 Fuelling the Aircraft

The fuel filler cap is located on the right-hand side of the fuselage behind the wing. After removing the lockable fuel filler cap, refuelling is easily possible.

Aircraft up to SN377 must be fuelled very carefully in order to prevent spilling of fuel. From SN378 on the fuel system has been modified to allow more rapid refuelling without spilling.

The fuel tank vent line is also the overflow line and is located on the belly of the airplane. If the fuel tank is full (recognizable by the fuel nozzle shutting down), further filling of the tank will lead the fuel to overflow.

The fuel tank is equipped with a sight tube to check fuel level. The sight tube can be found inside the cabin between the two seats.

usable fuel quantity	21 US gallons
total fuel quantity	22 US gallons
fuel qualities	AVGAS, MOGAS or min. AKI 91, ideally free of ethanol

NOTE	Please refer to REMOS notification NOT-001 and ROTAX SI-912-016/SI-914-019 for further information on fuel containing ethanol and on suitable engine oils. Have a frequent look on www.flyrotax.com and on www.remos.com for the latest information.

8 Aircraft Ground Handling and Servicing

8.5 Towing

Due to the low weight of the REMOS GX, it is very easy to move the aircraft by hand on the ground. That's why there is no special equipment for towing provided. Do not attempt under any circumstances to tow the aircraft by attaching any kind of towing equipment to the nose wheel!

Grab the aircraft at the propeller roots just outside the spinner to pull it forward. For pushing the aircraft backward it is recommended to push at the root of the horizontal tail. Bushing backward is also permitted at the strut. If this is done with open doors, one can grab the rudder pedal to steer backward.

8.6 Tie-Down

To tie down the aircraft we recommend the use of at least three ropes (left wing, right wing, and tail). Tie down each wing by attaching the rope to the lug located on the upper strut bracket. Another rope connection point is provided on the tail skid of the aircraft. When necessary, a fourth rope can be slid around the propeller/gear drive shaft at the nose of the aircraft.

Aircrafts from SN380 are equipped with a metric M8 thread on the lower side of the wing near the wingtips and are provided with bolt-in lugs. If required, bolt in the lugs and tie down the aircraft there. Do not fly with the tie-down lugs installed!

An additional rope may be applied to the propeller. Wrap the rope around the spacer between spinner and prop flange of the engine, accessible through the gap between cowling and spinner. In order to avoid damages to the spinner do not wrap the rope around the prop blade roots.

Secure the control stick by use of the safety belt to prevent the control surfaces from being slammed from stop to stop by the wind.

NOTE	The maximum wind velocity to leave a tied down aircraft in the open is 38 kts.

8 Aircraft Ground Handling and Servicing

8.7 Rigging a Folded Aircraft

The REMOS GX is manufactured to the highest quality standards. All components are very precise and provide the maximum aerodynamic quality. It is therefore strongly recommended that you be very careful when assembling or disassembling components such as the wings, stabilizer and other parts. The following instructions will provide you with all the necessary information.

NOTE	Folding or unfolding the wings and attaching or detaching the horizontal tail is a two person procedure. Do not to try this alone. Severe damage to the aircraft may result.

Tools, equipment and preparation

- bolt release tool (provided with the aircraft)
- screwdriver (Philips head)
- grease for bolts

- place the stabilizer behind the aircraft protective support
- remove both stabilizer bolts from their bushings
- remove both wing bolts from their bushings

8 Aircraft Ground Handling and Servicing

Connecting folded wings to the fuselage

1. Unlock the fairings between the strut and the wing/fuselage and slide them along the strut.
2. Withdraw the main wing securing bolt from the wing and place it nearby. Ensure that the bolt stays clean until remounted.
3. Remove the wing support aid bracket while a second person supports the wing at the wing tip.
4. Now the second person at the wing tip moves the wing slowly forward while ensuring that the wing does not spin around its axis. The weight of the wing is supported by its strut, therefore, the wing must never be lifted or pushed down from the top.
5. When the wing has reached its maximum forward position, the person at the fuselage position must rotate the wing to align both connection latches. Care must be taken that the surface of the wing is not damaged by the fuselage connecting latches.
6. When the connecting latches between the fuselage and wing are aligned, the wing must be lifted by the person at the wing tip. The person at the fuselage must ensure that the flap drive connection fits correctly into the bushing on the fuselage.
7. If all latches have engaged and the wing fits properly to the fuselage, the main bolt can be pushed into its support tube. To install the main bolt correctly, please use the special installation tool which comes with the aircraft. Now secure the bolt with the securing pin. The person at the wing tip can now release the pressure supporting the wing tip.

8. Inside the cabin, the pushrod quick fasteners MUST properly be connected and secured.

   Insecure connection, improper operation of control surfaces or insecurely locked fasteners will lead to loss of control of the aircraft!! When in doubt contact your local REMOS dealer or service center.

9. Proceed in the same order with the second wing.

8 Aircraft Ground Handling and Servicing

Installing the horizontal tail

1. Hold the horizontal tail in place so that the bushings in the fuselage match up with those in the horizontal tail.
2. Apply the attachment bolts from left to right into their bushings. The forward bolt is marked by a "V", the rearward bolt by "H".
3. Align the hole of the attachment bolt with the one in the right bushing and secure the bolts with Fokker needles.
4. Connect the cable plug for the electric trim actuator
5. The pushrod quick fasteners MUST be connected properly and secured.

   Insecure connection, improper operation of control surfaces or insecurely locked fasteners will lead to loss of control of the aircraft!! When in doubt contact your local REMOS dealer or service center.

6. Attach the tail cover and secure it with the screws provided. Connect the electric jack for the taillight.

After rigging the aircraft perform a preflight check.

8.8 Folding a Rigged Aircraft

To disassemble the aircraft, perform the above described procedures in reverse order.

8 Aircraft Ground Handling and Servicing

8.9 Transportation of the Aircraft

If you intend to store the aircraft with the wings folded, we recommend using REMOS folding wing supports (ask your local dealer). With these supports mounted, the wings are secured properly and handling of the aircraft will be much easier.

When the aircraft has to be moved by trailer, please ask your authorized REMOS dealer for advice. When placed on a trailer in a wrong way, serious damage could result.

8.10 Cleaning and Care

After every day of flight, it is recommended that you clean the surface of the aircraft using pure water and a soft cotton towel only. Take special care when cleaning the windows to use lots of water to loosen and rinse away bugs and dirt and use with only a soft cotton towel, or otherwise you will create scratches. If cleaned regularly, you may not need to use any special cleaning products. If for any reason special cleaning products need to be used, please contact your dealer for advice. For polishing you can use almost any car polish but be sure that no silicone is used in that product.

