4.11 CLIMB

- Throttle – FULL
  5,800 RPM Max 5 minutes
  5,500 RPM Max Continuous
- Airspeed –
  Best Rate 75 KIAS
  Flaps – UP
  Best Angle 60 KIAS
  Flaps – HALF
  Cruise-Climb 85 KIAS
  Flaps – UP
- Engine Gauges – CHECK
- Trim – AS REQUIRED

4.12 CRUISE

- Flaps – CHECK – UP
- Throttle – SET RPM to cruise power (5,500 RPM Max)
- Trim – AS REQUIRED
- Engine Gauges – CHECK

Refer to 7.2.1 regarding fuel consumption while in ECO mode or POWER mode.

4.13 DESCENT & APPROACH

- Throttle – REDUCE
- Flight Instruments – ADJUST
- Airspeed – AS DESIRED
- Engine Gauges – MONITOR
- Flaps – UP (above 82 KIAS)
  AS DESIRED (below 82 KIAS)

The descent should be made with enough power to maintain cylinder head and oil temperatures in the green. If possible, avoid windmilling the engine with the propeller by reducing airspeed or increasing power.

When planning a descent from cruise altitude to the airport traffic pattern, use time to destination to calculate a realistic and comfortable rate (500 ft/minute).

When available, use the vertical navigation (VNAV) function of the EFIS to perform a stable descent if terrain, airspace, and/or weather permit.

4.14 LANDING

- Seat Belt – Pilot and Passenger – FASTENED & SNUG
- Brakes – CHECK firm then release
- Lane A & B (or Ignition Switches) – BOTH ON
- Fuel Pump Switches (912 iS Only) – BOTH ON
- Lights – ON STEADY
- Flaps – AS DESIRED (below 82 KIAS)
- Airspeed – 55-60 KIAS
- Trim – AS REQUIRED
- Throttle – AS DESIRED to control rate of descent
- Touchdown – MAIN WHEELS FIRST
- After Touch Down –
  Stabilator Control – Increase to FULL AFT as speed decreases
  Brake as Required

The best technique for use on soft or rough fields is to fly the landing approach at minimum speed carrying power into the landing flare and using an extreme nose high landing attitude so as to touch down with minimum airspeed.

When landing under gusty and or crosswind conditions do not use flaps.

During gusty wind conditions, fly the landing approach at approximately 5 kts above normal and touch down with the nose slightly lower than for a normal landing.

Crosswind approaches can best be accomplished by using the wing down top rudder method touching first on the down wing side main wheel, followed by the other main wheel, and finally lowering the nose wheel all the while keeping the stick into the wind.

4.15 LANDING (Obstacle)

Use normal landing procedures and in addition:

- Flaps – FULL DOWN
- Airspeed – 55 KIAS
- Throttle – AS REQUIRED to control rate of descent
- Slip aircraft as necessary to increase rate of descent

WARNING

A relatively high rate of descent is possible in this configuration when at full gross weight and the throttle closed.

If airspeed is allowed to decrease below 55 KIAS, level off can only be assured with an application of power.

4.16 LANDING (Balked)

Use normal landing procedures and in addition at the time of going around:

- Throttle – FULL OPEN
- Flaps – HALF
- Airspeed –
  Best Angle – 60 KIAS
  Flaps – HALF until clear of obstacle, then
  Best Rate – 75 KIAS
  Flaps – UP

4.17 SHUTDOWN

Normal Shutdown

- NAV & Land Light Switches – OFF
- Avionics Switch – OFF
- ELT – CHECK OFF

If the following three steps are completed in the order shown the engine will shut down at as low RPM as possible and reduce wear in the gearbox.

- Throttle – 2000 RPM
  Note: Turning off Lane A & B should be done in quick succession. While turning off ignitions, reduce throttle to idle.
- Lane A & B (or Ignition Switches) – BOTH OFF
- Fuel Pump Switches (912 iS Only) – BOTH OFF
- Master Switch – OFF
- Control Locks (seatbelt connected around stick and tow bar installed as a rudder lock), Chocks, & Tie-Downs – As needed

NOTE

If high winds are anticipated, the aircraft should be hangared. If the aircraft must be left out, park into the wind and use additional tie-down ropes for security. Place the flaps in the full up position and secure the control stick full aft with the lap belt.

Cold Weather Shutdown

Post-Flight Rotax 912ULS:

- Fuel Pump - ON
- Fuel Sample - CHECK until no more water or fuel/water mixture is present.
- Fuel Pump – OFF

Post-Flight Rotax 912iS:

- Let fuel settle to allow water to come out of solution.
- Fuel Sample - CHECK until no more water or fuel/water mixture is present.

Hot Weather Shutdown

To prevent vapor building in the fuel lines after shutdown in hot days

- Engine Cool Down – PERFORM engine cooling run of at least 2 minutes.
- Open the oil door
- Latch the canopy in the mid open position using the Support Plate Canopy Latch

SECTION 5

PERFORMANCE

INDEX

5.1 INFORMATION

This data is to inform the pilot what can be expected from the aircraft in the way of performance and to assist in preflight planning.

The data has been compiled from both estimated calculations and actual flight test using average piloting techniques, with an aircraft and engine in good operating conditions. All information is corrected for standard atmospheric conditions.

5.2 AIRSPEED CALIBRATION TABLE

CALIBRATED AIRSPEED	INDICATED AIRSPEED	
	SKYVIEW	G3X
45	45	45
50	50	50
55	54	55
60	58	60
65	65	65
70	69	70
75	75	75
80	78	80
85	84	85
90	89	90
100	100	100
110	110	110
120	120	120
130	130	130
140	140	140
150	150	150

5.3 STALL SPEEDS TABLE (KIAS)

	GROSS WEIGHT	
FLAP POSITION	1,050 lb	1,320 lb
UP	41	45
½ DOWN	39	43
FULL DOWN	37	41

5.4.1 TAKE-OFF & CLIMB PERFORMANCE @ 1320 lb (912iS)

PRESS ALTITUDE (FT)	TEMP (ºF)	TAKE-OFF DISTANCE (FT)		MAX RATE OF CLIMB (FT/MIN)
		GROUND ROLL	50 FT OBSTCL	
SEA LEVEL	0	589	1,091	1,156
	20	641	1,188	1,069
	40	696	1,291	985
	60	750	1,397	906
	80	812	1,519	831
	100	873	1,647	758
2,000	0	681	1,263	1,007
	20	742	1,380	921
	40	805	1,505	839
	60	871	1,642	761
	80	939	1,790	687
	100	1,010	1,954	616
4,000	0	790	1,474	858
	20	860	1,619	774
	40	933	1,777	693
	60	1,010	1,952	617
	80	1,089	2,150	544
	100	1,171	2,379	474
6,000	0	917	1,742	710
	20	999	1,927	627
	40	1,084	2,138	548
	60	1,173	2,384	473
	80	1,265	2,680	401
	100	1,360	3,060	333
8,000	0	1,068	2,097	562
	20	1,163	2,355	481
	40	1,262	2,671	403
	60	1,365	3,082	330
	80	1,472	3,678	259
	100	1,583	4,720	192

5.4.2 TAKE-OFF & CLIMB PERFORMANCE @1320lb (912ULS)

PRESS ALTITUDE (FT)	TEMP (ºF)	TAKE-OFF DISTANCE (FT)		MAX RATE OF CLIMB (FT/MIN)
		GROUND ROLL	50 FT OBSTCL	
SEA LEVEL	0	589	1,091	1,156
	20	641	1,188	1,069
	40	696	1,291	985
	60	750	1,397	906
	80	812	1,519	831
	100	873	1,647	758
2,000	0	681	1,263	1,007
	20	742	1,380	921
	40	805	1,505	839
	60	871	1,642	761
	80	939	1,790	687
	100	1,010	1,954	616
4,000	0	790	1,474	858
	20	860	1,619	774
	40	933	1,777	693
	60	1,010	1,952	617
	80	1,089	2,150	544
	100	1,171	2,379	474
6,000	0	917	1,742	710
	20	999	1,927	627
	40	1,084	2,138	548
	60	1,173	2,384	473
	80	1,265	2,680	401
	100	1,360	3,060	333
8,000	0	1,068	2,097	562
	20	1,163	2,355	481
	40	1,262	2,671	403
	60	1,365	3,082	330
	80	1,472	3,678	259
	100	1,583	4,720	192

