

JERRY NELSON'S SULTAN



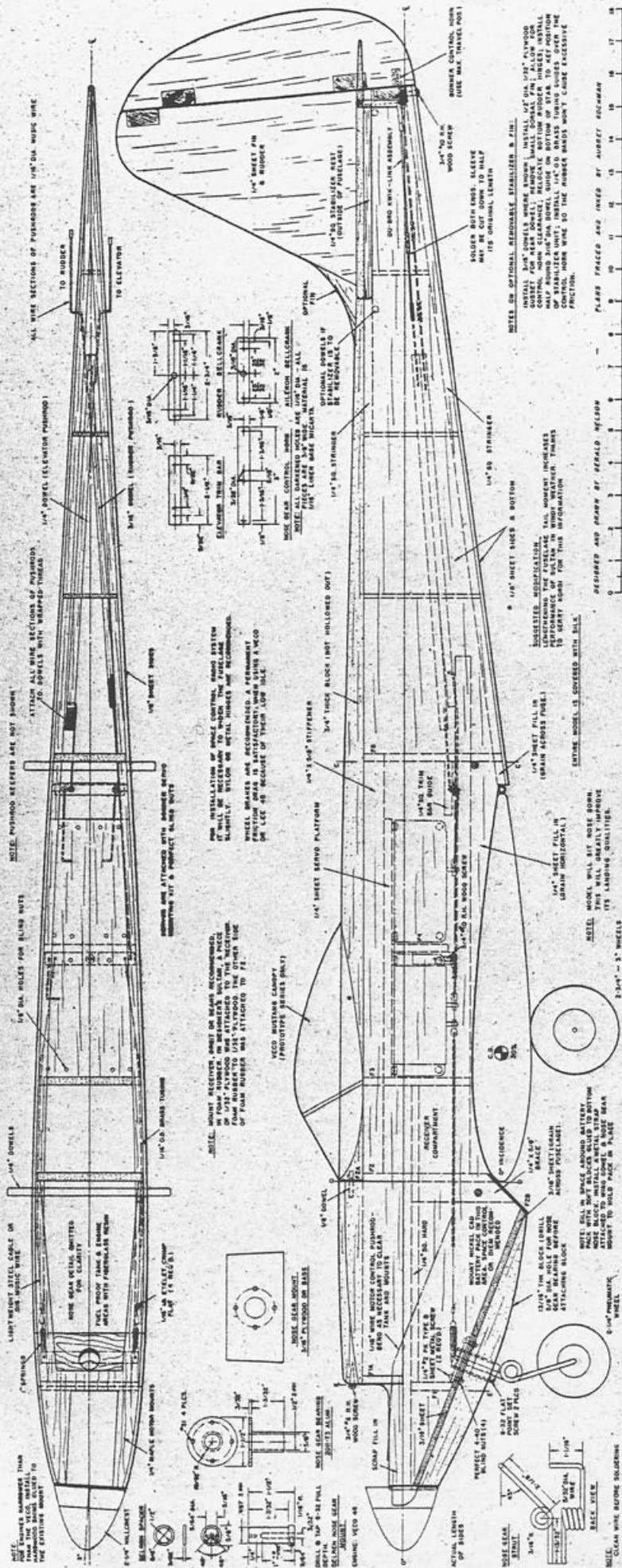
Winner of West Coast Championship at Turlock, second and third at Nationals, clean-cut, easily duplicated design also won place for its designer on America's FAI Team

■ The Sultan design is my approach to an attractive, simple-to-build multi channel contest airplane. I am not saying that the Sultan is the absolute ultimate for contest work, but it is a design for your competitors to worry about.

The background of the design concept might interest the reader. The Sultan was my first ship with full span ailerons. Correspondence with Hal deBolt prompted me to try this type.

After drawing up a rough set of plans, Sultan #1 was built in one week. This proved out its simple-to-build features. The ship weighed 5-lbs, 6-oz. A Space Control radio system was utilized. The ship flew quite well but it had one serious fault. Directional stability was lacking in consecutive maneuvers such as loops. I overcame this by adding additional fin area. This solved the directional problem but created another. Because of the enlarged fin, it was difficult to accomplish spin maneuvers. I added more rudder and elevator area and the result was a positive spin maneuver.