Imprint

Pilot Operating Handbook REMOS GX

ASTM Edition

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REMOS AIRCRAFT

REMOS GX

Supplement Flight Training

Revision general-04

Supplement Flight Training

Table of Content

1 Introduction

This chapter should enable you to familiarize yourself with the flight performance and flight characteristics of the REMOS GX. To complete these instructions, please refer to the appropriate sections in the POH.

The following pages describe flight characteristics experienced during various flight configurations and weather conditions:

- Take-off
- Climb
- Cruise
- Stall
- Slip
- Glide
- Descent
- Approach
- Touch down

NOTE	This chapter was introduced as an additional guide to experience the capabilities of the aircraft, It is not a substitute for flight school training! If you are not yet familiar with the aircraft, we strongly recommend that you follow these instructions only when accompanied by a skilled flight instructor.

2 Take-Off

Take-off under normal conditions

1. After the pre-flight check has been completed, extend flaps to 15° for a grass runway. On a hard surface runway, take-off with clean flaps.
2. Ensure that the elevator trim is in the correct position.
3. Whenever possible, take-off directly into the wind. The maximum demonstrated crosswind component for take-off is 15 kts.
4. Smoothly apply full throttle (fully forward) and maintain runway heading.
5. As the aircraft accelerates, gently pull back on the control stick to raise the nose slightly until the aircraft becomes airborne.
6. Once airborne, slowly release the back pressure on the control stick to allow the airspeed to increase to V_X = 56 mph = 49 kts. Maintain this speed and avoid making any climbing turns until a sufficiently safe altitude has been reached.
7. When all obstacles have been cleared, retract the flaps (if they were deployed) and accelerate to V_Y = 75 mph = 65 kts.

Take-off under tailwind conditions

Similar to normal take-off except that the take-off distance will be extended. Ensure that you determine the take-off distance required to ensure you have sufficient runway length prior to take-off.

Take-Off in rain or with a dirty aircraft

Surface conditions, high density altitude and temperatures, raindrops and bugs affect the performance of the aircraft. Be aware that in these conditions the performance figures will not meet the published figures, as they apply to a clean aircraft under standard atmospheric conditions. Expect a significant drop in performance.

3 Climb

Climb with Best Angle of Climb

With engine set to full power, establish V_X, which is an indicated airspeed of 56 mph (49 kts). At this airspeed the aircraft will achieve the steepest angle of climb. During climb it is essential to monitor oil and water (CHT) temperatures. Adjust the oil temperature regulation flap as required.

Climb with Best Rate of Climb

With engine set to full power, establish V_Y, which is an indicated airspeed of 75 mph (65 kts). At this airspeed the aircraft will achieve the best rate of climb. During climb it is essential to monitor oil and water (CHT) temperatures. Adjust the oil temperature regulation flap as required.

Climb while in cruise

If you wish to climb in cruise, select an airspeed between 90 to 100 mph (78 to 86 kts). At these speeds, the aircraft will climb between 600 to 800 ft/min, depending on the weather conditions, altitude and weight of the aircraft.

It is strongly recommended that you monitor oil and water (CHT) temperatures. Under no circumstances should any of the engine temperature limits be exceeded, otherwise, an engine failure may result.

Climb in rain or with a dirty aircraft

Raindrops and bugs affect the performance of the aircraft. Be aware that in these conditions the performance figures will not meet the published figures, as they apply for a clean aircraft under standard atmospheric conditions. Expect a performance loss of 10% to15%.

4 Cruise

Normal cruise

An economical cruise is flown at engine speeds of 4,400 RPM to 4,800 RPM. With the Sensenich or Neuform propeller this will result in airspeeds between 98mph (85kts) and 111mph (97kts) with a fuel flow between 4 and 5 gph

High speed cruise is done with engine speeds between 5,000 RPM and 5,400 RPM. With the Sensenich or Neuform propeller this will result in airspeeds between 117mph (102kts) and 130mph (113kts) with a fuel flow between 5 and 7 gph.

If required, the aircraft is capable of achieving an airspeed up to 137 mph (119 kts) at full power settings. If doing so, always monitor the engine speed. The maximum continuous engine speed is 5,500 RPM and may only be sustained for 5 minutes. Do not exceed the maximum engine speed of 5,800 RPM.

Cruise in gusty conditions

When flying in gusty weather conditions, the normal operating airspeed V_{NO} = 123 mph (107 kts) should not be exceeded for safety reasons. The REMOS GX offers very stable flight characteristics even in heavy weather conditions.

Cruise in rain or with dirty aircraft

Raindrops and bugs affect the performance of the aircraft. Be aware that in these conditions the performance figures will not meet the published figures, as they apply for a clean aircraft under standard atmospheric conditions. Expect a performance loss of 10% to15%. When flying in rain always activate the carburetor heat.

5 Stall

The REMOS GX is fully controllable when flying at a wide range of airspeeds. At airspeeds below the lower speed limit, the aircraft will display very stable stall characteristics. If the airspeed is reduced by the pilot gradually pulling back on the control stick, aerodynamic buffet will occur, indicating that the aircraft is approaching the stall speed. Should the aircraft then be allowed to stall, the aircraft still will remain controllable. The aircraft can be stalled with flaps both extended or retracted.

Conducting a stall maneuver does not require special skills. However, if you are not yet familiar with the aircraft, we recommend you do this exercise only when accompanied by an experienced flight instructor.

6 Slip

The slip is a very stable flight condition and is also very easy to perform. This maneuver is used to increase aerodynamic drag to enable a high rate of descent.

Before establishing a slip, you have to ensure that the airspeed is within the required limits. The maximum maneuvering speed V_A = 108 mph (94 kts) should not be exceeded. If performing a slip with flaps extended, a maximum indicated airspeed of V_{FE}= 81 mph (70 kts) must be maintained. You will achieve the maximum rate of descent when slipping with flaps fully extended and flying at V_{FE}.

Conducting a slip does not require special skills. However, if you are not yet familiar with the aircraft, we recommend to do this exercise only when accompanied by an experienced flight instructor.

7 Gliding

The aircraft can glide well with the engine off. Best glide ratios are achieved within an indicated airspeed of 75 mph (65 kts). These speeds will establish a glide ratio of about 1:10 with the flaps retracted (0° position).

8 Descent

When descending from level flight it is important to monitor engine temperatures. During descent, the temperatures will decrease, which could cause engine failure or carburetor icing to develop. therefore we strongly recommend that you not exceed the lower limits of these temperatures. Engage carburetor heat before beginning the descent.

9 Approach

Approach under normal conditions

Always land on the most suitable runway, taking into consideration wind direction, length of runway, obstacles on the approach, etc. The recommended airspeed for approach at MTOW is 75 mph (65 kts).

Approach under tailwind conditions

When on final approach with a tailwind component, the REMOS GX does not require different approach or flare procedures than those used in calm or headwind conditions. However, you do have to keep in mind that the landing distance will increase significantly.

