

# ELECTRA

A precision Radio-Control power-model, semi-scale type

designed by: **F. W. Biesterfeld** (engineering graduate)

Optimum inherent flying stability, superb controllability,  
instantaneous rudder response  
— crashproof —

For diesel or glow-plugs,  
from .09 to .15 cu. in. displacement.

Expressly designed to match the outstanding new  
Taifun "TORNADO" engine and "STANDARD-20" R/C set.

## Model Data:

	metric	inch/ft./ozs.
Span:	1375 mm	51 <sup>1</sup> / <sub>8</sub> "
Length:	905 mm	35 <sup>5</sup> / <sub>8</sub> "
Fuselage width:	135 mm	5 <sup>5</sup> / <sub>16</sub> "
Fuselage height:	175 mm	6 <sup>7</sup> / <sub>8</sub> "
Wing area:	26 dm <sup>2</sup>	403 sq. in. = 2.48 sq. ft.
Stabilizer area:	6,7 dm <sup>2</sup>	104 sq. in.
Total area:	32,7 dm <sup>2</sup>	507 sq. in. = 3.45 sq. ft.
Weight, empty:	850 g	30 ozs.
Normal payload		
(Standard 20 Xr set):	280 g	10 ozs.
Maximal payload:	570 g	20 ozs.
Normal gross weight:	1130 g	40 ozs. = 2 lb 8 ozs.
Wing-loading, normal:	43,5 g/dm <sup>2</sup>	10.1 ozs./sq. ft.
Wing-loading, max.:	54,5 g/dm <sup>2</sup>	12.5 ozs./sq. ft.

This plan and kit are manufactured by:  
**JOHANNES GRAUPNER** — precision modelling —  
**KIRCHHEIM-TECK, WEST-Germany**

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## "ELECTRA" Radio-Control Model - Bill of Materials

No. of parts required	designation of part	No. of part	material	dimensions
1	firewall	1	plywood	1/8" thick
1	bulkhead	2	plywood	1/8" thick
1	bulkhead	3	plywood	1/8" thick
1	dashboard	4	balsa M	1/8" thick
1	engine mounting plate	5	plywood	5/16" thick
2	longerons	6	balsa H	3/16" X 3/4" X 6"
2	lateral fuselage front sheet	7	balsa M	1/8" thick
2	cabin-reinforcement	8	balsa M	3/16" thick
2	wing mounting rib	9	plywood	1/8" thick
2	fuselage rear sheet	10	balsa M	3/16" thick
4	fuselage main longerons	11	balsa M	3/8" sq., 28 <sup>11</sup> / <sub>32</sub> " lg.
2	fuselage cross-members	12	balsa M	3/8" sq., 6 <sup>11</sup> / <sub>16</sub> " lg.
2	fuselage cross-members	13	balsa M	3/8" sq., 6 <sup>11</sup> / <sub>16</sub> " lg.
7	fuselage cross-members	14	balsa M	3/16" X 3/8", 15 <sup>3</sup> / <sub>4</sub> " total
10	fuselage cross-members	15	balsa M	1/8" X 3/8", 47 <sup>1</sup> / <sub>4</sub> " total
11	fuselage braces	16	balsa M	1/8" X 3/8", 55 <sup>1</sup> / <sub>8</sub> " total
2	cabin cross-members	17	balsa M	3/8" sq., 7 <sup>1</sup> / <sub>8</sub> " total
2	fuselage bottom cross-members	18	balsa M	3/8" sq., 7 <sup>1</sup> / <sub>8</sub> " total
9	fuselage cross-members	19	balsa M	1/8" X 3/8", 27 <sup>1</sup> / <sub>2</sub> " total
1	fuselage rear cross-member	20	balsa M	3/16" sq. X 2"
—	fuselage nose sheeting	21	balsa M	1/8" thick strip
2	cabin struts	22	balsa M	3/16" X 3/8" X 4 <sup>3</sup> / <sub>4</sub> " total
1	cabin mounting brace	23	plywood	5/64" thick
1	cabin center brace	24	balsa M	3/16" thick
1	cabin cross-member	25	balsa M	1/8" X 3/8" X 4 <sup>11</sup> / <sub>32</sub> "
1	windshield	26	perspex	1/64" thick
2	cabin windows	27	perspex	1/64" thick
1	peg for rubber motor	28	beech-dowel	5/32" dia., 4" lg.
1	rubber motor end-hook	29	piano-wire	1/32" dia., 1 <sup>1</sup> / <sub>2</sub> " lg.
1	escapement mounting plate	30	plywood	1/8" thick
2	stabilizer mounting pegs	31	beech-dowel	5/32" dia., 3 <sup>1</sup> / <sub>8</sub> " lg.
1	cabin-floor & landing gear mounting plate	32	plywood	1/8" thick
1	main landing-gear	33	piano-wire	1/8" dia., 18 <sup>1</sup> / <sub>2</sub> " lg.
1	main landing-gear spreader	34	piano-wire	1/32" dia., 7 <sup>1</sup> / <sub>8</sub> " lg.
2	nose-wheel wire leg	35	piano-wire	1/8" dia., 13 <sup>3</sup> / <sub>8</sub> " lg.
1	nose-wheel	36	airwheel	2" dia.
1	main landing-wheels	37	airwheel	2 <sup>1</sup> / <sub>2</sub> " to 3" dia.
2	cabin top hatch	38	balsa M	3/16" thick
2	cabin-hatch mounting-clip	39	piano-wire	1/32" dia., 4 <sup>3</sup> / <sub>8</sub> " lg.
2	cabin-hatch supports	40	balsa M	3/16" sq., 3 <sup>1</sup> / <sub>8</sub> " lg.
1	cowl-blocks (lateral-front)	41	balsa M	5/8" thick
1	cowl-blocks (front-top & bott.)	42	balsa M	5/8" thick
1	cowl-block (top-rear)	43	balsa M	3/16" thick
1	cowl-block (inner front-top)	44	balsa M	3/16" thick
1	cowl-block (inner front-top)	45	balsa M	3/16" thick
1	cowl-block (bottom-rear)	46	balsa M	3/8" thick
1	cowl-block (bottom fill-up)	47	balsa M	3/16" thick
1	cowl-block (bottom fill-up)	48	balsa M	3/16" thick
1	cowl-block (left rear)	49	balsa M	3/4" thick
1	cowl-block (right rear)	50	balsa M	3/4" thick

