

FREE FLIGHT RESOURCE LIST

Vendors, Publications, Web Sites and Other Necessities

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Thanks to the dedication and hard work by several hundred dedicated entrepreneurs around the country, an amazing array of free flight necessities are available via mail order or the Internet. Most of their products cannot be found in hobby shops. The following is a basic list of some of these resources. There are many more! Check the ads and free flight columns in *Flying Models* magazine, as well as the Internet, for others. Best first choices for beginners or "returnees" to the hobby are those vendors **highlighted in yellow**. **Please feel free to copy and distribute this list.** Consider showing it to your hobby shop owner, since many of the listed vendors also sell to dealers. Most shops don't know some of these vendors and products even exist. Note that while some listed vendors have web sites and e-mail, their merchandise availability, prices, e-mail addresses, and web site URL's are subject to change without notice.

Campbell's Custom Kits

P.O. Box 3104

Muncie, IN 47307 (765) 289-7753 thermalpiglet@comcast.net

Lee Campbell, a veteran free flight competitor, is the proprietor and kit maker. His inventory includes lots of gliders: at least 14 hand-launched models, three catapult types, and a towline design. All this plus rubber-powered duration models, power models, and scale kits keep Lee busy cutting his top-quality balsa wood. He also sells kits and accessories from other manufacturers such as Peck-Polymers, Micro-X, and R/N Models. He's always adding new merchandise. Contact Lee for current catalog information.

Campbell Model Supply Co.

37742 Carson Street

Farmington Hills, MI 48331 (810) 478-7846

Glenn Campbell's chief product is Esaki tissue, the finest Japanese tissue available for general model plane use. It's available in seven colors. Glenn imports his tissue directly from the manufacturer in Japan and sells it at the best price anywhere. He recently added an even lighter, hard-to-find white tissue known as Gampi. He also sells balsa, propellers, and kits for small electric-powered and easy-to-build rubber models. Send him \$2.00 for a complete catalog.

Diels Engineering, Inc.

P.O. Box 263

Amherst, Ohio 44001 E-Mail: ddiels@mrdoc.cc Web site: pageproducer.acninc.net/dielsengr

Dave Diels offers lots of excellent stick-and-tissue kits, many of pre-WWII and WWII military aircraft with vacuum-formed canopies where needed and great decals. Lots of plans, too, if you like to pick your own wood and tissue for scratch building. Send Dave \$2.00 for a copy of his ever-growing catalog. Not recommended for beginners.

F.A.I. Model Supply

P.O. Box 366

Sayre, PA 18840-0366 (570) 882-9873 faimodelsupply@cyber-quest.com www.faimodelsupply.com

FAI sells more than 100 free flight kits and the list keeps growing and includes three excellent ready-to-fly indoor rubber models. FAI carries a great selection of FF supplies and accessories, including Tan Sport and Super Sport rubber strip that is the performance standard of the hobby. John Clapp is the proprietor. His catalog is \$2.00, a must for both beginners or experts.

Flying Aces Club

3301 Cindy Lane

Erie, Pennsylvania 16506 (814) 833-0314

The Flying Aces Club is an informal, nationwide group of model airplane hobbyists who love to build and fly stick-and-tissue model aircraft of all types, especially rubber-powered scale models. Membership includes a subscription to their newsletter, the *FAC News*. Each issue comes with full-size model plans, modeling news and tips, model photographs, contest announcements and club news. Their national contests are held in Geneseo, New York, each July and are the premier free flight scale meets with nearly 200 fliers competing. Annual membership fee is \$15. If you enjoy free flight scale models, you'll enjoy the FAC.

Golden Age Reproductions

P.O. Box 1685

Andover, MA 01810

GAR has hundreds of Comet, Peerless, Megow, Scientific, Ace Whitman, and other reprinted plans from the 1930's and 40's rubber-powered scale kits that those of us over 60 fondly remember. They also have over two dozen excellent rubber scale kits, most updated versions of those same old models, some of later design including the Curtiss Robin, P-51 Mustang, P-47 Thunderbolt, and Messerschmitt BF-109E of WWII fame. A recent addition to the GAR line are excellent kits for the P-51A Mustang, Clipped Wing Taylorcraft, Hughes Racer, Mk. XIVE Spitfire, Curtiss P-40, Stinson Reliant, and Rearwin Speedster. Molded canopies are included where needed on all GAR kits. The catalog is \$3.00, a must for rubber scale fans. Proprietor of GAR is Jim Fiorello.