Approach in crosswind conditions

Crosswinds do not have a big effect on the flight characteristics of the REMOS GX, as long as the cross-wind component stays within the maximum demonstrated speed of up to 15 kts. Performing a crosswind landing does not require above-average piloting skills. Nevertheless, if not yet familiar with the aircraft, we recommend that you perform crosswind landings only when accompanied by an experienced flight instructor until sufficient experience has been gained.

Approach in turbulent weather conditions

The recommended airspeed for approach is 75 mph (65 kts) in turbulent conditions. This will give you a reserve airspeed to balance any unexpected deviations in altitude and heading. In more gusty conditions it may be beneficial to stabilize the glide slope by keeping the flap setting to the 15° position.

Approach in rain showers

Raindrops on the wing surfaces influence the aerodynamic characteristics of the airfoil; drag will increase while lift decreases. The airfoil used on the REMOS GX features stable flight characteristics in rainy conditions. Therefore, there are no special advisories for flights within rain. we recommend that you operate the aircraft as you would in turbulent weather conditions (see "Approach in turbulent weather conditions). When flying in rain always activate the carburetor heat.

9 Approach

Approach in the slip configuration

If a high descent rate is required on final, we recommend that you conduct a slip maneuver. Conducting an approach in the slip configuration does not require special skills, however, if you are not yet familiar with the aircraft we recommend that yo do this exercise only when accompanied by an experienced flight instructor.

10 Touchdown

The aircraft has very good low speed characteristics and so is very controllable all the way through the landing phase. After a good approach has been conducted, the REMOS GX does not require much action to land with a perfect touch down. It is important to establish a safe and stable airspeed during the approach.

Imprint

Pilot Operating Handbook REMOS GX
Supplement Flight Training

ASTM Edition

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REMOS AIRCRAFT

REMOS

POH Supplement – Glider Towing

Supplement Glider Towing

Table of Content

1 General Information

1.1 Introduction

This supplement is to be used only in addition to the REMOS GX Pilot Operating Handbook!

1.2 Certification

The REMOS GX is manufactured in compliance with the rules of the Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

1.3 Quick Reference

For use as a glider towing aircraft, the REMOS GX is equipped with the TOST E85 tow release clutch, which is connected to the fuselage tail by a specially developed mounting frame. To release the tow rope a release lever is located on the left hand side of the pilot seat (colored yellow). Additionally, a rear view mirror must be installed inside the aircraft, above the pilot seat.

2 Operating Limitations

2.1 Towing Speed

max. towing speed	V_T of glider
min. towing speed	$1{,}3V_{S1}$ of glider, at least 56 mph (49 kts)

2.2 Tow Ropes

length of tow rope	130 to 200 ft
weak link	max. 300 dN

2.3 Maximum Glider Take-Off Weight

The maximum permissible take-off weight of the glider to be towed varies with the propeller mounted to the REMOS GX. The following operating limitations may not be exceeded:

Propeller	Glider	
Tonini GT-2	1,210 lb	[550kg]
Woodcom SR38+1	1,210 lb	[550kg]
Sensenich R70EN	1,580 lb	[720kg]
Neuform CR3-65	1,580 lb	[720kg]
Rospeller	1,430 lb	[650kg]

2.4 Crew

During glider towing operations the REMOS GX must be operated only by one pilot (no passenger allowed, except for training/instruction). In all cases, the total take-off weight (towing aircraft + glider) must not exceed 2,900 lb.

2 Operating Limitations

2.5 Minimum Equipment List

- as per D-VFR minimum equipment list, plus
- TOST tow release clutch type E85
- REMOS mounting frame for tow release clutch
- yellow colored release handle
- rear view mirror placed on main spar carrythrough

2.6 Flying Without Doors

not permitted during towing operations

2.7 Required Placards and Markings

Adjacent to the airspeed indicator:

Adjacent to the tow release handle:

At the release clutch bracket:

3 Emergency Procedures

3.1 Engine Failure Procedure

Case 1: altitude not enough for engine re-start

1. AVIATE – NAVIGATE – COMMUNICATE
2. landing site IDENTIFY
3. glider pilot NOTIFIED
4. glider pilot RELEASE ROPE
5. engine OFF
6. fuel valve CLOSE
7. declare emergency MAYDAY MAYDAY MAYDAY
8. master switch OFF
9. safety belts TIGHTEN
10. tow rope RELEASE
11. emergency landing APPROPRIATE TERRAIN

Case 2: altitude sufficient for engine re-start

1. AVIATE – NAVIGATE – COMMUNICATE
2. landing site IDENTIFY
3. glider pilot NOTIFIED
4. glider pilot RELEASE ROPE
5. carburetor heat PULL
6. electric fuel pump ON
7. choke OFF
8. starter ENGAGE
9. if engine does not start continue with case 1
10. if engine starts, continue flight and land on an airfield

3 Emergency Procedures

3.2 Abnormal Flight Attitude Procedure

1. AVIATE – NAVIGATE – COMMUNICATE
2. glider pilot NOTIFIED
3. engine REDUCE POWER
4. glider pilot RELEASE ROPE
5. recover gently and return to an airfield

NOTE	If the glider pilot cannot recover from the abnormal flight attitude and does not or cannot release the tow rope, the REMOS GX pilot must release the tow rope to recover from the abnormal flight attitude.

NOTE	If the abnormal flight attitude cannot be recovered from at all, the tow rope cannot be released, or the weak link does not break, activate the recovery system.

3.3 Failure of the Release Clutch Procedure

1. approach airspeed V_{APP} = 66 mph = 58 kts
2. full flaps airspeed V_{FE} = 80 mph = 70 kts
3. flaps DOWN
4. variable pitch prop 5,600 rpm
5. engine power AS REQUIRED
6. elevator trim AS REQUIRED
7. electrical fuel pump ON
8. touchdown on main wheels first with elevator fully held back.

NOTE	The rope will hang down significantly from the aircraft due to its own weight. Therefore it can become tangled with obstacles, plants, wires, vehicles, persons, etc.

4 Normal Procedures

4.1 Preflight Check — Checklist

1. Perform standard preflight check
2. Check tow release clutch and test-release a tow rope

4.2 Take-Off — Procedure

1.	oil cooler flap	OPEN
2.	carburetor heat	OFF
3.	electric fuel pump	ON
4.	landing light	RECOMMENDED
5.	flaps	15 degrees
6.	elevator trim	2/3 UP
7.	rudder and aileron	NEUTRAL
8.	variable pitch prop	5,600 rpm
9.	taxi forward	ROPE STRAIGHT
10.	engine power	FULL POWER
11.	rotate	62 mph = 54 kts
12.	lift-off	75 mph = 65 kts
13.	best climb	V_Y = 75 mph = 65 kts
14.	flaps	RETRACT

NOTE	During take-off, special care must be taken that the climb rate and airspeed are compatible with the required values of the towed glider. Watch your rate of climb immediately after take-off (do not exceed the glider's climb capability).

