

# NARTS CATALOG 2008

## NAR LOGO

<b>NAR Cap</b>	Red and white with the NAR emblem. Adjustable size.	<b>NAR-9</b> \$6.00
<b>NAR Coffee Cup</b>	White porcelain with the red NAR emblem.	<b>NAR-10</b> \$5.00
<b>NAR Decals -</b>	NAR emblem in various sizes and numbers in various colors. Two sheets, one numbers, one NAR logos.	<b>DCL-1</b> \$1.00
<b>NAR Lapel Pin</b>	1 1/4" tall enameled pin of the NAR logo	<b>PIN</b> \$4.50
<b>NAR Jacket Patch</b>	Embroidered patch of the NAR logo.	<b>NAR-2</b> \$4.00
<b>Pranger Patch</b>	Embroidered black, white, and gold triangular patch for those inclined towards frequent "close encounters".	<b>NAR-3</b> \$4.00
<b>NAR Short Sleeve Shirt</b>	Knit tan ("smoke") polo shirt w/pocket with the NAR logo and words embroidered. Specify size S-XXXL (\$2 extra for XXL/XXXL)	<b>SSS-(size)</b> \$22.00
<b>NAR Long Sleeve Shirt</b>	Washed-look blue denim shirt with the NAR logo and words embroidered. Specify size S-XXXL (\$2 extra for XXL/XXXL)	<b>LSS-(size)</b> \$26.00
<b>NAR Member Pin 5 YEAR</b>	Triangular lapel pin with NAR logo plus 5 YEAR MEMBER in white on a blue background. Hard enamel, filled, 1 3/8" tall.	<b>PIN5YR</b> \$4.50
<b>NAR Member Pin 10 YEAR</b>	Triangular lapel pin with NAR logo plus 10 YEAR MEMBER in green on a white background. Hard enamel, filled, 1 3/8" tall.	<b>PIN10YR</b> \$4.50
<b>NAR Member Pin 15 YEAR</b>	Triangular lapel pin with NAR logo plus 15 YEAR MEMBER in blue on a silver background. Hard enamel, filled, 1 3/8" tall.	<b>PIN15YR</b> \$4.50
<b>NAR Member Pin 20 YEAR</b>	Triangular lapel pin with NAR logo plus 20 YEAR MEMBER in red on a gold background. Hard enamel, filled, 1 3/8" tall.	<b>PIN20YR</b> \$4.50

## SCALE DATA

<b>Scale Data CD-ROM</b>	Scale Data Packs 1 through 16 with additional supporting data 400MB of graphics, documentation, plans and more.	<b>SDCD</b> \$29.95
<b>Saturn Scale Data CD-ROM</b>	Over 500 MB of drawings, blueprints, color photographs and more of the Saturn 1B and Saturn V.	<b>SATCD</b> \$29.95
<b>Russian Scale Data CD-ROM</b>	Over 500 MB of photos and drawings of a variety of Russian rockets, missiles and space launch vehicles.	<b>RUSCD</b> \$29.95
<b>Saturn Plans</b>	Five 12" x 36" blueprints of the Saturn 1B and Saturn V, showing external details and paint patterns. Shipped rolled.	<b>SAT</b> \$20.00
<b>Aerobee 350</b>	Full substantiation data with plans, and 8 x 10 color prints.	<b>SP-1</b> \$13.00