Hannan's Runway

Box 210

Magalia, CA 95954 (530) 873-6421 E-mail: runway@hrunway.com www.hrunway.com

Bill Hannan carries a very comprehensive inventory of wonderful books on model airplanes and aviation, many aimed for beginners, many available nowhere else, many with lots of model plans. There's also a growing list of excellent model-related videos. Hannan's Runway is a splendid resource for anyone getting started as well as experienced builders/fliers and aviation buffs. The \$1.00 catalog charge is refundable on your first order. Visa and Master Charge accepted. The Runway web site is excellent!

HiLine

P.O. Box 11558

Goldsboro, NC 27532 (919) 778-6653 E-mail: daverees@coastalnet.com

HiLine sells a variety of small electric motors for free flight and small RC models, plus chargers, battery packs, and plans for electric as well as rubber-powered models. There's also an excellent 10:1 rubber winder called the *Scale Winder*. Proprietor Dave Rees is a nationally known free flight scale designer and competitor. He sells an informative video on electric-powered free flight. The HiLine catalog is \$1.00.

Indoor Model Supply

Box 2020

Florence, OR 97439 Phone: (541) 902-8508 Web site: www.indoormodelsupply.com

IMS caters to both beginner and veteran indoor fliers, and offers kits, wood, rubber, and lots of other items for this unique niche of aeromodeling. Their *Slow Poke* and *Salem 6* kits are excellent beginner indoor models and they will fly for several minutes in a school gym! IMS also has duration and scale model kits plus a 15:1 rubber winder. Proprietor Lew Gitlow takes phone orders. Catalog \$2.00. NOTE: IMS offers a model kit specifically designed for the national **Science Olympiad Wright Stuff** competition. Call for details. Lew sells an informative booklet on this event and a book on indoor flying in general.

A.A. Lidberg Model Plan Service

1008 E. Baseline Road, Suite 1074

Tempe, AZ 85283

(602) 839-8154 (evenings & weekends) aalmps@aol.com members.aol.com/aalmps

Al Lidberg offers a most interesting and extensive selection of plans and kits. He has 22 profile ("no-cal") scale plans, six peanut scale plans, 16 larger size rubber scale plans, plus a growing series of mini-replicas of old timer free flight endurance models and a number of larger scale plans suitable for radio control. Al is a master draftsman and his plans and kits are excellent. Send him \$2.00 for an illustrated catalog with all models shown. Al maintains a well-illustrated web site.

Micro-Mark

340 Snyder Avenue

Berkley Heights, NJ 07922-1595 (800) 225-1066

Micro Mark, "The Small Tool Specialists," lives up to its name and then some. Their extensive selection of specialized tools is aimed directly at the hobbyist, model plane builders included. Their catalog is well illustrated, showing an array of hand tools, paints, brushes, miniature power tools, adhesives, measuring devices, books, and videos. Call their 800 number to get a free copy.

Micro-X Products

P.O. Box 1063

Lorain, OH 44055 (440) 282-8354 E-mail: microx@erienet.net

Micro-X is another vendor dealing primarily with indoor-oriented products: kits, select quality indoor wood, specialty covering materials and accessories, rubber strip, and books. Anyone interested in indoor flying should have their \$2.00 catalog.

Midwest Products Co., Inc.

Educational Products Division

400 S. Indiana Street

P.O. Box 564

Hobart, IN 46342 1-800-348-3497

www.midwestproducts.com

Midwest offers some unique projects through its Educational Products Division. Although primarily aimed at national school programs such as the Science Olympiad, these models are highly suitable for any group modeling activity. Included are some gliders and four rubber-powered models plus teaching texts, wood, tools, and adhesives. The rubber models include a *Delta Dart* (similar to the *AMA Cub*); a larger *Super Delta Dart*; a 12" *Shoobox R.O.G.* ("Rise Off Ground"); and the *Right Flyer*, a robust 19" R.O.G. Both are capable of flights of well over one minute in a 20 ft. gym. Call the Midwest 800 number and ask for their catalog. **NOTE:** Midwest offers the *Sorcerer*, a model kit for the national **Science Olympiad** competition, along with an excellent 15:1 winder and packets of Tan rubber in various sizes.

