

**Challenger Light Sport Models
Features & Contents**

**E SERIES
Challenger Light Sport EL-65**

**X SERIES
Challenger Light Sport XL-65**

	E SERIES	X SERIES
	Challenger Light Sport EL-65	Challenger Light Sport XL-65
Two-Seat Tandem Fuselage Length Overall	New Light Sport Design 20 ft	New Light Sport Design 20 ft
Full Dual Controls - Front & Rear - Sticks, Rudders, Throttles	Included	Included
HL-100 Heavy Load Saddle Kit	Included	Included
Strengthened Attachment of Lift Struts to Main Longerons	Included	Included
Eliminate Flexing on Very Rough Surfaces	Included	Included
Heavy Duty Main Gear Load Carry Through Structure Fuselage Beefed Up Substantially	Special Order Upgrade Special Order Upgrade	Included Included
Main Landing Gear - E Series		
2024-T3 1.50" x .120" Aluminum Tube, 6" Chromoly Steel Inserts	Included	n/a
External Support Cables for Load Distribution	Included	n/a
Main Landing Gear - X Series		
Heavy Duty 7075-T651 1.25" Solid Aluminum Rod	Special Order Upgrade	Included
No Cables + Light Sport Fairings = Reduced Drag	Special Order Upgrade	Included
Main Landing Gear Leg Fairings for Speed & Looks		
Light Sport Style	Special Order Upgrade	Included
Classic Style	Included	n/a
Brakes - Stopping Power & Ground Control		
Hegar Hydraulic Discs	Special Order Option	Included
Cable Actuated, Floating Drum	Included	n/a
Oversize 6" Nose Fork for Rough Ground	Included	Included
Oversized 13x5.00-6 Aluminum Nose & Main Wheels		
Upgraded Hegar Wheels	Special Order Option	Included
Classic Azusa Wheels	Included	n/a
Oversize 13x5.00-6 Nose & Main Tires for Rough Ground	Included	Included
Oversize Fiberglass Wheel Pants to Reduce Drag	Special Order Option	Included
Low Pressure 18x8.00-6 Tundra Tires for Main Wheels	Special Order Option	No Charge Choice

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Fairings for Speed & Looks

- Fiberglass Nose Cone
- Fiberglass Midwing Gap Cover
- Main Lift Strut Fairings
- Wing Jury Strut Fairings
- Tail Stab Strut Fairings

- Included
- New 2 pc 582 version Included
- Included
- Special Order Option
- Special Order Option

- Included
- New 2 pc 582 version Included
- Included
- Included
- Included

Light Sport Cabin Dimensions

- Cabin Width (Per Person) (Cessna 172 is 39.5 for Two!)
- Head Room (Std Seats) Front / Back
- Leg Room (Std Seats) Front / Back

- Maximized
- 32 in
- 43 in / 40 in
- 46 in / 44 in

- Maximized
- 32 in
- 43 in / 40 in
- 46 in / 44 in

Light Sport Easy Entry Cabin

- Wider Opening for Pilot Ingress/Egress
- Lower Rear Siderails for Passenger Entry
- Wraparound Windshield
- Fully Enclosed Cabin
- Removeable Doors
- Choice of Tinted or Clear Lexan
- Shoulder Harnesses - Front & Rear
- Hinged Windscreen for Ultimate Easy Entry

- Included
- Included
- Included
- Included
- Included
- Included
- Included
- Included
- Special Order Option

- Included
- Included
- Included
- Included
- Included
- Included
- Included
- Included
- Special Order Option

Light Sport Prefabricated Instrument Panel

- Precut & Predrilled via CNC
- Mounting Hardware with Vibration Dampeners
- Accommodates Wide Range of Instruments
- Choice of Analogue or EIS Versions
- Ergonomic Design to Increase Legroom

- Special Order Option
- Special Order Option
- Special Order Option
- Special Order Option
- Special Order Option
- Special Order Option

- Optional Instrument Package
- Optional Instrument Package
- Optional Instrument Package
- Optional Instrument Package
- Optional Instrument Package
- Optional Instrument Package

Instrument Package Contents

- Air Speed Indicator, Altimeter, Compass
- Tachometer, Coolant Temp, Dual Exhaust Gas Temp
- Dual Fuel Gauge+Senders
- Slip Indicator

- Optional Instrument Package
- Optional Instrument Package
- Available Single Gauge+Sender
- Special Order Option

- Optional Instrument Package
- Optional Instrument Package
- Optional Instrument Package
- Optional Instrument Package

Aircraft Style Ignition Switch (Off/Left/Right/Both/Start)

- Special Order Option

- Optional Instrument Package

Instrument Panel Wiring Bundle
Engine Wiring Bundle

- Special Order Option
- Special Order Option

- Optional Instrument Package
- Optional Instrument Package

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Large Wing = More Lift = Less Horsepower Required

Wing Span
Wing Chord
Wing Area
Wing Loading

Classic Design
31.5 ft (Std) / 29.5 ft (Opt)
5.625 ft
177 sq ft (Std) / 166 sq ft (Opt)
5.4 lbs sq ft (Std) / 5.8 lbs sq ft (Opt)