Sultan #1 also was my first attempt at utilizing a full symmetrical airfoil section. The results were gratifying. Inside and outside loops were consistent in size. As you know, this is not usually the case with a semi-symmetrical airfoil. Now the symmetry



DESIGNED AND DRAWN BY REEVAL NELSON

ENTIRE MODEL IS COVERED WITH SILK

MODEL MODEL WILL FIT WIRE BORN

WHEEL WILL BE PLACED AROUND BATTERY

WHEEL WILL BE PLACED AROUND BATTERY

WHEEL WILL BE PLACED AROUND BATTERY

NOTES ON OPTIONAL REDUCIBLE STABILIZER R.F.M.
INSTALL 3/16" DOBELS WHERE SHOWN. INSTALL 1/2" DIA. 1/2" PLYWOOD SOCKET FOR REAR DOBEL. REMOVE SMALL CORRAL F.W. ALLOW FOR HALF ROUND 3/16" DIA. DOBEL UNDER ON BOTTOM OF STAR TO SET POSITION OF STABILIZER UNIT. INSTALL 1/4" DIA. BRASS TURNING UNDER THE LOWER WIRE TO THE UPPER BRASS WIRE. CHECK EXCELLENCE OF FRCTION.

EXCELLENCE MODIFICATION
LENGTHENING THE FUSelage TAIL MOMENT INCREASES STABILITY. TO GET MORE STABILITY, INCREASE THE LENGTH OF THE TAIL. TO GET MORE STABILITY, INCREASE THE LENGTH OF THE TAIL.

MODEL MODEL WILL FIT WIRE BORN
THIS WILL GREATLY IMPROVE ITS LANDING QUALITIES.

WHEEL WILL BE PLACED AROUND BATTERY
MOUSE BLOCK INSTALL METAL STRAP
MOVING TO HOLD WIRE IN PLACE OVER

WHEEL WILL BE PLACED AROUND BATTERY
MOUSE BLOCK INSTALL METAL STRAP
MOVING TO HOLD WIRE IN PLACE OVER

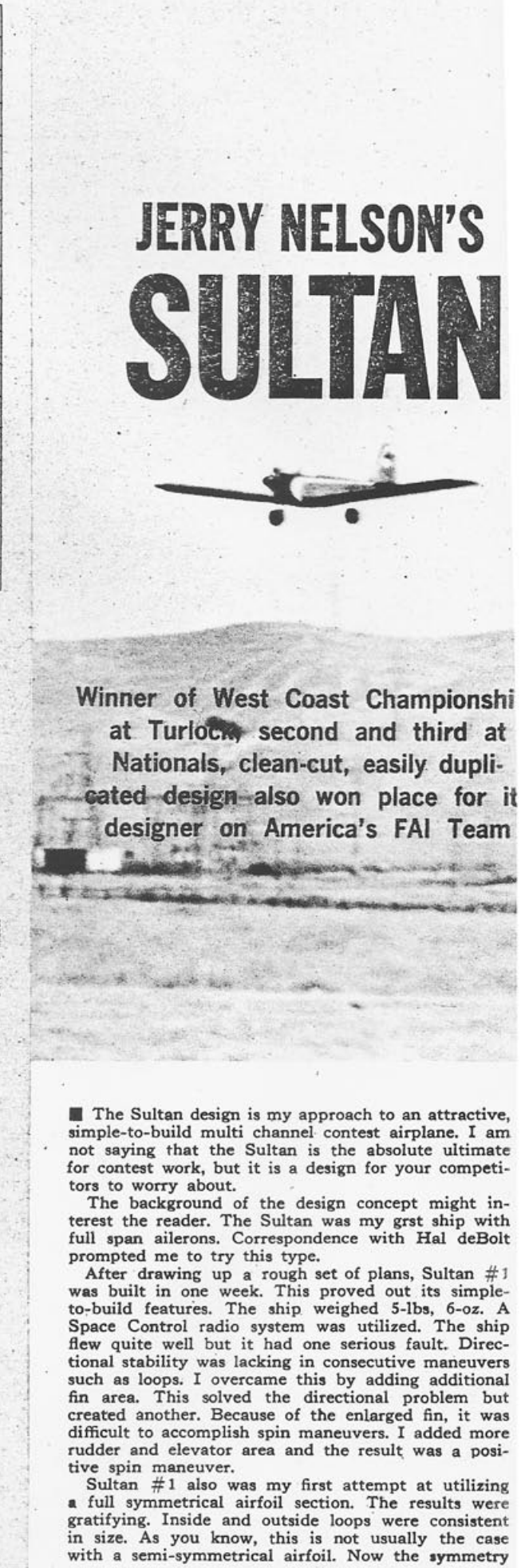
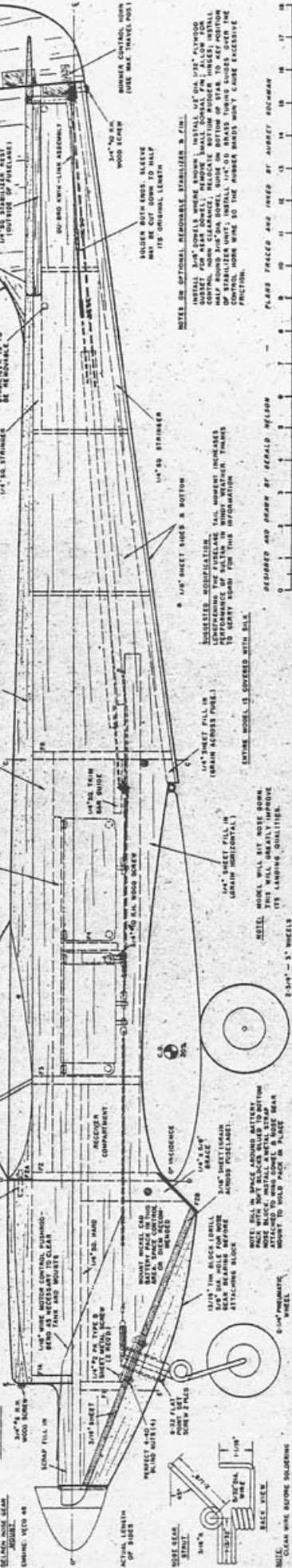
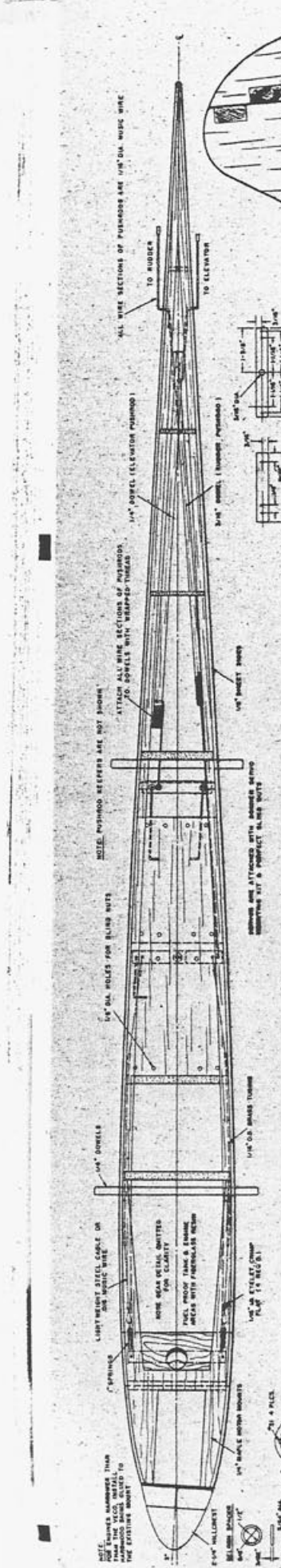
NOTE: ALL WIRE SECTIONS OF FUSelage ARE 1/4" DIA. WIRE. WIRE ATTACH ALL WIRE SECTIONS OF FUSelage TO DOBELS WITH WRAPPED THINER. 1/4" DOBEL (ELEVATOR PUSHROD)