## SCALE DATA

<b>IQSY Tomahawk</b>	This packet contains plans, an 8 x10 B & W print, and a history of this single stage sounding rocket developed for the International Year of the Quiet Sun.	<b>SP-2</b> \$10.00
<b>Super Loki Dart</b>	This packet contains complete data including two 8 1/2 x 11 drawings, a label detail sheet, background information, color documentation, and four 8 x 10 B & W prints.	<b>SP-3</b> \$9.00
<b>Sandhawk</b>	This packet consists of a set of plans, history on the vehicle, and an 8x10 color print of the vehicle on its launcher.	<b>SP-4</b> \$6.00
<b>Raven</b>	A half scale blueprint and one color and two black and white prints.	<b>SP-5</b> \$9.00
<b>Redstone</b>	Drawings for a Sport Scale mini Red-stone complete with drawings of the prototype.	<b>SP-6</b> \$2.00
<b>Hopi Dart</b>	A packet containing a half scale blueprint, background information, and two black and white prints.	<b>SP-7</b> \$7.00
<b>Judi-Dart</b>	A half scale blueprint and two black and white prints.	<b>SP-8</b> \$6.00
<b>Hawk</b>	A blueprint drawn at 1:6.22 scale, one color and one black and white print, and marking details.	<b>SP-9</b> \$8.00
<b>Falcon</b>	A quarter scale blueprint, one color print, and one black and white print.	<b>SP-10</b> \$8.00
<b>Bomarc</b>	1/40th scale blueprint and one black and white print.	<b>SP-11</b> \$5.00
<b>Titan IIIC</b>	A two page blueprint dimensioned for a 1/60th scale display model.	<b>SP-12</b> \$5.00
<b>Talos</b>	A detailed blueprint, background information, and a color print.	<b>SP-13</b> \$7.00
<b>Jayhawk</b>	Five 11" x 17" detailed drawings and one color print.	<b>SP-14</b> \$7.00
<b>Patriot</b>	One 11" x 17" detailed drawing, two 8 1/2" x 11" drawings, and three color prints.	<b>SP-15</b> \$5.00
<b>Iris</b>	Two 11" x 17" detailed drawings and one color print.	<b>SP-16</b> \$4.00

## ROCKET PLANS

<b>US Record Setting Designs</b>	Ten record setting designs. Includes plans, photos, and information for five BG's, one RG, three altitude models, and a B engine payload.	<b>RSD-1</b> \$6.00
<b>Zia Sport Model Design Book</b>	Eleven original sport designs from the Zia Spacemodelers Section of the NAR. 28 pages.	<b>ZIA-SP</b> \$12.00
<b>CMASS Plan Book</b>	Ten sport and contest designs from the Central Massachusetts Spacemodeling Society.	<b>CMASS</b> \$12.00
<b>NOVAAR Competition Handbook</b>	Tips and proven, basic model designs for beginners. From the Northern Virginia Association of Rocketry.	<b>NOVAAR</b> \$7.00
<b>MIT Competition Notebook</b>	Plans prepared by the MIT Rocket Society.	<b>MIT-CN</b> \$9.00
<b>Peter's Little Book of Goofy Rocket Plans</b>	12 plans of non-scale novelty rockets by Peter Alway. 19 pages	<b>GOOFY</b> \$9.00
<b>Recycled Parts Rocketry</b>	Plans of rockets made from common household materials by the Tampa/ Hillsborough Organization Of Rocketry. 11 pages	<b>THOR</b> \$6.00

## NIRA REPRINTS

Plans and articles compiled by the Northern Illinois Rocketry Association

<b>Glider Plans</b>	From The Leading Edge - Nine glider plans from NIRA's newsletter.	<b>NIRA1</b> \$8.00
<b>Boost/Glider Plans</b>	From The Model Rocketeer - Eight boost/glider plans from the NAR's magazine.	<b>NIRA2</b> \$8.00
<b>Sport Plans</b>	From The Model Rocketeer - Twelve sport model plans from the NAR's magazine.	<b>NIRA3</b> \$8.00
<b>Glider How-To Articles</b>	From The Model Rocketeer - A collection of articles on boost and rocket gliders.	<b>NIRA4</b> \$8.00
<b>NIRA'S Big Book-O-Tips</b>	A collection of building and flying tips.	<b>NIRA5</b> \$8.00