New X Series Design
29.5 ft Long Wing
5.625 ft
166 sq ft
6.4 lbs sq ft

X Series Wing Design for Increased Lift, Speed, Strength

Airfoil Camber Increased & Straight Leading Edge
Light Weight Leading Edge Channel Wrap
Flush Gussets on Leading & Trailing Edges
Bottom Ribs & Rib Channels
Greatly Increased Stiffness
Improved Roll Responsiveness

Special Order Upgrade
Special Order Upgrade
Special Order Upgrade
Special Order Upgrade
Special Order Upgrade
Special Order Upgrade
Special Order Upgrade

Included
Included
Included
Included
Included
Included
Included

Fiberglass Hoerner Wingtips

Boxed Wing Tip Structure
Reduced Drag for Higher Speed
Improved Roll Responsiveness

Optional
Optional
Optional
Optional

Included
Included
Included
Included

Flaperons - Combined Ailerons & Flaps

Optimized for Maximum Lift & Minimum Stall
Optimized for Maximum Maneuverability

7.5 in Chord x Full Span
Included
Included

7.5 in Chord x Full Span
Included
Included

In-Flight Adjustable Pitch Trim

Minimize Workload - Maximize Controllability

Included
Included

Included
Included

Vertical Tail & Rudder

Size Compared To Original Tail
Tubing Size & Tailpost Weldments
Rudder Cable Diameter
Rudder Cable Turnbuckles
Rudder Cable Routing
Increased Directional Stability & Control
Balanced Stability & Maneuverability

New Larger X Series Tapered Tail
10" Higher; VStab 55% More Side Area
Larger & Beefier
50% Thicker
Aft = Easy Access
Direct = Low Friction
Included
Included

New Larger X Series Tapered Tail
10" Higher; VStab 55% More Side Area
Larger & Beefier
50% Thicker
Aft = Easy Access
Direct = Low Friction
Included
Included

Light Sport Differential 1.5:1 Aileron Bellcranks

Reduced Adverse Yaw

Included
Included

Included
Included

Dorsal Fin

New X Series Fillet & North American Dorsal

New X Series Fillet & North American Dorsal

Light Sport Improved Handling = Less Rudder Activity Required

Included

Included

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Wing Tanks: 2 x 10 USgal = Total 20 USgal (75.6 liters)	Not Available	Included
Dual Fuel Gauge, Senders for Each Tank	Not Available	Included
Vented Caps, Gascolator	Not Available	Included
Located 4.5' Outboard of Root Tube	Not Available	Included
Rib Webs Integrated for Support	Not Available	Included
Redesigned Compression/Drag Struts for Strength	Not Available	Included
Increased Positive G-Load Factor	Not Available	Included
Increased Range & Endurance	Not Available	Included
Allows Baggage Compartment in Fuselage	Not Available	Included
Fuselage Tank: 10 USgal (37.8 liters)	Standard	Optional Extra Capacity
Fuselage Tank: 17 USgal (64.3 liters)	Optional Alternative Capacity	Optional Extra Capacity
Pilot Accessible Fuel Shut-Off	Included	Included
Internal Baggage Compartment - Fuselage	Not Available	100 lbs / 2.7 cu ft / 18"x15" base
External Baggage - Belly Bag and/or Cargo Pod	Aftermarket Suppliers	Aftermarket Suppliers
Control Stops		
Built-in for Rudder (at Control Horns)	Included	Included
Built-in for Ailerons (at Bellcranks)	Included	Included
Built-in for Elevators (Internal Structure)	Included	Included
Assembly Easier & Quicker	Included	Included
Instrument Panel Completely Prefab	Special Order Option	Included
Instrument & Engine Wiring Bundles	Special Order Option	Included
Complete Fuel System Provided	Included	Included
Assembly Manual Vastly Improved	Included	Included
Head Scratching & Guesswork	Excluded	Excluded

Challenger Light Sport Models Features & Contents

Challenger Bespoke 582 Power Pack
Real World Experience in Four Seasons Conditions since 2005

Purpose-Built Aviation Powerplant

Manufacturer
Model
Rotary Valve Technology
Factory New Engine Warranty

Designed for Upright & Inverted Mounting
Motor Mount with 8 Lord Mounts
Heavy Duty Crankshaft & Bearings
Hydro-Damper on Flywheel to Reduce Vibration

Dual Electronic Ignition
Two Spark Plugs Per Cylinder

Oil Injection System - Dual Tanks

Dual Bing 54 Carburetors
Dual K&N Carb Air Filter
Mikuni Fuel Pump
Fuel Pump Mount
Fuel Lines & Fittings
Fuel Filtration

Throttle Assembly with 3-Way Splitter
Dual Choke Cables with Lever

Exhaust System - 3pc Side Mount - Dual Ball Joints
Exhaust Mounts - Purpose-Built for Challenger