Michael A. Morrow

1327 44th Avenue S.W.

Seattle, WA 98116

E-mail: aeroaces@earthlink.net

www.aeroaces.com/aeroaceshome.htm

There are no less than 37 "no-cal" (see glossary) plans in his catalog, including pre and post-WWII fighters, racers, sport planes, and some offbeat subjects as well. He also has five peanut plans plus a selection of scale 3-views. A unique offering from Mike are pre-printed pressure-sensitive markings (licenses and race numbers, logos, lettering) for his plans. And he has tissue, packets of Tan rubber strip, plastic propellers plus a telescoping pole that extends from 45 inches to 19 feet for retrieving models from trees and girders. Send \$2.00 for his catalog. Good web site too.

Peck-Polymers

P.O. Box 710399

Santee, CA 92072-0399 (619) 448-1818

E-mail: PPModels@aol.com

www.peck-polymers.com

Peck has loads of kits, plans, supplies, CO₂ & electric motors, wood, and tools of all kinds for both beginners and experienced modelers. Truly a free flight model airplane "wish book," this catalog is a must for \$4.00. They take phone orders and accept Amex, MasterCard, & Visa.

Penn Valley Hobby Center

837 W. Main Street

Lansdale, PA 19446 (215) 855-1286 (215) 368-0770

Web Site: www.pennvalleyhobbycenter.com

Penn Valley offers free flight kits from many of the U.S. vendors shown elsewhere on this list at discount prices. They also have their own unique line of rubber scale kits, authentic reproductions of those pre-WWII kits so fondly remembered by most over-60 modelers (like me). Most of these are based on the 10¢, or "dime scale" models of that era that typically had wingspans of 16-20 inches. Some are larger, some are non-scale types. PV carries lots of other items, such as rubber strip, wheels, tissue, and more. Catalog is \$2.00.

Just getting started? Here are some suggestions:

- *Butterfly*, *Mayfly*, and *Bulldog* ready-to fly indoor models from FAI Model Supply. They're ready to go, right out of their boxes! The *Minnow ROG* is another good beginner kit from FAI, and can be flown indoors or out.
- *Peck ROG*, a 12-inch span, easily built stick-and-tissue model for indoor or outdoor flying from Peck-Polymers.
- *Sky Bunny*, a larger, more robust stick-and-tissue model for outdoor flying, also from Peck-Polymers.
- *Right Flyer*, a sturdy and great-flying model from Midwest Products.
- *Pussycat*, an excellent 12" model from Peck-Polymers. Simple construction, fine flier. Highly recommended for indoors and out. There's an even simpler version, the *Starved Pussycat*, that would be an excellent first time project.

- *Prairie Bird* and *Bostonian Pup* non-scale endurance models, *Nesmith Cougar* and *Lacey M-10* peanut scale models. All four are from Peck-Polymers and are basic stick-and-tissue models with boxy built-up fuselages and wheels with simple structures. They are excellent fliers, suggested as second or third projects, and will hone building skills needed for more sophisticated subjects, such as scale models.

- 15:1 and 10:1 K&P rubber winders from FAI, Midwest Products, and others.

- *Slow Poke* and *Salem 6* kits from Indoor Model Supply. For advanced beginners, with stick-and-tissue wing and tail.

There's nothing like a good book- or video:

Books on free flight modeling are few, but Hannan's Runway stocks some good ones, such as "Rubber Powered Model Planes" by Don Ross, "Indoor Scale Model Flying" by Fred Hall, and "Model Aircraft Aerodynamics" by Martin Simons. Also in stock at the Runway are excellent videos on modeling, such as "Basics of Rubber Power," "How to Cover Models with Japanese Tissue," and a number of others with action-packed coverage of various prestigious model airplane contests.