NOTE	To maintain permissible water and oil temperatures during climb and descent, the aircraft must be equipped with an oil temperature regulation flap. During climb the operating lever of this flap should be in the "open/cooler" position.

4 Normal Procedures

4.3 Climb Briefing

Flight tests have been conducted with various glider airplanes. These tests revealed that modern composite gliders, especially when loaded with water ballast, must be towed faster than older wooden sailplanes.

The modern gliders are usually towed with airspeeds of 75 mph = 65 kts or possibly above that with flaps retracted. Older sailplanes can be towed with airspeeds as low as 48 mph = 56 kts; in that case select the 15 degrees flap setting.

4.4 Descent Checklist

1.	flaps	CLEAN
2.	engine speed	AS REQUIRED
3.	electric fuel pump	ON
4.	maneuvering speed	V_A = 108 mph = 94 kts
5.	normal operating speed	V_{NO} = 123 mph = 107 kts
6.	never exceed speed	V_{NE} = 155 mph = 135 kts
7.	max. cont. engine speed	5,500 rpm
8.	carburetor heat	RECOMMENDED
9.	landing light	RECOMMENDED
10.	oil cooler flap	AS REQUIRED
11.	CHT	max. 275°F = 135°C
12.	oil temperature	120…266°F = 50…130°C

NOTE	Special care must be taken to keep all temperatures within the permissible range. To keep temperatures within the proper operation levels, the throttle may be left at a setting just above the idle position. Do not allow the oil temperature to drop rapidly.

4 Normal Procedures

4.5 Approach Briefing

1.	wind, weather, visibility	OK
2.	ATIS	CHECKED
3.	runway	CORRECT DIRECTION
4.	traffic circuit	ALTITUDE and ROUTING
5.	radios	ON and FREQUENCY SET
6.	transponder	AS REQUIRED
7.	full flaps	BELOW 81 mph = 70kts
8.	electric fuel pump	ON
9.	airspeed in pattern	95 to 125 mph = 80 to 110 kts
10.	approach airspeed	75 mph = 65 kts

4.6 Landing Procedure

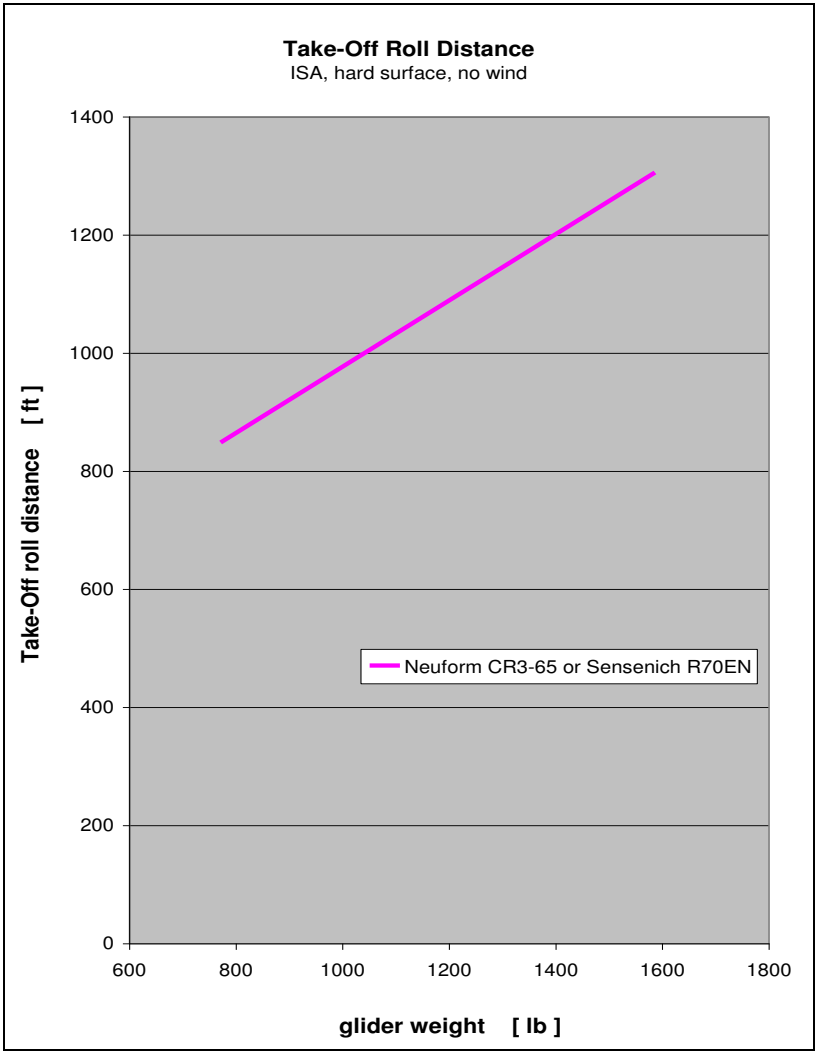
1.	approach airspeed	75 mph = 65 kts
2.	full flaps airspeed	V_{FE} = 80 mph = 70 kts
3.	flaps	DOWN
4.	landing light	RECOMMENDED
5.	variable pitch prop	5,600 rpm
6.	engine power	AS REQUIRED
7.	elevator trim	AS REQUIRED
8.	electric fuel pump	ON
9.	carburetor heat	RECOMMENDED
10.	oil cooler flap	AS REQUIRED
11.	CHT	max. 275°F = 135°C
12.	oil temperature	120 to 266°F = 50 to 130°C
13.	tow rope	RELEASE ON THRESHOLD

14. touchdown on main wheels first with elevator fully held back.

