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SLICK 360 AEROBATIC AIRCRAFT: PILOT'S OPERATING HANDBOOK

NOTE: This handbook is not intended to serve as a substitute for adequate and competent flight instruction, or knowledge of current airworthiness directives, or the applicable airworthiness requirements of your aviation authority. It is not intended to be a guide for basic flight instruction, nor a training manual.

This manual is designed to:

- **help you operate your SLICK-360 aircraft with safety and confidence, and**
- **more fully acquaint you with the basic aircraft performance and handling characteristics.**

Additional copies of this manual, document no SLK-POH-01, can be obtained from your SLICK Aircraft Dealer.

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SLICK-360 PILOT'S OPERATING MANUAL

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SECTION I

GENERAL INFORMATION

SUMMARY

The SLICK-360 is approved for all aerobatic maneuvers.

During take-off, flight and landing the aircraft reacts as any other aerobatic approved tail-dragger. The aircraft reacts normally during stalling and spinning.

Only pilots with sufficient experience on tail-draggers should fly the SLICK-360.

The airplane has to be handled with special care on the ground, taking the highly specialised construction materials into account.

The aircraft is designed to resist very high g- forces. It has to be recognised that the full use of this capacity may exceed the physical loading capability of the pilot, as this depends on the individual's constitution. Special care has therefore to be taken during flights with high g-forces.

WEIGHTS

Maximum take-off mass, cruising flight (kg/lbs)	645 / 1420
Maximum take-off mass, aerobatics (kg/lbs)	580 / 1275
Empty mass (standard, kg/lbs)	450 / 990

POWER PLANT

Engine (Lycoming)	AEIO-360-A1B6
Rated Horsepower	230
Rated Speed (rpm)	2700
Propeller (3-blade, constant speed)	MTV-9

FUEL

Fuel Capacity (Main tank, US gal)	14.5
Wing tanks (US gal)	16
Fuel Aviation Grade (Min. Octane)	100 LL
Oil capacity during cruise (qts)	Min 6, max 8
Oil Capacity during aerobatics (qts.)	Min 5, max 6