## MIVARS REPRINTS

Plans and articles from the newsletter of the Miami Valley Rocket Society

<b>Just For Fun: Sport Plans</b>	A collection of sport plans. 36 pages	<b>MIVARS1</b> \$13.00
<b>Going For The One: Competition Designs</b>	A collection of competition plans. 16 pages	<b>MIVARS2</b> \$10.00
<b>Kitting Around: - Cloning, Converting and Scaling Kits</b>	A collection of kit modification and cloning plans. 45 pages	<b>MIVARS3</b> \$16.00
<b>Sorta Like The Real Thing: Fun Scale Plans</b>	A collection of sport scale plans. 17 pages	<b>MIVARS4</b> \$10.00
<b>Power and Pads: - Big Stuff and Launchers</b>	A collection of high power plans and heavy duty launchers. 27 pages	<b>MIVARS5</b> \$12.00

## NAR PUBLICATIONS

<b>Sport Rocketry 2002</b>	All six full-color editions of the premiere rocketry magazine for 2002 in PDF format, on CDROM.	<b>SR2002</b> \$20.00
<b>Sport Rocketry 2003</b>	All six full-color editions of the premiere rocketry magazine for 2003 in PDF format, on CDROM.	<b>SR2003</b> \$20.00
<b>Sport Rocketry 2004</b>	All six full-color editions of the premiere rocketry magazine for 2004 in PDF format, on CDROM.	<b>SR2004</b> \$20.00
<b>R &amp; D Methods Guide</b>	A guide to selecting and conducting an R & D project.	<b>RD-1</b> \$4.00
<b>NAR Technical Review, Vol 4</b>	Contains complete R & D reports on experimental dynamic stability testing, performance of engine ignitors, new methods or altitude calculation, and onboard computers for model rockets.	<b>TCR - 4</b> \$5.00
<b>NAR Technical Review, Vol. 5</b>	Contains articles on streamers, a static test stand, and approximation to the variable thrust model rocket, and improved methods of altitude data reduction.	<b>TCR-5</b> \$9.00
<b>NAR Technical Review, Vol. 6</b>	Contains articles on calculation of optimum model rocket mass, Cineroc film analysis, a two axis open-sight optical tracker and streamer duration.	<b>TCR-6</b> \$7.00
<b>NAR Technical Review, Vol. 7.</b>	Contains R & D reports on determining an optimum strategy for predicted duration, streamer folding techniques, liftoff velocities of piston launchers, and the effect of extreme cold on model rocket motors.	<b>TCR-7</b> \$10.00
<b>NAR Technical Review , Vol. 8</b>	From MARSCON 93. Articles on contest strategies, B altitude, vellum rocket construction, modular altitude calculation method, integrating the motion equation for rocket altitude simulation, and television transmitter payload.	<b>TCR-8</b> \$11.00