5.4.3 TAKE-OFF & CLIMB PERFORMANCE @ 1050 lb (912iS)

PRESS ALTITUDE (FT)	TEMP (ºF)	TAKE-OFF DISTANCE (FT)		MAX RATE OF CLIMB (FT/MIN)
		GROUND ROLL	50 FT OBSTCL	
SEA LEVEL	0	471	951	1,455
	20	513	1,034	1,345
	40	557	1,122	1,241
	60	600	1,212	1,141
	80	650	1,314	1,046
	100	699	1,421	956
2,000	0	545	1,098	1,268
	20	594	1,197	1,160
	40	644	1,303	1,057
	60	697	1,416	959
	80	751	1,539	865
	100	808	1,673	776
4,000	0	632	1,277	1,081
	20	688	1,397	975
	40	747	1,528	874
	60	808	1,672	777
	80	871	1,830	686
	100	937	2,008	598
6,000	0	734	1,499	895
	20	799	1,651	790
	40	867	1,821	691
	60	938	2,012	596
	80	1,012	2,233	506
	100	1,088	2,497	420
8,000	0	854	1,787	709
	20	930	1,990	606
	40	1,010	2,226	509
	60	1,092	2,511	416
	80	1,178	2,877	327
	100	1,267	3,387	243

5.4.4 TAKE-OFF & CLIMB PERFORMANCE @ 1050 lb (912ULS)

PRESS ALTITUDE (FT)	TEMP (ºF)	TAKE-OFF DISTANCE (FT)		MAX RATE OF CLIMB (FT/MIN)
		GROUND ROLL	50 FT OBSTCL	
SEA LEVEL	0	471	951	1,455
	20	513	1,034	1,345
	40	557	1,122	1,241
	60	600	1,212	1,141
	80	650	1,314	1,046
	100	699	1,421	956
2,000	0	545	1,098	1,268
	20	594	1,197	1,160
	40	644	1,303	1,057
	60	697	1,416	959
	80	751	1,539	865
	100	808	1,673	776
4,000	0	632	1,277	1,081
	20	688	1,397	975
	40	747	1,528	874
	60	808	1,672	777
	80	871	1,830	686
	100	937	2,008	598
6,000	0	734	1,499	895
	20	799	1,651	790
	40	867	1,821	691
	60	938	2,012	596
	80	1,012	2,233	506
	100	1,088	2,497	420
8,000	0	854	1,787	709
	20	930	1,990	606
	40	1,010	2,226	509
	60	1,092	2,511	416
	80	1,178	2,877	327
	100	1,267	3,387	243

5.5 LANDING PERFORMANCE* @ 1320 lb

PRESSURE ALTITUDE (FT)	TEMP (°F)	LANDING DISTANCE (FT)	
		GROUND ROLL	50 FT OBSTCL
SEA LEVEL	0	475	1,449
	20	494	1,469
	40	513	1,488
	60	532	1,508
	80	551	1,528
	100	570	1,548
2,000	0	508	1,483
	20	529	1,504
	40	549	1,526
	60	569	1,547
	80	590	1,568
	100	610	1,589
4,000	0	544	1,521
	20	566	1,543
	40	588	1,566
	60	610	1,589
	80	631	1,612
	100	653	1,634
6,000	0	583	1,561
	20	607	1,586
	40	630	1,610
	60	653	1,635
	80	677	1,659
	100	700	1,684
8,000	0	626	1,606
	20	651	1,632
	40	676	1,659
	60	701	1,685
	80	726	1,711
	100	752	1,737

*See Notes

Landing Performance Notes

- Zero wind, 55 KIAS approach speed, flaps fully extended, gross weight, dry/smooth/level pavement.
- Decrease 50 foot obstacle distances by 10% for each 15 kts of headwind.

5.6.1 CRUISE PERFORMANCE* (912 iS)

CRUISE DENSITY ALTITUDE (FT) STANDARD TEMP	RPM	TAS (KTS)	FUEL FLOW (GPH)
0 (59°F)	4,500	96	4.4
	5,000	107	5.1
	5,500	120	6.2
500 (57°F)	4,500	96	4.4
	5,000	107	5.0
	5,500	120	6.1
1,500 (54°F)	4,500	95	4.2
	5,000	106	4.8
	5,500	120	5.9
2,500 (50°F)	4,500	95	4.0
	5,000	106	4.7
	5,500	119	5.7
3,500 (47°F)	4,500	94	3.9
	5,000	105	4.5
	5,500	119	5.5
4,500 (43°F)	4,500	94	3.7
	5,000	105	4.3
	5,500	118	5.3
5,500 (39°F)	4,500	93	3.6
	5,000	104	4.2
	5,500	118	5.2
6,500 (36°F)	4,500	93	3.4
	5,000	104	4.0
	5,500	117	5.0
7,500 (32°F)	4,500	92	3.3
	5,000	103	3.8
	5,500	117	4.8
8,500 (29°F)	4,500	91	3.1
	5,000	103	3.6
	5,500	116	4.6
9,500 (25°F)	4,500	91	3.0
	5,000	102	3.5
	5,500	115	4.4
10,500 (22°F)	4,500	90	2.8
	5,000	101	3.3
	5,500	115	4.2
11,500 (18°F)	4,500	89	2.7
	5,000	100	3.1
	5,500	114	4.0
12,500 (14°F)	4,500	88	2.5
	5,000	99	3.0
	5,500	113	3.9

*See Notes

912 iS Cruise Performance Notes

- Conditions: gross weight, standard temperature (higher than standard temperature will reduce performance), recommended propeller pitch.

5.6.2 CRUISE PERFORMANCE* (912 ULS)

CRUISE DENSITY ALTITUDE (FT) STANDARD TEMP	RPM	TAS (KTS)	FUEL FLOW (GPH)
7,500 (57°F)	4,500	88	3.7
	5,000	102	4.7
	5,500	115	6.3

*See Notes

912 ULS Cruise Performance Notes

- Conditions: gross weight, standard temperature (higher than standard temperature will reduce performance), recommended propeller pitch.

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SECTION 6

WEIGHT & BALANCE & EQUIPMENT LIST

INDEX

6.1 INFORMATION

It is the pilot's responsibility to ensure that the aircraft is loaded properly and within the weight and balance limitations. All flight performance, procedures and characteristics are based on this prerequisite.

The actual licensed empty weight and CG of a specific aircraft can be found on the Weight and Balance Form which is a permanent part of the aircraft's file and onboard documentation. All additional changes to the aircraft's empty weight and CG after the time of manufacture must also be attached to or indicated. From this information and the following instructions, the pilot can easily determine the useful load and proper loading distribution for the aircraft.

For further information see RV-12iS FTS Section III Pre-Flight Planning, Basics of Loading the RV-12iS.

6.2 OPERATING WEIGHTS & LOADING

Category	Max Weight	Center of Gravity Range
Light Sport	1320 lb	80.49” to 85.39” (18.4 to 27% Chord)

NOTE

All measurements are aft of the datum line which is 70 inches forward of the wing leading edge.

Baggage 75 lb maximum (dependent on the c.g. limits)

6.3 INSTALLED EQUIPMENT LIST

For Installed Equipment List see the Maintenance Manual.

6.4 OPTIONAL EQUIPMENT LIST

ITEM	WEIGHT (LB)	ARM (IN.)	INSTALLED	MOMENT (IN-LB)
TOTAL		--------		

6.5 SAMPLE LOADING PROBLEM

ITEM	ARM (IN.) (LIMITS 80.49-85.39)	SAMPLE AIRPLANE	
		WEIGHT (LB)	MOMENT (IN-LB)
EMPTY WEIGHT WITH OIL & COOLANT	81.65	755	61,646
PILOT	78.85	185	14,982
PASSENGER	78.85	185	14,982
BAGGAGE	114.42*	50	5,721
FUEL (6 LB/GAL)	100.83	121	12,200
TAKEOFF WEIGHT & MOMENT	83.91**	1,296	108,742

***Center of baggage area**
****CG = TOTAL MOMENT / TOTAL WEIGHT**

6.6 YOUR AIRPLANE

ITEM	ARM (IN.) (LIMITS 80.49-85.39)	WEIGHT (LB)	MOMENT (IN-LB)
EMPTY WEIGHT WITH OIL & COOLANT			
PILOT	78.85		
PASSENGER	78.85		
BAGGAGE	114.42		
FUEL (6 LB/GAL)	100.83		
TAKEOFF WEIGHT & MOMENT			