A brief glossary of frequently used free flight modeling terms

Adhesives: These are vital products used to stick model parts together. Commonly used model adhesives include carpenter type (aliphatic resin) glues such as Titebond, traditional model airplane cement in tubes such as Duco, Testors or Ambroid, various epoxies, and "instant" glues such as Zap. The aliphatics are strong, safe, and easy to clean up with water.

Adhesives are also used to attach tissue covering to a model's framework. Commonly used for this purpose are dope and glue sticks. The former is a clear, lacquer-like liquid that can also be used to seal tissue after it has been applied. It's available from hobby shops that carry model airplane supplies. Glue sticks work well and have little if any odor or fumes. They are available wherever office supplies are sold. Be careful not to crush delicate framework when using a glue stick.

Electric Model: A model powered by one of the every-growing number of tiny electric motors now available. Power is supplied by small rechargeable batteries carried in the model. These motors can power free flight models ranging from 12 inches to several feet in wingspan. There are some good almost-ready-to-fly ("ARF") model kits that use electric motors. You can find these at hobby and toy stores.

Endurance model: A model that is designed and built solely to stay aloft for as long as possible. There are many competition categories for indoor and outdoor endurance models. These models may or may not have a realistic appearance, and are a good starting projects for beginners rather than more difficult to build and fly scale models.

Free flight model: A model that flies "free" of any outside control while airborne. It uses settings of balance, flying surfaces, and propeller thrust put into the model prior to launch for in-flight guidance and stability.

Indoor model: A model built specifically for flying in an indoor site, such as a school gym, athletic arena, fieldhouse, aircraft hangar, or other draft-free interior location with suitable floor space and ceiling height. Gliders, rubber-powered, and electric-powered models are flown indoors. They are comparatively lighter and more fragile than those intended to be flown outdoors. Some of the more robust indoor models, such as the *Right Flyer*, can be flown outdoors under calm air conditions

Laser Cut: A term referring to the relatively new technique of precisely pre-cutting model parts, such as ribs and formers, from balsa sheets using a very thin, precise laser beam. This eliminates the traditional but time-consuming task of cutting out parts printed on balsa sheets. A growing number of kit manufacturers are using laser cutting.

No-cal scale: A class of comparatively simple, easily-built semi-scale rubber models having a two-dimensional profile fuselage in place of the traditional built-up, three dimensional hollow fuselage. Typically they are of stick-and-tissue construction are covered on only one side of their framework. They can be flown indoors or out. "No-cal" is short for "no calories," a reference to the lean, minimal structure of these models.

Outdoor model: A model built for outdoor flying, using relatively robust design and construction compared to indoor models. Various types of gliders, rubber-powered, and engine-powered models are flown outdoors, often using thermals (rising warm air currents) to achieve long flight duration.

Peanut scale: A popular class of small rubber-powered scale models with a maximum wingspan limit of 13 inches. There are many kits and plans available for peanut scale models. They can be flown both indoors and out. Not recommended for beginners.

Rubber lubricant: A slippery substance, usually a liquid, applied to a rubber motor to reduce friction between the strands when they are tightly wound for flight. *Use of a proper lubricant is vital!* It enables many more turns to be wound into a rubber motor than would be possible without it. While rubber lubricants are sold by some of the listed vendors, automotive protectants such as Armor All,

Formula 2001, and Son of a Gun make very good rubber lubricants too and are readily available in retail stores.

Rubber motor: The loop, or loops, of rubber strip that provide power for rubber-powered model aircraft. Tan rubber strip (see below) is formulated especially for powering model aircraft and is sold by a number of the above vendors, most notably *F.A.I. Model Supply*. When used with a mechanical winder (see *winder*, below) and a proper lubricant, rubber motors can be wound several thousand turns to give long flights of several minutes duration with a properly prepared free flight model.

Scale model: A model plane designed, built, and decorated to closely resemble a particular full-size, man-carrying aircraft. In competition, scale models are scored on their depiction of the subject aircraft, overall craftsmanship, and flight duration.