## NAR PUBLICATIONS

<b>NAR Technical Review, Vol. 9</b>	From NARAM 33. Contains reports on temperature cycling of motors, rate of descent of helicopter duration rocket, effects of changing incidence angle of fins, programmable microtimer, and atmospheric temperature sensor.	<b>TRC-9</b> \$10.00
<b>NAR Technical Review, Vol. 10</b>	From NARAM 34. Contains reports on Superroc design, effects of dihedrals on 1/2A helicopters, piston launchers, glider wing dihedral, booster separation during staging, and retro rockets.	<b>TCR-10</b> \$10.00
<b>NAR Technical Review, Vol. 11</b>	From NARAM 35. Contains reports on measuring and predicting rocket performance from ascent time data, rocket altitude prediction program, self regulating rocket gliders, universal flight controller/datalogger, the increased strength of adding tissue to balsa wood, shock cord length and flame resistance, unique staging techniques, 1/2A x 3 cluster altitude, flying rocket gliders with composites, and parachute shroud line lengths.	<b>TCR-11</b> \$18.00
<b>NAR Technical Review, Vol. 12</b>	From NARAM 36 Contains reports on evaluation of drag coefficient prediction methods, flex wing dihedral optimization, hydrodynamic drag coefficient approximation, and F streamer body tube selection.	<b>TCR-12</b> \$9.00
<b>NAR Technical Review, Vol. 13</b>	From NARAM 37 Contains reports on a digital launch controller, model rocket drag analysis using a computerized wind tunnel, error compensation in altitude data reduction, economic fiberglass parts, study of flex wing materials, and flex wing material analysis.	<b>TCR – 13</b> \$14.00
<b>NAR Technical Review, Vol. 14</b>	From NARAM 38. Contains reports on gap-stage booster recovery, developing beginners model kits, altimeter based boosted dart recovery, hemispherical iteration tracking method, evaluation and selection of dual eggloft capsules, alternate configurations for streamer duration, and how parachute design would affect hang time.	<b>TCR-14</b> \$14.00
<b>NAR Technical Review, Vol. 15</b>	From NARAM 43. Contains reports on free-spinning hubs vs. static hubs, measuring rocket velocity with a laptop computer, zero zero gliders, streamer optimization and more. On CDROM.	<b>TCR-15</b> \$12.00
<b>NAR Technical Review, Vol. 16</b>	From NARAM 44. Contains reports on Achieving Greater Visibility of High Performance Altitude Models, Collapsible Tower Launchers, Stability of Spool Rockets, Wax Mandrels for Composite Fiberglass Tube Construction and thirty more projects. On CDROM.	<b>TCR – 16</b> \$22.00
<b>NAR Technical Review, Vol. 17</b>	From NARAM 46. Twenty two reports on igniter placement, the rocketry league program, development of a beginner rocket glider design, direct non-electronic staging of composite to black powder motors, comparison of sliding wing vs. sliding flop wing gliders and piston launcher effectiveness and others.	<b>TCR-17</b> \$16.00
<b>NAR Technical Review, Vol. 18</b>	From NARAM 48. Contains reports on parachutes and parachute protection, helicopter stops vs. limit lines, reliability of pop-pod gliders and a spider motor ignition system among other topics. Nine total reports.	<b>TCR – 18</b> \$10.00
<b>NAR Technical Review, Vol. 19</b>	From NARAM 49. B Eggloft performance, Estimating Drag Coefficients, NARAM History and more. Of special note is the Larry Curcio entry, An Analysis of Flight Computer Data from Off-Vertical Trajectories, which also includes the programs he references in his report. Fourteen reports.	<b>TCR-19</b> \$14.00

## TECHNICAL EQUIPMENT REPORTS

<b>Boeing Wind Tunnel</b>	This report has full information for building the Boeing Wind Tunnel which was originally designed for model testing.	<b>TER-1</b> \$2.00
<b>Flow Visualization Techniques</b>	This report has information to incorporate air flow visualization in testing of aerodynamic shapes.	<b>TER-2</b> \$2.00
<b>Boost Glider Analysis</b>	"A Free Flight Method For Boost Glider Analysis". Describes how to measure a glider's performance by careful indoor testing. It includes a description of the test setup and also provides information for data analysis methods.	<b>TER-4</b> \$2.00
<b>Programmable Countdown Launch Controller</b>	Full details for the construction of a speech processing launch controller and relay.	<b>TER-5</b> \$8.00
<b>Automatic Altitude Data Reduction System</b>	A report on the construction of a computer data reduction system which determines altitude in 2 seconds. Includes circuit diagram and program listing.	<b>TER-6</b> \$10.00
<b>Modular Box Launcher</b>	Plans for an easy to construct wooden launcher.	<b>TER-7</b> \$2.00
<b>Tower Launchers</b>	Plans for building both adjust-able and non-adjustable tower launchers.	<b>TER-8</b> \$14.00
<b>Launcher Pivot</b>	Plans for building the heavy duty pivots used on the NARAM contest range.	<b>TER-9</b> \$4.00
<b>Piston Launchers -</b>	Information on designing and building piston launchers.	<b>TER-10</b> \$8.00
<b>Vacuum Forming -</b>	A simple, easy to build and use system for fabricating nose cones and small parts.	<b>TER 11</b> \$12.00

## BASIC TECHNICAL REPORTS

<b>Basic Rocket Flight Calculations</b>		<b>TR-1</b> \$2.00
<b>Basic Range Firing Systems</b>		<b>TR-2</b> \$3.00
<b>Making Body Tubes</b>		<b>TR-10</b> \$2.00
<b>Rocket Stability</b>		<b>TR-13</b> \$2.00
<b>Basic Statistics for R&amp;D</b>	by Dr. J. Apt	<b>TR-30</b> \$2.00
<b>Paper Transition Sections</b>		<b>TR-31</b> \$2.00