Engine Cooling Technology
Dexcool Long Life Coolant for Aluminum Block Engines
Ceramic Rotary Valve / Water Pump Shaft Seal
Thermostatically Controlled Coolant Bypass Circuit
Cooling System - High Capacity Updraft Radiator
Coolant Expansion Tank with Mount

Cabin Heater for Liquid Cooled Power Pack
Radiator Louvres (Top & Bottom) for Four Season Ops
Winter Preheating = Inconvenient & Time Consuming

E SERIES

Challenger Light Sport EL-65

Engine, Mounts, Cooling, Redrive, Prop
Proven Reliability, Proven Performance

Certified ASTM Compliant

Bombardier-Rotax
65 hp 582 Mod 99 Blue Head
Increased Power, Lower Fuel Consumption
18 Months or 100 Hours

Included
Included
Included
Included

Included
Included

Capacity 10-12 Hours

Included
Included
Included
Included
Included
Filter

Included
Included

Included
Included

Liquid
Increased Longevity
Included
Included
Included
Included

Optional All Season Kit
Optional All Season Kit
Not Required

X SERIES

Challenger Light Sport XL-65

Engine, Mounts, Cooling, Redrive, Prop
Proven Reliability, Proven Performance

Certified ASTM Compliant

Bombardier-Rotax
65 hp 582 Mod 99 Blue Head
Increased Power, Lower Fuel Consumption
18 Months or 100 Hours

Included
Included
Included
Included

Included
Included

Capacity 10-12 Hours

Included
Included
Included
Included
Included
Gascolator

Included
Included

Included
Included

Liquid
Increased Longevity
Included
Included
Included
Included

Optional All Season Kit
Optional All Season Kit
Not Required

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Purpose-Built 2.6-to-1 Reduction Drive	Included	Included
Allows Inverted Engine Mount to Reduce Drag	Included	Included
Allows Larger Optimum Diameter Prop for Max Thrust	Included	Included
Lowers Prop RPM to Increase Efficiency & Reduce Noise	Included	Included
Cog Belt = No Slippage, No Side Loads, No Drive Train Lash	Included	Included
Propellor Matched to Engine, Redrive, Airframe	Warp Drive 60" 3-Blade Carbon Fibre	Warp Drive 60" 3-Blade Carbon Fibre
Blade Pitch Setting	Ground Adjustable	Ground Adjustable
Blade Construction	100% Carbon Fibre	100% Carbon Fibre
Blade Design	Wide Tip for Max Thrust	Wide Tip for Max Thrust
Upgraded Blades with Nickel Leading Edge Protection	Optional Prop Upgrade	Optional Prop Upgrade
Upgraded Machined Aluminum HP-L Hub	Optional Prop Upgrade	Optional Prop Upgrade
12V 170W DC Electrical System	Included	Included
Regulator/Rectifier, 4ga Wiring, Solenoid	Included	Included
582 Electric Start System by GPL (MAG End)	Standard	Standard
Heavy Duty HD High Torque Motor	Standard	Standard
Backup Recoil (Pull) Starter Field Installable	Standard	Standard
582 Electric Start System by QCU (PTO End)	Special Order Option	Special Order Option
Backup Recoil (Pull) Starter Mounted Full Time	Special Order Option	Special Order Option
Flexible Fuel Choices for Economy & Convenience	Auto (Reg or Prem), AvGas (100LL), Marina	Auto (Reg or Prem), AvGas (100LL), Marina
Fuel with Ethanol is Acceptable	Up To 10% Ethanol ("E10")	Up To 10% Ethanol ("E10")
Power Pack Efficacy	Engine + Redrive + Prop	Engine + Redrive + Prop
Normal Operation Range	Smooth from Low Idle to Takeoff Thrust	Smooth from Low Idle to Takeoff Thrust
Power Band Characteristics	Wide Not Peaky	Wide Not Peaky
Time Limit at Full Throttle	No Time Limit	No Time Limit
Horsepower & Torque	Curves Peak Concurrently At Takeoff Power	Curves Peak Concurrently At Takeoff Power
Power vs 503 Power Pack	Horsepower +30% / Torque + 34%	Horsepower +30% / Torque + 34%
Specific Fuel Consumption vs 503 Power Pack	-22.7%	-22.7%
Propeller Tip Speeds	Very Low for Max Efficiency and Min Noise	Very Low for Max Efficiency and Min Noise
Idle - Min (Engine @ 1690)	Prop @ 650 rpm Tips @ 115 mph 0.15 mach	Prop @ 650 rpm Tips @ 115 mph 0.15 mach
Idle - Max (Engine @ 2600)	Prop @ 1000 rpm Tips @ 175 mph 0.23 mach	Prop @ 1000 rpm Tips @ 175 mph 0.23 mach
Cruise - Mid (Engine @ 5400)	Prop @ 2075 rpm Tips @ 370 mph 0.48 mach	Prop @ 2075 rpm Tips @ 370 mph 0.48 mach
Takeoff - Max (Engine @ 6175)	Prop @ 2375 rpm Tips @ 425 mph 0.55 mach	Prop @ 2375 rpm Tips @ 425 mph 0.55 mach