CG = TOTAL MOMENT / TOTAL WEIGHT

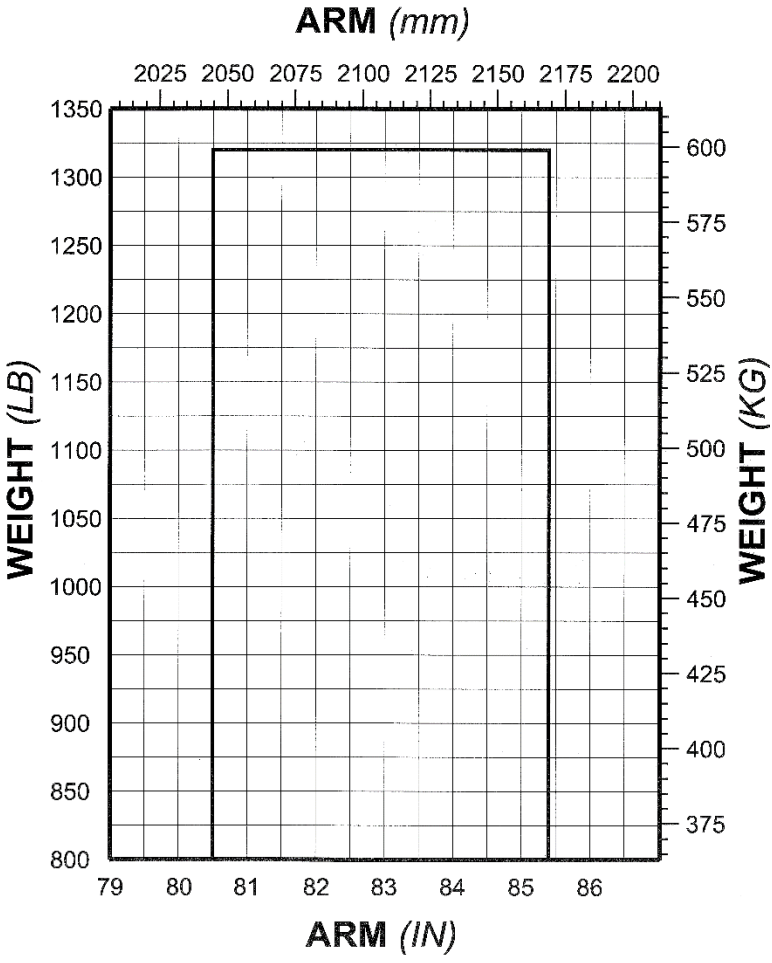

FIGURE 6-1 FLIGHT ENVELOPE - ARM
Minimum Weight varies depending on the empty weight of the aircraft

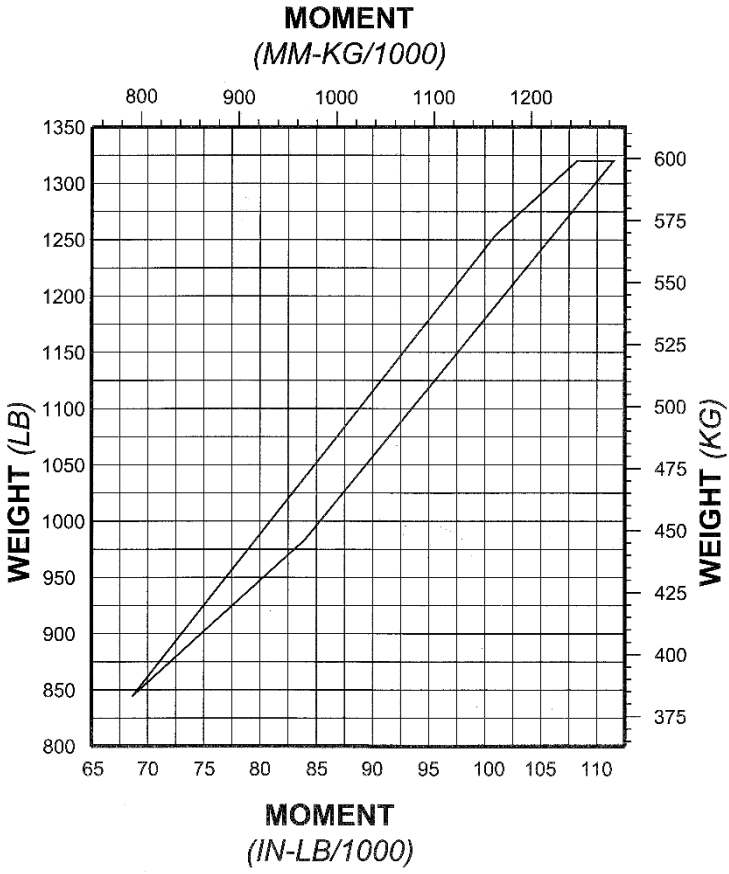

FIGURE 6-2 FLIGHT ENVELOPE - MOMENT
Minimum Weight varies depending on the empty weight of the aircraft.

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SECTION 7

DESCRIPTION OF AIRPLANE & SYSTEMS

INDEX

7.1 GENERAL DESCRIPTION

Airframe

The RV-12iS is an all metal, two place, low wing, single engine fixed tricycle gear airplane designed to conform to the S-LSA category.

The fuselage is made of conventional formed sheet bulkheads, stringers and skin. (Semi-monocoque)
A major item of the fuselage is the center section bulkhead that support the loads of each wing spar and main landing gear.

The removeable constant chord wings are built around a main spar that connects to the center section bulkhead.
The empennage consists of a convetional fin, rudder and a stabilator/anti servo tab.

Flight Controls

The full span ailerons and flaps are combined into one unit called flaperons.
An internal machanical mixer allows the ailerons, via torque rods, to “droop” performinmg the function of flaps.
The stabilator and rudder are connected to the controls by pull-pull cables.
The trim tab is driven by a DC motor.

Flight Instruments

The RV-12iS instrument panel employs an electronic flight instrument system (EFIS)s display unit. All flight, navigation and engine parameters data are displayed in one screen with an optional second screen.

7.2 POWERPLANT SUMMARY

The RV-12iS is powered by a Rotax 912 iS fuel injected engine or Rotax 912 ULS carbureted series, four cylinder, horizontally opposed, air cooled (with liquid cooled cylinder heads), rated at 100 hp/73.5 kW @ 5,800 RPM. Power to the dual spark plugs is provided by two independent engine computer units for Rotax 912iS and two independent Electronic Ignition boxes for Rotax 912US. The Rotax 912 iS engine is furnished with a starter, two generators, and two external rectifier-regulators. The Rotax 912ULS engine is furnished with a starter, single generator and an external rectifier regulator.

The propeller is a Sensenich model 2A0R5R70E two blade or optional 3Y0R5 C70MY three blade, composite, fixed ground adjustable pitch with a 70 inch/177.8 cm diameter.

Engine Description

Make	Rotax 912 iS or Rotax 912ULS
Displacement	1352 cc
Ignition	Rotax 912ULS Ducati Double CDI Rotax 912iS Duel Computer Driven

Rated Horsepower
100 hp @ 5,800 RPM (5 minutes maximum)
95 hp @ 5,500 RPM (continuous)

Propeller

Make	Sensenich
Model	2AOR5R70E (2 Blade) 3Y0R5 C70MY (Optional 3 Blade)

Fuel

See Operating Limitations

Oil

See Aircraft Ground Handling and Servicing

7.2.1 ECO MODE AND POWER MODE

The Rotax 912 iS engine has two different modes: ECO mode and POWER mode. The mode in which the engine is currently operating is indicated on the EFIS.

The engine generates more power while in POWER mode but fuel consumption increases significantly.

POWER mode is engaged when the throttle position is advanced beyond approximately 97%.

The RV-12iS is equipped with an “eco stop” which allows the throttle position to be advanced up to approximately 97% (i.e. the upper limit of ECO mode). To use the “eco stop”, force the throttle lever to the left while advancing the throttle. The throttle’s advance will be stopped by the “eco stop”.