## Educational Resources

<b>Model Rocket Activities</b>	By C.T. Greenlee. 25 model rocket activities for use in the education field. Each activity has been tested in the classroom with students from grades 4 through 12. This is a good start in doing model rocket projects in the school system.	<b>ED-20</b> \$10.00
<b>Electrical Projects That Can Be Used In Model Rocketry</b>	By C.T. Greenlee. Different electrical projects that can be used with model rockets as support to them or carried aloft by them.	<b>ED-25</b> \$6.00

## INTERMEDIATE TECHNICAL REPORTS

<b>Streamer Duration Optimization</b>	Gives experimental and analytic data for optimizing the streamer design of competition and sport models.	<b>TR-101</b> \$2.00
<b>Basic Design Rules for Boost and Rocket Gliders</b>	Basic rules for designing boost and rocket gliders from 1/4A to F power.	<b>TR-102</b> \$2.00
<b>Basic Glider Stability</b>	Basic explanation of glider flight. Includes discussion of pitch and yaw stability as well as boost stability and transition.	<b>TR-104</b> \$2.00
<b>Tracking</b>	A collection of articles including altitude tracking and data reduction, two station tracking, and the Triple-Track Tracker.	<b>TR-107</b> \$4.00
<b>Model Rocket Telemetry</b>	by D. Babulski.	<b>ED-03</b> \$7.00
<b>Lower Tropospheric Probe</b>	by D. Babulski. A series of reports describing the construction of a rocket borne telemetry probe designed to measure the temperature and moisture content of the lower Troposphere.	<b>ED-12</b> \$4.00
<b>Plastic Model Conversion</b>	A guide by Ken Brown on converting plastic models for flight.	<b>PMC</b> \$6.00
<b>Bi-Wing and Tri-Wing Gliders</b>	A report on the design and construction of bi-wing and tri-wing boost and rocket gliders.	<b>TR-108</b> \$5.00
<b>Rocket Stability</b>	By Beach and Guzik. How to calculate center of gravity and center of pressure (Barrowman Method).	<b>TR-109</b> \$2.00
<b>Fiberglass Airframe Fabrication</b>	by B. Markielewski. A description of the techniques involved in making fiberglass model rocket air-frames and components.	<b>TR-110</b> \$8.00
<b>Effect of Shroud Line Lengths On Descent Time</b>	by A. Brueggeman. A study of the relationship between parachute shroud line length and descent rate.	<b>TR-111</b> \$2.00

## ADVANCED TECHNICAL REPORTS

<b>Fundamentals of Dynamic Stability</b>	This report describes the theory of the dynamic, oscillatory behavior of model rockets. Includes discussions on yaw stability, yaw-roll coupling, and jet damping. Also present methods for calculating the dynamic parameters of model rockets.	<b>TR-201</b> \$8.00
<b>Loads, Stresses and Strains in Model Rockets in Flight</b>	By David A. Ketchledge-A report on the use of finite element mechanics programs to make computer models of model rockets.	<b>TR-202</b> \$7.00
<b>Sun-Seeking Rocket</b>	By George Gassaway. First place NARAM 30 R& D project about active guidance using a sun sensor to control the fins. Includes circuit diagrams, pictures and construction details.	<b>TR-204</b> \$14.00

