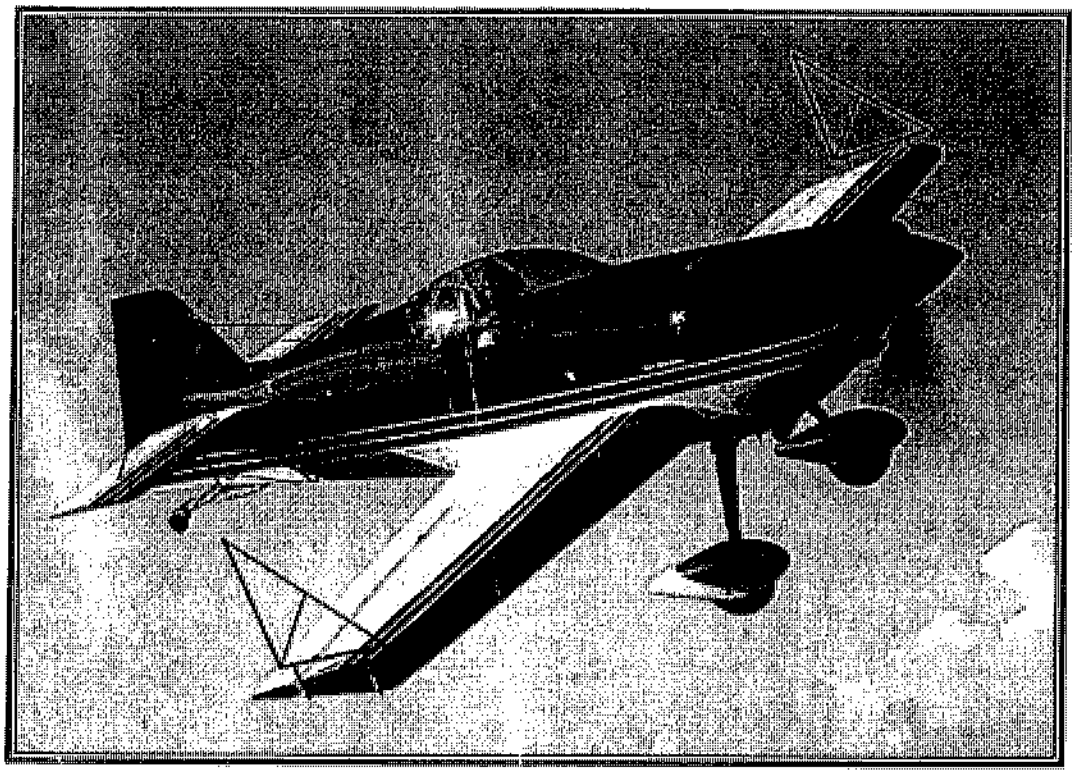

One Design

Worldwide Distributor Aircraft Parts and Pilot Supplies

Greetings!

Aircraft Spruce & Specialty Co. believes the homebuilder of aircraft carries within himself or herself the true spirit of adventure. We are thankful for the opportunity to encourage that spirit. Thank you for your interest in the One Design Sport Aerobatic Aircraft, the most exciting aircraft on the market today.

The information packet you have in your possession will give you a general overview of this outstanding aircraft. Included in this package you will find a license agreement which must be filled out and sent back to Aircraft Spruce & Specialty Co., along with a check for $330, in order for you to obtain a copy of the plans. Plans are shipped UPS Prepaid in the continental United States. Please be sure to include additional funds for shipment outside of the Continental U.S. and also for California sales tax, if applicable.

Also, contained herein, is a list of raw materials kits and suggested parts and components as well as a list of various prefabricated items available through Aircraft Spruce & Specialty Co.. This list changes from time to time, based on changes and suggestions incorporated into the current plans. Prices and materials for the materials kits are subject to change.

Should you have any questions or suggestions we would appreciate your communication and will be happy to serve you in any capacity you may require.

Thank you,

Aircraft Spruce & Specialty Co.

Aircraft Spruce East
452 Dividend Drive
Peachtree City, GA 30269
(770) 487-2310

Call Toll Free:
877-4-SPRUCE
Fax: (951) 372-0555

Aircraft Spruce West
225 Airport Circle
Corona, CA 92880
(951) 372-9555

www.aircraftspruce.com ~ info@aircraftspruce.com

Rihn Aircraft Corp.

Welcome to the world of One Design.

Excitement and challenge! These two activities make up the most rewarding experiences found in aviation. The One Design world is the world of aerobatics for fun and competition. It is the world of building your own aerobatic aircraft.

The aerobatic community has waited years for an affordable plans built, high performance aerobatic aircraft. In recent years the cost of aerobatic aircraft has escalated far beyond the level of affordability for the average person. The One Design off exceptional performance for a modest investment of money as well as time. No other aerobatic aircraft comes close in providing this kind of performance per dollar. The aerobatic community has waited years for a One Design aerobatic competition aircraft that will level the playing field. One Design aerobatic competition will measure the pilots ability, not the size of the pilot's wallet.

World and National Aerobatics Champions as well as Sportsman class aerobatic pilots participated in the evaluation of the One Design. The responses are unanimous, the One Design delivers. Whether you plan on flying your One Design in aerobatic competition or just to have fun, sport aerobatic airplane the One Design will provide you with a rewarding and fulfilling aerobatic experience.

The One Design is an uncommon blend of modern engineering utilizing proven, tried and true methods of construction. Simplicity in design has been emphasized for every piece and part. Detailed, easy-to-read plans with many components drawn full size simplifies building. A complete materials list makes shopping for materials easy and reduces the building time significantly. Construction is made even easier and faster through pre-packaged materials kits or completed components available from Aircraft Spruce & Specialty Co.

Welcome to your world. The world of One Design.

Dan Rihn
President, Rihn Aircraft Corporation.

Rihn Aircraft Corporation
3591 Lama Ave., Long Beach, CA 90808

ONE DESIGN DRAWING LIST
Complete Drawing Set- 62 Sheets total

Drawing Number	Title
1) DR7-1-000	General Arrangement
2) DR7-1-001	Paint Scheme
3) DR7-1-110	Fuselage Structure (pictorial)
4) DR7-1-111	Basic Fuselage Structure (side & upper)
5) DR7-1-112	Basic Fuselage Structure (lower & sides)
6) DR7-1-113	Bill of Materials
7) DR7-1-114	Firewall
8) DR7-1-115 SHT 1	Fuselage Side Panel
9) DR7-1-115 SHT 2	Fuselage Side Panel, front
10) DR7-1-116	Fuel Tank Fairing
11) DR7-1-117	Roll Over Safety Bar
12) DR7-1-118 SHT 1	Belly Pan
13) DR7-1-118 SHT 2	Belly Pan
14) DR7-1-118 SHT 3	Belly Pan, rear
15) DR7-1-119	Formers, Side Panels, LDG Fairings
16) DR7-1-120	Landing Gear, Wing & LDG Mounts (REV A)
17) DR7-1-121 SHT 1	Fuselage Standoffs
18) DR7-1-121 SHT 2	Fuselage Standoffs
19) DR7-1-122	Cockpit, Seat
20) DR7-1-123	Fuselage Stringers
21) DR7-1-125	Fin & Rudder
22) DR7-1-126 SHT 1	Tail Cone Fairing
23) DR7-1-126 SHT 2	Tail Cone Fairing
24) DR7-1-126 SHT 3	Tail Cone Fairing
25) DR7-1-127	Cowl Assembly
26) DR7-1-128	Sliding Canopy Assembly
27) DR7-1-130	Fuel System
28) DR7-1-131	Fuel Tank Ends, Flat Pattern
29) DR7-1-144	Pitot Static System
30) DR7-1-145	Canopy Mold Lines
31) DR7-1-146	Instrument Panel
32) DR7-1-147	Formers, Fuselage Turtledeck
33) DR7-1-148	Turtle Deck Assembly
34) DR7-1-149	Wing/Tail Root Fairings
35) DR7-1-150 SHT 1	Longitudinal Control System (REV A)
36) DR7-1-150 SHT 2	Longitudinal Control System
37) DR7-1-151	Directional Control Systems
38) DR7-1-152	Tail Wheel Spring & Tail Wheel
39) DR7-1-160	Horizontal Tail Structure (REV B)
40) DR7-1-161	Horizontal Tail Installation Details
41) DR7-1-162	Tail Brace Wires

42) DR7-1-201	Engine Mount (REV A)
43) DR7-1-301	Basic Wing Structure
44) DR7-1-302	Wing Spanwise Members(Douglas Fir) (REV B)
45) DR7-1-303	Wing Covering
46) DR7-1-304	Ribs- 12, 15, 24
47) DR7-1-305	Ribs- 36, 48
48) DR7-1-306	Ribs- 60, 72
49) DR7-1-307	RibS- 84, 96
50) DR7-1-308	Rib 108
51) DR7-1-309	Aileron Hinge Mount & Controls
52) DR7-1-310	Aileron
53) DR7-1-311	Wing Tip - Plan and Section Details
54) DR7-1-312	Aileron Spades
55) DR7-1-313 SHT 1	Wing Installation
56) DR7-1-313 SHT 2	Wing Installation
57) DR7-1-901	Basic Wing Structure, Spruce Spar
58) DR7-1-902	Wing Spanwise Members (Douglas Fir)
59) DR7-1-904	Ribs- 12, 15, 24
60) DR7-1-905	Ribs- 36, 48
61) DR7-1-906	Ribs- 60, 72
62) DR7-1-907	Ribs- 84, 96

Worldwide Distributor Aircraft Parts and Pilot Supplies

ONE DESIGN COMPONENTS

1.	One Design Introductory Info Pack		$5.00
2.	Complete Set One Design Blueprints/Plans		$330.00

RAW MATERIALS PACKAGES

3.	Aileron Kit,	P/N 01-02305	$230.24
4.	Engine Mount Kit,	P/N 01-02310	$166.76
5.	Elevator-Stabilizer Kit,	P/N 01-02315	$135.87
6.	Fin & Rudder Kit,	P/N 01-02320	$67.68
7.	Fuselage Kit,	P/N 01-02325	$434.69
8.	Wing Ribs Kit,	P/N 01-02330	$238.07
9.	Wing Spar & Skin Kit,	P/N 01-02335	$2,105.37

RAW MATERIAL KITS

AILERON - PART # 01-02305 — $230.24

1 each	.050 X 9" X 18" 4130 sheet	03-23100
24 each	Undrilled bolt	AN3-12A
24 each	Flat washer	AN960-10L
24 each	Elastic stop nut	AN365-1032A
12 feet	3/8" diameter steel rod	03-20500 (Cut into 2 pieces 6' long.)
1 sheet	1/8" X 2' X 4' Mahogany plywood 90°	02-19330
1 sheet	1/16" X 2' X 8' Mahogany plywood 90°	02-18920
13 feet	1/2" X 2" X 6'2" Minimum spruce	02-122 (Cut into 2 pieces 6-1/2' long.)
13 feet	1/2" X 3/4" X 6'2" Minimum spruce	02-14800 (Cut into 2 pieces 6-1/2' long.)
13 feet	3/4" X 2" X 6'2" Minimum spruce	02-342 (Cut into 2 pieces 6-1/2' long.)
1 each	3/4 X 1-3/4" X 13' Poplar	01-02328(Cut into 2 pieces 6-1/2' long.)
2 feet	1/2" X 1/2 Triangular blocking	02-18000 (Cut into 2 pieces 1' long.)

ENGINE MOUNT - PART # 01-02310 — $166.76

18 feet	3/4" X .065 4130 Tube	03-04600 (Cut into 3 pieces 5'4" long and 1 piece 1'6" long.)
1 foot	3/4" X .188 4130 Tube	03-05000
1 foot	1-1/2" X .058 4130 Tube	03-09000
1 foot	2-3/4" X .120 Seamless steel tube	03-11210
8 each	1-1/2" I.D. X 2-1/2" O.D. X .080 Steel washer	04-35110
5 each	3/8" I.D. X 1-1/4" O.D. X .050 Steel washer	04-35120
	.050 gusset material - make from excess material for aileron (4130)	

ELEVATOR-STABILIZER - PART # 01-02315 — $135.87

8 feet	3/8" X .035 4130 Tube	03-01200 (Cut into 2 pieces 4' long.)
1 foot	1/2" X .058 4130 Tube	03-02600
1 foot	3/8" X .065 4130 Tube	03-01500 (share with fin/rudder.)
10 feet	3/4" X .035 4130 Tube	03-04300 (Cut into 2 pieces 5' long.)
16 feet	7/8" X .035 4130 Tube	03-05300 (Cut into 4 pieces 4' long.)
1 foot	7/8" X .049 4130 Tube	03-05400

1 foot	1" X .058 4130 Tube	03-06300 (For hinge bushing.)
1 each	.025 X 18" X 36" 4130 sheet	03-22100
1 sheet	.032 X 24" X 24" 2024T3	03-28060
1 sheet	.063 X 24" X 24" 6061T6	03-30160
1 each	.063 X 1" X 72" 4130 Steel strip	03-18700 (Share with fin/rudder.)
1 each	Piano hinge	MS20257P2-3
26 each	1/8" diameter cherry blind rivets	BSPQ-41
16 each	1/8" diameter cherry blind rivets	BSPQ-42

FIN & RUDDER - PART # 01-02320 **$67.68**

8.5 feet	3/8" X .035 4130 Tube	03-01200 (Cut into 1 piece 6'6" long and 1 piece 2' long.)
4.5 feet	1/2" X .035 4130 Tube	03-02400 (Cut into1 piece 4'6" long.)
1 foot	3/4" X .049 4130 Tube	03-04400
6.5 feet	7/8" X .035 4130 Tube	03-05300 (Cut into 1 piece 6'6" long.)
1 foot	1" X .058 4130 Tube	03-06300
1 each	.025 X 14" X 26" 4130 Sheet	03-22100
1 each	.032 X 1" X 2" 4130 Sheet	03-22600
1 each	.100 X 7" X 7-1/2" 4130 Sheet	03-25100
1 each	.120 X 1-1/4" 4130 Tube	03-08000 (Share with elevator-stabilizer)

FUSELAGE - PART # 01-02325 **$434.69**

4 feet	1/2" X .035 4130 Tube	03-02400
53 feet	5/8" X .035 4130 Tube	03-03600 (Cut into 4 pieces 11'8" long and 1 piece 5' long.)
142 feet	3/4" X .035 4130 Tube	03-04300 (Cut into 12 pieces 11'8" long.)
4.5 feet	3/4" X .049 4130 Tube	03-04400 (Cut into 1 piece 4'6" long.)
1.5 feet	3/4" X .188 4130 Tube	03-05000 (Cut into 1 piece 1'2" long.)
2 feet	1" X .058 4130 Tube	03-06300
1 foot	3/4" X 3/4" X .049 4130 Square tube	03-12800
1 each	.063 X 9" X 9" 4130 Sheet	03-23450

RIBS, WING - PART # 01-02330 **$238.07**

3 each	1/16" X 4' X 4' 90° Mahogany plywood	02-18910
384 feet	1/4" X 1/4" Spruce cap strips	02-11300 (Cut into 64 pieces 6' long.)