7.3 AIRCRAFT SPECIFICATIONS

Exterior Dimensions

Span	26 ft 9 in
Length	20 ft 7 in
Height	8 ft 4 in
Wing Area	127 ft^2

Weights

Empty Weight	775 lb (average)
Gross Weight	1320 lb

Loadings

Wing Loading	10.4 lb/ft^2
Power Loading	13.2 lb/hp

7.4 DIAGRAMS

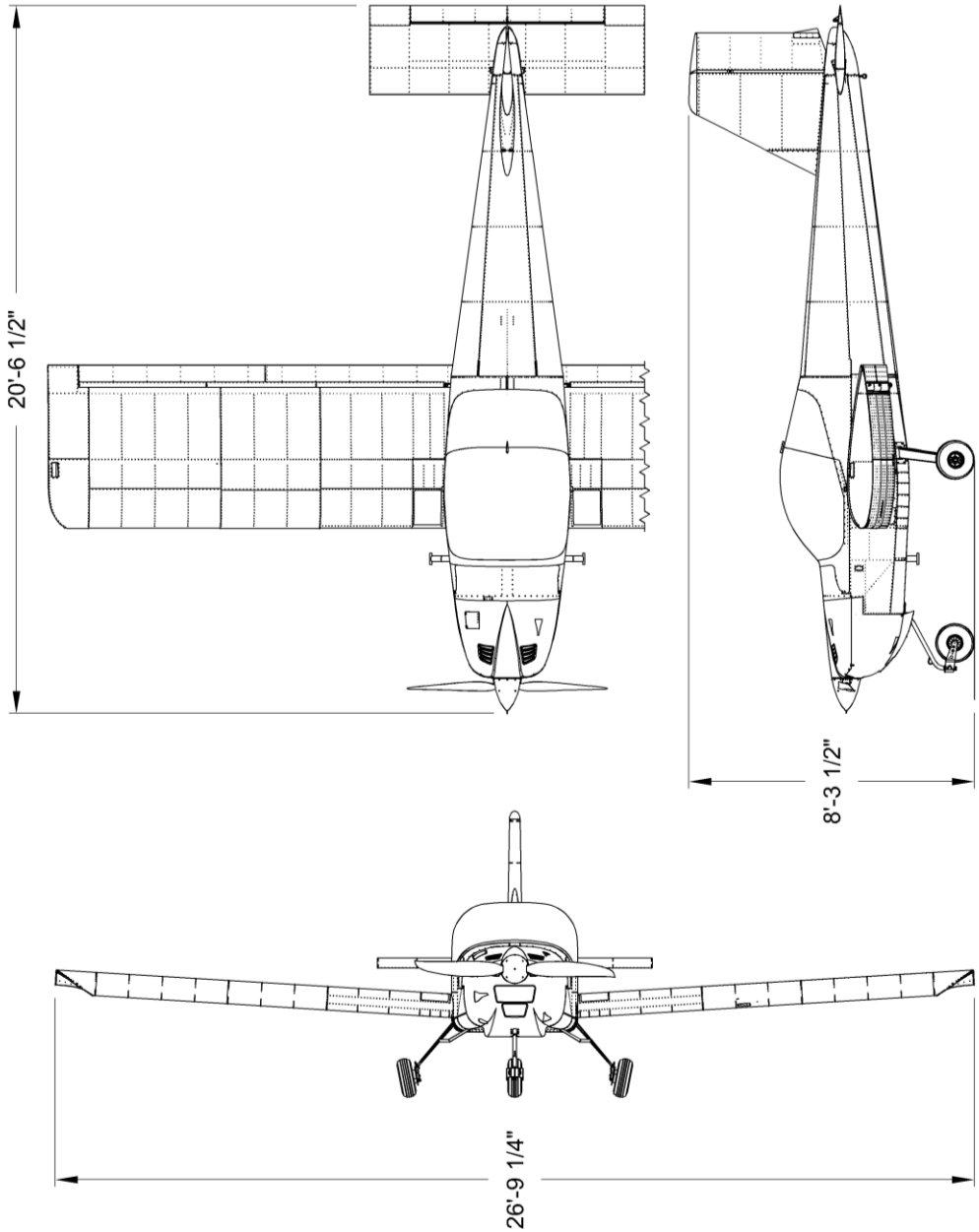

FIGURE 7-1 RV-12iS THREE VIEW

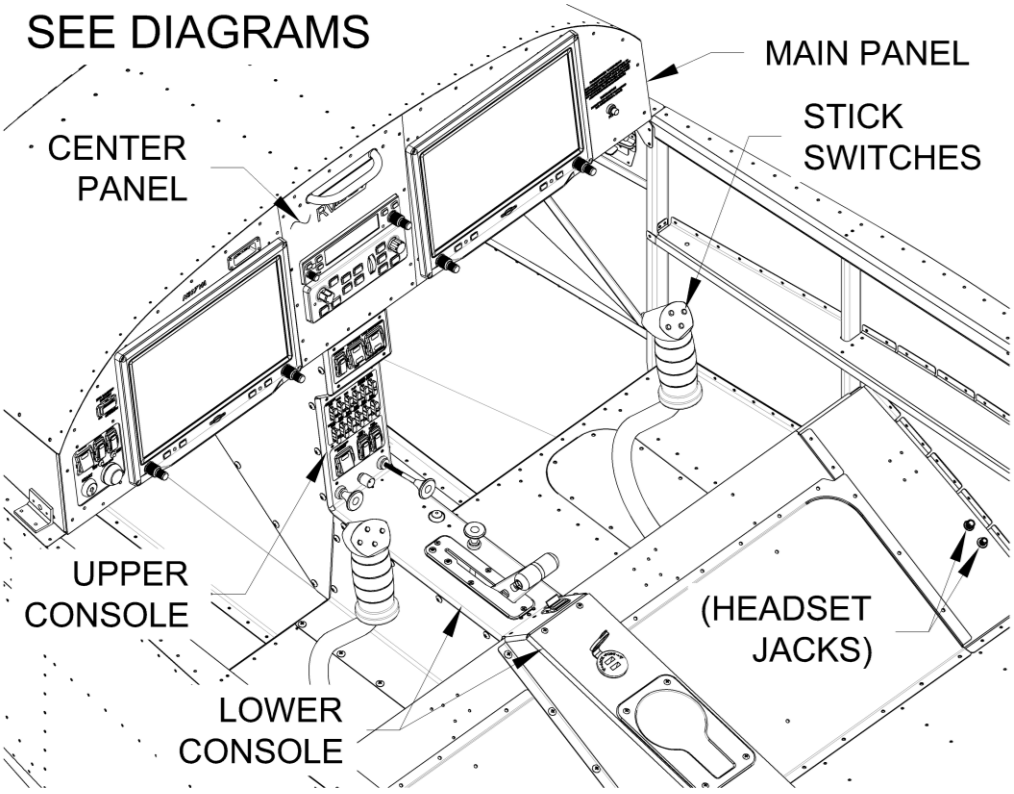