BAGGAGE

Maximum Baggage (lbs)	45
Baggage Space (cubic ft.)	6

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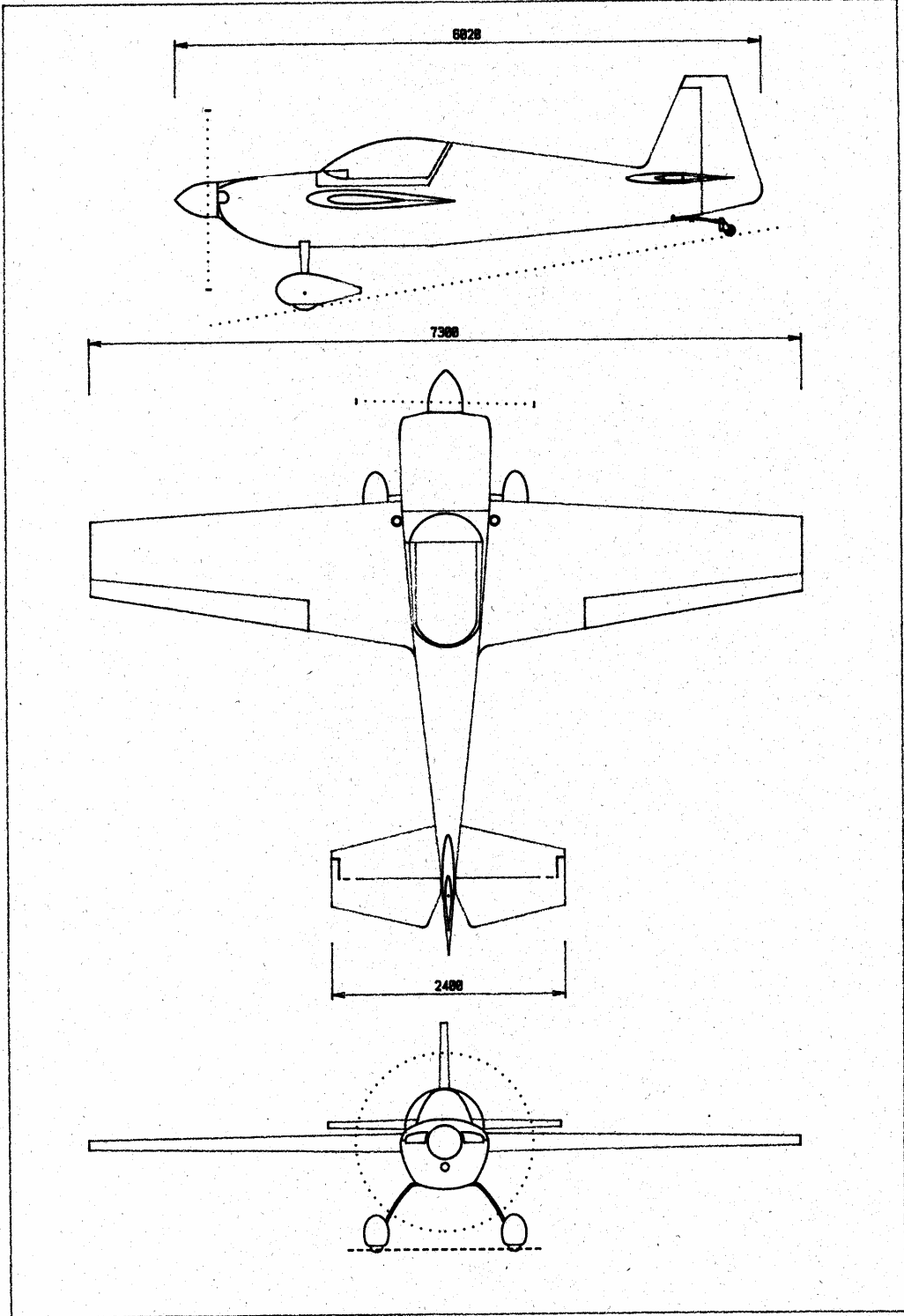
DIMENSIONS

Wing Span (ft)	24.0
Wing Area (sq ft)	93.5
Length (ft)	19.5
Height (at prop, ft)	7.1
Wing Loading (aerobatic maximum, lbs per sq ft)	13.0
Power Loading (aerobatic maximum, lbs per hp)	5.1
Propeller Diameter (in)	78
Control deflections:	All controls 30 deg. Symmetrical

LANDING GEAR

Wheel Base (ft)	14.3
Wheel Track (ft)	4.6
Tire Pressure (psi)	42
Tire Size Main (four ply rating)	500 x 5
Tailwheel, castoring, lockable	3" dia

SLICK-360 AIRCRAFT BASIC LAY-OUT



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SECTION 2

OPERATING LIMITS

Airspeed limitations: mph

Normal flight range (green)	$V_S = 57$ to $V_A = 185$
Caution range (yellow)	$V_A = 185$ to $V_{NE} = 250$
Maximum speed (red line)	$V_{NE} = 250$

Recommended entry speeds for approved maneuvers:

Loop:	positive	above 120
	negative	above 120
Roll:		above 95
Snap roll:	positive	max. 125, ideal 115
	negative	max. 125, ideal 115

Max. engine power: 240 hp

Max. engine RPM : 2700 RPM

Recommended maximum engine RPM in training: 2600 RPM

Normal cruise: 2400 RPM / 20 -22 MP / Peak + 2 lines rich
(approx 165 mph and approx 8.5 US gph)

Long range: 2200 RPM / 20 -22 MP / Peak + 1 line rich
(approx 160 mph and approx 7.8 US gph)

Min. fuel octane: 100 octane

Oil pressure: Minimum (red fine) 25 psi
Normal (green arc) 60-90 psi
Maximum (red fine) 100 psi

Oil temperature: Normal (green) from 100°F (38°C) to 240°F (115°C)

Fuel pressure: Normal (green) from 0 psi to 12 psi.