WING SPAR & SKIN KIT - PART # 01-02335 **$2,105.37**

65 feet	13/16" X 5-3/4" Spruce S4S	02-1316534	(Cut into 1 piece 18'1" long 1 piece 15'11" long 1 piece 13'11" long 1 piece 9'11" long 1 piece 5'11" long)
65 feet	13/16" X 3-3/4" Spruce S4S	02-1316334	(Cut into 1 piece 18'1" long 1 piece 15'11" long 1 piece 13'11" long 1 piece 9'11" long 1 piece 5'11" long)
17 feet	3/4" X 4-3/4" Spruce S4S	02-34434	(Cut into 2 pieces 8'1" long.)
17 feet	3/4" X 3" Spruce S4S	02-343	(Cut into 2 pieces 8'2" long.)
144 feet	1/2" X 5/8" Spruce S4S	02-1258	(Cut into16 pieces 9' long.)
4 feet	1/2" X 2" Spruce S4S	02-122	(Cut into 2 pieces 2' long.)
Qty 2	3/4" X 3-1/2"X 9' Poplar	01-02327	(Cut into 2 pieces 8'2" long.)
5 sheets	1/8" X 4' X 8' Mahogany plywood	02-19380	

FUEL TANK			
1 each	48" X 72" X .050 5052h32 Aluminum Sheet	03-31050	**$42.25**
INSTRUMENT PANEL			
3 feet	1/16" X 3/4" X 3/4"6063T52 Aluminum Angle	03-47800	**$0.97 /ft.**
TURTLE DECK FORMERS & SKIN			
1 each	.032 X 4' X 4' 2024-0 Aluminum Sheet	03-29040	**$57.73**
1 each	.032 X 4' X 6' 2024T3 Aluminum Sheet	03-28030	**$80.98**
FIREWALL			
3 feet	.016 X 36" X 36" Stainless 1/2 Hard	03-31200	**$116.95** /Ft
8 feet	.062 X 3/4 X 3/4 6063T52 Aluminum Angle	03-47800	**$0.97** /Ft
1/8 Pound Rivets		AN470A-4-4	**$12.70** /Pd.
SIDE PANEL			
1 Sheet	2024T3 Aluminum .032 X 4' X 6'	03-28030	**$80.98**
	Must be cut as follows:	2 pcs. 17" X 36"	
		2 pcs. 27" X 29"	
		2 pcs. 10" X 20"	
FUEL TANK FAIRING			
1 sheet	2024T3 Aluminum .032 X 4' X 4'	03-28040	**$53.44**
	Must be cut as follows:	1 pc. 27" X 41"	
ROLL OVER SAFETY BAR			
4 feet	4130 Steel Tube 3/4 X .095	03-04700	**$1.68** Per foot
BELLY PANS & COCKPIT FAIRING			
2 Sheets	2024T3 Aluminum .032 X 4' X 4'	03-28040	**$53.44 each**
	Must be cut as follows:	1 pc. 38" X 41"	
		1 pc. 17" X 18"	
		1 pc. 28" X 29"	
FAIRINGS & FORMERS			
1 Sheet	2024T3 Aluminum .032 2' X 4'	03-28050	**$27.53**
1 Sheet	4130 Steel 18" X 18" X .025	03-22000	**$5.40**
1 Sheet	4130 Steel 9" X 18" X .040	03-22700	**$5.78**
LANDING GEAR & WING MOUNTS			
1 Landing Gear Leg			
1 Sheet	4130 .063 X 18" X 18"	03-23600	**$18.85**
1 Strip	4130 .250 X 1" X 12"		
1 Foot	4130 Steel Tube 1/2" X .058	03-02600	**$1.81**
1 Foot	4130 Steel Tube 1/2" X .120	03-02900	**$2.70**
1 Foot	4130 Steel Tube 3/4 X .188	03-05000	**$4.60**
1 Foot	4130 Steel Tube 1" X .120	03-06600	**$3.20**
1 Foot	4130 Steel Tube 3/4" X .049	03-04400	**$1.37**
1 Foot	4130 Steel Tube 3/4 X .058	03-04500	**$1.89**
2 each	Wing Bolts with washers & nuts	01-02311	**$48.62**

FUEL SYSTEM

1 Each	AN816-4D Nipple		**$1.06** Each
3 Each	AN818-4D Nut		**$0.39** Each
3 Each	AN819-4D Sleeve		**$0.33** Each
1 Each	AN822-4D Elbow		**$3.80** Each
1 Each	AN825-4D Tee		**$5.90** Each
2 Each	AN842-4D Hose Elbow		**$8.40** Each
2 Each	AN842-6D Fitting		**$7.70** Each
2 Each	AN842-12D Elbow		**$16.20** Each
4 Each	AN867-1 Alum. Welding Flange		**$5.95** Each
1 Each	AN867-2 Alum. Welding Flange		**$6.70** Each
1 Each	AN867-3 Alum. Welding Flange		**$6.85** Each
3 Each	AN867-6 Alum. Welding Flange		**$11.20** Each
2 Each	AN910-1 Brass Coupling		**$2.60** Each
1 Each	AN912-2D Bushing		**$1.42** Each
1 Each	AN912-9D Bushing		**$5.50** Each
1 Each	AN929-4D Cap		**$0.79** Each
1 Each	AN970-10 Washer		**$0.64** Each
1 Each	Flop Tube 13"	P/N 05-20513	**$44.50** Each
1 Each	CCA-1550 Curtis Drain Valve		**$9.40** Each
4 Feet	Polyurethane Tubing 3/8" O.D. X 1/4" I.D.	P/N 0585-071	**$1.10** Per Foot
4 Feet	Polyurethane Tubing 1/2" O.D. X 3/8" I.D.	P/N 0585-107	**$1.39** Per Foot
4 Feet	6061T6 Aluminum Tube 1/4" X .035	P/N 03-35300	**$0.99** Per Foot

LONGITUDINAL CONTROL SYSTEM

14 Rod end bearings	P/N RE3M6-2N (MS21151-4)	**$27.50** Each
14 Check Nuts	P/N AN316- 6R	**$0.19** Each
14 Rod end mounting bushings	P/N 01-02312 (10 required)	**$4.50** Each
4 Bearings	P/N KP6	**$19.50** Each
4 Bolts	P/N AN4-26A	**$0.39** Each
1 Bolt	P/N AN4-25A	**$0.41** Each
12 Bolts	P/N AN3-10A	**$0.16** Each
1 Bolt	P/N AN3-13A	**$0.13** Each
2 Bolts	P/N AN6-13A	**$0.55** Each
1 Bolt	P/N AN6-35A	**$0.77** Each
4 Hex Head Bolts 1/4-28 thrd. 1-1/4" Long		
4 Check Nuts 1/4-28 thrd		
4 Nuts	P/N AN365-428A	**$0.11** Each
1 Nut	P/N AN364-428A	**$0.13** Each
13 Nuts	P/N AN364-1032A	**$0.12** Each
3 Nuts	P/N AN364-624A	**$0.29** Each
4 Washers	P/N AN970-7	**$0.24** Each
8 Washers	P/N AN960-616L	**$0.03** Each
13 Washers	P/N AN960-10	**$0.03** Each
8 Washers	P/N AN960PD-416L	**$0.09** Each
20 Washers	P/N AN960-10L	**$0.03** Each
2 Washers	P/N AN960-416	**$0.03** Each
2 Feet 3/8" X .058 4130 Steel Tube	P/N 03-01400	**$0.95** Per Foot

1 Foot 1/2" X .065 4130 Steel Tube	P/N 03-02700	**$1.15** Per Foot
1 Foot 7/16" X .120 4130 Steel Tube	P/N 03-02200	**$2.10** Per Foot
10 Feet 3/4" X .035 4130 Steel Tube	P/N 03-04300 (Cut 1-4' & 1-6' piece)	**$2.30** Per Foot
2 Feet 7/8" X .058 4130 Steel Tube	P/N 03-05500	**$2.15** Per Foot
2 Feet 1-5/8" X .095 4130 Steel Tube	P/N 03-09800	**$4.69** Per Foot
3 Feet 4130 Sq. Tube 3/4" X 3/4" X .049	P/N 03-12800	**$4.45** Per Foot
1 Sheet 4130 6" X 12" X .050	P/N 03-23000	**$1.57** Per Sheet
1 Sheet 4130 6" X 12" X .063	P/N 03-23400	**$4.35** Per Sheet
1 Sheet 4130 9" X 18" X .090	P/N 03-24700	**$12.74** Per Sheet
1 Sheet 4130 6" X 12" X .125	P/N 03-55300	**$8.52** Per Sheet

DIRECTIONAL CONTROL SYSTEM

14 Cable Fairleads 3/4" X 3/4"	P/N 05-05500	**$1.69** Each
8 Machine Screw	P/N MS35190-253	**$0.08** Each
8 Elastic Stop Nuts	P/N AN364-832A	**$0.09** Each
2 Anchor Nuts	P/N K1000-6 (MS21047-6)	**$1.57** Each
2 Bolts	P/N AN4-37	**$1.19** Each
2 Bolts	P/N AN4-21	**$0.35** Each
2 Bolts	P/N AN4-40	**$1.25** Each
6 Washers	P/N AN960-416	**$0.03** Each
6 Shear Stop Nuts	P/N AN364-428A	**$0.13** Each
1 Bolt	P/N AN6-21	**$1.49** Each
1 Washer	P/N AN960-616	**$0.03** Each
2 Cleveland Master Cylinders	P/N 10-54	**$157.95** Each
or alternate	P/N 10-20	**$211.95** Each
2 ACS Resevoirs	P/N 06-00391	**$11.60** Each
1 Tailwheel (#L-693)	P/N 06-00402	**$246.95** Each
4 Thimbles	P/N AN100C-4	**$0.17** Each
24 Feet Control Cable 1/8" X 7 X 19 SS	P/N 05-04300	**$0.53** Per Foot
2 Bolts	P/N AN3-20	**$0.41** Each
4 Commercial SS Stop Nut	P/N COM364-1032	**$0.18** Each
2 Washers	P/N AN970-3	**$0.05** Each
8 Washers	P/N AN960-10	**$0.03** Each
2 Bolts	P/N AN3-10	**$0.28** Each
1 Compression Type Connector Spring Kit	P/N 06-15600	**$20.40** Each
1 Sheet 6061T6 2'X4' .090	P/N 03-30250	**$45.89** Each
2 Feet 4130 Steel Tube 5/8" X .035	P/N 03-03600	**$1.39** Per Foot
3 Feet 4130 Steel Tube 3/4" X .035	P/N 03-04300	**$2.30** Per Foot
1 Foot 4130 Steel Tube 5/16" X .065	P/N 03-00900	**$1.98** Per Foot
1 Foot 4130 Steel Tube 3/8" X .058	P/N 03-01400	**$0.95** Per Foot
1 Foot 4130 Steel Tube 7/8" X .058	P/N 03-05500	**$2.15** Per Foot
3 Feet 4130 Sq. Tube 3/4" X 3/4" X .049	P/N 03-12800	**$4.45** Per Foot
1 Sheet 4130 9" X 18" X .063	P/N 03-23500	**$10.15** Each
1 Sheet 4130 6" X 12" X .090	P/N 03-24600	**$6.12** Each
1 Sheet 4130 6" X 12" X .100	P/N 03-25000	**$6.49** Each

AILERON HINGE & CONTROLS

6 Hollow Shank Bearing	P/N REP3H5 (ABR3H-11)	**$39.50** Each
4 bearings	P/N KP4	**$11.70** Each
4 Rod End Bearings	P/N RE3M6-2N	**$27.50** Each
1/8 Pound Aluminum Rivet Round Head	P/N AN470AD-4-12	**$14.20** per pound

24 Corner Anchor Nut	P/N K3000-3	**$0.25** Each
1/8 Pound Aluminum Rivet Flush Head	P/N AN426AD-3-4	**$21.60** per pound
12 Sheet Metal Screws	P/N 8X3/4-A-TR-PH	**$0.02** Each
8 Bolts	P/N AN4-16A	**$0.16** Each
8 Shear Stop Nuts	P/N AN364-428A	**$0.13** Each
8 Washer	P/N AN960PD-416	**$0.04** Each
4 Thin Check Nuts	P/N AN316-6R	**$0.19** Each
2 Feet 4130 Steel Tube 1/2" X .035	P/N 03-02400	**$1.65** Per Foot
1 Foot 4130 Steel Tube 3/8" X .058	P/N 03-01400	**$0.95** Per Foot
4 Feet 4130 Steel Tube 3/4" X .065	P/N 03-04600	**$1.67** Per Foot
1 Foot 4130 Steel Tube 7/8" X .049	P/N 03-05400	**$1.58** Per Foot
1 Foot 4130 Steel Tube 1" X .049	P/N 03-06200	**$2.10** Per Foot
1 Foot 4130 Sq. 1" X 1" X .049	P/N 03-13500	**$4.40** Per Foot
1 4130 Steel Sheet 9" X 18" X .050	P/N 03-23100	**$7.09** Per Sheet
1 4130 Steel Sheet 9" X 18" X .063	P/N 03-23500	**$10.15** Per Sheet
1 Domestic Birch Plywood 90*	P/N 02-24530	**$26.70** Per Sheet

CANOPY

Sliding Canopy – P/N 01-00024 **$2,449.00**

With hidden rails complete with the wind screen and fiberglass forward cowling finished and mounted. This new canopy opens a full 24" wide. The sheet metal,rails, latches, etc. are installed. Four furnished mounting tabs must be located and then welded on the upper longerons. With the mounting instructions, the complete unit is ready for your one design. Note: There is a $150 crating charge when shipping the canopy

1 Pair Sliding Canopy Channel P/N 03-49300 **$525.00** Per Pair

WE NO LONGER SELL PREFABRICATED COMPONENTS

SPECIAL HARDWARE

16. Wing attach bushing
17. Flying Wires **(By Brunton 6-8 week lead time)**

AN674-34R	31-11/16"	
AN674-34L	31-11/16"	
AN674-34R	32-13/16"	CALL
AN674-34L	32-13/16"	FOR
AN674-34R	35"	CURRENT
AN674-34L	35"	QUOTE
AN674-34R	35-1/2"	ON FLYING
AN674-34L	35-1/2"	WIRES

18. Fuel Tank
19. Inverted pickup tube for fuel tank

FIREWALL FORWARD

21. 14" Prop Spinner – P/N 01-00026 **$504.00**
    This fiberglass spinner matches the cowl below and comes with both a back and front plate, it can be cut for a two or three blade prop.
22. Propeller: Sensenich, fixed pitch, metal
    74" diameter X 62" pitch for 150/160 H.P.
    76" diameter X 62" to 64" pitch for 180 H.P.
    (Example: 74DM6-0-62 or 76EM8-0-62)
23. Engine cowls – P/N 01-00025 **$654.00**
    These fiberglass cowls have the reinforcing U channel around the crank area. An oil access door is cut in and

flanged to sit flush. Both halves are on inch longer at the mating edge for trimming to your application.

24.	Exhaust stacks – Stainless crossover system. Well made with ball joints for custom installations. It comes with a mounting kit for supporting the tail pipes	P/N 01-00074	**$798.00**
25.	Christen Inverted Oil System:	P/N 801-6	**$699.00**
26.	Oil Cooler: 8406R for cooler climates		**$418.95**
	8432R for warmer climates		**$516.00**
27.	Elastometric Engine Mounts (12 required) –	P/N J-7402-37	**$92.75** each
28.	Lycoming Engine: P/N AEIO-360B1H, 180 HP @ 2700 RPM	P/N 01-00165	**$28,609.00**

includes:

Dynafocal Mounts
(2) Slick Magnetos (1 with impulse coupling)
RSA-5 fuel injector, mounted vertically on the bottom of the oil sump
Engine driven fuel pump
Vacuum driven fuel pad
Prop governor drive pad mounted on left front of engine (no governor supplied)
Screen type oil filter
Christen Inverted Oil System - No hoses or fitting included
No Starter (starter ring supplied)
No alternator, mounting hardware or drive belt
Operators manual

29.	B & C Starter for AEIO-320		
30.	B & C Alternator for AEIO-320		
31.	Engine Baffle Kit		
32.	Battery - Gill Cell Battery	P/N U-134	**$87.25**
	- Sealed Electrolyte Battery	P/N 07-06755	**$89.95**
33.	Starter: Sky-tec Hi-torque starter	P/N 07-06245	**$354.00**
	or Sky-tec Hi-torque starter	P/N 07-06254	**$419.00**

LANDING GEAR

34. Main Gear wheels & brakes, Cleveland 500 X 5 Homebuilders Package #1 or #2:

Pkg # 1: Include two Cleveland 5.00 -5 magnesium wheels and brakes plus two 6 ply tires and tubes.

a. With McCreary Air Trac Tire & Tubes	P/N 06-00100	**$753.60**
b. With Goodyear Flight Custom II Tires & Tubes	P/N 06-00200	**$925.50**
c. With Lamb Tires & Tubes	P/N 06-00300	**$653.80**

Pkg # 2: Same as package # 1 plus two Cleveland #10-35 master cylinders.

a. With McCreary Air Trac Tires & Tubes	P/N 06-00400	**$1,193.50**
b. With Goodyear Flight Custom II Tires & Tubes	P/N 06-00500	**$1,365.40**
c. With Lamb Tires & Tubes	P/N 06-00600	**$1,093.70**

35.	Master Brake Cylinder	P/N 10-54	**$157.95**
36.	Axle:	P/N 11701	**$39.00**
	Axle Spacer	P/N 11716	**$3.65**
37.	Axle nuts:	P/N 06-11800	**$10.45**
38.	Axle's from 500x5 wheels	P/N 01-00023	**$194.00**

TAILWHEEL & SPRING

39.	Replacement Wheel: home built replacement wheel 4" with 5/8" axle	P/N 06-03500	**$19.70**
40.	Tailwheel Spring	P/N 01-02348	**$179.00**
41.	Connector Springs: Compression Type	P/N 06-15600	**$20.40**

Tension Type	P/N 06-00008	**$18.95**

42. Wheel Pants –
Good looking pants with fairings to cover the brakes. The brake cylinders can be mounted up & forward, out of harms way. Come with mounting plates, nut plates to attach the fairings, they are ready to mount, sand & paint.