FIGURE 7-2 RV-12iS COCKPIT OVERVIEW

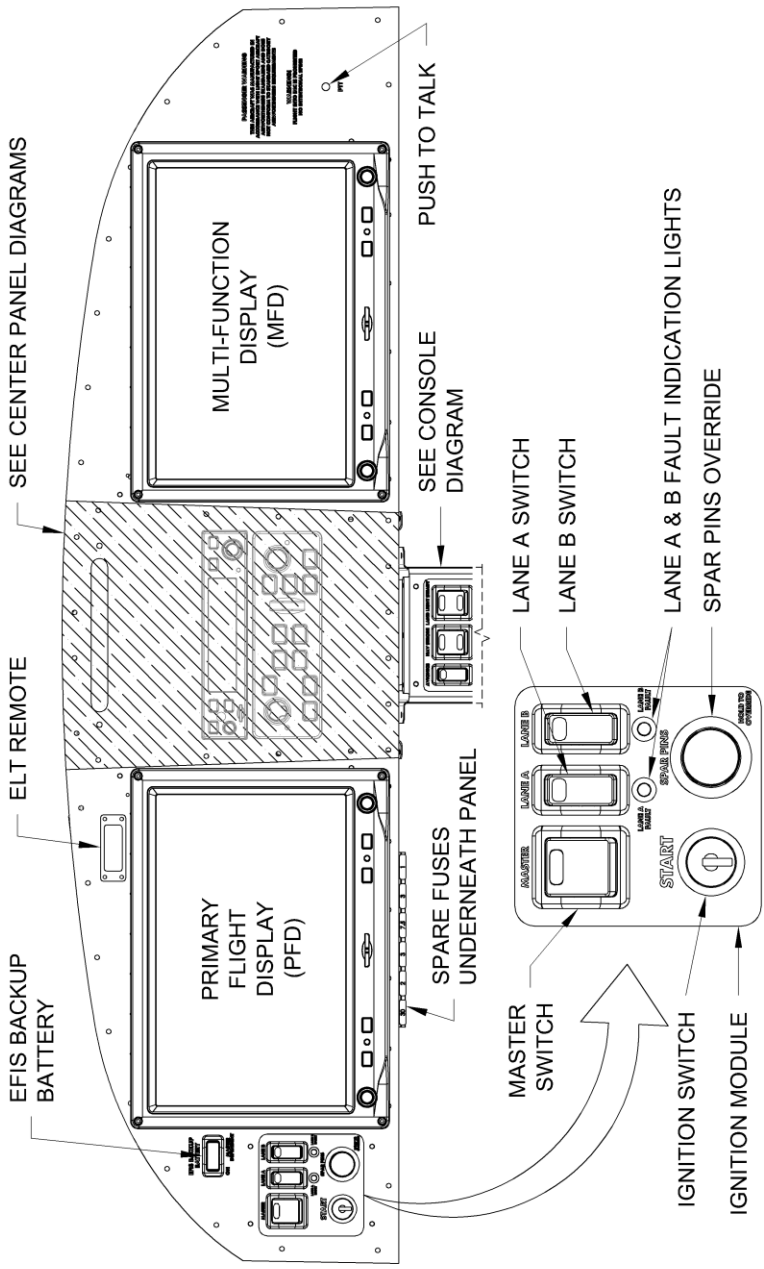

FIGURE 7-3 RV-12iS INSTRUMENT PANEL

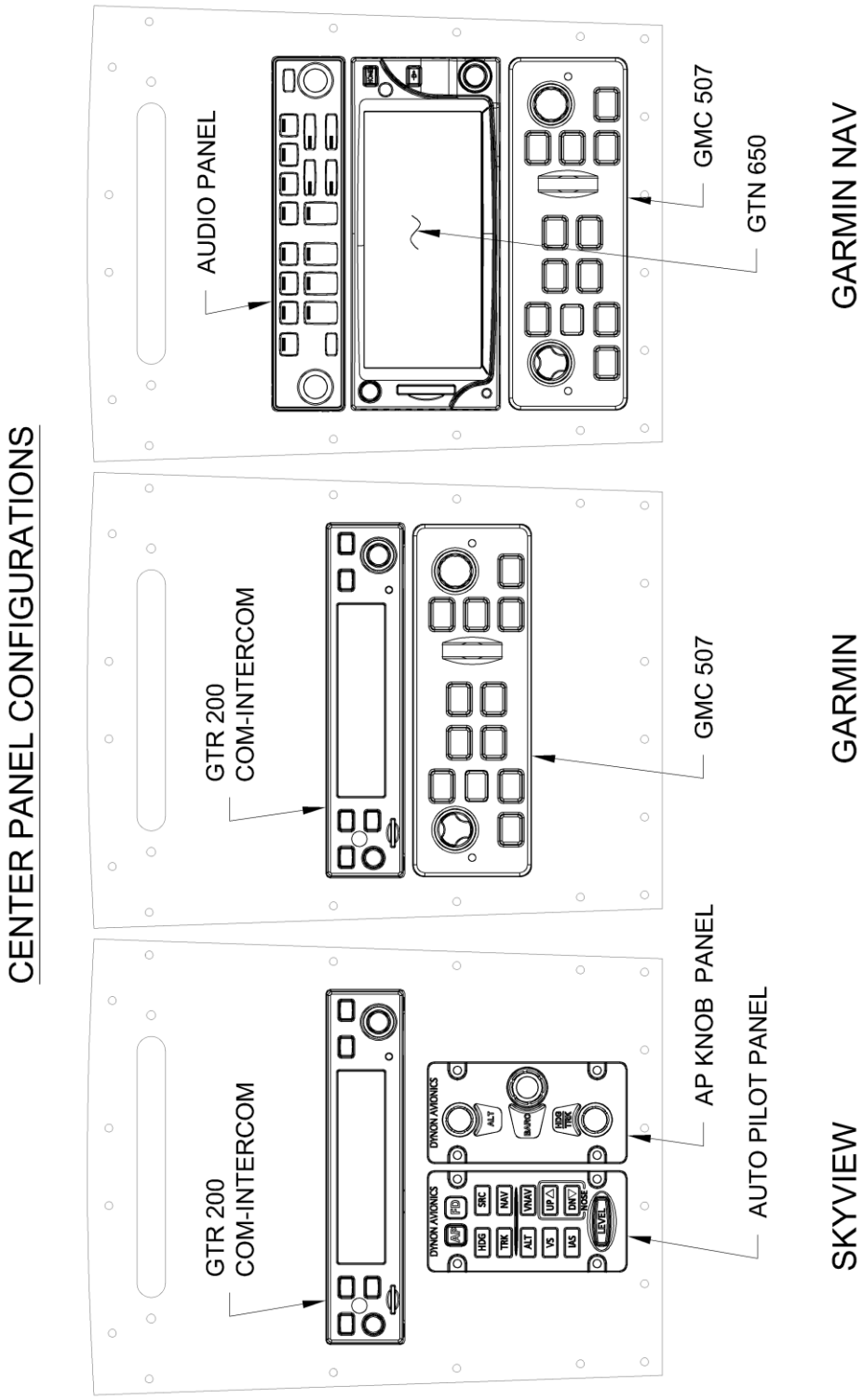

FIGURE 7-4 CENTER PANEL CONFIGURATIONS

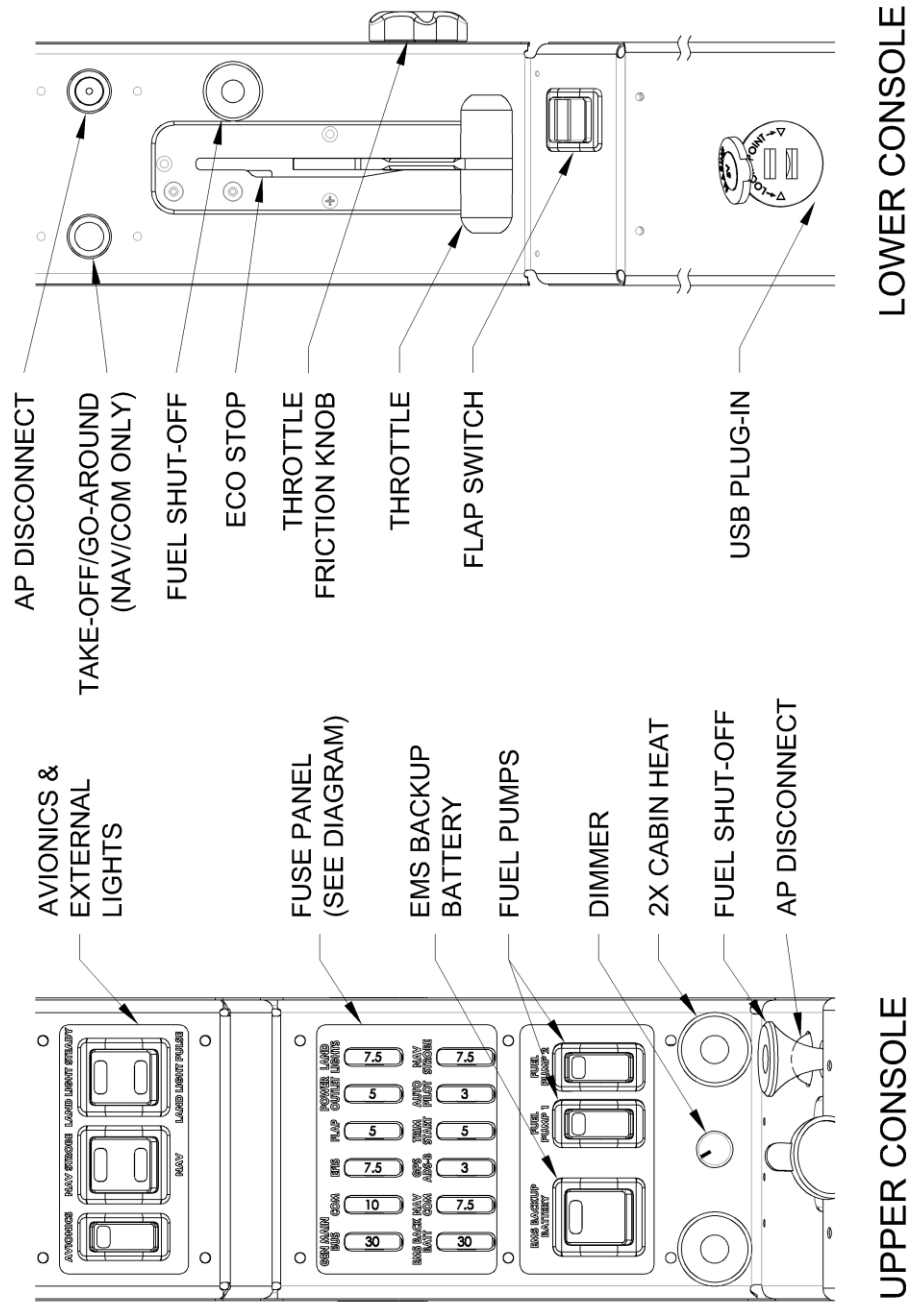

FIGURE 7-5 RV-12iS CONSOLES

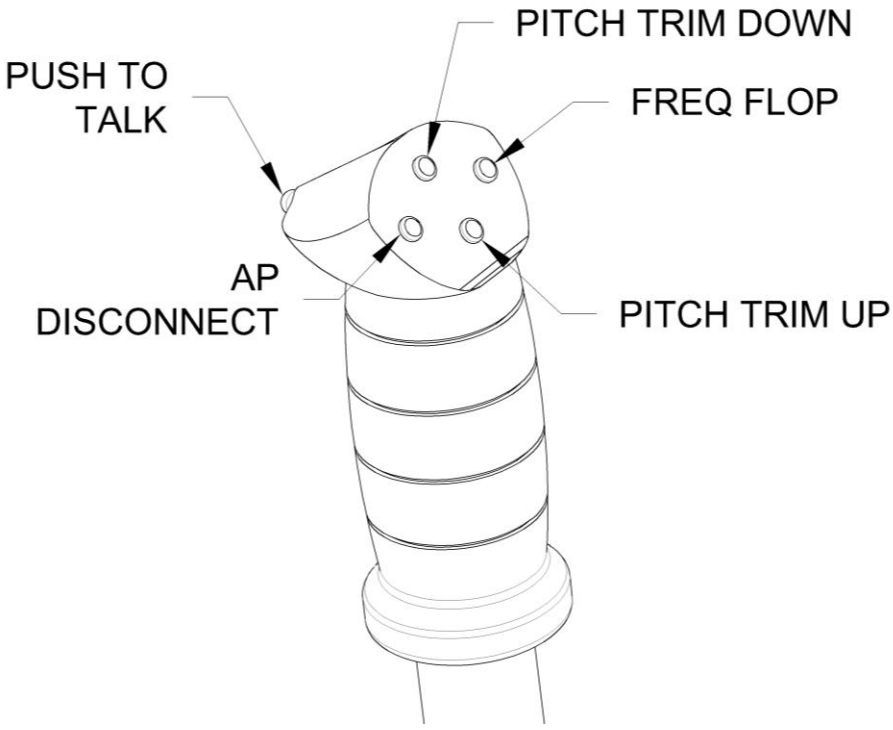

FIGURE 7-6 STICK SWITCHES

7.7 ELECTRICAL SYSTEM

7.7.1 SUMMARY

See Section VI of the FTS.