Stick-and-tissue: Model airplane jargon referring to the traditional method of free flight model construction which uses balsa wood sticks and pieces for the model's framework and tissue paper to cover it. This tissue is most often a fine, lightweight grade imported from Japan. Many of the vendors on the above list sell Japanese tissue.

Stooge: Free flight slang for a fixture designed to securely hold a rubber-powered model in place while it is being wound for flight. This omits the need for another person to hold the model during winding. Once wound, the rubber motor is hooked to the model, which is then removed from the stooge and is ready for flight. Some vendors, such as *F.A.I. Model Supply*, sell stooges. Some web sites have pictures of stooges.

Tan Sport & Super Sport Rubber Strip: The brand names of rubber strip specifically formulated for powering model airplanes, named for its light tan color. They are sold as long continuous strips of various widths, usually 1/16, 3/32, 1/8, 3/16, and 1/4 inch. Its thickness is approximately .045 inch. Rubber-powered models fly using one or more loops made from one of these widths. *F.A.I. Model Supply* of Sayre, Pennsylvania markets Tan Sport and Super Sport directly to both modelers and vendors and works directly with the U.S. manufacturer to constantly monitor and upgrade its quality. Vendors such as *Indoor Model Supply* and *Micro-X* cut it into an even wider range of custom widths required for flying various classes of ultralight indoor models. Many serious modelers have their own rubber strippers, but these very useful tools are expensive. See Thayer Syme's web site (see below) for pictures of various rubber strippers. Super Sport has a somewhat higher power output than Sport.

Tools: Basic tools for model airplane building include a flat work surface such as a sheet of smooth ceiling tile or homosote, a supply of single-edge razor blades, a hobby knife such as the Xacto, sand paper and sanding blocks, straight pins for holding parts in place during assembly on the plan (ceiling tile and homosote make this easy), waxed paper to place over the plan to keep adhesives from sticking to it, a metal straight edge/ruler, adhesives of choice for sticking parts together, and glue sticks or dope for attaching covering. The Don Ross book explains all this in more detail (see below).

Winder: A hand-held mechanical device used to conveniently and quickly wind the motors of rubber-powered free flight models. A proper winder is a must-have piece of equipment for successful rubber model flying! Winders have a hand crank which turns a simple gear train connected to a hooked output shaft. The hook holds one end of the rubber motor; the other end remains attached to either the rear rubber hook or propeller shaft of the firmly held or anchored model (see *stooge*, above). The lubricated motor is then stretched to three or four times its slack length and winding is begun. With each single turn of the hand crank, the output shaft turns anywhere from 5 to 20 times, depending on the particular gear ratio of the winder. The person slowly shortens the length of the stretch as he winds, starting to come in at about 50% of desired turns and finishing with the motor at its flying length. The motor is then carefully transferred to the model. This classic technique allows many more turns to be put into a rubber motor than would be possible using manual winding of the propeller. Stretch winding permits 1,000 or even more turns to be quickly put into a rubber motor for longer flights. Thayer Syme's web site (see below) has pictures of winders.

Web Sites

Academy of Model Aeronautics: modelaircraft.org The AMA is the official governing body of all phases of model aviation in the United States.

DC Maxcutters club site: www.his.com/~tschmitt/index.html The D.C. Maxcutters are one of the best known free flight clubs in the country, particularly where Flying Aces competition is concerned. Lots of great scale information, photos, and links.

Dumas Products, Inc.: www.dumasproducts.com Dumas makes an impressive line of laser-cut rubber scale kits ranging from 17 1/2" to 30" in span. You can see them all on this site.

Herr Engineering Corp.: www.iflyherr.com/about.html Herr pioneered the use of laser-cut parts in free flight kits and has many models in a variety of sizes, mostly scale. They're all shown on this web site.

Gary Hunter's Plan Page: www.theplanpage.com/ A great variety of free flight model plans for downloading, all free.

Dave Livesay's Plans: www.geocities.com/dmlivesay/ Dave has archived many excellent free flight model plans in PDF format.

Download them for free!

National Free Flight Society: freeflight.org NFFS is dedicated to the practice, promotion, and enjoyment of free flight model flying. They publish an excellent bi-monthly illustrated newsletter for members. Lots of good links found here.