5 Performance

5.1 Take-Off Roll Distance

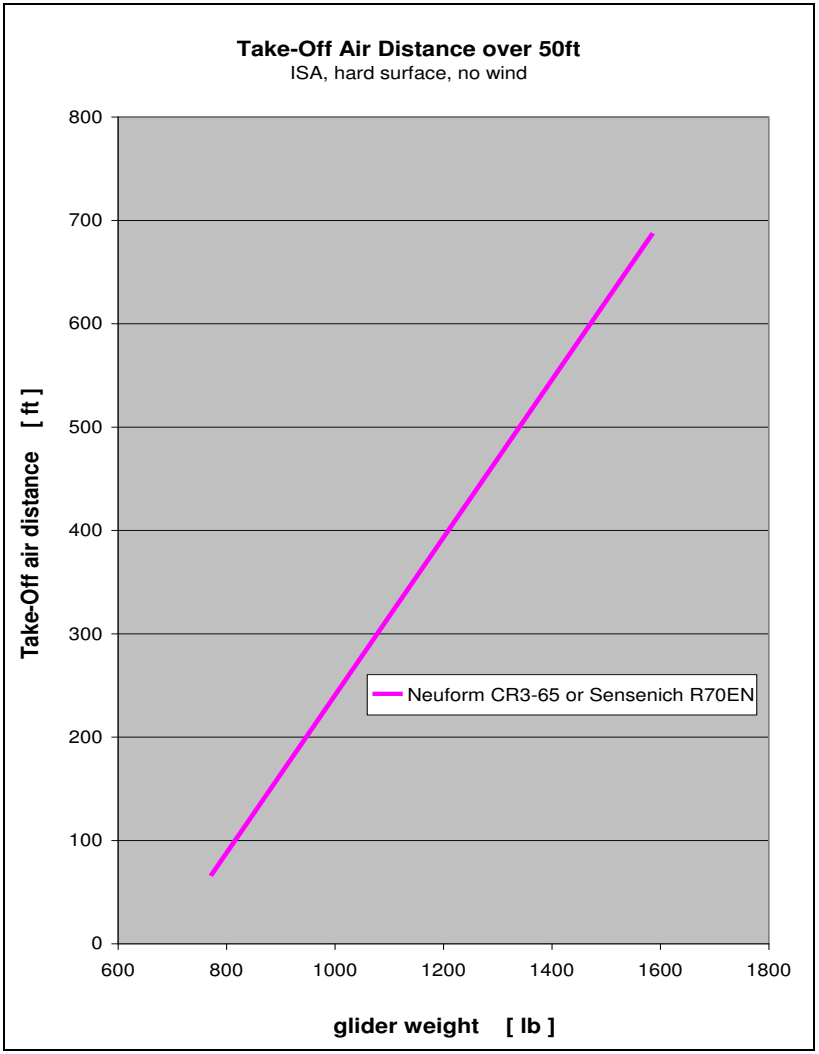
If the REMOS GX is equipped with a Sensenich R70EN or a Neuform CR3-65 propeller, the following take-off roll distances apply (under the conditions of a hard surface runway, ISA conditions, no wind and lift-off at V_Y = 75 mph = 65kts).



5 Performance

5.2 Take-Off Air Distance

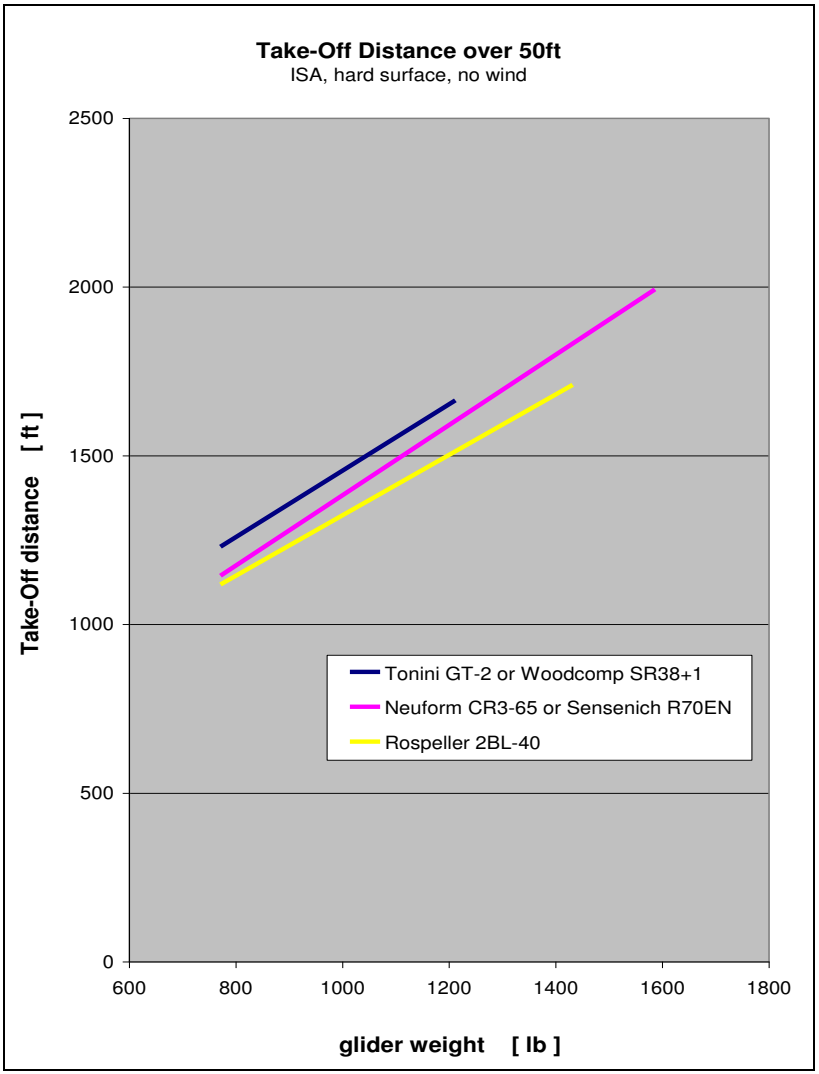
If the REMOS GX is equipped with a Sensenich R70EN or a Neuform CR3-65 propeller, the following take-off air distances apply (under the conditions of a hard surface runway, ISA conditions, no wind and lift-off at V_Y = 75 mph = 65kts).



5 Performance

5.3 Take-Off Distance over 50ft

The following diagram presents the total take-off distance over 50ft (under the conditions of a hard surface runway, ISA conditions, no wind and lift-off at V_Y = 75 mph = 65kts).



5 Performance

5.4 Effects on Take-Off Distance

Take-off distances given apply for ISA conditions and a dry, hard runway surface. Various circumstances have an effect on take-off and landing performance. According to ICAO-circular 601AN/55/2, it is recommended to use following add-ons for roll and air distances:

add-ons on take-off roll distance	
for dry grass	+ 20%
for wet grass	+ 30%
for soft surface	+ 50%
per 2 knots tailwind component	+ 10%
per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