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INSTRUMENTS

43. Airspeed Indicator	P/N 10-02600	**$129.95**
44. Altimeter	P/N 10-04550	**$629.00**
45. Accelerometer: G-Meter,small	P/N 10-09800	**$202.50**
46. Compass: Airpath C2300 Panel Mount, No lighting		**$106.95**
47. Fuel Pressure: 0-100 PSI Fuel Pressure 2-1/4"	P/N 10-22205	**$96.25**
or 0-50 Mini Fuel Pressure	P/N 10-12300	**$113.95**
48. Oil Temp: 100-250 72" Capillary	P/N 10-11700	**$63.25**
49. Oil Pressure: 0-120	P/N 10-00956	**$67.95**
50. Tachometer: Mitchell	P/N 10-24623	**$171.50**
51. Voltmeter/Ammeter		
52. Alcor Cylinder Head Temp.	P/N 10-08800	**$279.25**
Bayonet Thermocouple	P/N 86251	**$68.75**
53. Starter Switch: ACS ignition switch	P/N A-510-2K	**$83.65**
or Bendix	P/N 10-357200-1	**$193.95**

CONTROLS

54. Mixture Control: A-790 72" Red Knob	P/N 05-08172	**$53.30**
55. Throttle Control: P/N A-920 Special order to length as required.		

MISCELLANEOUS

56. Parachutes: Long Softie, 240 pound Max. weight, P/N 13-03515 (Need color 1 for red, 2 for black, 3 for Royal Blue, 4 Navy Blue, 5 for Grey, 6 for Sage Green or 7 for Olive Drab and "A" for Aerobatic.		**$1,535.00**
(Example:13-03515-1A is a red parachute for aerobatic craft.)		
or Any of the National Parachutes per pilots requirements		
National 360 - Wt. 10.2 lbs. Canopy Size 24 ft. Conical. Max. pilot weight 180 lbs.		
Pack size 22"X14"X2" thick	P/N 13-03200	**$1,289.00**
National 425 - Wt 11.6 lbs. Canopy size 26 ft. conical. Maximum pilot weight 210 lbs.		
Pack size 22"X14"X 2-1/2" thick	P/N 13-03300	**$1,234.00**
National 490 - Wt 12.5 lbs. Canopy size 28 ft. conical. Max. pilot weight 240 lbs.		
Pack size 22"X14"X3" thick	P/N 13-03400	**$1,333.00**
Baggage Compartment	P/N 01-00027	**$279.00**

ONE DESIGN LICENSE AGREEMENT

For and in consideration of the sum of $_____ Aircraft Spruce & Specialty Co. of Corona, California, does agree to extend to _____ the right to build one One Design Model DR-107, said airplane to bear serial number _____. Aircraft Spruce & Specialty Co. further agrees to supply one set of construction drawings, information on computing weight and balance with appropriate forms, an official aircraft data plate and an illustrated parts catalog.

Your Customer order number is:	*This section to be signed by Aircraft Spruce representative*
_____	By _____ Title _____ Date _____

I, _____ address _____

_____

do agree to the conditions set forth above and in consideration thereof I further agree that said drawings, instructions, and manuals will remain the property of Aircraft Spruce & Specialty Co., and specifically agree to the following:

A. I will build one airplane only from these drawings and manuals and that said aircraft will con form to the specifications set forth in these drawings and manuals.

B. I will not allow another party the use of these drawings and manuals to build a second airplane or part thereof.

C. I will not transfer these drawings to another party without prior approval of Aircraft Spruce & Specialty Co.

D. I will not allow these drawings, manuals or instructions to be duplicated.

E. I will not use or permit the use of these drawings in the design, construction or manufacture of another aircraft.

It is further agreed and I understand that Aircraft Spruce & Specialty makes no warranty, expressed or implied, as to the quality or the safety of this airplane. It is agreed that the buyer(s) of One Design aircraft or plans accept full responsibility for construction and flight of this aircraft and hold harmless Aircraft Spruce & Specialty Co., its principals, owners and employees, Rihn Aircraft Corp., its principals, owners and employees from any liability or damages to or resulting from the aircraft or occupants related to building or operation of this aircraft and further that said aircraft shall be operated only in strict compliance of appropriate FAA regulations governing the operation of aircraft. All subsequent buyers, heirs, successors, or assigns are also bound by all terms of this agreement.

Work Ph. _____	Signed _____
Home Ph. _____	Date _____
FAX _____	Witness _____
E-Mail _____	Address _____

Inasmuch as Aircraft Spruce & Specialty Co. has no opportunity to supervise the manufacture, installation or maintenance of the parts supplied by it, nor any opportunity to participate in the design or manufacture of the various certificated and homebuilt aircraft in which its parts are utilized, the purchaser by placing this order and accepting said merchandise from Aircraft Spruce & Specialty Co. agrees that all materials purchased will be solely at purchasers risk and that purchaser will indemnify and hold Aircraft Spruce & Specialty Co., its owners and employees, free and harmless from all loss, liability or damage resulting from claims bought by reasons of any alleged failure or defect of any part or parts supplied by Aircraft Spruce & Specialty Co.

This form must be mailed back to Aircraft Spruce in order to process an order for plans.

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Type of Aircraft ____

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Address ______________________
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Ship To: Name ______________________
Address ______________________
City/Zip Code ______________________

HOME PHONE: (________) ________ - __________ WORK PHONE: (________) ________ - __________

METHOD OF PAYMENT

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(PLEASE PRINT) CARDHOLDER'S NAME ______________________ CARDHOLDER'S SIGNATURE ______________________ CARD EXPIRATION DATE

Quantity	Part Number	Description	Unit Price	Extension

☐ Send more order blanks (check here)

Please provide appropriate cutting instructions for oversized wood and metal.

NOTE: Please see catalog for the correct ground zone and the approximate shipping cost. Current UPS C.O.D. Charge is $7.50 plus $5.50 handling charge. If payment is by check and does not cover total charges, balance will be sent COD to avoid delay. Overages promptly refunded. **UPS HAZ Fee:** $20.00/ground/package, $30.00/air/package. *ALL PRICES SUBJECT TO CHANGE.*

Ship via: ☐ UPS (Standard) ☐ UPS Blue (2 day) ☐ UPS Orange (3 day) ☐ UPS Red (Overnight)
☐ AIR PARCEL POST ☐ MOTOR FREIGHT COLLECT ☐ DHL Int'l.

FEDERAL EXPRESS: ☐ Priority ☐ Standard ☐ 2 Day

INT'L SHIPPING VIA: ☐ UPS ☐ DHL ☐ Air Parcel Post ☐ Fed-Ex (requires Fed-Ex account)

**The sales tax for California residents is 7.25% (Riverside Co.: 7.75%). The sales tax for Georgia residents is 6%

Order Total: ➤	
Sales Tax: ➤	
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One Design Competition Rules

At the IAC Board Meeting in Orlando on November 4th, the Board voted on the final One Design rules to go into effect January 1, 1995. The rules are a culmination of the last two years, with input by many people including, the Rules Committee, the design Dan Rihn, all the Board members, and most importantly the IAC member. The rules were formulated using the majority opinion as guide. Keep in mind that there is no perfect answer, most things are a compromise in one way or another. Like any other rule in the IAC OFFICIAL CONTEST RULES, they can be amended as necessary to provide the best product possible. The best way to do this of course, is to send in a rule change proposal to the Rules Chairman listed in the front of the IAC magazine. Following the One Design Rules are a few comments that may answer some of your questions.

APPENDIX V
ONE DESIGN RULES

1. ONE DESIGN CONSTRUCTION PLANS.

A serial number will be issued to each set of drawings. The number will be used as the serial number for the aircraft. There will be no duplicate serial numbers and only one aircraft will be allowed to be built for each set of drawings.

2. ELIGIBILITY

IAC membership is required to be a registered One Design class participant.

3. REGISTRATION REQUIREMENTS

3.1 IAC membership number.
3.2 Copy of license agreement to build one aircraft and ownership of registered serial number.
3.3 One Design aircraft serial number. Placard, provided by Aircraft Spruce & Specialty Co.
3.4 External configuration photographs: side view (N number must be clearly seen), rear view, front view, engine compartment with the cowling removed, with additional photographs optional. Examples of these photos will be made available from the IAC.
3.5 Copy of weight and balance sheet (format provided in plans package.)
3.6 Proof of engine type and size.
3.7 All other necessary documentation for IAC sanctioned contest as per IAC rule book.

4. AIRCRAFT REQUIREMENTS

The external shape will be judged from the registration photos by the IAC One Design Chairman (Woody Woods) to insure that the applicant has followed the drawings as closely as possible. Any deviation will be considered possible grounds for disqualification of the aircraft from participating in this class.

4.1 A normally aspirated four cylinder parallel valve Lycoming engine with no greater than 360 rated cubic inches of displacement. (No turbos or nitrous oxide.)
4.2 Ability to self start the engine. Ground power plugs are acceptable.
4.3 Radios: must be able to receive VHF radio messages from the Chief Judge on a pre-briefed frequency. (as per rule 4.17.8. of the Red Book.)
4.4. An empty weight of 700 lbs. (oil in engine , no fuel).
4.5 Maximum wingspan (including tips) 19 feet, 4 inches.
4.6 Maximum length: as per official numbered plans from firewall face to vertical tail post trailing edge plus or minus 1 inch.
4.7 Maximum wing area (including tips) 75 square feet. Spades optional and not included in wingspan.
4.8 Main wheels to be 500 X 5. Tailwheel optional. Wheel pants optional, but if used must be white in color.
4.9 Propeller: fixed, constant or variable pitch.
4.10 'N' numbers: 3 inch on either rudder or fuselage forward of horizontal fin and/or in compliance with current FAR's. For foreign aircraft, in compliance with registering countries Aviation Regulations.

4.11 No lettering (other than in compliance with Regulations) greater than 1 inch high. No sponsorship names greater than 1 inch high and no individual logos, or decals greater than a total of 25 square inches in area and only one of the same type on either side of the fuselage, empennage, wing, wheel pant, etc.. Excessive decals or lettering may be construed as changing the color of the aircraft and therefore grounds for disqualification from the class.

4.12 Colors: Red, Dark Blue and White, with the design as called for on the plans and/or for the fuselage, empennage and upper wing surfaces as per the front cover of January 1994 *Sport Aerobatics*, or the February 1994 edition of *Sport Aviation*. The underside of the wing to be all red. Lexan optional, if used belly panels and side panels near rudder pedals only.

4.13 All control surfaces will be built in accordance with the official plans.

5. ADDITIONAL NOTES

Any changes to these items after the aircraft has been deemed to be an eligible One Design will be grounds for disqualification from the class. Spot checks of these items will be made by the technical monitors at IAC sanctioned contests.

ADDITIONAL COMMENTS FOR CLARIFICATION:

1. Construction plans: These are the official plans of Dan's aircraft and are available at Aircraft Spruce & Specialty Co.. They have supplies and kits available. Give them a call.

3. Registration requirements: I will get some photos as examples for the external shots for *Sport Aerobatics* in the near future.

3.6 Engine Type: The data plate from the engine will suffice in this case.

4.1 Engine: This is a change from the original proposal due to many comments and suggestions. Remember, this is only a cylinder requirement in reference to the parallel valves. Tech inspections will be made easy this way. The inspector can look for a four cylinder engine without flat rocker covers. For those who want a new engine, Dan has worked out a deal with Lycoming for a special price for us on these engines. They will be available at Aircraft Spruce & Specialty Co.

4.9 Propeller: Lots of ideas on this one to be sure. For those who want to save money or like the lesser maintenance costs we have the fixed pitch prop. For those who like the constant speed combination, we have that available also. The big reason for this compromise is the noise problems we have encountered with the prototype and the noise problems faced in other countries.

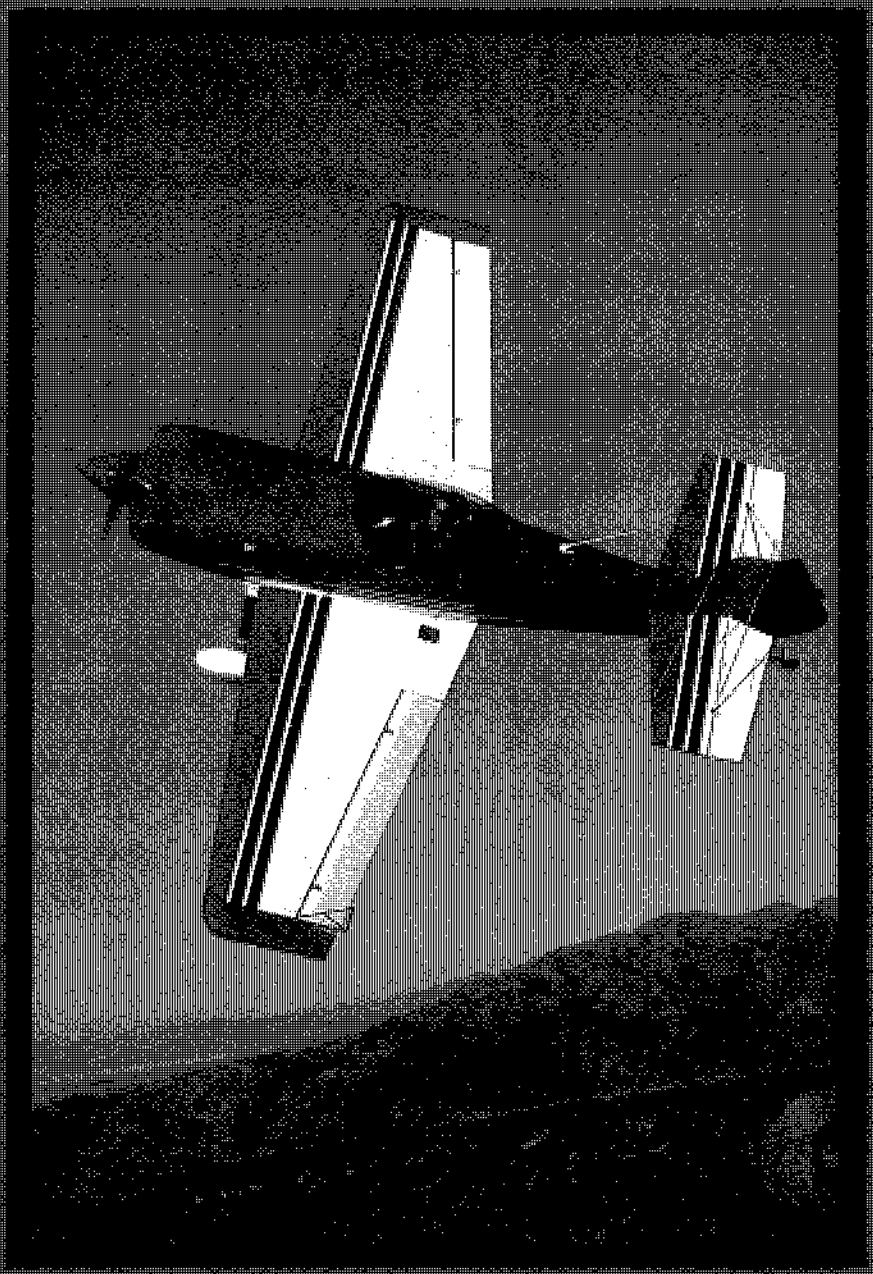
4.11. & 4.12. Paint Design: To have a truly One Design class we felt we must have some conformity to a particular design and color scheme. I know there are lots of opinions on this but by far this is the most widely accepted view.

We will have a 3 view drawing made up to be sent to all sanctioned contests so the tech inspector can easily check overall dimensions and such.

When you get your aircraft finished and want to compete in the One Design competition, send your photo's and registration requirements, copies of 3.1., 3.2., 3.3. (excluding the placard). 3.4., 3.5, 3.6. (photo will do), of the One Design Rules to Woody Woods. Woody has kindly consented to be our One Design Chairman.

One Design has great potential for our sport. Let's all play by the rules and may the best pilot win. Fly safe and have fun!

Contact the IAC for further information concerning these rules (901)-756-7800.