Tim Goldstein's indoor web site: www.indoorduration.com Lots of good information, photos, plans, and other items relating to indoor flying, including the Science Olympiad. Tim sells lots of specialized items for indoor flying as well at his second site, www.F1D.biz, including a new brand of rubber strip called Tru Torque.

Don Slusarczyk's Indoor Web Page: www.indoorfreeflight.com Don is a first-class indoor flier and maintains this very informative site devoted to indoor flying. Lots of tips, plans, and information, including a **Science Olympiad** CD-ROM.

Thayer Syme's free flight site: www.mindspring.com/~thayer5/modelhp.html Thayer's very active site is full of ever-growing amounts of information, tips, plans, and model photos. His pictures and explanations of tools and fixtures are very informative. **Science Olympiad** information is included too. It's a great place to start surfing. Highly recommended! (NOTE:

Recommended reading: *Flying Models* magazine has two excellent free-flight columns every month, plus periodic FF model construction articles and many ads from the vendors listed above, and more. Sometimes hard to find on newsstands, it's worth the search. Better yet, get a subscription. Don Ross (below) writes an interesting column that appears monthly in *Flying Models*.

Rubber Powered Model Airplanes by Don Ross covers the basics very well. Your library may have it, or it can be purchased from Don himself for \$14.95 post paid: Don Ross, 38 Churchill Road, Cresskill, NJ 07626. E-mail: flywords@comcast.net

New to all this? Try and AMA Cub or the *Right Flyer*

The AMA Cub is a simple, very easy to build rubber-powered model. The balsa wood sticks that comprise its wing and tail framework are glued direct to the paper plan, which when trimmed becomes the covering. Tens of thousands of Cubs have been built since it was first kitted back in the early 1970's. It's robust and can be flown indoors or out, the latter when the wind is calm. Visit www.luminet.net/~bkuhl/rubber.htm where you'll find lots of excellent basic Cub information. I highly recommend this site.

The *Right Flyer* model from Midwest Products (see vendor list) is a good trainer for newcomers to free flight modeling. It's a fine flier as built from the kit and can fly for a minute and a half or more under a 20 ft. ceiling. Its sturdy construction, using a tough paper covering material, can withstand a beginner's rough handling as well as the inevitable collisions with walls, chairs, and other obstacles usually found at indoor flying sites. It can be flown outdoors as well, providing the wind is calm. It has an excellent instruction manual. Mastering the *Right Flyer* will help make later building and flying of higher performance designs more successful and understandable. It can be flown with or without its landing gear. Midwest sells kits of the Flyer in "class packs" of eight and 24 models as well as single kits. Some hobby shops (such as Dan's Crafts and Things) carry the single kits, or can order them.

Free flight in the Rochester area

The **Western New York Free Flight Society**, formed in the late 1960's by a handful of dedicated modelers, is today an area-wide organization with members from nine states and Canada. For over 30 years the WNYFFS has hosted the annual Empire State Free Flight Championships, scheduled for 2005 on August 27-29. The WNYFFS also co-sponsors, with a Canadian free flight group, the Great Grape Gathering contest (named for the bottles of wine given in lieu of trophies) scheduled for June 25-27 2005. Site of these two meets is the Geneseo airport just west of Geneseo, New York. Since 1998 the club had also staged the Empire State Indoor Championships in the mammoth Buffalo Bills fieldhouse near Orchard Park, New York.

Membership in the WNYFFS is open to anyone in the upstate New York area, young or old, interested in free flight modeling. Annual dues are \$10, and members receive the club's newsletter, the *Thermal Journal*, with club news and information on upcoming club contests and other activities. An annual business meeting and dinner is held each November.

For more information on the club or to join, contact me at (585) 392-3346, or via e-mail: robert.clemens@att.net

Two hobby shops in the greater Rochester area support, to some extent, free flight. They are *Dan's Crafts and Things* on Empire Blvd., just west of I-590 in Irondequoit, and *Performance Hobbies* located on Main Street in downtown Webster. Both carry kits and other free-flight related items. Although their stocks are somewhat limited, both are well worth a visit.