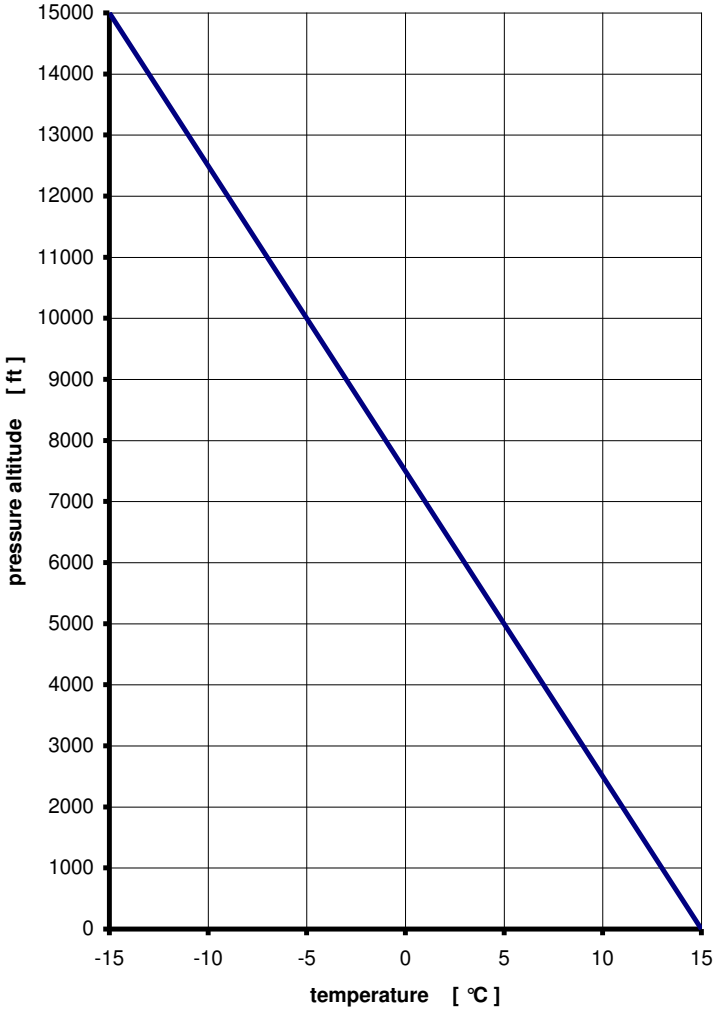
add-ons on take-off air distance	
for dirty wings/raindrops	+ 15%
per 2 knots tailwind component	+ 10%
per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

All flight performance data are given for ISA standard atmosphere at sea level and standard temperature. To determine temperature in relation to ISA conditions please refer to the following chart.

NOTE	Especially in glider towing the take-off distances can vary significantly with precise flying habits and the drag of the glider.

5 Performance

ISA std. Temperature



5 Performance

5.5 Tested Glider Configuration

The following gliders have been towed during flight tests:

LS-1, LS-4, Baby-III, Astir and Twin Astir, Hornbach, Junior, Jantar, Pirat, Puchacz, Discus and DuoDiscus, Blanik, DG-100/300/500, DG-1000, ASK-21 and ASW-24, Nimbus and Cirrus, Cobra, PIK-20.

5.6 Remarks

Based on the rules of the Light Sport Aircraft airworthiness standards, the maximum dimension is defined by the weight of the glider to be towed, without consideration of glider aerodynamics. During the flight test with the DG-1000T, a maximum permissible glider weight of 1,580 lb has been demonstrated.

For gliders with a maximum permissible glider weight of 1,580lb, but less favourable aerodynamics than the DG-1000T, a lower climb rate and significantly longer take-off distance are to be expected.

NOTE	Inexperienced pilots should start with a one person lightweight glider and increase the glider weight step by step.

6 Weight and Balance

6.1 General

When the aircraft is used for glider towing, the weight and balance calculations for the standard configuration are valid also for towing operations. Concerning payload, there are some restrictions which have to be observed, see also Section 3 within this supplement.

6.2 Required Equipment

The following additional equipment is required to use aircraft the for glider towing, and must be taken into account in the weight and balance:

- TOST tow release clutch, type E 85
- REMOS mounting frame for tow release clutch
- release handle (colour yellow)
- REMOS oil temperature regulation flap
- rear view mirror

The following equipment is not part of the center of gravity calculation, but is also necessary for glider towing:

- towing rope with ring connector
- weak link 300 daN (green)

NOTE	The pilot has to ensure that the required weak link is attached to the tow rope; otherwise the structure of the aircraft may become overloaded!

7 Systems

The tow release handle is installed inside the cabin of the REMOS GX. The handle is located on the left hand side of the pilot seat, colored yellow. Pulling the handle releases the tow rope. The handle should provide a free play of 1/2 to 1 Inch.

8 Aircraft Ground Handling and Service

During regular servicing intervals, the tow release clutch must be cleaned, lubricated and checked to assure proper operation.

A general overhaul of the release clutch must be conducted every 4 years or 4,000 towing operations, whatever comes first. For further information refer to the separate operator's manual of the manufacturer.

Imprint

Pilot Operating Handbook REMOS GX
Supplement Glider Towing

ASTM Edition

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REMOS AIRCRAFT

REMOS GX

Supplement Banner Towing

Revision 01

Supplement Banner Towing

Table of Content

1 General Information

1.1 Introduction

This supplement is to be used only in addition to the REMOS GX Pilot Operating Handbook!

1.2 Certification

The REMOS GX is manufactured in compliance with the rules of the Light Sport Aircraft airworthiness standards and does not conform to standard category airworthiness requirements.

1.3 Quick Reference

For use as a banner towing aircraft, the REMOS GX is equipped with the TOST E85 tow release clutch, which is connected to the fuselage tail by a specially developed mounting frame. To release the tow rope a release lever is located on the left hand side of the pilot seat (colored yellow). Additionally, a rear view mirror must be installed inside the aircraft, above the pilot seat.

2 Operating Limitations

2.1 Towing Speed

max. towing speed	65 kts

2.2 Tow Ropes

length of tow rope	130 to 200 ft
weak link	max. 300 dN

2.3 Banner

When towing banners the drag of the banner is relevant and not its size. Low drag banners up to 216m^2 have been tested.

max. drag	700 N at 73 kts
weak weight	20 kg

Approved banners should be used.

2.4 Crew

During banner towing operations the REMOS GX must be operated only by one pilot (no passenger allowed, except for training/instruction).

2.5 Minimum Equipment List

- as per D-VFR minimum equipment list, plus
- TOST tow release clutch type E85
- REMOS mounting frame for tow release clutch
- yellow colored release handle
- rear view mirror placed on main spar carrythrough

2 Operating Limitations

2.6 Flying Without Doors

not permitted during towing operations

2.7 Required Placards and Markings

Adjacent to the airspeed indicator:

Adjacent to the tow release handle:

At the release clutch bracket:

3 Emergency Procedures

3.1 Engine Failure Procedure

Case 1: altitude not enough for engine re-start

1.	AVIATE – NAVIGATE – COMMUNICATE	
2.	landing site	IDENTIFY
3.	engine	OFF
4.	fuel valve	CLOSE
5.	declare emergency	MAYDAY MAYDAY MAYDAY
6.	master switch	OFF
7.	safety belts	TIGHTEN
8.	tow rope	RELEASE
9.	emergency landing	APPROPRIATE TERRAIN
10.	banner	RELEASE BEFORE LANDING

Case 2: altitude sufficient for engine re-start

1.	AVIATE – NAVIGATE – COMMUNICATE	
2.	landing site	IDENTIFY
3.	carburetor heat	PULL
4.	electric fuel pump	ON
5.	choke	OFF
6.	starter	ENGAGE
7.	if engine does not start continue with case 1	
8.	if engine starts, continue flight and land on an airfield	

3 Emergency Procedures

3.2 Failure of the Release Clutch Procedure

1. approach airspeed V_{APP} = 65 kts
2. max. airspeed with banner $V_{NE\ banner}$ = 65 kts
3. flaps DOWN
4. engine power AS REQUIRED
5. elevator trim AS REQUIRED
6. electrical fuel pump ON
7. touchdown on main wheels first with elevator fully held back.