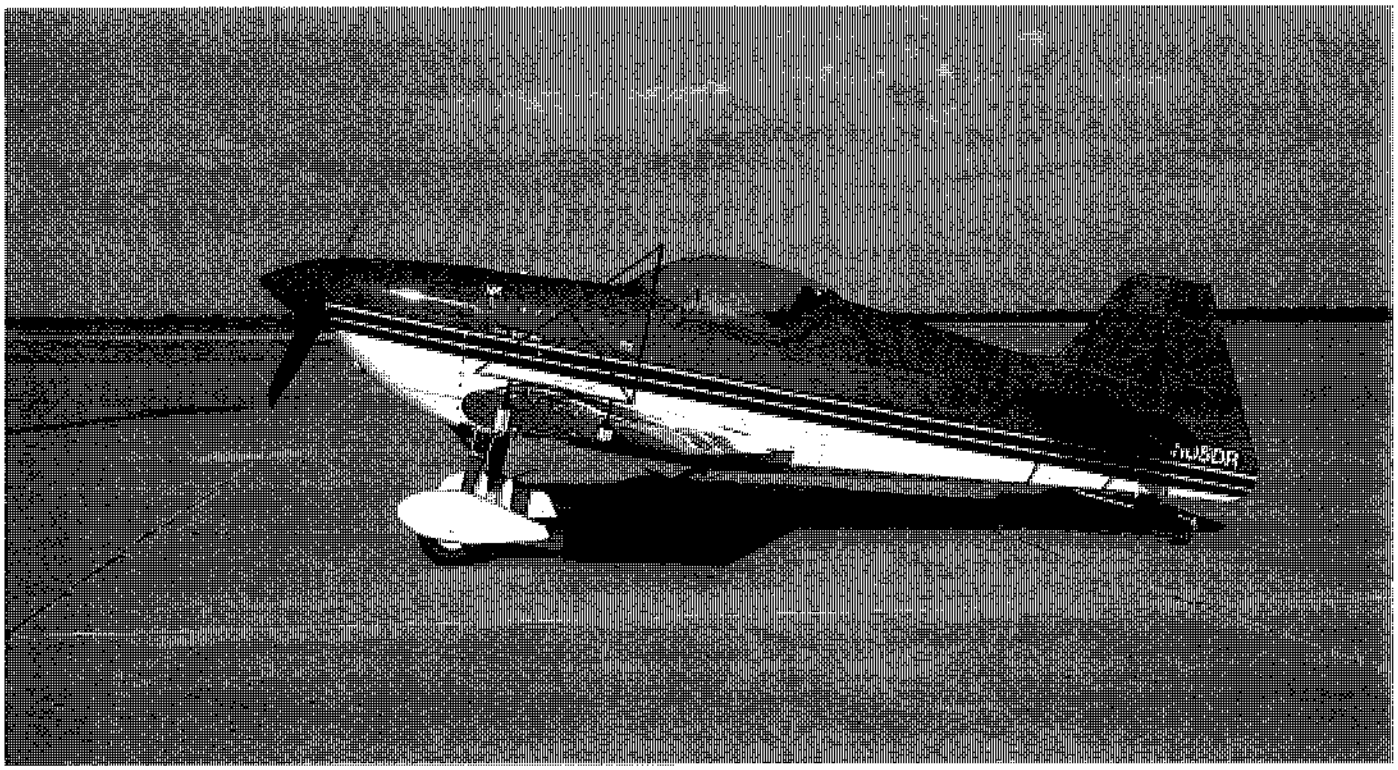
One Design

The Mission Statement...

Aircraft designed for competition aerobatics have become so expensive that few people can afford to become involved anymore. Recognizing a need for a rugged, powerful, responsive aircraft that could be used by beginners up through advanced aerobatic pilots, Dan Rihn (who is an aeronautical engineer at Northrop, has designed other aerobatic aircraft, and is a competition pilot) set out to design a kit aircraft that could be built quickly, with a minimum of tools, skills, and space. He succeeded beyond his dreams.

His One Design aerobatic aircraft is a perfect blend of modern aircraft technology, low materials costs, and the exacting demands of competition aerobatic maneuvers. Even if you never enter an aerobatic box at an International Aerobatic Club contest, but simply go up on weekends to throw yourself through the occasional loop or roll, the One Design is an excellent aircraft for having fun with precision flying.

The prototype One Design was taken to the U.S. National Aerobatic Championships as soon as the initial hours were flown off and over thirty pilots – ranging from those who fly Basic, Sportsman, Intermediate, Advanced, up through Unlimited aerobatics – took up the One Design and wrung it out. Reaction was unanimous and enthusiastic: the One Design delivers! The aerobatic community has been waiting a long time for this kind of aircraft. Its potential for cavorting through the sky in any attitude is phenomenal. This is what fun flying, sport flying, and aerobatics are all about. It's got the cross country range to get you to the big contests and the power for twisting through the most athletic aerobatic sequences. This isn't the tiger's tail, it's the heart of the tiger.



We Take You Now To The Flightline...

Let's cut to the good part. You've finished building your One Design, the FAA has come by and blessed your efforts, and you're ready to take to the sky. We'll assume it's a calm, clear morning and that you've already logged ten hours of straight and level flight with maybe a loop or roll to take the edge off your curiosity...but nothing exotic. That time has shown how well thought-out this aircraft is, how responsive and how ready it is for the full envelope of aerobatics.

You're strapped in with double seat belts and snug shoulder straps, comfortable in the reclining seat that provides good support for back and legs, even with the bulk of a parachute. The semi-supine position (angled at 30°) increases your tolerance for G forces. Visibility for all controls, the instrument panel, and to the outside is excellent. The balance and harmony in the controls is familiar and just what you want for control and precision in aerobatic sequences.

This is your airplane. You built it, you own it, and you know it inside out. You've preflighted it, primed it, and as you turn the key on the 160 hp Lycoming, you feel the airframe respond to the engine's snarling wake up call. The power in that engine and what it means to your aircraft have been little more than a dream until now. The excitement begins mounting.

Now. Advancing the throttle, you feel the transition coming, the first venture into aerobatic flight with your One Design. Your first outside loop, first snap roll, first spin, first Cuban 8, first...are just minutes away. The anticipation dissolves into reality as you begin rolling forward toward the active. Ground handling is easy and improved over the first prototype with the elevated canopy.

Run-up is conventional: 1800 rpm, check the mags, glance at the gauges, throttle back and run the control stick to its extremes. Rolling onto the active, you'll be pleased to see how effective the steerable tailwheel is and how nicely it tracks.

Moving the throttle forward with the brakes off brings a feeling of surge through the airframe. Response is immediate and flight occurs almost before you can bring the tail up to level position. Acceleration is rapid and you have to react quickly to get the nose pointed up if you want to hold to the 90 knot/ 2,000 fpm climb rates. It's easy to pass through 1,000' before getting to the end of the runway.

Knowing your control surfaces are extremely effective, you head off for the aerobatic practice zone with a light touch. The intimacy of the cockpit, close proximity of the instrument panel, response of the controls, and your familiarity with the construction of the aircraft give you a new sensitivity to flight...it seems more like a thought process than a physical activity. You don't so much fly this airplane as you wear it.

The procedure turns you've been doing in level flight and landing approaches have given an indica-

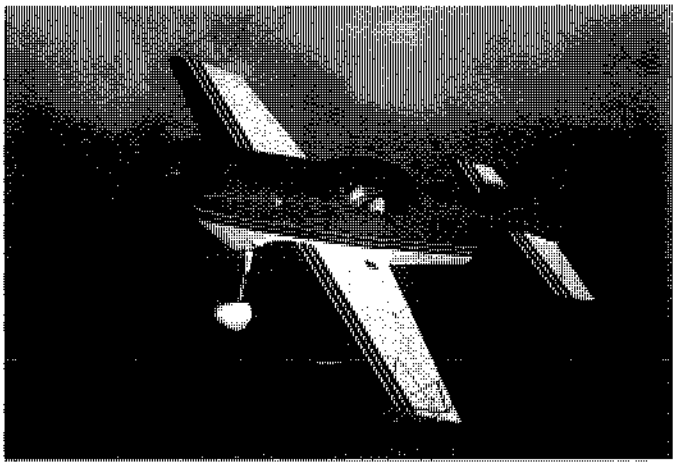
tion of roll rate: it's faster than a Pitts. Setting up for a roll, you drop the nose, quickly acquire the entry speed, pull up, and deflect the stick all the way to the right. At 360° a second, that roll goes by so rapidly it's hard to find level again. Kind of like swinging at a fastball in the major leagues. So you roll over a half dozen times and don't worry about where you come out. The earth and sky blur together. Snap the stick back to neutral and your head snaps in response. You discover you can do a four- or eight-point roll that clicks into each point with such crispness, you think your eyes are departing their sockets.

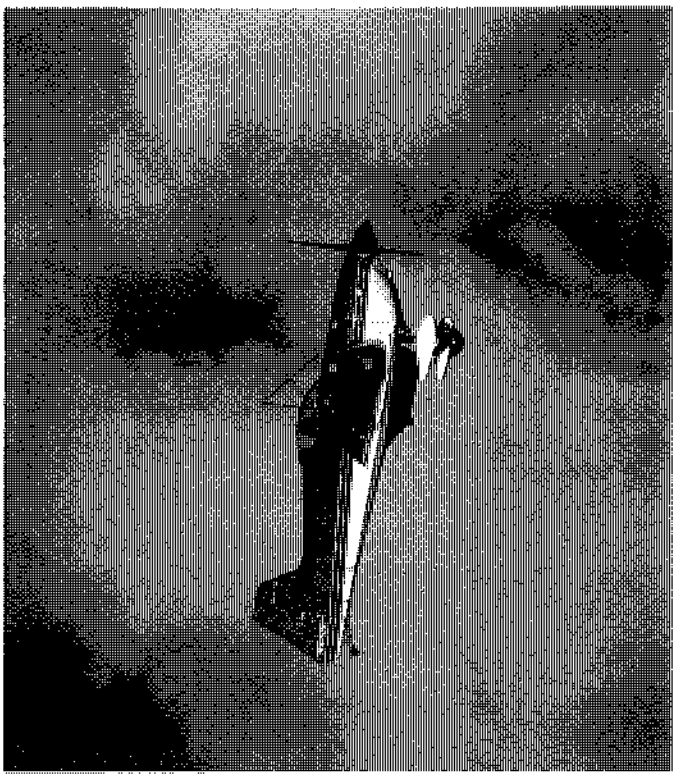
Looping can fit a tight radius. The elevators have presidential authority in moving that nose up and down. There's plenty of energy for going tight or loosening up to a 70 knot pass over the top with all the control you desire to make it perfectly round. Or you can pull back and enjoy an outside or inside snap on top. Banking and yanking have never been so much fun. With a few tries and the rush of familiarity coming from the controls, you'll soon be swinging the nose around like the main gear was on a well-worn track. It's as easy as riding a carousel.

Actually, it will take some time to probe the envelope of the One Design. It's going to be ready for far more than you are. Granted, it might not catch the Unlimiteds on the vertical line up at a World Aerobatic Championship, but in every other attitude, at most other contests, it's competitive.

And the price! If you start with the basic materials – no pre-fabbing – you can almost have your own squadron of One Design airframes for what one of the top Unlimiteds sells for. It's an airplane you can afford to own, afford to maintain, afford to fly. It's designed for first time builders, with minimal skill requirements, user friendly plans and minor space requirements.

Whether your objective is winning competition aerobatic contests or just going out for some weekend cavorting, the One Design offers power, agility, reasonable cost, and the good looks that turn every flight into an exciting adventure. It's a scramble-your-brains airplane with aristocratic manners. It's what the market has been asking for over the past decade. You can do it.





Firewall Forward...

Starting up front, the One Design sports a large, spun aluminum spinner that was developed by Sensenich along with the fixed pitch aluminum prop. It's 74" from prop tip to prop tip and experimentation with pitch has run a wide range, settling in on 62" for best aerobatic maneuvering. The fixed pitch option is simple, low maintenance, and inexpensive as opposed to constant speed.

The fiberglass cowl is in two sections and comes apart quickly to provide easy access to the powerplant and all the accessories. This is one part you may wish to order in completed form, or you can order the glass and resin and build up your own. The bolt-on version is sleek and provides efficient conformity to the engine while allowing superb cooling.

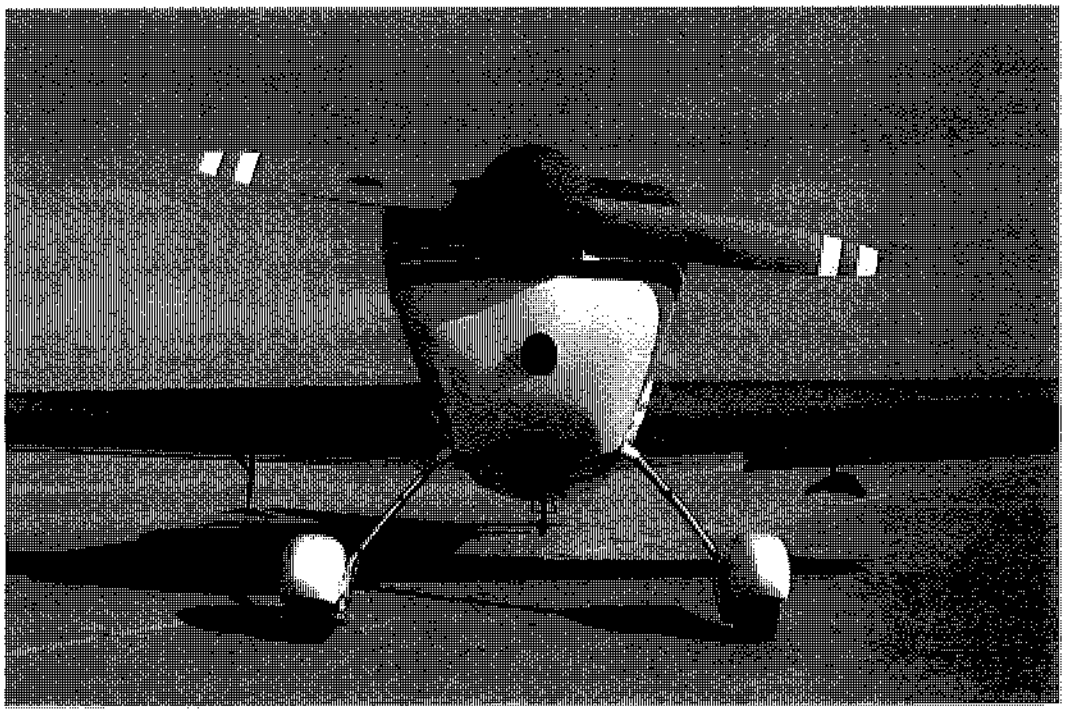
There are a couple of choices for engines. Originally, the prototype One Design was fitted with a straight 0-320, which was removed from a Cessna 172 and refitted with higher compression pistons to get more power out of 100 low lead fuel. An inverted oil system was bolted on for inverted flight. A fuel injection system from Airflow Performance, Inc. was also bolted on. The effect of the changes boosted the horsepower to 160. The objective was to work with a powerplant that's readily available.

A four cylinder Lycoming 0-360, rated at 180 hp, can also be used.

Both engines utilize the same dynafocal mount. Both can be equipped with electric start and alternators. Parts are abundantly available for each engine.

Using a 200 hp engine is possible, but not recommended because of added weight. Engines down to the 0-200 could be used, but would require some modifications to the airframe for balance and would take a different type of engine mount. For best performance in competition aerobatics, the 160 hp and 180 hp are best.

Firewalls can be stainless or galvanized steel. Preshaped stainless firewalls are available for bolting in.



Wings...

The one piece wing is an all wood structure, featuring spars that were originally designed to be built of aircraft grade Douglas fir. Sitka spruce can also be used, though the cost is considerably higher. There's little difference in weight. With Douglas fir, four 3/4" boards are laminated giving the forward spar a 3" thickness. The forward spar carries through the fuselage, tying into the truss at both sides. Spar depth in the carry-through section is 9 1/2". Moving outboard, the 18' solid wood spar thins out to 3/4 " thick by 5 1/2" deep. Plywood templates are attached to the forward spar where it attaches to the fuselage. The rear spar, which does not carry through the fuselage but ties into the side of it, is almost square in shape, though the diminishing chord of the symmetrical airfoil technically creates a trapezoid in the cross section.

A customized airfoil was computer-generated for the One Design. Top and bottom wing surfaces are perfectly symmetrical. Thickness of the airfoil is 16% of chord length. The airfoil is as happy inverted as it is right side up. With its tapered plan form, the One Design has highly responsive controls in roll and pitch, yet its stall characteristics are gentle and without any surprises.