## HIGH POWER TECHNICAL REPORTS

<b>An Introduction To Advanced Rocketry</b>		<b>NCTRB1</b> \$6.00
<b>Advanced Rocketry Construction Techniques</b>		<b>NCTRB2</b> \$6.00
<b>An Introduction To Composite &amp; Reloadable Motors</b>		<b>NCTRB3</b> \$6.00
<b>Model Rocket Adhesive Techniques</b>		<b>NCTRB4</b> \$6.00
<b>Finishing Materials and Techniques</b>		<b>NCTRB5</b> \$6.00
<b>Basic Stability Considerations For Advanced Rockets</b>		<b>NCTRB6</b> \$6.00
<b>Model Rocket Electrical Launch Systems</b>		<b>NCTRB7</b> \$6.00
<b>The Care and Feeding of Rocket Launchers</b>		<b>NCTRB8</b> \$6.00
<b>Filing An FAA Waiver</b>		<b>NCTRB9</b> \$6.00
<b>Clustering Advanced Rockets</b>		<b>NCTRA1</b> \$6.00
<b>Multi-Staging Advanced Rockets</b>		<b>NCTRA2</b> \$6.00
<b>Electronic Payloads</b>		<b>NCTRA3</b> \$6.00

## HIGH POWER TECHNICAL REPORTS

Composites in Advanced Rocketry	NCTRA4	\$6.00
Advanced Finishing and Detailing Techniques	NCTRA5	\$6.00
Supersonic Rocketry	NCTRA6	\$6.00
Mile High Rocketry	NCTRA7	\$6.00

## BOOKS

<b>The Handbook of Model Rocketry 7th Edition</b>	By G. Harry Stine and Bill Stine. Over 300 pages covering all aspects of model rocketry. The official handbook of the NAR. This book is recommended reading for everyone from beginners to advanced rocketeers. If you think of a rocketry question, it is very likely that it is answered in this book. Readable and a reference work all in one. No TARC team should be without at least one copy. <b>*See our special offer for TARC and MSLC members!</b>	<b>HMR</b> \$17.00
<b>Modern High Power Rocketry - 2nd Edition</b>	By Mark Canepa. This second edition of Modern High-Power Rocketry contains more than 800 black-and-white photographs and illustrations specifically created to introduce the model rocket enthusiast to the exciting world of high-power rocketry. Completely rewritten, photographed, and designed, this book provides tips and simple advice on motor retention, ejection charges, the high-power launch and building your first Level One, Level Two and Level Three rockets.	<b>MHPR2</b> \$28.00
<b>The Model Rocketry Handbook</b>	by Stuart Lodge, from the U.K. with new illustrations of all the latest models. 144 Pages	<b>MRH</b> \$17.00
<b>Rockets Of the World 1999 Supplement</b>	by Peter Alway. Scale data for 11 rockets that aren't in the 3rd edition of Rockets of The World or any of the other supplements.	<b>RTWS2001</b> \$15.00
<b>Rockets Of the World 2001 Supplement</b>	by Peter Alway. Scale data for 11 rockets that aren't in the 3rd edition of Rockets of The World or any of the other supplements.	<b>RTWS2001</b> \$15.00
<b>Rockets Of the World 2002 Supplement</b>	by Peter Alway. Scale data for 12 rockets that aren't in the 3rd edition of Rockets of The World or any of the other supplements.	<b>RTWS2002</b> \$15.00
<b>Rockets Of the World 2003 Supplement</b>	by Peter Alway. Scale data for 12 rockets that aren't in the 3rd edition of Rockets of The World or any of the other supplements.	<b>RTWS2003</b> \$15.00
<b>Rockets Of the World 2004 Supplement</b>	by Peter Alway. Scale data for 12 rockets that aren't in the 3rd edition of Rockets of The World or any of the other supplements.	<b>RTWS2004</b> \$15.00

## CONTEST SUPPLIES

<b>Guide To Competition For the Casual Competitor</b>	by Jennifer Ash-Poole. An explanation of the various competition events for the beginning competitor. A great resource to help understand the NAR Pink Book!	<b>GCCC</b> \$8.00
<b>Contest Directors Guide</b>	Everything you need to now about running a model rocket contest. Includes all necessary forms.	<b>CDG</b> \$9.00
<b>Contest Manager</b>	A standalone application designed to aid Contest Directors in keeping track of points at an NAR contest. Handles all of the record keeping and computational tasks such as altitude data reduction and NAR points tabulation. Requires Java.	<b>CM-CD</b> \$7.00