NOTE: PLYWOOD REEFERS ARE NOT SHOWN. 1/4" DIA. HOLES FOR BLIND NUTS. 1/4" DIA. HOLES FOR BLIND NUTS. 1/4" DIA. HOLES FOR BLIND NUTS.

NOTE: INSTALLATION OF WIRE, CONTROL, RADIO SYSTEM IT WILL BE NECESSARY TO WRENCH THE FUSelage SLIGHTLY. SILENCE ON METAL HOSES AND RECOMMENDED. WHEEL MAKES AND ACCOMMODATES A PERMANENT FRICTION AREA IS SATISFACTORY. WHEN USING A VECO OR LEE 40 BECAUSE OF THEIR LOW SILE.

NOTE: WHEEL RECEIVES WIRE OR BRASS RECOMMENDED. IN YOUR HORNET, IN REAR OF THE WHEEL, A PIECE OF 1/4" DIA. WIRE IS ATTACHED TO THE WHEEL. FROM REAR VIEW, WIRE IS ATTACHED TO THE WHEEL. FROM REAR VIEW, WIRE IS ATTACHED TO THE WHEEL.

NOTE: WHEEL RECEIVES WIRE OR BRASS RECOMMENDED. IN YOUR HORNET, IN REAR OF THE WHEEL, A PIECE OF 1/4" DIA. WIRE IS ATTACHED TO THE WHEEL. FROM REAR VIEW, WIRE IS ATTACHED TO THE WHEEL. FROM REAR VIEW, WIRE IS ATTACHED TO THE WHEEL.



NELSON'S MULTI-CHANNEL R/C "SULTAN" ...

barbed wire fence. I needed a spare airplane and #4 was built. Changes in it were of a construction nature only so building time was whittled down a few more hours. Sultan #4 was the one I flew at the 1962 Nats.

Here are some of the modifications others have made on the Sultan design. Zel Ritchie had a flutter problem at very high speed with his. To cure the problem he cut down the aileron chord to a constant one-inch. This eliminated the flutter which was caused by too soft wood for the ailerons. A medium to hard wood should be used.