Maximum take-off weight: aerobatic = 580 kg, cruise = 645 kg

Maximum fuel capacity: 30.5 US gal
main tank + header = 14.5 US gal
Wing tanks 8 US gal each

Maximum load factors: positive 10 g, negative -10 g
Operation only during daylight and VFR conditions.

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No flights into known icing conditions are permitted.

During aerobatics no baggage is permitted and it is recommended to fly aerobatics without the baggage compartment fitted.

Do not fly more than 10 sec. in the following attitudes:

1. Vertical flight, steep dive.
2. Inverted flight, steep dive.
3. Zero g maneuver.
4. Wing-down or knife-edge flights.

In these modes the oil system will not scavenge and engine damage can occur. (Lycoming recommendation).

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SECTION 3

EMERGENCY PROCEDURES

Engine failure after take-off

- | | |
|-----------------------------|---------------------------------|
| 1. Glide straight ahead | 70 mph IAS |
| 2. Fuel selector | Main tank |
| 3. Mixture | Rich |
| 4. Prop Control | Low RPM |
| If engine does not restart: | Fuel pump ON. |
| If engine does not restart: | Proceed landing with power off. |

Landing with power off

- | | |
|-----------------------|--------------------|
| 1. Glide (best angle) | 90 mph |
| 2. Fuel selector | Off |
| 3. Ignition | Off |
| 4. Mixture | Lean |
| 5. Landing | Level off normally |

Landing in woods, corn or water

- | | |
|-----------------------|--|
| 1. Glide (best angle) | 90 mph |
| 2. Fuel selector | Off |
| 3. Ignition | Off |
| 4. Mixture | Lean |
| 5. Landing | Take surface of obstacle as landing surface and touch down with minimal speed. |

Bail out with parachute

- | | |
|--|----------------|
| 1. Headset | Disconnect |
| 2. Canopy | Open and eject |
| 3. Seatbelts | Open |
| 4. Stand up on the seat and push stick forwards with one foot. | |
| 5. Open parachute when free from airplane. | |

Loss of elevator control steer with pitch trim (if fitted)

Loss of aileron control steer with rudder, only flat curves.

Loss of rudder control steer with aileron, hold direction with brakes after touch-down.

In all cases described above you should select a long and wide landing area and the throttle should be handled very carefully. Flare out carefully and touch down at a flat angle.

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If a hard landing can not be avoided:

- Fuel selector off
- Ignition off

After a hard landing disembark quickly and stay away from the aircraft until the possibility of fire has diminished.

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SECTION 4

NORMAL OPERATING PROCEDURES

Preflight Check

1. Check aircraft logbooks
2. Check g meter reading in aircraft to ensure it was not overstressed.
3. Check circuit breakers pulled and avionics OFF
4. Remove baggage compartment (if fitted) prior to aerobatic flight
5. Look in rear fuselage to ensure foreign objects are removed
6. Check battery clamps
7. Check controls for free and easy movement, correct sense, no slack
8. Check main wheels and tires for inflation and excess wear
9. Check tail wheel, lock mechanism and tracking when locked
10. Check oil level (do not over tighten cap) and fuel level (ensure proper locking of cap)
11. Check propeller for nicks
12. Check integrity and tension of flying wires (audible twang)
13. Remove engine inlet and pitot covers
14. Check if aircraft is clean and polished, especially canopy
15. Remove wheel chocks

Embarking

1. Put parachute on before entering cockpit
2. Look aft to ensure free control movements (baggage compartment removed)
3. Prepare harness
4. Prepare cockpit: Sequence chart, g meter, maps, headset (should not have bare metal on top to prevent scratching canopy), keys
5. Clean shoes, (at least shake off dust)
6. If possible, avoid standing on the wing – stand only on spar areas
7. Push in circuit breakers, avionics OFF
8. Pull harness tight, but shoulder harness only lightly (the torso must not be compressed in negative maneuvers, but allowed to move freely)
9. Check all flight controls to full and free travel