NOTE	The banner will hang down significantly from the aircraft due to its own weight. Therefore it can become tangled with obstacles, plants, wires, vehicles, persons, etc. Keep the approach as steep as possible so that banner and aircraft are on the ground at the same time.

4 Normal Procedures

4.1 Preflight Check Checklist

1. Perform standard preflight check
2. Check tow release clutch and test-release a tow rope

4.2 Take-Off Procedure

1.	oil cooler flap	OPEN
2.	carburetor heat	OFF
3.	electric fuel pump	ON
4.	landing light	RECOMMENDED
5.	flaps	15 degrees
6.	elevator trim	2/3 UP
7.	rudder and aileron	NEUTRAL
8.	taxi forward	ROPE STRAIGHT
9.	engine power	FULL POWER
10.	rotate	54 kts
11.	lift-off	65 kts
12.	best climb	V_Y = 65 kts
13.	flaps	RETRACT
14.	max. airspeed with banner	$V_{NE\ banner}$ = 65 kts

NOTE	During take-off, special care must be taken that the climb rate and airspeed are adjusted to the characteristics of the banner. Watch your rate of climb immediately after take-off.

NOTE	To maintain permissible water and oil temperatures during climb and descent, the aircraft must be equipped with an oil temperature regulation flap. During climb the operating lever of this flap should be in the "open/cooler" position.

4 Normal Procedures

4.3 Approach Briefing

1.	wind, weather, visibility	OK
2.	ATIS	CHECKED
3.	runway	CORRECT DIRECTION
4.	traffic circuit	ALTITUDE and ROUTING
5.	radios	ON and FREQUENCY SET
6.	transponder	AS REQUIRED
7.	electric fuel pump	ON
8.	max. airspeed with banner	$V_{NE\ banner}$ = 65 kts
9.	approach airspeed	V_{APP} = 65 kts

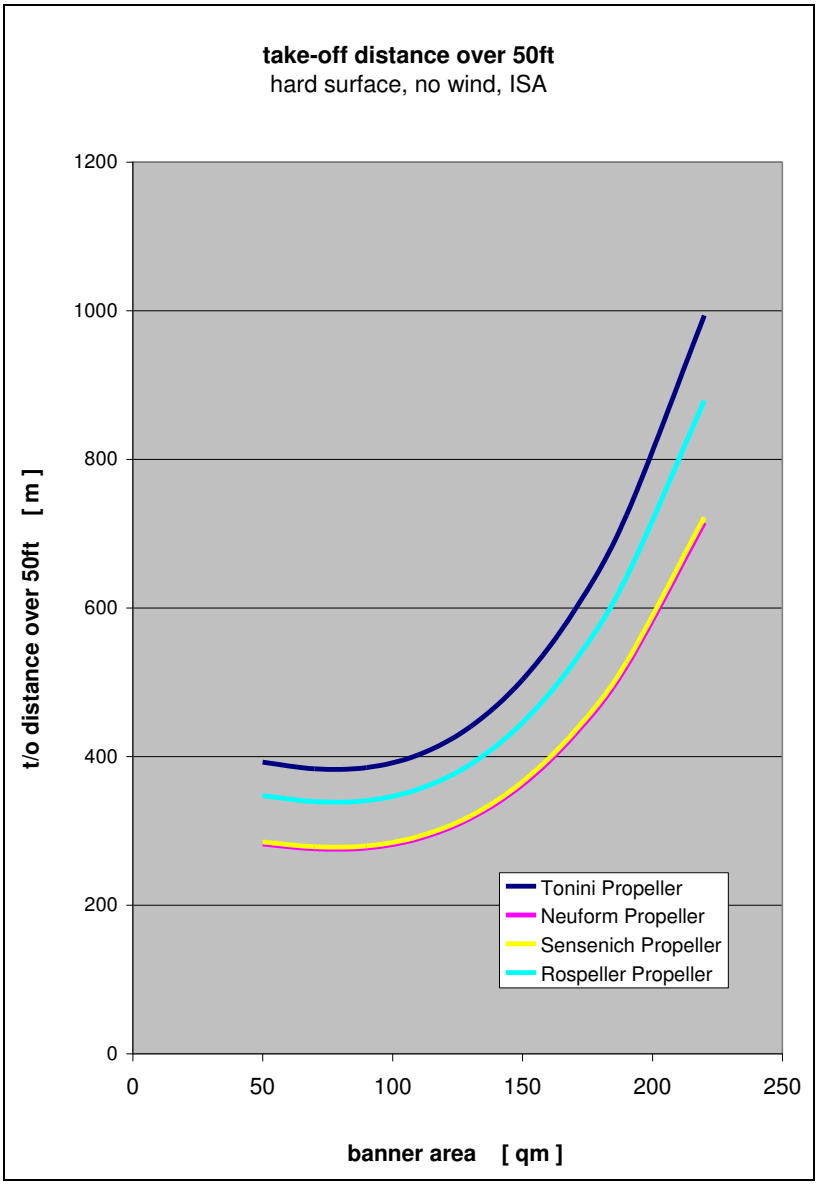
4.4 Landing Procedure

10.	max. airspeed with banner	$V_{NE\ banner}$ = 65 kts
11.	approach airspeed	V_{APP} = 65 kts
12.	flaps	DOWN
13.	landing light	RECOMMENDED
14.	engine power	AS REQUIRED
15.	elevator trim	AS REQUIRED
16.	electric fuel pump	ON
17.	carburetor heat	RECOMMENDED
18.	oil cooler flap	AS REQUIRED
19.	CHT	max. 275°F = 135°C
20.	oil temperature	120 to 266°F = 50 to 130°C
21.	banner	RELEASE ON THRESHOLD

22. touchdown on main wheels first with elevator fully held back.