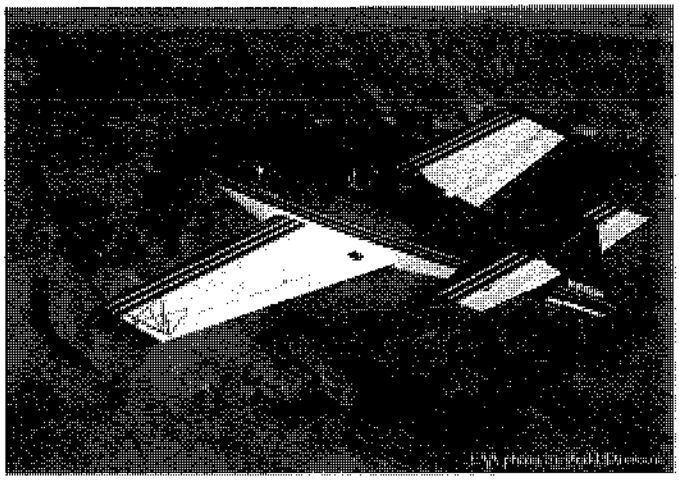
Eight ribs are spaced a foot apart on both outboard wing panels. Mahogany plywood 1/16" thick is used for the ribs and perfectly straight capstrips run from the forward spar to the rear spar, on top and bottom, creating a trapezoid cross section. The capstrips do not pass over the spar. There's no curve to the wing surface between spars. No jigs are required for either wing ribs or wing assembly. There is no dihedral, no washout. The only curve is ahead of the forward spar, in the nose ribs.

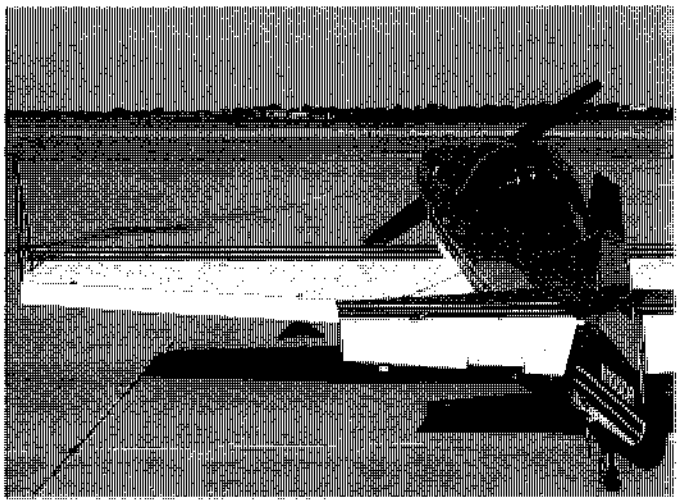
Two wood stringers run from the root rib to the wing tip forward of the main spar, on the top and bottom, and two more run between the main and rear spar, top and bottom. Where those eight stringers contact the ribs, vertical braces are added to the ribs.

Wing covering is 1/8" mahogany plywood which doubles as drag/anti-drag bracing. The skins are glued directly to the ribs and spars.

The leading edge is formed with separate nose ribs that tie into a nose block, providing a surface for gluing the skin. A second nose block forward of the skin is shaped to provide the forward edge.

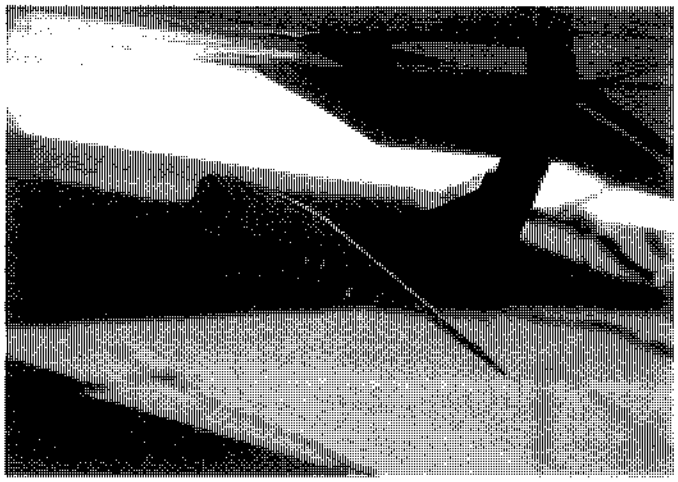
Ailerons are wood structure similar in configuration to the main wing (spar, capstrips on ply web, and squared off trailing edge). They are covered with fabric, mass balanced and aerodynamically balanced.





One Design...

...in a class by itself for weekend fun or competition aerobatics.



Aerodynamic counter balances (spades), located under the ailerons, allow for customizing stick loads to suit the pilot's pleasure. Stick linkage with the ailerons is by push-pull tubes.

Fiberglass wing tips add 8" at each end of the wing, giving a total span of 19' 4". Tips can be fabricated by the builder or purchased ready to bolt on.

The basic wing structure for the One Design prototype was completed in less than three weeks. As with the fuselage truss and fiberglass parts, wings can be purchased as raw materials packages or ready to bolt on.

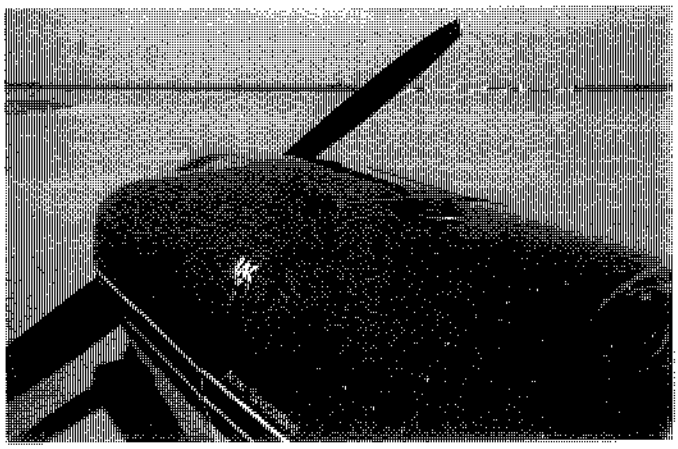
Fuselage...

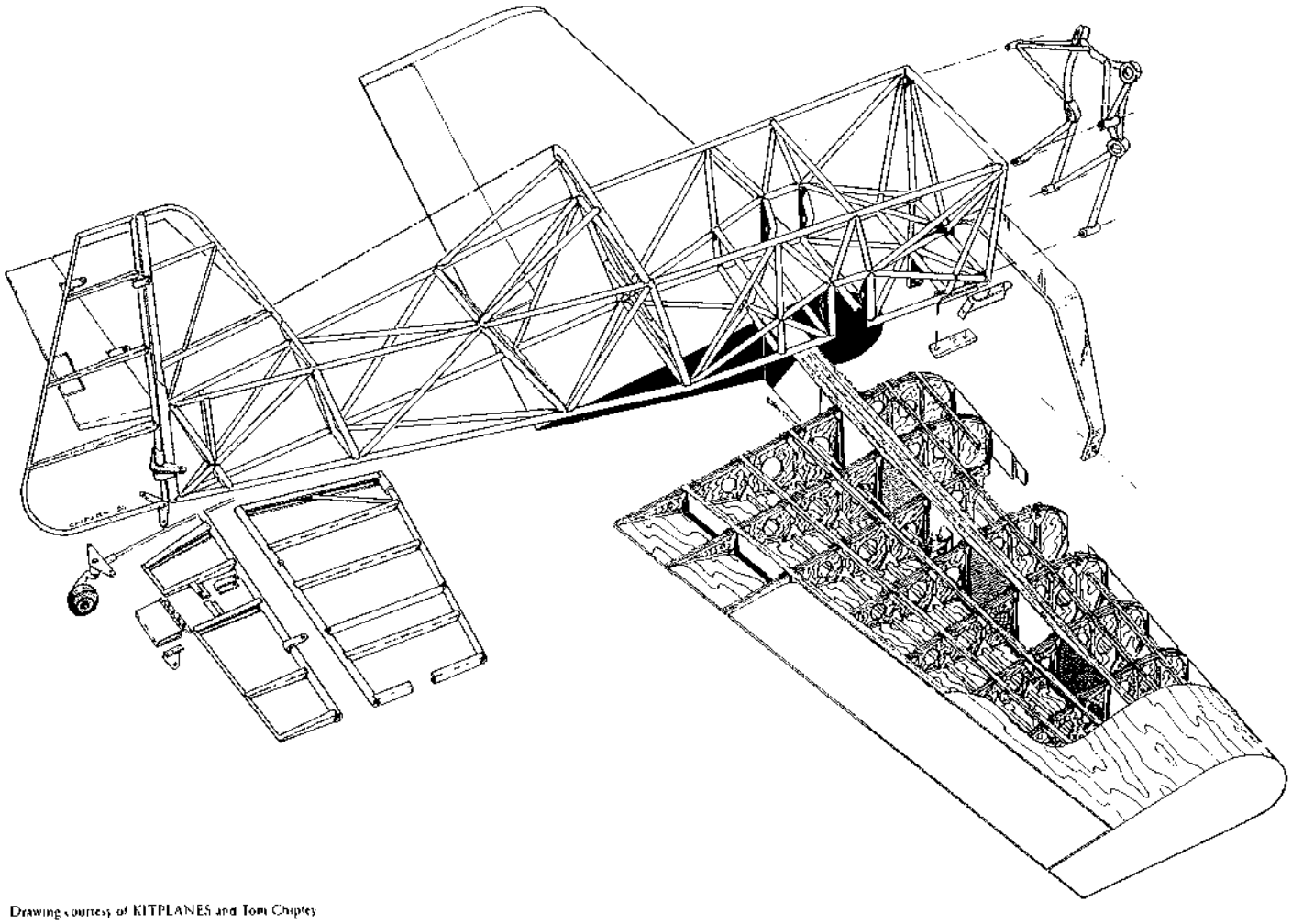
The fuselage truss is compact, straightforward, easy to weld up, and incredibly rugged. Two types of 4130 steel tubing are used: 3/4" x .035" forward of the pilot's seat and 5/8" x .035" aft of the seat. Longerons are 3/4" all the way from firewall through vertical fin. Aluminum – 2024-T3 – is used to cover the steel tube frame from the firewall to the aft line of the cockpit and on the turtledeck. Fabric covers the turtledeck, the fuselage frame below, the ailerons, and tail surfaces. Structure in the tail feathers is 4130 steel tube for spars and outline.

The tail group ribs are formed from 4130 flat stock that is bent and welded in. A total of eight stainless steel flying wires hold the tail group rigidly in place, allowing for snap rolls and tail slides all day long. Push-pull tubes activate the elevator, which has a trim tab. Cables connect cockpit pedals to rudder and tailwheel.

Fuel System...

There is a header tank with a flop tube and a regular fuel tank. They are located just aft of the firewall, ahead of the instrument panel. Both are made of aluminum. The header tank holds 6 gallons of fuel and the upper tank holds 12.5 gallons. Wire-braided Teflon fuel lines run through the fuel cut-off valve and forward to the engine. There's more than enough fuel available to wear yourself out in the aerobatic box.

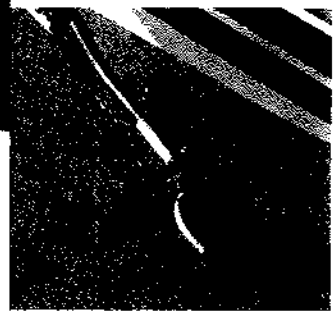




Drawing courtesy of KITPLANES and Tom Chipley

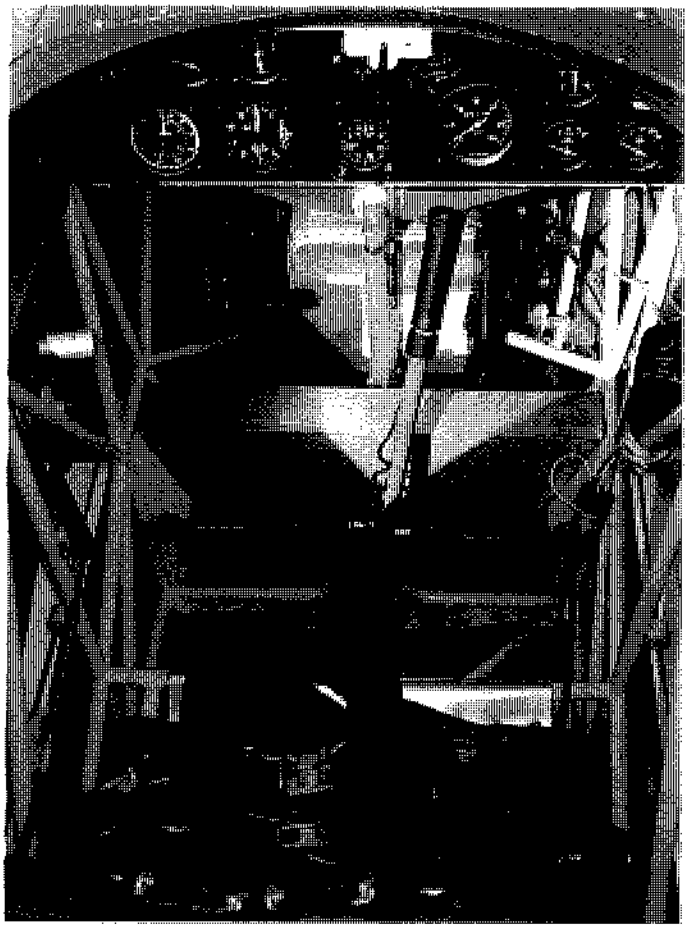
Gear...

A one piece aluminum 7075-T6-51 gear is used with Cleveland wheels and hydraulic brakes. Goodyear 5.00 x 5 tires are on the wheels. Fiberglass wheel pants can be fabricated to suit the builder or a variety of pre-fab units can be purchased separately and bolted on. The solid rubber, steerable 4" tailwheel provides for excellent ground handling.



Cockpit...

Typical of aerobatic airplanes, there is no upholstery designed for the seat. Parachutes soften the effects of the aluminum seat and make cushioning unnecessary. The objective in an aerobatic aircraft like the One Design is to create a hard surface to provide for positive cinching with seat belts. On the other hand, if you want some cushion for cross country flying there's an opportunity for some customized work here.



The control stick was engineered to provide full movement in side to side motion; the stick won't slam up against your leg. The tube for the elevator passes aft below the fuselage truss. Controls are incredibly light, highly responsive, and easy to reach.

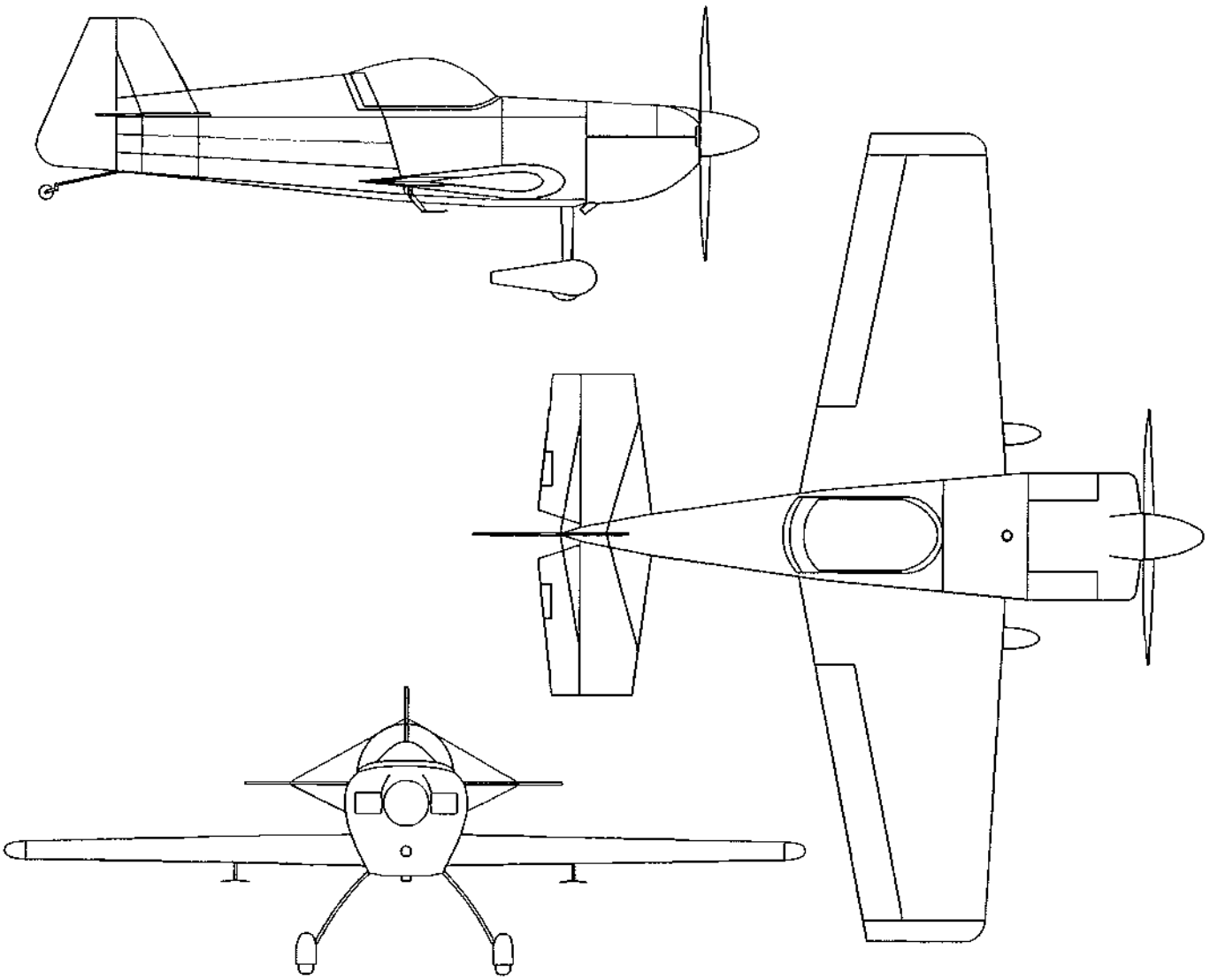
It's possible to have the canopy one of two ways: opening to the side or sliding rearward over the turtledeck.