7.7.2 ROTAX 912 iS GENERATOR TRANSITION

After engine start, the Rotax 912iS generators will supply power to the engine computers but not the main bus. After the engine speed exceeds approximately 2,500 RPM for a few seconds the K1/K2 relay shown in Figure 7-7 will switch, Generator B will begin supplying power to the main bus and Generator A will supply power to the engine computers. This transition will be noted on the Gen Amp Meter (Shown on the EFIS screen)

7.7.3 FLAP SWITCH

The flap switch will latch for FLAPS UP but is momentary for FLAPS DOWN.

7.7.4 COCKPIT LIGHTING

Cockpit lighting will only turn on when the “NAV STROBE” switch is in the ON position.

7.7.5 ELECTRICAL SCHEMATICS

The following electrical schematics are a simplified overview of the electrical system provided to aid in basic operation and troubleshooting of the electrical system. A full schematic of the electrical system is available on the downloads page of the Van’s Aircraft website. Also see the Rotax 912 iS or Rotax 912 ULS installation and operation manuals.

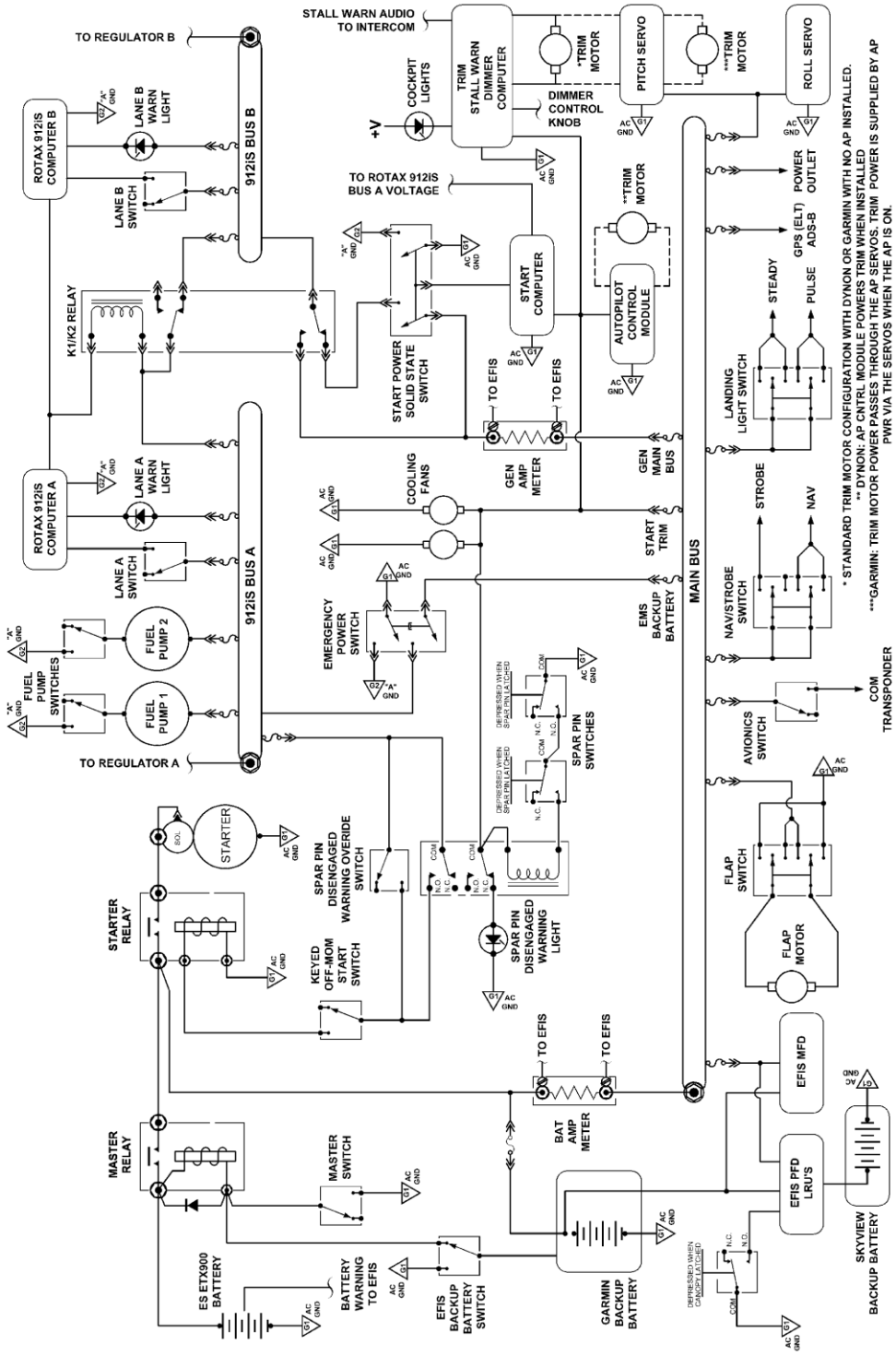

FIGURE 7-7 ROTAX 912 iS ELECTRICAL SYSTEM

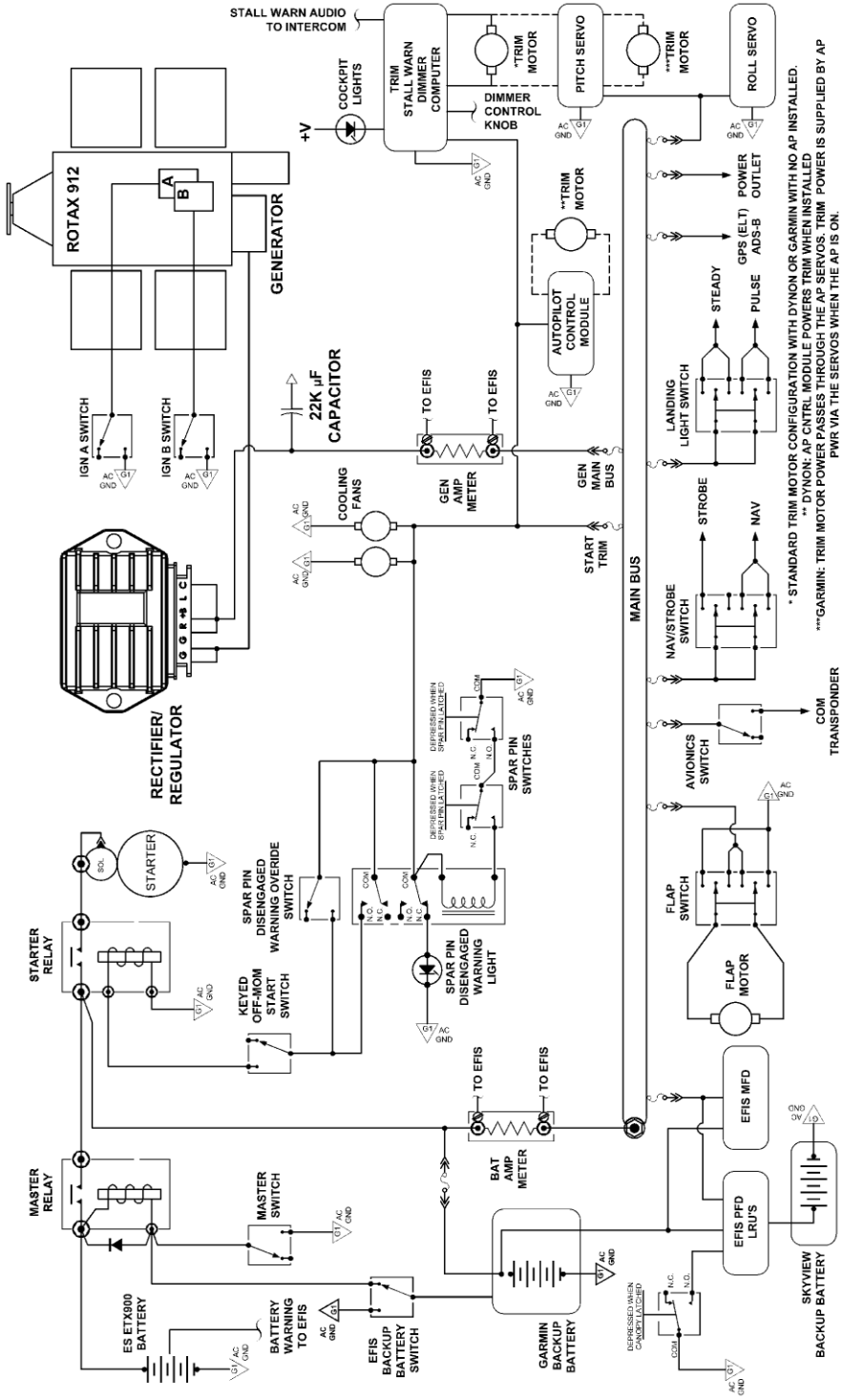

FIGURE 7-8 912 ULS ELECTRICAL SYSTEM

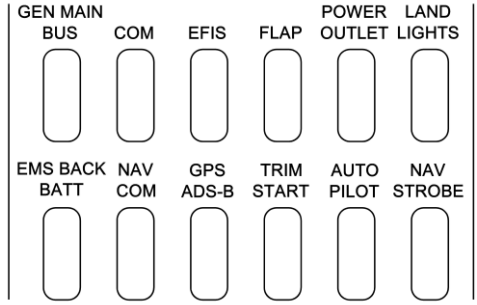

FIGURE 7-9 FUSE PANEL DIAGRAM - iS

CAUTION

Place Master Switch in the OFF position before replacing any fuse.

NOTE

Replacement fuses rated 3A or greater must be of the type that illuminate when blown. Spare fuses must be carried; one 2A, one 3A, two 5A, three 7.5A, one 10A and two 30A.

Circuit	Fuse Value
GEN MAIN BUS	30A
COM (GTR 200)	7.5A
COM (GTN 650Xi)	10A
EFIS (Single or Dual Screen)	7.5A
FLAP	5A
POWER OUTLET	5A
LAND LIGHT (Single)	5A
LAND LIGHT (Dual)	7.5A
EMS BACK BATT	30A
NAV COM (GTN 650Xi)	7.5A
GPS ADS-B	2A
TRIM START	5A
AUTO PILOT	3A
NAV STROBE	7.5A

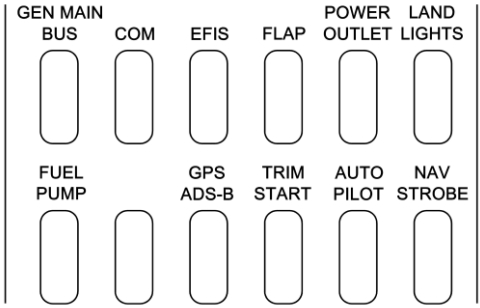

FIGURE 7-10 FUSE PANEL DIAGRAM - ULS

CAUTION

Place Master Switch in the OFF position before replacing any fuse.

NOTE

Replacement fuses rated 3A or greater must be of the type that illuminate when blown. Spare fuses must be carried; one 2A, one 3A, three 5A, two 7.5A, and one 30A.

Circuit	Fuse Value
GEN MAIN BUS	30A
COM (GTR 200)	7.5A
EFIS (Single or Dual Screen)	7.5A
FLAP	5A
POWER OUTLET	5A
LAND LIGHT (Single)	5A
LAND LIGHT (Dual)	7.5A
FUEL PUMP	5A
GPS ADS-B	2A
TRIM START	5A
AUTO PILOT	3A
NAV STROBE	7.5A