Starting engine (same for cold and warm start):

- | | | |
|----|----------------|------------------|
| 1. | Fuel selector: | Main tank |
| 2. | Mixture: | Rich |
| 3. | Purge valve | Open |
| 4. | Throttle | 1 cm open |
| 5. | Fuel pump | ON to prime, OFF |

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- | | | |
|-----|-------------------|--|
| 6. | Mixture | Lean |
| 7. | Turn key to start | |
| 8. | Mixture | Move slowly and smoothly to rich, as soon as the engine fires. |
| 9. | Oil pressure | Check increasing reading |
| 10. | Idling | 1000 -1200 RPM (max. 2000 RPM on ground) |
| 11. | Tailwheel | Unlocked for taxiing |

Engine check To be performed before first flight of every half day.

- | | | |
|----|------------------------|--|
| 1. | All engine instruments | Green, normal |
| 2. | Mixture | Rich |
| 3. | Prop. Control | High RPM |
| 4. | Throttle | 1800 RPM |
| 5. | Magneto check | Max. drop 175 RPM
Max. difference 100 RPM |
| 6. | Ignition | Both |
| 7. | Prop. Control | Pull 3 times |
| 8. | RPM drop | Max. 300 RPM |
| 9. | Prop control | Set to high RPM |

Check for take-off

- | | | |
|----|------------------------|---------------------|
| 1. | All engine instruments | Green, normal |
| 2. | All flight instruments | Set and checked |
| 3. | Trim | Neutral |
| 4. | Controls | Free and clear |
| 5. | Tailwheel | Locked for take-off |

Take-off

- | | | |
|----|--------------|-----------------------|
| 1. | Climb | Minimum 95 mph |
| 2. | Throttle | 25" manifold pressure |
| 3. | Prop control | 2500 RPM |

Aerobatics

1. No loose articles in aircraft
2. Check harness tight when comfortably seated (shoulder harness not over tightened)
3. Check cockpit from left to right, in particular:
 - Oil pressure steady (no deviation for 15 sec during pitch from positive to negative or reversed)
 - Fuel quantity (maximum 10 US gal for aerobatics)
 - G meter reset (check audio warning if fitted)

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4. Correct power setting:
For training, maximum 2600 RPM / MP variable / Mixture full rich
For competition, Max 2700 RPM, MP variable / Mixture full rich
5. Check for free airspace (announce intentions on relevant frequency)
6. Check for sufficient altitude

Landing

- | | | |
|----|----------------|--|
| 1. | Tailwheel | Locked |
| 2. | Mixture | Rich |
| 3. | Prop control | High RPM |
| 4. | Final approach | 90 – 95 mph IAS (touch down approx 78 mph) |
| 5. | Touch down | 3-point |

Touch down speed is slightly higher than the minimum speed as the landing gear does not allow maximum angle of attack.

The demonstrated crosswind component is maximum 20kts (10 m/s)

Landing distance over a 15 m obstacle with no wind at MSL is minimum 180m.

Ground roll distance is minimum 80 m. (Min runway length 395 m)

Engine shut-off

- | | | |
|----|-------------|------|
| 1. | Avionics | Off |
| 2. | Mixture | Lean |
| 3. | Purge valve | Shut |
| 4. | Ignition | Off |

Disembarking

1. Open harness all the way (the next pilot will be gratefull!)
2. Check avionics Off and pull circuit breakers
3. Note "g"-meter readings (do not reset) and Hobbs meter reading for flight folo
4. Disembark with parachute – avoid standing on wing other than on spar areas
5. Remove losse articles and personal equipment (headset, sequence chart, maps etc)
6. Take parachute off after disembarking

Post flight Checks

1. Leave the aircraft clean (incl cockpit)
2. Visually inspect aircraft
3. When possible hangar the aircraft and place chocks
4. Replace engine inlet and pitot covers and place oil drip tray

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5. Visually check cockpit (fuel log and keys remain in cockpit)
6. Check circuit breakers pulled and avionics Off
7. Visually check for loose items in cockpit and aft fuselage
8. Complete flight folio (incl "g"-meter readings, Hobbs reading, fuel and oil levels)

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SECTION 5

PERFORMANCE

Performance figures are for the standard SLICK-360 airplanes flown at gross weight under standard conditions at sea level or stated altitude. All landing and take-off distances are for dry level paved runways.