The instrument panel is designed for aerobatic flying in VFR conditions. A radio can be mounted along with a Mode C transponder. A handheld GPS moving map unit with an exterior antenna works beautifully.

Everything is easy to reach, convenient to view, pilot friendly. It's comfortable, roomy, yet it offers pilot security, comfort, and great visibility.

The Plans...

Full-scale wing rib drawings and templates for fittings, along with detailed fuselage truss diagrams and tail group diagrams, make the fabrication process fast and easy, even if it's your first homebuilt. Dimensions, placement, and attachments are readily determined from the plans, making the transition from paper to flightline a rapid procedure. Whether you fabricate 100% of the aircraft or only 51%, figuring out what to do from the plans is a breeze with One Design. Exhaustive engineering went into blending strength, durability and simple construction methods. In no time at all, you'll have a frame on the gear, wings on the table, and controls in place. Getting out to the flightline and aerobatic flying is what it's all about, and we've spared no effort to make that a quick trip that's affordable for all.



The Kits...

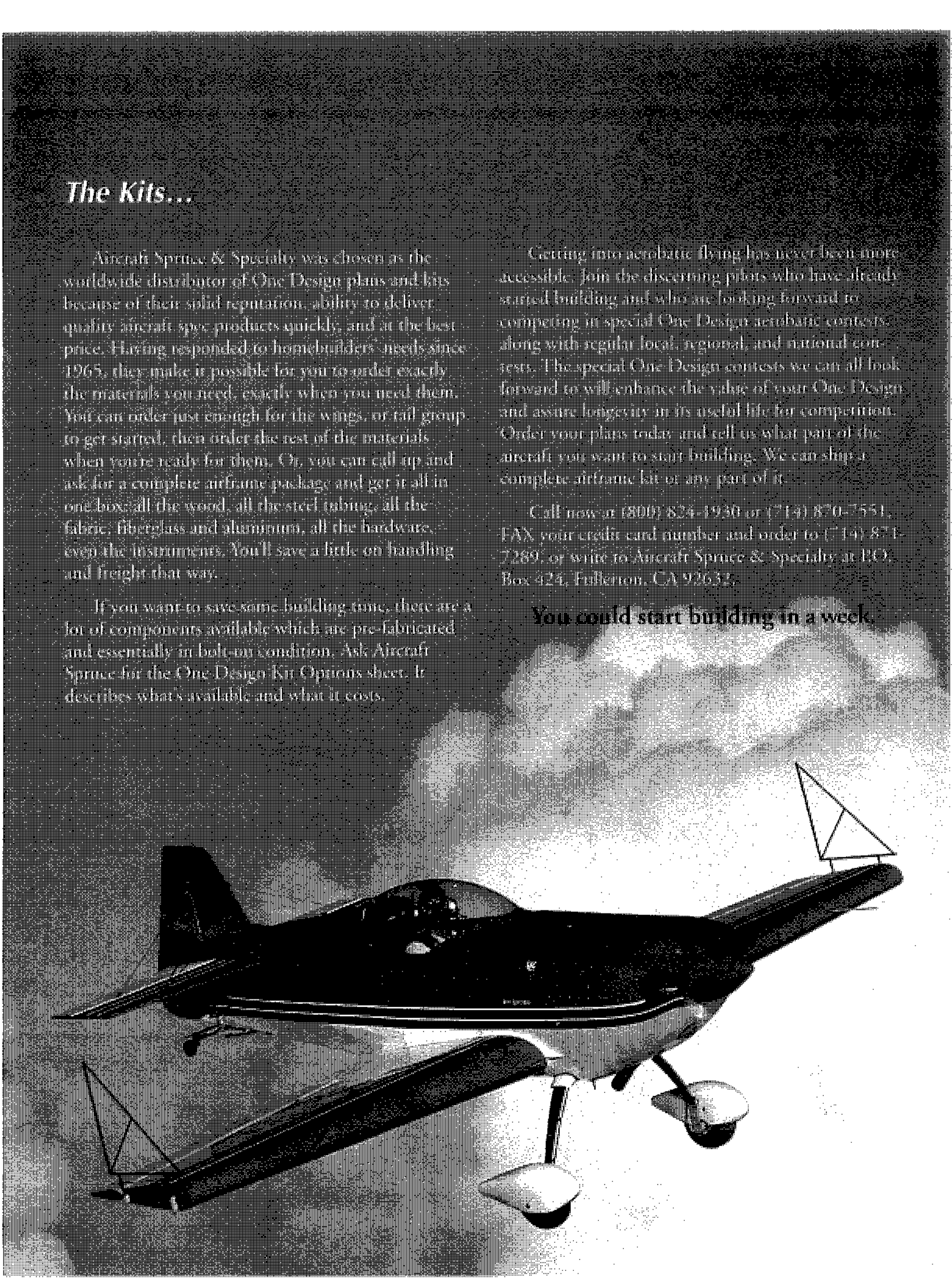
Aircraft Spruce & Specialty was chosen as the worldwide distributor of One Design plans and kits because of their solid reputation, ability to deliver quality aircraft spec products quickly, and at the best price. Having responded to homebuilders' needs since 1965, they make it possible for you to order exactly the materials you need, exactly when you need them. You can order just enough for the wings, or tail group, to get started, then order the rest of the materials when you're ready for them. Or, you can call up and ask for a complete airframe package and get it all in one box: all the wood, all the steel tubing, all the fabric, fiberglass and aluminum, all the hardware, even the instruments. You'll save a little on handling and freight that way.

If you want to save some building time, there are a lot of components available which are pre-fabricated and essentially in bolt-on condition. Ask Aircraft Spruce for the One Design Kit Options sheet. It describes what's available and what it costs.

Getting into aerobatic flying has never been more accessible. Join the discerning pilots who have already started building and who are looking forward to competing in special One Design aerobatic contests, along with regular local, regional, and national contests. The special One Design contests we can all look forward to will enhance the value of your One Design and assure longevity in its useful life for competition. Order your plans today and tell us what part of the aircraft you want to start building. We can ship a complete airframe kit or any part of it.

Call now at (800) 824-1930 or (714) 870-7551. FAX your credit card number and order to (714) 871-7260, or write to Aircraft Spruce & Specialty at P.O. Box 424, Fullerton, CA 92632.

You could start building in a week.



One Design Specifications – Prototype N105DR

Dimensions:

Wingspan	19 ft 4 in
Length	17 ft
Wing area	75.55 sq ft
Aspect ratio	5.03
Tailplane span	7.5 ft
Cockpit width	24 in.
Cockpit length	55 in
Fuel capacity	18.5 gal

Weights and loadings:

Empty weight	740 lb
Acro weight	1,000 lb *
Wing loading	13.4 lb/sq ft
Power loading	6.25 lb hp
Limit load	10+/- G

* Acro weight = empty weight + 200 lb pilot + fuel, oil, parachute

Performance at acro weight:

Max level speed	184 mph
Max rate of climb	2,000 ft/min
Stall speed	60 mph
Max L/D	10.4
Rated power	160 hp
Roll rate	360°+/sec

Engine:

Lycoming O-320 removed from C-172

Modifications include:

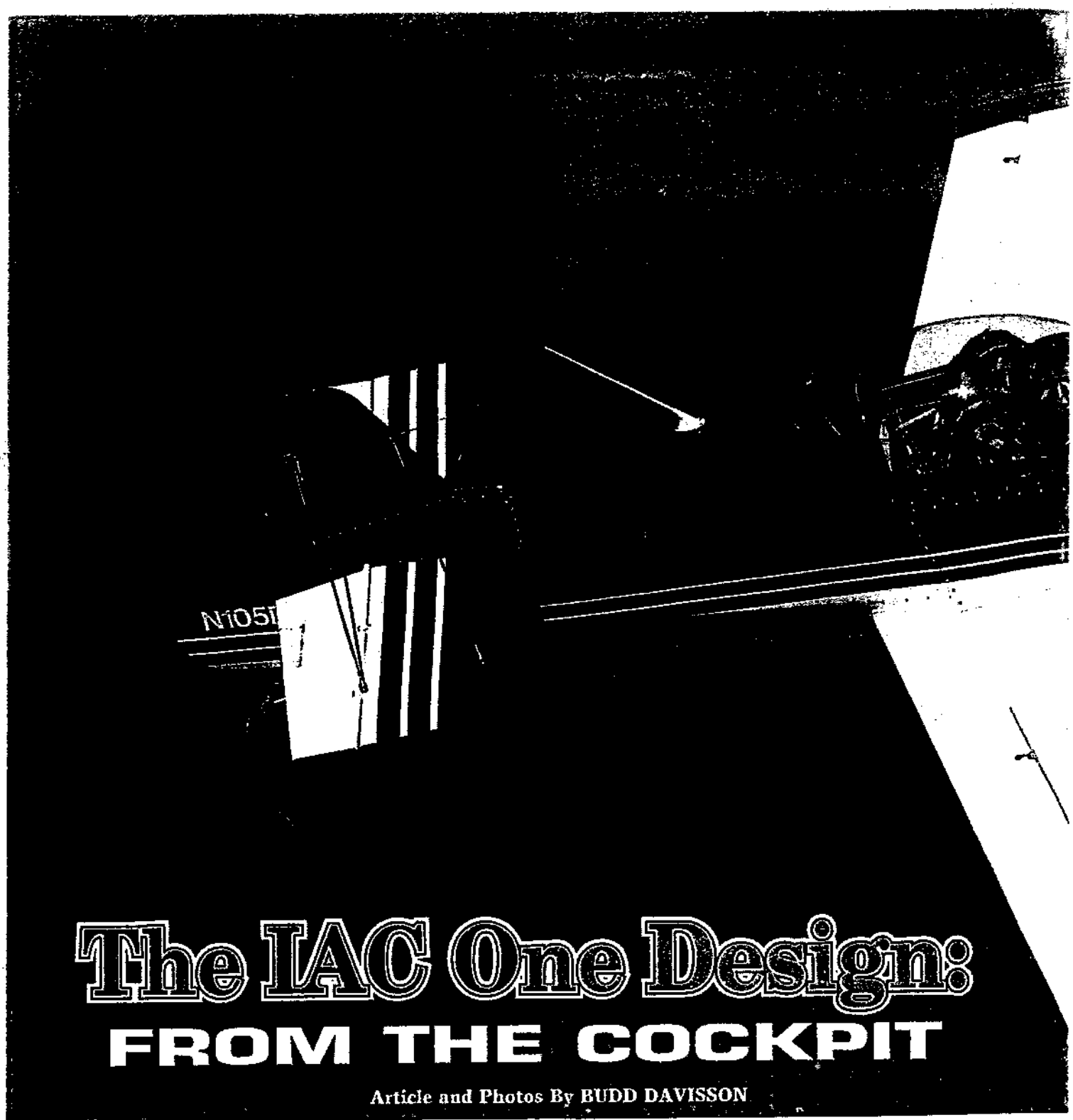
- Airflow Performance fuel injection system
- Higher compression pistons

Power nominally rated at 160 hp

Propeller:

Sensenich; fixed pitch aluminum, 74" diameter, 62" pitch


The IAC One Design:
FROM THE COCKPIT



The IAC One Design:
FROM THE COCKPIT

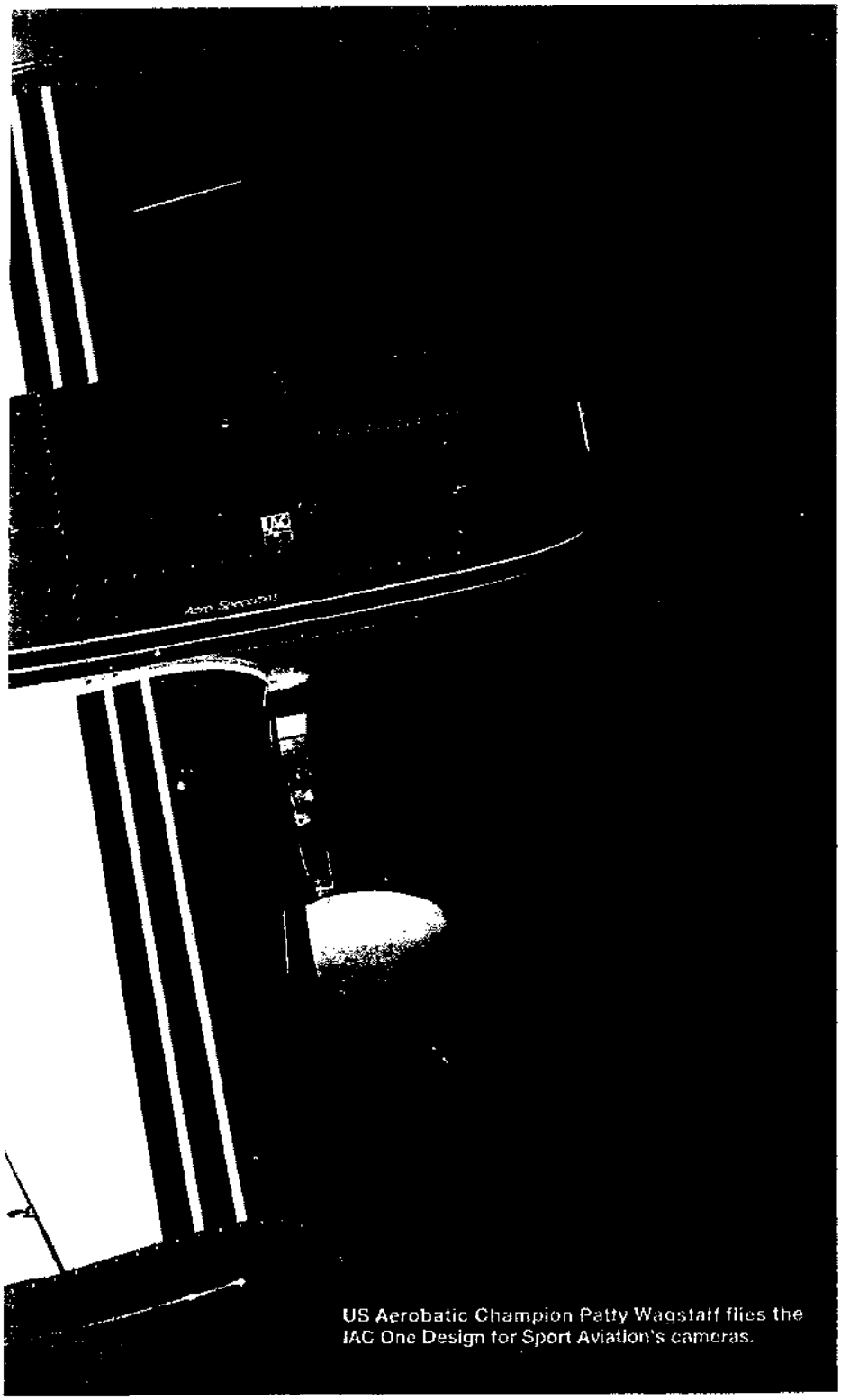
Article and Photos By BUDD DAVISSON

Let's get one thing straight from the git-go. The little Dan Rihn designed One Design is a lot more airplane than I am pilot. But then, most specialized aerobatic airplanes are more airplane than most pilots. There aren't, for instance, but a handful of pilots in the world who can utilize everything a Pitts S-1S has to offer.