7.8 iS FUEL SYSTEM

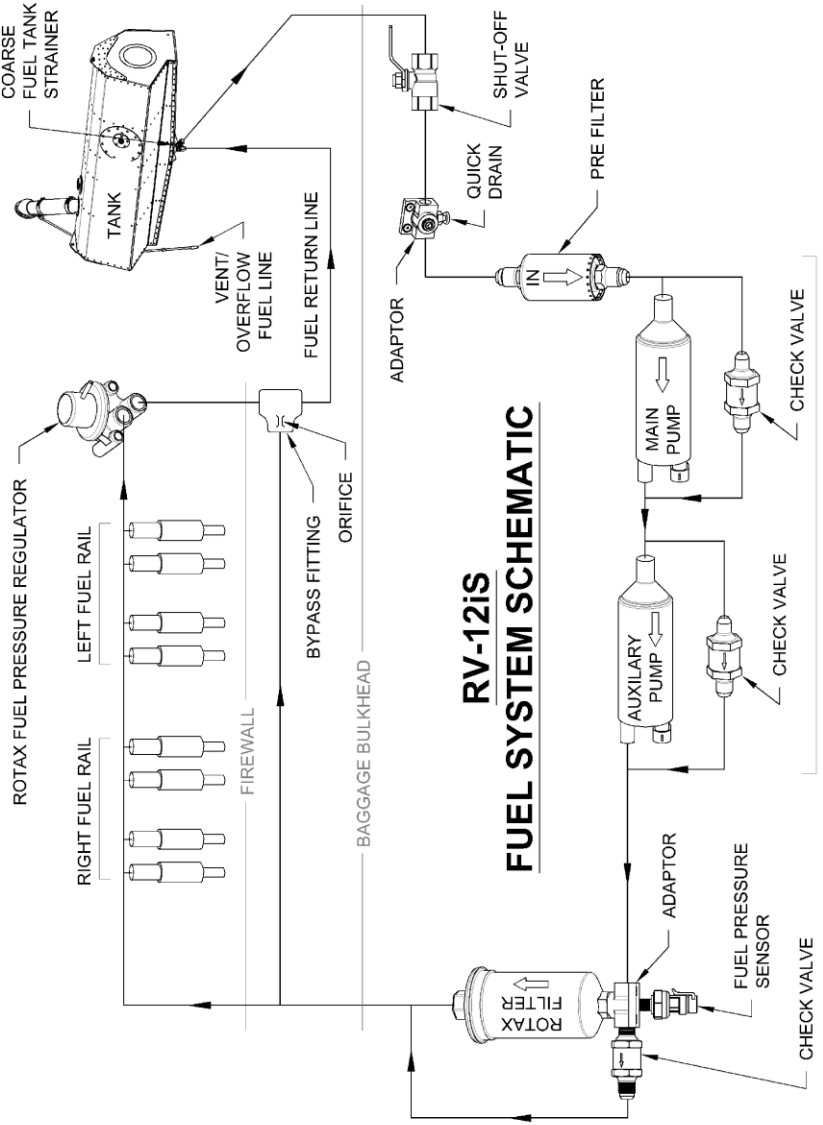

FIGURE 7-11 ROTAX 912iS FUEL SYSTEM

7.9 ULS FUEL SYSTEM

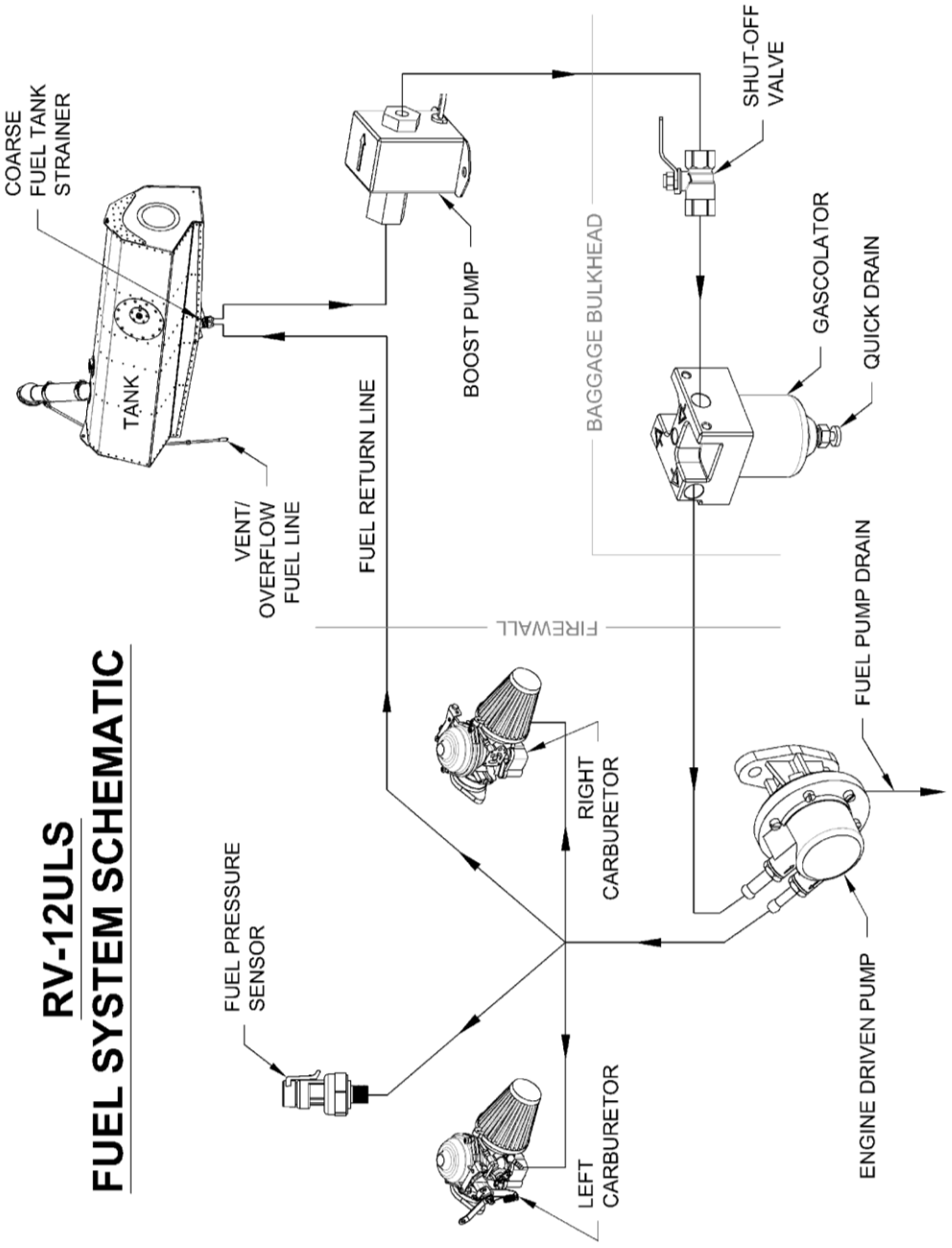

FIGURE 7-12 ROTAX 912 ULS FUEL SYSTEM

7.9 EMERGENCY EQUIPMENT

FIGURE 7-13 EXAMPLE EGRESS HAMMER LOCATION

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SECTION 8

HANDLING & SERVICING

INDEX

8.1 INTRODUCTION

This section contains factory recommended procedures for proper ground handling and routine service.

In addition, it details some specifications related to the maintenance requirements.

In order to retain the expected performance and dependability, your airplane should be maintained and inspected in accordance with the Engine and Airplane maintenance manuals and issued service bulletins.

8.2 TORQUES

TABLE 8-1 Rotax 912 iS

	ft-lb	in-lb	N-m
Oil Tank Drain Screw	18	221	25
Oil Filter	Hand Tighten		
Magnetic Plug	18	221	25
Water Pump Drain Screw	7	89	10
Spark Plugs 12 mm Thread / 16 mm Hex	15	177	20

TABLE 8-2 Rotax 912 ULS

	ft-lb	in-lb	N-m
Oil Tank Drain Screw	18	221	25
Oil Filter	Hand Tighten		
Magnetic Plug	18	221	25
Water Pump Drain Screw	7	89	10
Carburetor Socket Screws	11	133	15
Spark Plugs 12 mm Thread / 16 mm Hex	15	177	20

NOTE

Check that all values are current and in agreement with the Rotax Service Manual before using these tables as a reference.

8.3 FUEL

Octane Rating

NOTE
See 2.8 “Fuel Limitations”.

CAUTION
Too low an octane rating will cause pre-ignition and detonation, which can damage the piston ring grooves, skirt and crown. Fuel evaporates and quickly loses its octane rating by osmosis when it lies in a fuel tank or plastic jug. A premium fuel could see its octane rating drop to unusable levels after as little as three weeks. A lower octane rating would have an even shorter usable life.

WARNING
Use of poor quality fuel or winter blend fuels in hot conditions may result in vapor lock.

Aviation Fuels

Only use 100LL AVGAS in combination with proper engine oil. The oil will need to be changed more frequently, see the Rotax service manual.

NOTE
See 2.8 “Fuel Limitations”.

Fueling Procedure

- Plane stopped, engine and master power OFF
- Clamp ground line to exhaust pipe
- Remove filler cap, located right side fuselage aft of rear window
- Protect rear window from fuel spill

NOTE
20.2 US Gallons is a fuel level approximately at the seal between the fuel tank and the filler neck.

- Add fuel. (Max. 20.2 US gallons)
- Replace fuel cap
- Remove ground clamp
- Wipe away spillage, if any
- Fuel Pump (912 ULS Only) – ON 2 minutes
- (912iS Only) – Allow time for water and contaminants to settle out to the bottom of the tank and drain area.
- Fuel Sample – CHECK for water and contaminants.

8.4 OIL

Specifications

High quality 4-stroke motorcycle oil with gear additives and a “SF” or “SG” API classification.

Type

If running unleaded fuel use full-synthetic or semi-synthetic oils.

If running 100LL AVGAS more than 30% of the time, use mineral or semi-synthetic oils.

Viscosity

Use Chart to determine the viscosity.

Oil Types to Avoid

- Oils with friction modifier additives “anti-friction”, will cause the slipper clutch to slip