5 Performance

5.1 Take-Off Distance



5 Performance

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for dry grass	+ 20%
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per 10 knots headwind component	- 10%
for high temperatures above standard	+ 10% per 10°C
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

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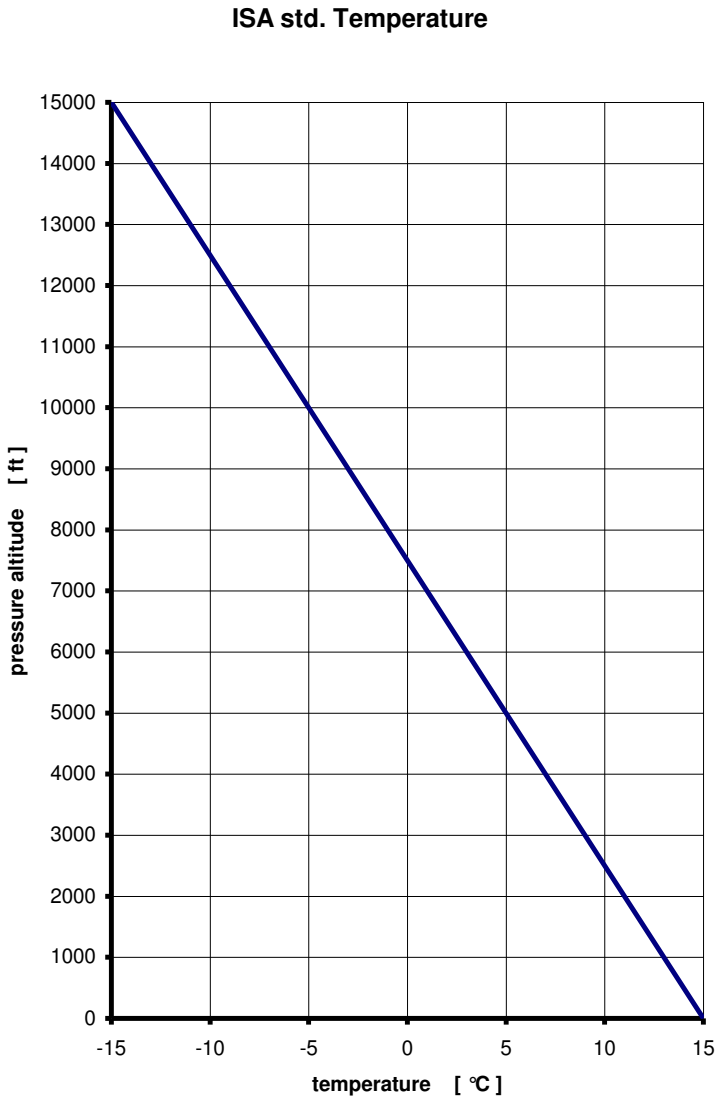
for altitude above sea level (density altitude)	+ 5% per 1,000 ft

All flight performance data are given for ISA standard atmosphere at sea level and standard temperature. To determine temperature in relation to ISA conditions please refer to the following chart.

NOTE	Especially in banner towing the take-off distances can vary significantly with precise flying habits and the drag of the banner.

5 Performance



6 Weight and Balance

6.1 General

When the aircraft is used for banner towing, the weight and balance calculations for the standard configuration are valid also for towing operations. Concerning payload, there are some restrictions which have to be observed, see also Section 3 within this supplement.

6.2 Required Equipment

The following additional equipment is required to use aircraft the for glider towing, and must be taken into account in the weight and balance:

- TOST tow release clutch, type E 85
- REMOS mounting frame for tow release clutch
- release handle (colour yellow)
- REMOS oil temperature regulation flap
- rear view mirror

The following equipment is not part of the center of gravity calculation, but is also necessary for glider towing:

- towing rope with ring connector
- weak link 300 daN (green)

NOTE	The pilot has to ensure that the required weak link is attached to the tow rope; otherwise the structure of the aircraft may become overloaded!

7 Systems

The tow release handle is installed inside the cabin of the REMOS GX. The handle is located on the left hand side of the pilot seat, colored yellow. Pulling the handle releases the tow rope. The handle should provide a free play of 1/2 to 1 Inch.

8 Aircraft Ground Handling and Service

During regular servicing intervals, the tow release clutch must be cleaned, lubricated and checked to assure proper operation.

A general overhaul of the release clutch must be conducted every 4 years or 4,000 towing operations, whatever comes first. For further information refer to the separate operator's manual of the manufacturer.

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REMOS AIRCRAFT

REMOS

POH Supplement – Continued Airworthiness

Supplement Glider Towing

Table of Content

1 Purpose

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 POH supplement 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.

2 Continued Airworthiness System

REMOS Aircraft GmbH Flugzeugbau shall be informed about potential issues of safety of flight or service difficulties by means of the Customer Feedback Form G3-8 MA CA 0050. This document is attached to the maintenance manual and is also available on the website www.remos.com. If a customer does not inform the manufacturer by means of this form, REMOS Aircraft GmbH Flugzeugbau 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

Once the customer has notified REMOS Aircraft GmbH Flugzeugbau, 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 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.

2 Continued Airworthiness System

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 Aircraft GmbH Flugzeugbau does not only cover events that have occurred during operation of the aircraft. Proposals for improvements or corrections, 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 Aircraft GmbH Flugzeugbau will never notify authorities.

3 Owner/Operator Responsibilities

During handover of the aircraft the owner/operator is introduced into the continued airworthiness system of REMOS Aircraft GmbH Flugzeugbau. 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.

3 Owner/Operator Responsibilities

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 Aircraft GmbH Flugzeugbau. On this form the owner/operator shall also provide the manufacturer with current contact data.

If the aircraft is sold to another customer a new customer commitment form needs to be signed. This form will have the identical document number added by a dash and a counting number starting with 1 to make clear that this new form is a new revision.

4 Releases 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.

5 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.

6 Maintenance and Annual Cond. Inspection

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.
REMOS Aircraft GmbH Flugzeugbau 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 Aircraft GmbH Flugzeugbau 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

Always use REMOS documents for your maintenance events and the annual condition inspection. These documents are available on the website www.remos.com

7 Modifications or Change of Equipment

Certified equipment is listed in the maintenance manual. Only listed equipment may be installed on the aircraft without notifying REMOS Aircraft GmbH Flugzeugbau. 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 Aircraft GmbH Flugzeugbau. Nevertheless, it is possible to do so. Notify REMOS Aircraft GmbH Flugzeugbau 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 the Head of Design of REMOS Aircraft GmbH Flugzeugbau 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

7 Modifications or Change of Equipment

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.

8 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 Aircraft GmbH Flugzeugbau 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 Aircraft GmbH Flugzeugbau 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 Aircraft GmbH Flugzeugbau 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 Aircraft

8 Repairs

GmbH Flugzeugbau 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.

9 Contact Data

The manufacturer of the REMOS aircraft and the only responsible entity for continued airworthiness is

REMOS Aircraft GmbH Flugzeugbau

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Imprint

Pilot Operating Handbook REMOS GX
Supplement Glider Towing

ASTM Edition

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