E.B.R.C. member Pete Peters added a piece of $\frac{1}{4}$ by $\frac{1}{4}$ spruce on the leading edge of his ailerons for greater torsional stability. Another club member, Ed Von Adlung, installed $\frac{1}{4}$ O.D. aluminum tubing on the leading edge of the aileron. Both worked out well. But there will not be any flutter if soft balsa is avoided. Also, there shouldn't be any excess clearance in the aileron linkage.

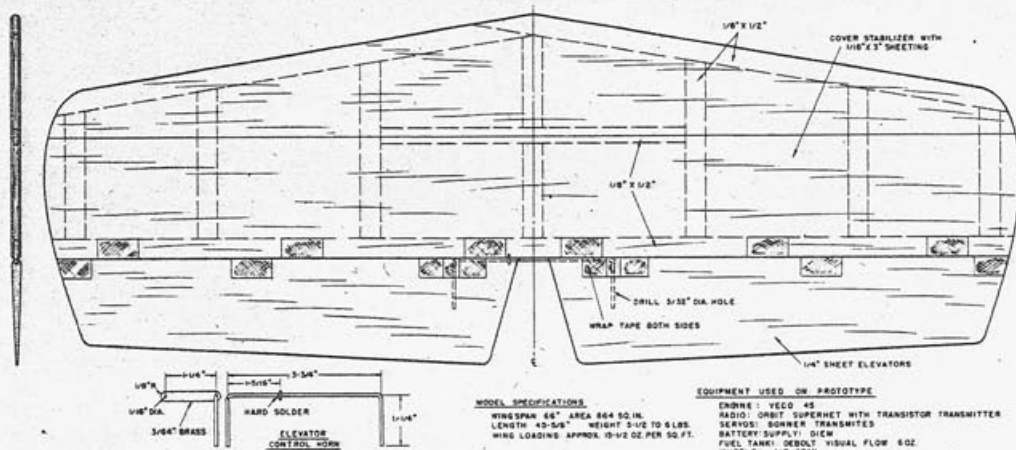
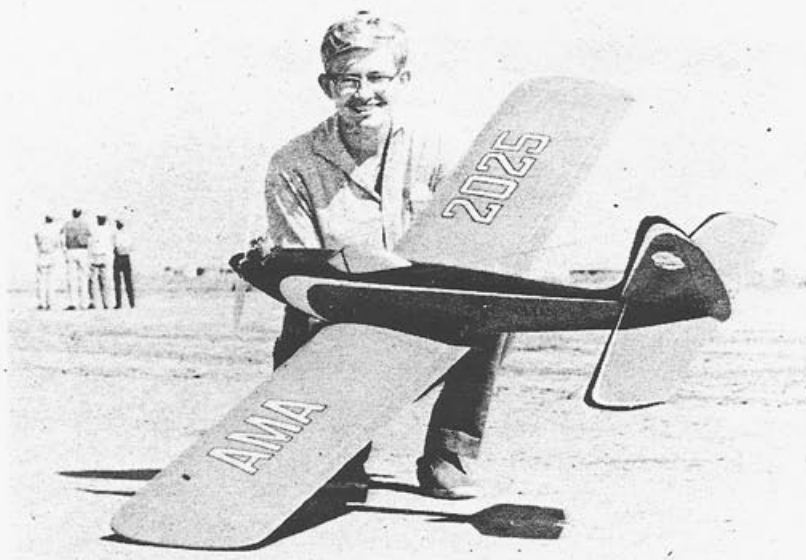
Our use of slightly tapered ailerons was to give the wing a slightly tapered look. But you can make one inch wide ailerons as Ritchie did with equal results.

Being a relatively light ship with a light wing loading, in very windy weather the Sultan can be difficult. Club member Gary Korpi added two inches to the tail movement of the fuselage to see if he could improve directional stability in windy and turbulent weather conditions. The standard Sultan will oscillate slightly around the vertical axis when a strong gust of wind hits the ship. Additional fin area did not cure this problem. I didn't worry too much about this particular problem because the oscillation was minute. Korpi's longer tail