But, the One Design isn't aimed at that top handful of unlimited pilots. It is aimed at guys like me who are serious about aerobatics, but can't afford to play in the big leagues because of the horrific cost of the current big guns. Most of us don't have the time to go unlimited anyway. There are, however, uncounted hundreds of us who would love to compete, if we didn't have to get caught-up in the dollar-race that competition usually turns into.

The One Design is an effort to stop that.

The IAC One Design class is an International Race of Champions (IROC) approach to aerobatics. To compete, you must fly this one design (clever name!) and it must conform to specifics as laid down by the IAC tech committee. This includes things like engine displacement, wing span and shape, weight minimum, etc. An interesting part of the qualifications is that a photo is required of the instrument panel in flight showing the airspeed and tachometer at full throttle. The goal is to have everyone flying



US Aerobatic Champion Patty Wagstaff flies the IAC One Design for Sport Aviation's cameras.

airplanes so similar the pilot becomes the only variable in the equation.

The one design concept has been bashed around in a lot of late night bull sessions by a lot of folks, but the one that finally got something accomplished was between Lewis Shaw of Dallas and Dan Rihn of Long Beach, Ca. A long time competitor and akro supporter, Shaw finally drew the line in the sand and told Rihn, who's an aeroengineer and akro pilot, it was time to stop talking and start building. He'd fund it and toss in his two-cents on design parameters, when asked.

That was late in 1992. The prototype flew 9 months later, a tribute to the building capabilities of Jon Staudacher, who did the wing, and Doug Dodge of Acro Specialties, Inc. in Bay City, Michigan, who did the rest. Dodge actually started cutting metal in March '93 and flew the airplane in late August, losing two weeks for Oshkosh. During this time, Dan Rihn had to design the airplane and produce drawings for the builders to build from. There was a tanker load of midnight oil burned by a lot of folks during 1993!

The IAC Board of Directors has given the green light to the One Design class concept and the exact rules are being refined, even as we speak, er, write. So, One Design, the airplane, has a home in One Design, the aerobatic competition class.

As I was strapping into the airplane on Scottsdale, Arizona's ramp, I felt secure, if nothing else, because although the airplane had only about 85 hours on it, those hours had been at the hands of over 75 different pilots and almost all of them had been hard aerobatics. If it was going to break, it would have already broken. Besides, the airplane had just come out of Lewis Shaw's shop after being completely inspected and freshened up.

Everyone's first impression of the airplane is the same, "Boy, is that thing small." It looked miniscule out there on that big Scottsdale ramp, and with only 19.5 foot of wing (tips included) and 75.5 square feet of wing area, it was small. A single-hole Pitts has only a 17 foot span, but 98 square feet of wing area, for comparison.

The wing looks short because it is so fat. It is also solid; it feels like a gymnasium floor when stepping up on it to board. Sliding down into the cockpit, the wing tips seem to get closer, but this is a feeling that disappears almost as soon as the engine cranks.

Chris Gardner was shepherding the airplane around for Lewis and Dan, and he was a good choice. Besides being a mechanic, he personally built the 0-320 Lycoming that had been lifted right out of a C-172. The engine was essentially stock except for an Airflow Performance injection system and slightly higher compression pistons which Chris feels makes it good for about 160 hp. The prop is a 74" diameter, 60" pitch, metal Sensenich.

The first impression on boarding is that this thing is really wide, and not just when compared to a Pitts. I'm an FAA-standard pilot in every dimension and the longerons were at least 2-3 inches outboard of my shoulders when wearing only a light jacket. At 24 inches, it is one of the widest monoplane cockpits around.

The huge spar ran under my knees and the seat angle approached the so-called semi-supine configuration. This means your feet are really out in front of you and higher than on most aircraft. This supposedly makes it easier to tolerate "G" forces.

Looking around, I couldn't see a thing on the ramp if it was smaller than a JetStar, so we cranked the seat back forward to give me as much

Courtesy Dan Rihn

IAC One Design designer Dan Rihn.

height as I could get inside the glass. The prototype uses a canopy which Dan Rihn says, "... we just happened to have lying around and don't know what it is for ..." and is several inches lower than that which is in the drawings or which will be available for the airplane. That is important because, as I flew it, the airplane is too blind for a monoplane. Because of its width and low seating position, the airplane is much blinder than a Pitts during ramp operations. It makes a wide runway seem narrow and two more inches of sitting height should fix that.

I have a bad back (doesn't everybody?), so I wadded up a spare jacket and put it behind my back as a lumbar support. More on that, later.

Locking the canopy down (Dan says a sliding version is designed and in the plans), I toggled the primer and hit the start button, immediately being rewarded with a throaty roar from the region down by my feet. One of Shaw's contributions is an unusual offset control stick arrangement he first had on his Swiss Akrostar. It looks wierd, but, as I wrapped my hand around it to taxi, I was surprised how natural it felt. The throttle, however, would have benefitted from being relocated forward an inch or so.

The tailwheel ratios are dead nuts on. The Aviation Products 4" tailwheel is small enough that cracks in the pavement are felt, but, otherwise, it is delightful in the way it lets the pilot control the airplane. Most airplanes fall in a range, when it comes to tailwheel steering, with none of them being bad. However, when a good one comes along like this, it points out how much further the rest have to go.

On Scottsdale's 50 foot taxiways, I had to really exaggerate my "S" turns to see ahead. Even in a Pitts, a gentle turn opens up a sight window straight down the taxiway. Not so the One Design. Dan is aware of this. Since the airplane is going to a wide variety of pilots on different types of airports, the assumption has to be it will see its share of narrow runways and green pilots, so the visibility has to be fixed.

Cleared, I rolled out on what I estimated to be the runway centerline and gently brought the power up. Sure felt like a 180 pulling out there! As we rocketed down the runway, I eased the tailwheel off the ground and kept increasing back pressure on the stick to hold a slightly nose high attitude. I never did let the tail get high enough for me to see over the nose. At some point, the airplane skipped once and a little more pressure put it off the ground and climbing.

It was instantly obvious there was no reason to drop the nose and let the airpseed build. The challenge was keeping the speed down and that meant increasing the deck angle by a bunch. A big bunch! Chris had said 100 knots was a comfortable climb speed but I hadn't paid any attention to the airspeed at all until I had it established in a climb that seemed to look and feel good. It was indicating 115 knots! I pulled up to 100 knots and found myself pointing up at a ridiculous angle. At the end of the runway I had an easy 1,000 feet and by the time I was ready to change frequency, I was going through 4,000 feet.

I had been told the airplane had a tremendously high roll rate, so I was very conscious of not tweaking the ailerons and I kept looking for the "balanced on the head of a pin" feel, but never found it. On climb-out I could feel a lightish pitch input, but the ailerons felt fairly natural, especially if I rested my hand on my knee and finger-tipped the stick below the grip.

A Decathlon or Citabria pilot might be well advised to take a ride in something like a two-hole Pitts or Extra 300, just to get themselves introduced to the world of light, quick controls. As it happens, the One Design presents absolutely no problems in those areas, as long as the pilot is prepared for light controls and can control his movements. If he is ham handed and prone to panic, he could possibly get a PIO going on his first flight. If he does, the fix is obvious . . . let go, the airplane will damp-out and take care of itself.

I wanted to get a stop watch on the climb rates, but I was already so high I dropped the nose and twisted around in a diving spiral, to get rid of a couple thousand feet. In the spiral, I could see I would have to watch the prop since it was fine enough the rpm built fast when nose down. The speed, on the other hand, was easy to keep in check.

I found at 100 knots, the airplane climbed at about 1,400 fpm, and reducing the speed to 90 knots put it right at 2,000 fpm. I didn't go any slower because the angle gets so steep that it is dangerously blind.

Level, I slowly pushed the throttle to the stop and watched as the speed and rpm built up. It was still accelerating through 160 knots and the tach was pegged at 3100 rpm, but I was unwilling to push someone else's engine any faster. Obviously, it could stand to have a couple inches of pitch put in it, although the serious akro types are happy as clams putting 3,200-3,300 rpm and more on their engines.

The initial part of the flight had been done under great duress because it had all been right side up. I fixed that at the end of the speed run by pulling hard upward, watching as the nose whipped into the vertical, as indicated by the wingtip attitude indicators. At this point, I had yet to do anything with the ailerons other than normal flight maneuvers, so I wasn't ready for the world to disappear when I hammered in what I thought was full left aileron. With absolutely no hesitation whatsoever, the wings ripped, absolutely ripped, around the horizon, screwing up any

form of planning I had in mind.

Since I had entered out of level flight with no extra speed in the bank, I had planned on doing only a half vertical roll and hammerheading out, but to this day, I haven't the slightest idea how far I went around, but it was more than once. When I saw what was happening, I held it in for a second, then centered the ailerons instantly. The airplane stopped so quickly, again, I wasn't ready for it.

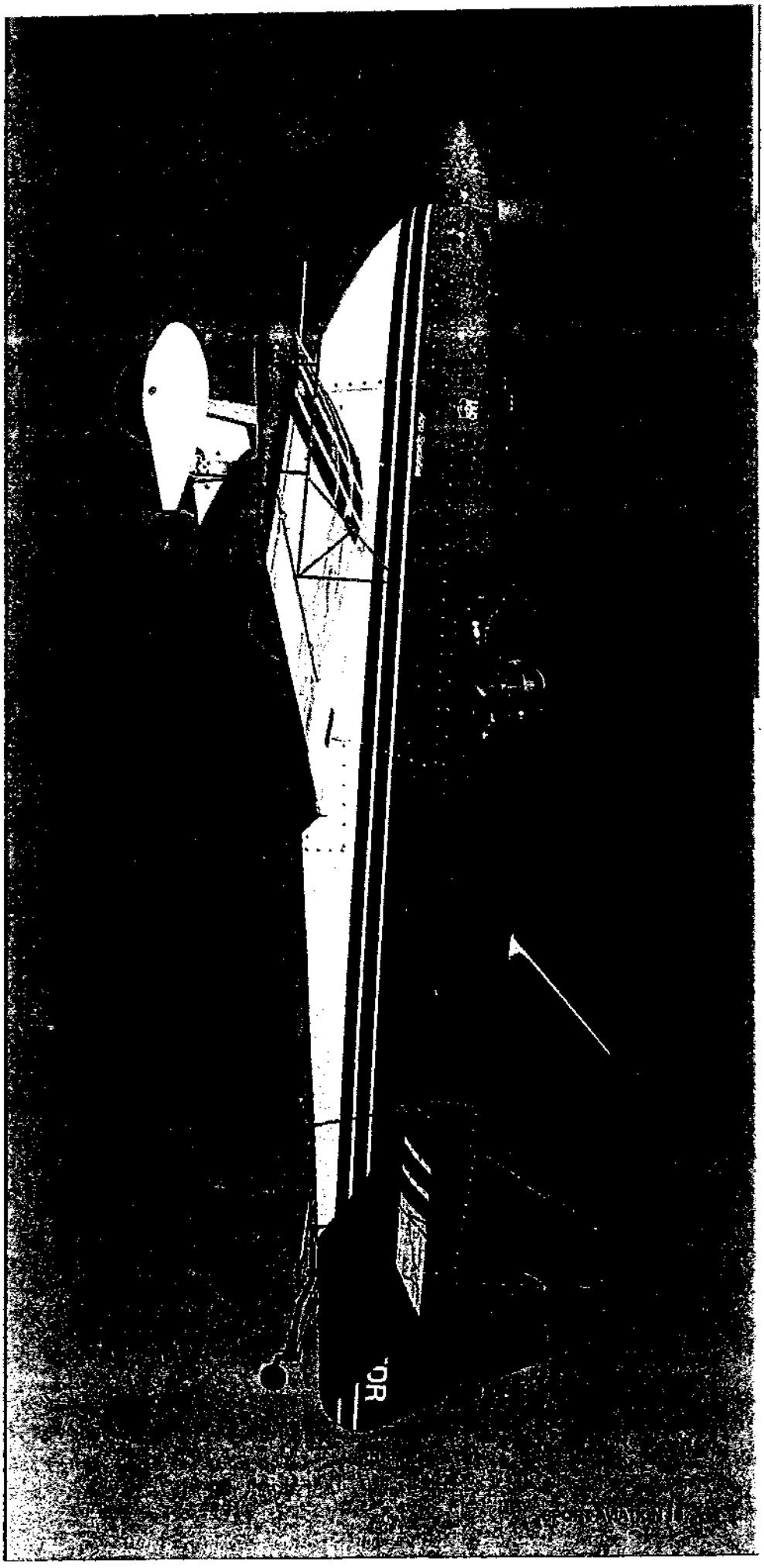
At that point, I felt suitably humbled and pulled over the top, doing a half roll on a downline, while building speed.

On the way out to the practice area I had played with the controls and found the airplane to have absolutely no decernible adverse yaw, so rudders were redundant in aileron rolls. With that in mind, I let the speed build to 160 knots and brought the nose up high intending to do two full-deflection aileron rolls. Stick to the side, I was amazed at how fast it went around. It was significantly faster than even a Pitts snaps. Dan says it has been timed at 420 degrees a second, where an S-1S is about 180 degrees. Wow!

I did the same thing again, this time leaving the ailerons in for four rolls and, when I snapped the stick back into center, causing the airplane to stop just as quickly, my brain did at least two more circuits before it stopped. Serious roll rate! What makes the ailerons even neater is that besides being fast, there is no inertia at all. When the ailerons are poked, the wings immediately respond, and when the ailerons are released there is absolutely no tendency for the wings to keep on moving. Point rolls are so precise and easy it's hard to keep your eyeballs in their gimbals!

After doing some investigation of the controls, I realized the airplane is really unusual in that unless the pilot asks for a high roll rate, he'll never know it is there. The stick ratios, break-out forces and travel are such that a pilot could fly the airplane for years in a normal fashion and never have an inkling the airplane has such phenonomal roll available.

This is not true of the elevator forces. The stick gradient for the elevator force in positive flight is flat enough that it gives the impression of falling off slightly. As "G" is applied, it feels as if it gets progressively easier to add the next "G". Again, this is no problem except for the "non-sensitive" (read: ham handed) pilot. The first few times a Decathlon pilot loops the One Design, there is a high probability he will make himself a lot shorter unless he lightens up on the stick.



Later on, in doing outside work, I found the outside elevator forces to be out of balance with those inside. In otherwords, it was much easier to pull than it was to push. Dan says this has been a common comment and has a fix in mind.

The first time I rolled upside down I was first surprised at how much forward stick it took, but wasn't surprised at how effortless the airplane flew with the wheels pointed up. With the stick pressures as they were, it was easy to drop the nose a little and get a few extra numbers, which naturally led into a healthy push, up and around. I was watching the airspeed, as the nose went up and trying to connect that to what I was feeling in my hand. I initially pushed 3.5 negative, since I knew a Pitts would easily motor over the top with that load, but I was pushing so hard to get it, I didn't want the speed to fall off and me not feel the "G" availability go away. Doing outside loops, most airplanes telegraph how much G they have available through the stick by building and lightening pressures. The One Design didn't lose nearly the speed I had expected and motored over the top with something like 80 knots showing, when I only started at 145 knots.

I then went ahead and pushed, again aware of the extra pressure. I just treated it like a Pitts, getting as much pitch rotation as felt good at the top and played the "G" load to give 150 knots at the bottom. It went around like it was a mechanical toy, with only minor inputs from me. I have no idea whether it was actually round, but it sure felt good.

I noticed the airplane didn't accelerate as quickly as I had expected, when going down on the outside loop, so I pulled nose high and slowed it down, planning on doing a split "S," so I could hold a vertical downline and watch the drag rise. At 60 knots, I resorted to habit and banged a lot of aileron in, since most airplanes need it at that speed. Again, the One Design tweaked my nose and went around so fast, I almost missed inverted. There is no speed at which the airplane doesn't have lots and lots of roll left!

Letting the nose point straight at the ground power-off, I watched the speed build and found it very similar to a biplane, which both surprised and delighted me. At about 160-170 knots it begins to get draggy and doesn't want to run away from the pilot. Since so many of the pilots building this airplane won't be experienced in high performance monoplanes, that's probably a good feature, although it might limit the energy available to the guy wanting to work into higher aerobatic classes. I know some folks have flown the unlimited known in the airplane with no problems, so the drag rise must not present a serious problem.