- Oils for “conventional” aircraft engines
- Oils designed for diesel engines with insufficient high temp properties and additives

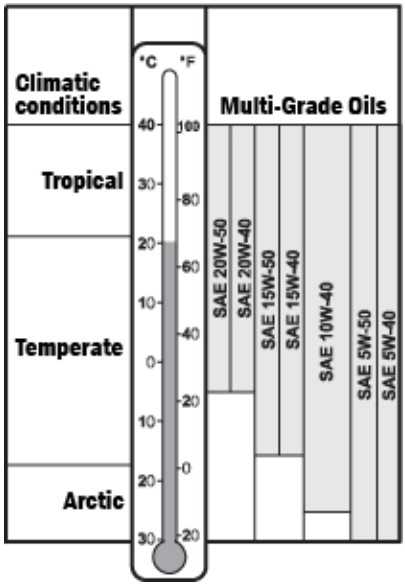

FIGURE 8-1
VISCOSITY

Oil Filter

Tempest part number 825706 (iS/ULS)
Rotax part number 825016 (iS/ULS)

8.5 COOLANT

Type

50% long life antifreeze concentrate without sulfates and phosphates, with anticorrosion additives designed for aluminum mixed with 50% distilled or de-mineralized water.

8.6 SPARK PLUGS

912ULS

Type	Socket	Electrode Gap
NGK DCPR8E	16mm	.6-.7 mm/.023-.027 in

912iS

Type	Socket	Electrode Gap
NGK DCPR8E	16 mm	.8-.9 mm/.031-.035 in

8.7 TIRES & TUBES

All three tires are 5.00 x 5 size and either 4 ply load rating or 6 ply load rating tires are acceptable.

Inflation Pressure:
Nose Tire: 22 psi (optimum)/23 psi (maximum)
Main Tires: 25 psi (optimum)/28 psi (maximum)

8.8 WING REMOVAL/INSTALLATION

Removal and installation of the wings requires two people, one to hold the wing at the tip end and the second person to hold the stub end of the wing. The person handling the tip end of the wing must hold the flaperon approximately in trail as it will tend to flip around and possibly become damaged when disengaged from the fuselage.

Removal

1. Withdraw each of the fuselage pins only enough to release the right wing spar.
2. Remove the right wing assembly and set aside.
3. Remove both of the fuselage pins.
4. Remove the left wing and set aside.

Installation

Installation procedure is reverse of the removal procedure

8.9 TOWING

Towing is done with the collapsible rudder lock/tow bar connected to the nose wheel.

8.10 TIE DOWN

If possible orient the aircraft such that the nose is facing into the wind. With the flaps retracted, tie down the wings first with ropes/chains pulling outward and slightly forward from the wing tie-down points. With the wings secured, pull the aircraft backward to remove slack from the ropes/chains on the wings then attach the tie-down rope/chain to the tail tie-down point.

The RV-12iS has 4 tie down points. The tail of the airplane has a Bolt eye TD 3/8-16 which can be used to tie-down the airplane to the ground. Also on each wing, a Bolt eye TD 3/8-16 tie down can be installed using the pre-threaded hard points.

The nose strut can also provide a tie down using the eyelet above the wheel fairing. The flaperons and stabilator controls are secured by fastening the pilot side lap belt around the stick.

The rudder is secured by installing the collapsible tow bar/rudder lock.

8.11 CLEANING & CARE

Clean windshield surfaces only with plastic compatible cleaner designed specifically for airplane windshields.

It is also important to rub the surface gently straight up and down. Using circular wiping motion may create a permanent halo in the windshield. Remove dirt and insects from painted surfaces with water alone and if necessary with a mild detergent or automotive paint cleaner. Remove oil stains, exhaust stains and grime on the lower fuselage skin with a cold detergent.

SECTION 9

SUPPLEMENTS

See the Flight Training Supplement

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