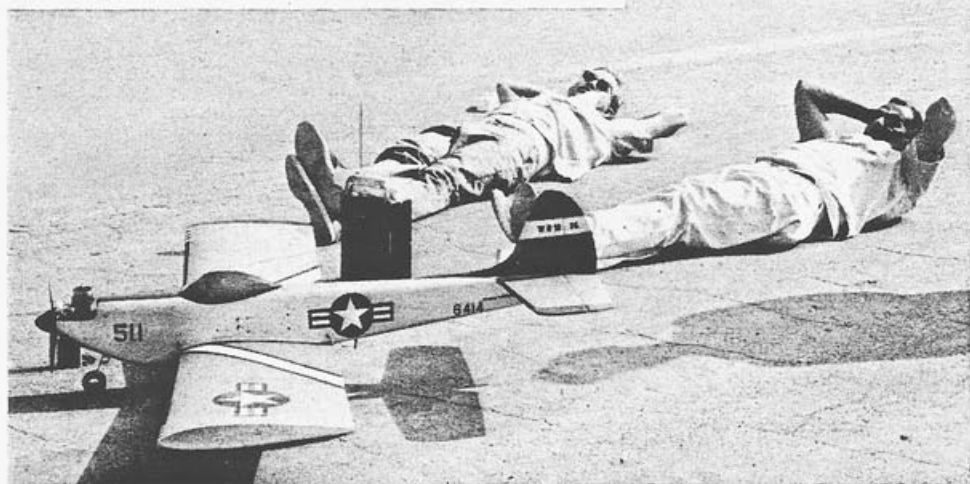
(Continued on page 83)



Photographer Bud Crane caught Jerry's Sultan just after taking off. Pix below by Dick Everett.



Bud Crane's Sultan awaits its turn at the LARKS' 7th annual Open contest at Bakersfield while Bud and Nelson take it easy and keep eyes aloft on the competition—which in this case was Nate Rambo. Nate beat Bud for first place in the Multi-Novice flying. Photo by Robert Ramirez.