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No. of parts required	designation of part	No. of part	material	dimensions
1	metal fuel-tank	51	commercial type or sheet brass	$1/64$ " thick
1	door for escapement-mount	52	balsa M	$3/16$ " thick
1	mounting-plate for fin	53	balsa M	$3/16$ " thick
1	fin-rib	54	balsa M	$3/16$ " thick
1	fin-rib	55	balsa M	$5/64$ " thick
1	fin-rib	56	balsa M	$5/64$ " thick
1	fin-rib	57	balsa M	$5/64$ " thick
1	fin-rib (tip)	58	balsa M	$3/8$ " thick
1	fin leading-edge	59	balsa M	$3/16$ " sq., 7" lg.
2	fin longerons (spars)	60	balsa M	$3/16$ " sq., $7\frac{1}{2}$ " lg.
2	fin trailing-edges	61	balsa M	$1/32$ " thick
1	rudder	62	balsa M-H	$3/8$ " thick
2	rudder-hinge wires	63	piano-wire	$1/32$ " dia., 4" lg. total
2	rudder-bearings	64	shim-brass	$1/64$ " thick
1	rudder actuating wire	65	piano-wire	$1/32$ " dia., $4\frac{1}{2}$ " lg.
3	cabin-door re-inforcements	66	spruce	$1/8$ " $\times$ $3/16$ " $\times$ $15\frac{3}{4}$ " total
1	cabin-door	67	balsa M	$1/8$ " thick
2	cabin door mounting eyelets	68	piano-wire	$1/32$ " dia., 4" total
1	cabin fill block	69	balsa M	$1/8$ " $\times$ 1" $\times$ $3\frac{1}{8}$ "
2	fuselage bottom re-inforcements	70	balsa M	$1/8$ " $\times$ $3/8$ " $\times$ $5\frac{1}{2}$ "
2	wing-root ribs	71	plywood	$5/64$ " thick
2	wing-root ribs	72	balsa M	$3/8$ " thick
10	wing-ribs	73	balsa M	$5/64$ " thick
4	wing-ribs	74	balsa M	$5/64$ " thick
2	wing-ribs	75	balsa M	$5/64$ " thick
2	wing-ribs	76	balsa M	$5/64$ " thick
2	wing-ribs	77	balsa M	$5/64$ " thick
2	wing-ribs	78	balsa M	$3/64$ " thick
2	wing-ribs (tip)	79	balsa M	$3/4$ " thick
2	wing leading-edges	80	balsa M-H	$3/8$ " $\times$ $5/8$ " $\times$ $24\frac{7}{8}$ "
4	wing main-spars	81	balsa M-H	$3/16$ " sq., $\times$ $25\frac{1}{8}$ "
2	auxiliary wing-spars	82	balsa M-H	$3/16$ " sq., $\times$ $25\frac{1}{8}$ "
2	wing trailing-edges	83	balsa M	$5/64$ " $\times$ $3/4$ " $\times$ 26"
2	wing leading-edge plankings	84	plywood	$1/32$ " $\times$ $1\frac{3}{4}$ " $\times$ $25\frac{1}{8}$ "
4	wing-root mounting hooks	85	piano-wire	$3/64$ " dia., 2" lg. ea.
4	wing-root mounting pegs	86	beech-dowel	$3/8$ " dia., $3/4$ " lg. ea.
2	wing-strut mounting blocks	87	spruce	$1/8$ " $\times$ $3/8$ " $\times$ $2\frac{1}{8}$ " ea.
2	wire eyelets	88	piano-wire	$1/32$ " $\times$ $1\frac{5}{8}$ " ea.
2	wing-struts	89	spruce	$1/8$ " $\times$ $3/8$ " $\times$ 13" ea.
2	wing-strut clips	90	piano-wire	$1/32$ " dia. $\times$ $1\frac{5}{8}$ " ea.
2	wing-strut clips	91	piano-wire	$3/64$ " dia., 2" ea.
2	stabilizer-ribs	92	balsa M	$5/64$ " thick
2	stabilizer-ribs	93	balsa M	$5/64$ " thick
2	stabilizer-ribs	94	balsa M	$5/64$ " thick
2	stabilizer-ribs	95	balsa M	$5/64$ " thick
2	stabilizer-ribs	96	balsa M	$5/64$ " thick
2	stabilizer-ribs	97	balsa M	$5/64$ " thick
2	stabilizer-ribs (tip)	98	balsa M	$3/8$ " thick
1	stabilizer leading-edge	99	balsa M	$3/8$ " sq., 24" lg.