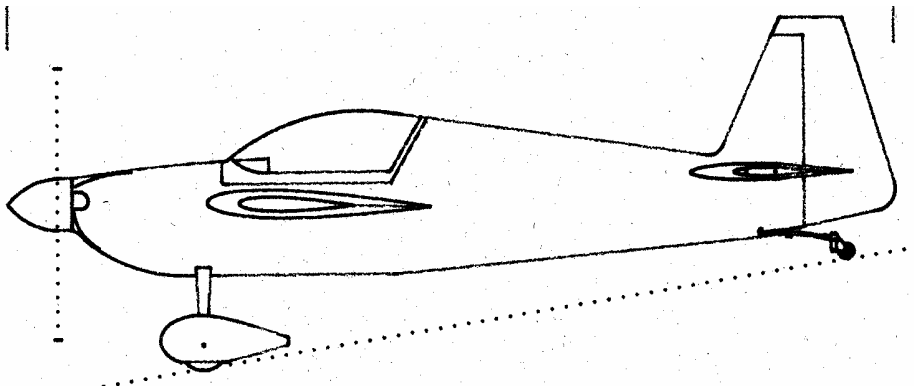
Take-off Ground Run (ft)	300
Take-off over 50 ft barrier (ft)	400
Best Rate of Climb Speed (mph IAS)	86
Best Rate of Climb (ft per min)	2000
Service Ceiling (ft)	19,500
Maximum level speed (mph IAS)	210
Maximum dive speed (mph IAS)	250
Cruising Speed (75% power at sea level) (mph IAS)	165
Stalling Speed (mph IAS)	57
Landing Ground Roll (ft)	350
Landing Distance over 50 ft barrier (ft)	550
Fuel Consumption (2700 rpm 100% power, US gph)	12.5
Fuel Consumption (2400 rpm 75% power, US gph)	8.5
Cruising Range (75% power at 6300 ft, stat miles)	495

SECTION 6

MASS, CENTRE OF GRAVITY LIMITATIONS AND PAYLOAD

Weighing procedure

The aircraft is to be weighed using the procedure described below at least every 5 years or whenever changes are made which may affect its mass and balance.



Procedure:

1. Weighing should be done in a closed hangar to eliminate wind effects.
2. Check that all the equipment as per Section 7: Equipment List is fitted in the aircraft.
3. Level the aircraft by raising the tail wheel until the cockpit sill is horizontal (use a spirit level).
4. Drain all fuel from the main and wing tanks, and check the oil level in the engine.
5. The vertical datum plane is the aircraft firewall, positive distances measured aft of the firewall.
6. Determine the axial distance of each main wheel and the tail wheel from the datum (firewall) and enter values in the table (Appendix A).
7. Determine the weight (mass reading) on the scale under each main wheel and the tail wheel and enter the values in the table.
8. Calculate the total empty equipped mass by adding the three scale readings.
9. Calculate the empty CG position in mm aft of datum by dividing the total moment (kg.mm) by the total weight (kg)

Centre of Gravity location

The acceptable empty CG range is from 275 to 425 mm aft of datum.

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SECTION 7

EQUIPMENT

The following equipment is standard on the aircraft and is taken into account in the empty mass and balance data of section 6 above:

EQUIPMENT	MASS (kg)	DISTANCE FROM DATUM (mm)
Altimeter		
Air speed indicator		
Engine RPM		
3-in-1 engine instrument		
G-meter		
Magnetic compass		
VHF radio		
5-point harness		