SATIN-SMOOTH

BALSA AND HARDWOODS

BLOCKS		SHEETS	
3" LENGTHS			
1/2 SQ.	4c	1/32 x 2	10c
1/2 x 2	11c	1/16 x 2	12c
1 x 2	21c	3/32 x 2	14c
1 x 3	11c	1/8 x 2	17c
2 x 3	23c	3/16 x 2	21c
3 x 3	23c	1/4 x 2	26c
6" LENGTHS			
1/2 SQ.	8c	1/32 x 3	18c
1/2 x 2	8c	3/32 x 3	21c
1 x 2	13c	1/8 x 3	25c
1 1/2 x 2	17c	3/16 x 3	31c
2 x 2	21c	1/4 x 3	38c
1/2 x 3	12c	3/8 x 3	50c
3/4 x 3	16c	1/2 x 3	62c
1 x 3	20c	5/8 x 3	74c
3/4 x 3	16c	3/4 x 3	86c
1 1/2 x 3	25c	7/8 x 3	98c
2 x 3	30c	1 1/4 x 3	110c
3 x 3	45c	1 1/2 x 3	122c
1 1/2 x 3	15c	1 3/4 x 3	134c
3/4 x 4	21c	1 3/8 x 4	146c
1 x 4	26c	1 1/2 x 4	158c
1 1/2 x 4	33c	1 3/4 x 4	170c
2 x 4	40c	1 7/8 x 4	182c
3 x 4	54c	2 x 4	194c
1/2 x 5	24c	2 1/4 x 5	206c
1 x 5	30c	2 1/2 x 5	218c
1 1/2 x 5	36c	2 3/4 x 5	230c
2 x 5	42c	3 x 5	242c
3 x 5	58c	3 1/2 x 5	254c
4 x 5	74c	4 x 5	266c
1 1/2 x 6	30c	4 1/4 x 6	278c
2 x 6	36c	4 1/2 x 6	290c
3 x 6	52c	4 3/4 x 6	302c
4 x 6	68c	5 x 6	314c
1 1/2 x 6	115c	5 1/4 x 6	326c
2 x 6	131c	5 1/2 x 6	338c
3 x 6	147c	5 3/4 x 6	350c
4 x 6	172c	6 x 6	362c
12" LENGTHS			
1/2 SQ.	15c	1/4 x 8	20c
1/2 x 2	15c	1/2 x 8	25c
1 x 2	20c	3/4 x 8	30c
1 1/2 x 2	25c	5/8 x 8	35c
2 x 2	30c	3/4 x 8	40c
2 x 2	42c	1 x 8	45c
1/2 x 3	24c	1 1/4 x 8	50c
1 x 3	30c	1 1/2 x 8	55c
1 1/2 x 3	36c	1 3/4 x 8	60c
2 x 3	42c	1 7/8 x 8	65c
3 x 3	58c	2 x 8	70c
3/4 x 4	40c	2 1/4 x 8	75c
1 x 4	50c	2 1/2 x 8	80c
1 1/2 x 4	55c	2 3/4 x 8	85c
2 x 4	70c	3 x 8	90c
3 x 4	90c	3 1/4 x 8	95c
4 x 4	110c	3 1/2 x 8	100c
1 1/2 x 5	65c	3 3/4 x 8	105c
2 x 5	80c	4 x 8	110c
3 x 5	100c	4 1/4 x 8	115c
4 x 5	120c	4 1/2 x 8	120c
1 1/2 x 6	75c	4 3/4 x 8	125c
2 x 6	90c	5 x 8	130c
3 x 6	110c	5 1/4 x 8	135c
4 x 6	130c	5 1/2 x 8	140c
1 1/2 x 6	172c	5 3/4 x 8	145c
2 x 6	194c	6 x 8	150c
3 x 6	216c	6 1/4 x 8	155c
4 x 6	238c	6 1/2 x 8	160c
18" LENGTHS			
1/2 SQ.	20c	1/4 x 12	25c
1/2 x 2	20c	1/2 x 12	30c
1 x 2	25c	3/4 x 12	35c
1 1/2 x 2	30c	5/8 x 12	40c
2 x 2	35c	3/4 x 12	45c
2 x 2	45c	1 x 12	50c
1/2 x 3	25c	1 1/4 x 12	55c
1 x 3	30c	1 1/2 x 12	60c
1 1/2 x 3	35c	1 3/4 x 12	65c
2 x 3	40c	1 7/8 x 12	70c
3 x 3	55c	2 x 12	75c
3/4 x 4	35c	2 1/4 x 12	80c
1 x 4	45c	2 1/2 x 12	85c
1 1/2 x 4	50c	2 3/4 x 12	90c
2 x 4	60c	3 x 12	95c
3 x 4	75c	3 1/4 x 12	100c
4 x 4	90c	3 1/2 x 12	105c
1 1/2 x 5	55c	3 3/4 x 12	110c
2 x 5	65c	4 x 12	115c
3 x 5	80c	4 1/4 x 12	120c
4 x 5	95c	4 1/2 x 12	125c
1 1/2 x 6	70c	4 3/4 x 12	130c
2 x 6	80c	5 x 12	135c
3 x 6	95c	5 1/4 x 12	140c
4 x 6	110c	5 1/2 x 12	145c
1 1/2 x 6	158c	5 3/4 x 12	150c
2 x 6	170c	6 x 12	155c
3 x 6	185c	6 1/4 x 12	160c
4 x 6	200c	6 1/2 x 12	165c
24" LENGTHS			
1/2 SQ.	30c	1/4 x 18	35c
1/2 x 2	30c	1/2 x 18	40c
1 x 2	35c	3/4 x 18	45c
1 1/2 x 2	40c	5/8 x 18	50c
2 x 2	45c	3/4 x 18	55c
2 x 2	55c	1 x 18	60c
1/2 x 3	25c	1 1/4 x 18	65c
1 x 3	30c	1 1/2 x 18	70c
1 1/2 x 3	35c	1 3/4 x 18	75c
2 x 3	40c	1 7/8 x 18	80c
3 x 3	55c	2 x 18	85c
3/4 x 4	35c	2 1/4 x 18	90c
1 x 4	45c	2 1/2 x 18	95c
1 1/2 x 4	50c	2 3/4 x 18	100c
2 x 4	60c	3 x 18	105c
3 x 4	75c	3 1/4 x 18	110c
4 x 4	90c	3 1/2 x 18	115c
1 1/2 x 5	55c	3 3/4 x 18	120c
2 x 5	65c	4 x 18	125c
3 x 5	80c	4 1/4 x 18	130c
4 x 5	95c	4 1/2 x 18	135c
1 1/2 x 6	70c	4 3/4 x 18	140c
2 x 6	80c	5 x 18	145c
3 x 6	95c	5 1/4 x 18	150c
4 x 6	110c	5 1/2 x 18	155c
1 1/2 x 6	158c	5 3/4 x 18	160c
2 x 6	170c	6 x 18	165c
3 x 6	185c	6 1/4 x 18	170c
4 x 6	200c	6 1/2 x 18	175c
36" LENGTHS			
1/2 SQ.	40c	1/4 x 24	45c
1/2 x 2	40c	1/2 x 24	50c
1 x 2	45c	3/4 x 24	55c
1 1/2 x 2	50c	5/8 x 24	60c
2 x 2	55c	3/4 x 24	65c
2 x 2	65c	1 x 24	70c
1/2 x 3	25c	1 1/4 x 24	75c
1 x 3	30c	1 1/2 x 24	80c
1 1/2 x 3	35c	1 3/4 x 24	85c
2 x 3	40c	1 7/8 x 24	90c
3 x 3	55c	2 x 24	95c
3/4 x 4	35c	2 1/4 x 24	100c
1 x 4	45c	2 1/2 x 24	105c
1 1/2 x 4	50c	2 3/4 x 24	110c
2 x 4	60c	3 x 24	115c
3 x 4	75c	3 1/4 x 24	120c
4 x 4	90c	3 1/2 x 24	125c
1 1/2 x 5	55c	3 3/4 x 24	130c
2 x 5	65c	4 x 24	135c
3 x 5	80c	4 1/4 x 24	140c
4 x 5	95c	4 1/2 x 24	145c
1 1/2 x 6	70c	4 3/4 x 24	150c
2 x 6	80c	5 x 24	155c
3 x 6	95c	5 1/4 x 24	160c
4 x 6	110c	5 1/2 x 24	165c
1 1/2 x 6	158c	5 3/4 x 24	170c
2 x 6	170c	6 x 24	175c
3 x 6	185c	6 1/4 x 24	180c
4 x 6	200c	6 1/2 x 24	185c

NEW RELEASES!