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No. of parts required	designation of part	No. of part	material	dimensions
2	stabilizer main spars	100	balsa M-H	$1/8$ " sq., 24" lg.
1	stabilizer trailing-edge	101	balsa M-H	$5/64$ " $\times$ $3/4$ " $\times$ 24"
1	stabilizer center platform	102	balsa M	$5/64$ " thick
1	stabilizer center platform	103	balsa M	$5/64$ " thick
1	stabilizer leading-edge sheet	104	balsa M	$1/32$ " $\times$ 2" $\times$ 24"
1	stabilizer center top sheet	105	balsa M	$1/32$ " thick
2	stabilizer tip gussets	106	balsa M	$5/64$ " thick
1	stabilizer center fairing	107	cardboard	$1/64$ " thick
1	stab center fairing former	108	balsa M	$3/16$ " thick
1	battery-mount (platform)	109	balsa M-H	$3/16$ " thick
1	battery-mount former	110	balsa M-H	$3/16$ " thick
2	ply re-inforcements (slots)	111	plywood	$1/32$ " thick
4	battery-mount stiffeners	112	balsa M-H	$3/16$ " sq., 12" total
1	battery-clip	113	spring-type	shim-brass, $1/64$ " thick
1	battery-clip	114	spring-type	shim-brass, $1/64$ " thick
1	wire-antenna	115	piano-wire	$1/32$ " dia., $27\frac{1}{2}$ " lg.
4	mounting-links	116	piano-wire	$1/32$ " dia., 2" ea.
4	receiver mounting hooks	117	iron/brass	commercial type, $1/16$ " dia.
4	engine mounting bolts & nuts	118	iron/brass	$1/8$ " dia., $3/4$ " lg.
2	bolts & nuts for battery-mt.	119	iron/brass	$1/8$ " dia., $3/4$ " lg.
2	woodscrews for mtg. relais	--	brass	$3/32$ " dia., $1/4$ " lg.
7	misc. woodscrews for fixing fittings to batt. mt.	--	brass	$5/64$ " dia., $3/8$ " lg.
	covering		heavysilkspan nylon	approx. 10 sq. ft.
				(weight .09 ozs./sq. ft.)
				dope, clear & color approx. 20 ozs.
				assorted rubber-rings
				fuel-tubing

Note: H denotes very hard balsa  
M-H denotes hard balsa  
M denotes med. to hard balsa.

Regarding dimensions this plan and design are originally in metric measurements.  
— Due to transcription, minor deviations may occur, which are in the order of  $1/64$ " or less.