Almost everyone who flies the airplane comments on a super pronounced root-stall buffet when pulling "G". It's hard not to comment since, when the airflow separates at the root, it really gets your attention. The airplane doesn't react by doing something stupid. In fact, it normally doesn't do anything, but it feels as if there is a mechanical shaker beating on the airplane in the vicinity of your feet. I got it in some vertical pulls and in some screwed up snap rolls, but otherwise didn't feel it to be a problem. Dan says he was trying to get by without any fairings in that area, but obviously will have to add them.

In normal stalls, the airplane comes down to about 50 knots, shudders a bit and starts mushing. In accelerated stalls in turns, it does the same thing, but rather than rolling to the outside, like most airplanes would, it simply holds the bank and mushes.

The airplane has so little dihedral effect in any situation that you can sit in level flight and walk the nose back and forth with the rudders and not have either wingtip leave level flight. Later, when I was coming back to the airport and wanted to pull my jacket-lumbar support under me for more height, it proved a real challenge because I couldn't bring up a down wing with just my feet. Interesting!

We were working within a fairly tight time constraint and I only had 45 minutes to play with the airplane, not nearly enough to delve into many secrets of its soul. For instance, I found my snapping techniques and the One Design's were not necessarily the same. I had a tendency to bury the stick too much, when all it took was a tweak back followed by unloading the stick. Given a few more minutes, it was obvious the airplane would snap clean and stop even cleaner.

The same thing was true of the spins. I did inside three turn spins right and left and noticed it was fairly asymmetric, with them being noticeably different, one being more on-axis than the other. It was the inverted spins I wanted to work with. Someone had told me to do a flat spin, which I normally won't do in a strange airplane without more assurances. But, they said I wouldn't believe it. I hadn't planned on doing an inverted spin, but I was in the process of screwing up a hammerhead, so I went ahead and pushed, keeping the left rudder in and about quarter power. The airplane snapped into the spin so cleanly and stabilized so quickly there was practically no transitional spin at all. Then I played with the power, watching the nose go up and down.

When I killed the power to recover and initiated rudder and stick movements, the airplane stopped spinning so quickly, I found myself in an inverted glide before I got the controls fully reversed and had to neutralize everything. I hate to make blanket statements, but the airplane appears as if it will recover cleanly all by itself, hands-off.

The airplane does everything I know how to do so easily and cleanly, it could have been an Extra 300S. It obviously doesn't have the speed or the vertical, but for the audience it is aimed at, they'll be hard pressed to see the difference and it's a darned sight cheaper.

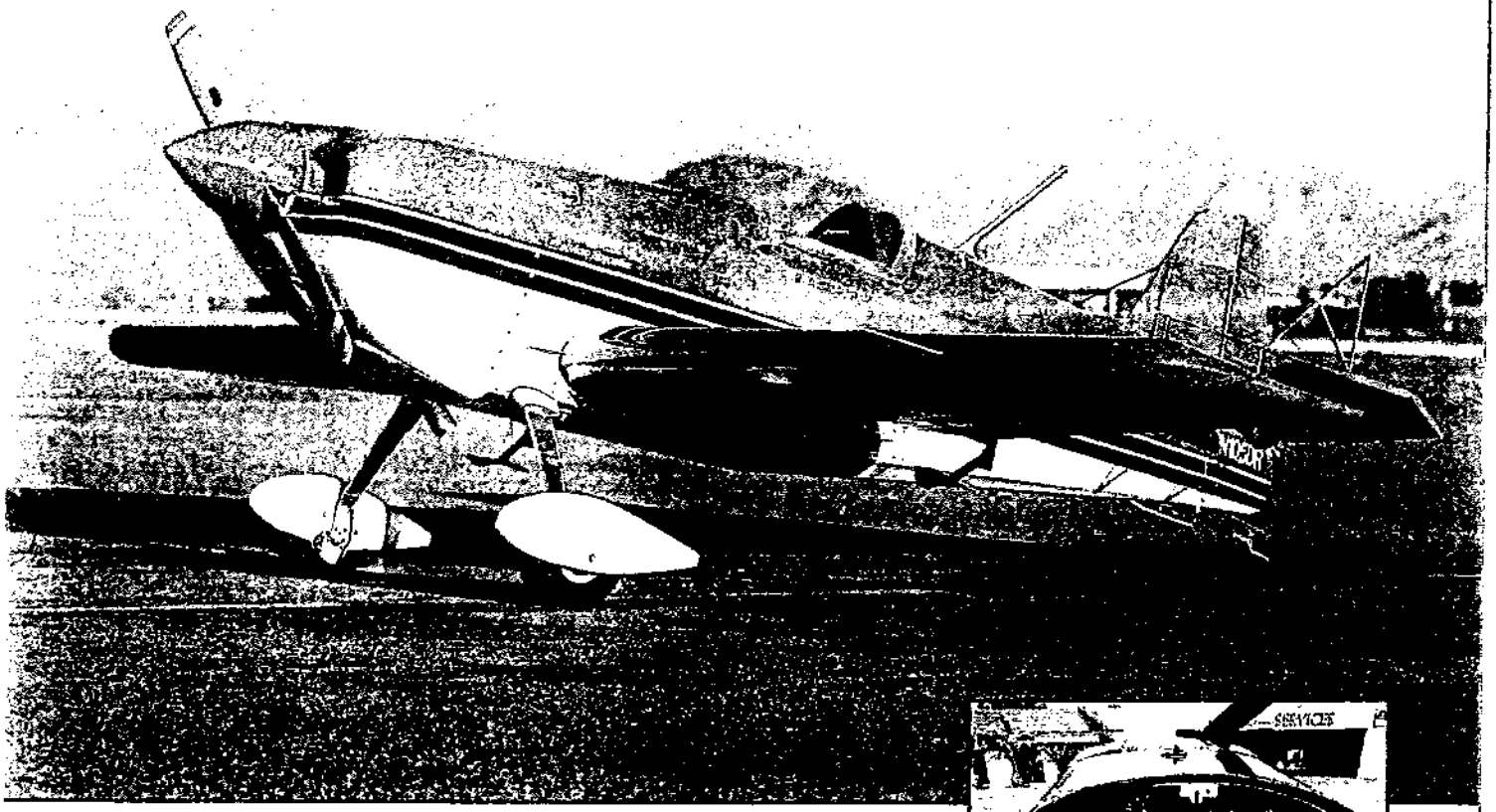
When I came in to land, I lucked out and was cleared to land from five miles out, so I motored right in and set up for a power-off approach. I shut things down opposite the end of the runway and yanked the trim full up, since it ran out of trim at 80 knots and I wanted about 75. As it was, it takes a little time to get it to slow down below about 110 knots.

I flew a Pitts-type circling pattern, with a roll to level for a belly check in an abbreviated base leg, and the airplane felt as if it liked that kind of approach, since it stayed on speed and profile like it had been there before. As I rolled out in ground effect and on centerline, most of the runway disappeared and I concentrated on keeping my head back so I could see both sides in my peripheral vision. I didn't know for sure where the ground was so I gingerly flared and felt at the same time.

I felt the mains kiss off the pavement and mentally chastised myself for setting up a bounce and kept working to hold a three point so the airplane would come down out of the bounce straight. I worked for what seemed like a long time, then I realized I wasn't coming down because the airplane was rolling on the pavement. I had originally planned on a touch and go, but called the tower and said I'd take that one. I'm no fool.

The foot work required during takeoff and landing was Citabria-simple, but the lack of visibility made the landings much, much more difficult than necessary, and that's coming from a long-time Pitts pilot.

One thing everyone should keep in mind about the One Design: It isn't fair to compare the airplane to any other, if only because it isn't designed to compete with other airplanes. If the One Design class concept works, its primary competition will be itself. So the question of



how it flies should be in relation to the pilot audience it is meant to address, not in relation to the hottest or newest designs out there.

One of the intriguing side notes to the One Design is the adaptability it offers to other kinds of pilots and homebuilders. Although it was designed as a bargain basement Sukhoi-killer, what it also offers is a tremendous amount of fun and performance in an airframe that is basic and simple to build. This is also one of the few airplanes that can actually be built right from the plans utilizing no pre-made components, if so desired, which makes it a real boon to the budget minded. In all probability, the material costs alone of the airframe are well under $5,000, if no pre-made components are used.

At this time Aircraft Spruce is ramping up to be the exclusive supplier as well as the plans seller for the IAC. Although they may be the exclusive plans seller, as soon as the plans get out in the hands of builders, suppliers will pop up who are ready and able to crank out tails or wings, landing gears, etc.

I also predict the airplane will become the basis for all sorts of hot rod modifications, the 180 Lyc being the first and some sort of six cylinder bomb won't be far behind. Dan is already getting pressure to do a two-place, but that's such a massive project; that's not a modification, that's a new airplane.

If, as anticipated, a huge number of builders get into this project, the economies of scale are going to result in tooling being available that will take the fear out of some of the harder processes, like drilling the main wing spar bolt holes. That process alone has always terrified Laser builders.

The One Design is exciting, if nothing else because it offers serious monoplane performance for sport pilot and akronut alike. Also, whether the One Design class concept takes off or not, the airplane gives homebuilding a new plansbuilt design that's within the reach of many possible competitors who were previously financially grounded. Now they can get in there and mix it up with the big guys.

As I look back at what I've written, I think it's necessary to make one more comment. We've all become so accustomed to Sukhois and Extras, Lasers and Staudachers that we're guilty of being a little too blasé about what makes outstanding performance. We're measuring performance against airplanes that are available to a select few and I've got to tell you, the margin between the One Design and the super machines is so small that only the established unlimited top dogs are going to be able to tell the difference. So who cares. That's not us little guys.

The first time a Citabria pilot pulls

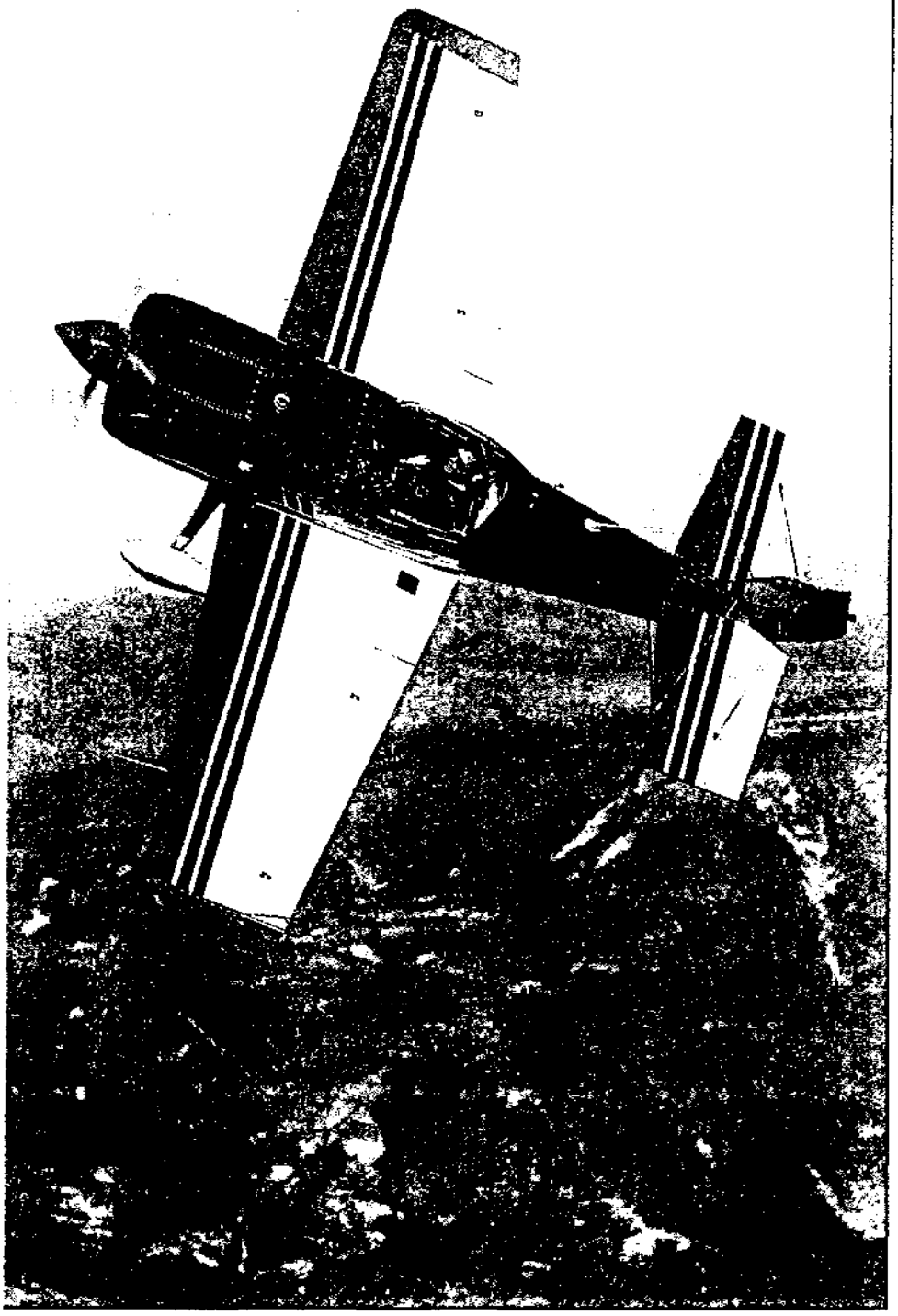
vertical and hammers the airplane into a double vertical roll, his mind is going to throw off blue sparks as it yells, "It can't possibly get any better than this!" And I'll tell you something, in the real world most of us live in, it doesn't get any better.

Now if Dan could just put another wing on it for us old guys.

IAC ONE DESIGN SPECIFICATIONS
(Source: Dan Rihn, Designer)

Type - Single seat aerobatic competition aircraft

Design Features - Low wing mono-



plane with a specially designed symmetrical airfoil, 16% thick, conical nose and flat sides. Large symmetrical ailerons. Wire braced tail surfaces.

Structure - Fuselage has a welded steel tube truss covered with sheet metal from the firewall aft to the cockpit, fabric covered from the cockpit aft the tail. Aluminum sheet metal turtledeck. The tail surfaces are fabric covered and wire braced with steel tube spars and bent up steel sheet metal ribs. The one piece wing is all wood, Douglas Fir and spruce spars, plywood ribs and plywood covered. Large span ailerons are built of wood and fabric covered. The two-piece fiberglass engine cowl is split horizontally and is easily removable for ease of maintenance.

Flying Controls - Pushrod actuated ailerons and elevator, cable actuated rudder. Ailerons are mass balanced and aerodynamically counter balanced. Each aileron is fitted with a ground adjustable balance surface suspended below the aileron. A trim tab on each elevator also acts as a servo tab to reduce stick pressures.

Powerplant - One Lycoming O-320 (150 hp) removed from a Cessna 172. Modifications include inverted oil system, high compression pistons, and fuel injection. Driving a two blade fixed pitch Sensenich aluminum propeller (74 inches diameter, 60 inches pitch). The fuel tank is located in the fuselage ahead of the cockpit, capacity is 18.5 gallons.

Landing Gear - Non-retractable tailwheel type, main gear is a one piece aluminum spring, tailwheel is steerable and full swivel mounted on a cantilever steel spring. Main wheels are 5.00 x 5 with hydraulic disc brakes.

Accommodations - An adjustable seat back nominally reclined to 30 degrees.

Systems - Electrical system of 12 volts. Electric engine starter.

Avionics - Terra VHF radio, Terra transponder with encoder.

Characteristics - Prototype N105DR

Dimensions -

Wingspan	19.5 ft.
Length	17 ft.
Wing Area	75.55 sq. ft.
Aspect Ratio	5.03
Tailplane span	7.5 ft.
Cockpit width	24 in.
Cockpit length	55 in.
Fuel Capacity	18.5 gals.

Weights and Loadings -

Empty weight	740 lbs.
Acro weight	1,000 lbs. *
Wing loading	13.4 lbs./sq. ft.
Power loading	6.25 lbs.hp
Limit Load	10 +/-G

*Acro weight = Empty weight + 200 lb. pilot + fuel, oil, parachute

Performance at Acro Weight -

Max level speed	184 mph
75% power speed	160 mph
Max ROC	2,000 ft./min.
Stall speed	60 mph
Max L/D	10.4
Rated Power	160 hp
Roll Rate	360 + degrees/sec.

Engine -

Lycoming O-320 removed from C-172

Modifications include: Airflow Performance fuel injection system, higher compression pistons.

Power nominally rated at 160 hp

Propeller -

Sensenich, fixed pitch aluminum, 74" diameter, 60" pitch. ◆