"DORNIER DO-335" S. B. SWANSON
Authentic scale twin engine push-pull design. Features 35 engine in nose, 19 engine in tail. 41" span and length. Can perform with single engine in nose. Two 30"x42" plans. Feb.-Mar. '63 FM. **\$2.00** No. 178

"SQUARE EIGHT" H. BRITIAN
Unusual gas helicopter for 15 to 20 engines. Smaller versions look-first and second at '63 Nats. Features shrouded prop and simple construction. 30"x42" plan. Feb.-Mar. '63 FM. **\$3.50** No. 173

"VEENA" H. ENGLISH
Great new F/F design in the standard pylon tradition. Easy to build and fly, a threat at any meet. Designed for .049 to .051 eng. 27" wingspan. 30"x42" plan. Feb.-Mar. '63 FM. **\$1.00** No. 174

"DONNA I" P. PALANEK
An authentic scale replica of a Rescue Boat suitable for R/C. Powered by a Pittman electric motor, it can also use glow or diesel. 27" length permits plenty of room for R/C gear and realistic detail. Easy to build. 30"x42" plan. Dec. '56 FM. **\$1.25** No. 175

"DE HAVILLAND D. 11A" H. ENGLISH
Authentic scale replica of a Rescue Boat suitable for R/C. Powered by a Pittman electric motor, it can also use glow or diesel. 27" length permits plenty of room for R/C gear and realistic detail. Easy to build. 30"x42" plan. Dec. '56 FM. **\$1.25** No. 175

"BALLERINA" High performance stunt **\$1.25** No. 131

"DUB-L DEK-R" sport F.F. **75c** No. 160

"GUIDED MITE" R/C design **\$1.25** No. 164

"CURTISS HAWK '78" scale C/L design **\$1.25** No. 164

"HUMMINGBIRD" Exciting C/L **\$1.25** No. 164

"SEA GULL" R/C soarer **\$1.00** No. 161

"THUNDERBOLT" No. 152 authentic scale C/L **\$2.00** No. 152

"GRUMMAN DUCK" amphibious bi-plane C/L **\$2.00** No. 168

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"GYPSY MOTH" multi-channel R/C **\$2.75** No. 151

"NEW ANGLE III" 1/4" Delta speed **50c** No. 158

"YELLOW PERIL" **\$1.25** No. 119

"SEA GULL" R/C soarer **\$1.00** No. 161

"THUNDERBOLT" No. 152 authentic scale C/L **\$2.00** No. 152

RADIO CONTROL

"TANDEM BOMBER" No. 118 P. DEL GATTO No. 117
R/C single channel trainer for .09 to .15 engines, 49" span, June-July '60 FM. 30" x 42" plans, separate parts sheet. **\$1.25**

"FAIRFIELDER" P. D'OSTILIO No. 141
R/C single channel sport for two .049-.063 engines, or one .09 engine, 54" span. Oct. '58 FM. 30" x 42" plans, separate parts sheet. **\$1.25**

"SCAVENGER" D. MCGOVERN No. 163
R/C single or multi channel sporter for .35 to .45 engines. 77" wingspan, 63" length. Aug-Sept. '62 FM. Two 30"x42" plans. **\$2.00**

"CAVEATER" D. MCGOVERN No. 158
Lightweight R/C single channel trainer or sporter, for .049 to .15 engines. 64" span. Dec.-Jan. '63 FM. 30" x 42" plan. **\$1.25**

"NEWWIN" K. LAUMER No. 170
Cutie mid-wing R/C single channel sporter for .010 to .020 engines. 64" span. Dec.-Jan. '63 FM. 22" x 34" plan. **75c**

CONTROL-LINE SCALE

"SEVERSKY P-35" P. J. PALANEK No. 103
33 1/2" span authentic scale C/L for 25 to 35 engines. **75c**

GRUMMAN "WIDGON" P. PALANEK No. 114
38" span authentic scale C/L amphibian for .20 to .25 to .15 engines. Mar. '60 FM. 30" x 40" plan. **\$1.00**

CHANCE VOUGHT "CORSAIR" P. PALANEK No. 115
36" span authentic scale C/L for .19 to .35 engines. Jan. '60 FM. 30" x 40" plan. **\$1.00**

LOCKHEED "WIDGON" P. PALANEK No. 150
Twin engine authentic scale C/L model for two .074 to .19 engines. 40" span. 28" x 40" plan. Apr.-May '62 FM. **\$1.25**

P-47 THUNDERBOLT P. Del Gatto No. 152
Great new authentic scale version of popular W.W. II fighter for 25 to .35 engines. 35" span, fuselage plank construction, rib tabs spaced wing assembly. 28" x 40" plan. June-July FM. **\$1.25**

HOBBY HANDBOOKS

HM-2 R/C HANDBOOK (Single Chann.) 5 1/2" x 8 1/2", 32 pages. Includes latest rules and outstanding R/C designs. Data on equipment, installation and flying. **50c**

HM-3 ALL ABOUT JET PROPULSION 5 1/2" x 8 1/2", 48 pages. Theory and practice of jet flying. Latest rules, new designs. Data on flying, adjusting and design of jet models. **\$1.00**

★ "SATIN-SMOOTH" BALSA ★ HARD TO GET ACCESSORIES ★ ENGINES ★

TRIM TAPES

AVAILABLE COLORS: Black, blue, red, green, yellow, white, silver, gold.

AVAILABLE SIZES:

1/8" SQ.	2c
1/8" x 1/4"	2c
1/8" x 1/2"	2c
1/8" x 3/4"	2c
1/4" x 1/4"	2c
1/4" x 1/2"	2c
1/4" x 3/4"	2c
1/2" x 1/4"	2c
1/2" x 1/2"	2c
1/2" x 3/4"	2c
3/8" SQ.	2c
3/8" x 1/4"	2c
3/8" x 1/2"	2c
3/8" x 3/4"	2c
1/2" x 1/4"	2c
1/2" x 1/2"	2c
1/2" x 3/4"	2c

48" LENGTHS

1/8" SQ.	2c
1/8" x 1/4"	2c
1/8" x 1/2"	2c
1/8" x 3/4"	2c
1/4" x 1/4"	2c
1/4" x 1/2"	2c
1/4" x 3/4"	2c
1/2" x 1/4"	2c
1/2" x 1/2"	2c
1/2" x 3/4"	2c

DECAL SPECIAL

ONLY 25c

AIRWHEELS

2" Diam.	3.50 pr.
2 1/2" Diam.	4.00 pr.
3" Diam.	6.00 pr.
3 1/2" Diam.	7.00 pr.
4" Diam.	8.00 pr.

SEND 10¢ FOR COMPLETE LISTINGS OF PLANS, KITS AND ACCESSORIES.

A NEW STAR IS BORN!

50 "HT" REACTION MOTOR

ENGINE AND CLIP with complete instructions **\$1.49**

DESIGNED TO FILL THE REQUIREMENTS OF REALISTIC MISSILE TYPE AND SCALE JET PERFORMANCE... ALREADY ACCLAIMED AS THE GREATEST SINGLE ADVANCEMENT IN A SAFE BUT POWERFUL REACTION MOTOR.

THE ONLY MOTOR ENGINEERED TO USE MODERN HIGH-SPECIFIC-IMPULSE FUEL—WHEN FIRED WITH THE NEW JET HT 50 FUEL, DEVELOPS OVER 5 OUNCES OF THRUST IN LESS THAN TWO SECONDS.

JETEX 50 "HT" FUEL

20 Fuel Pellets with wick and accessories **\$1.49**

JETEX ENGINES AND FUEL

"50-B"	98c
150 "Paa Leader"	1.98
600 "Scorpion"	3.95
"50" (10 pellets, wick)	59c
"50" (20 pellets, wick)	88c
"50" (10 pellets, wick)	88c
"50" V-Max (20 pellets, wick)	1.25
"600" (10 pellets, wick)	1.95
Wick (42" length)	30c

JETEX KITS

FOR "50" ENGINES

SATELLITE 50 (jeton)	48c
12" dia. saucer glider, "S" airfoil.	78c
JET 50 (jeton)	78c
22" span glider, sweet wing.	1.50
JET SPUR (Amer. Tel.)	1.50
20" span, triple fin, decals, easy.	88c
EXPLORER (Amer. Tel.)	88c
14" span, space ship, decals, stand vert.	1.50

SPECIAL DEALS

"IMPERIAL" RC-100 **\$17.95**

TORPEDO .09 **\$9.95**

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YOU PAY **\$19.95** ONLY

OR

WEBRA WINNER MACH I .15 DIESEL **\$19.95**

YOU PAY **\$24.95** ONLY

KRACKERJAC **\$14.95**

TORPEDO .19 RC **\$19.95**

WITH WEBRA WINNER MACH I .15 DIESEL **\$19.95**

YOU PAY **\$24.9**