

## The Number One Choice of RV Aircraft Builders

- *Highest Quality Tools*
- *Best Customer Service & Warranty*
- *Best Value*

*Isham Inc. is the Only RV Tool Kit Supplier that manufacturers FAA/PMA approved aircraft parts for general aviation. We provide RV Builder's with the same high quality tools that we use in our own shop. Builders prefer our tool kits which is why we sell a lot more tool kits than any other RV supplier.*

# 2022 Van's RV Tool Catalog



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## Isham Inc. Has a Rich Aviation History

Isham Inc. started as a family owned business that grew from a rich aviation heritage. Currently Isham Inc. provides aircraft modifications, aircraft tools and other services to airlines, manufacturers, aircraft owners and the experimental homebuilt aircraft market.

The surname Isham has its origin in 11<sup>th</sup> century England. “Is” is for the River Ise in Northamptonshire Central England and “Ham” means a small village. The name “Isham” means “*from a small village on the River Ise.*”

Keith Isham (1924-1999) learned to fly in 1940 in a *J-3 Cub*. As a Cadet in 1942 he left Wichita University for the 8<sup>th</sup> Army Air Force. As a navigator on the *B-17* Keith flew many missions based in England. In the early 1950's Keith owned an *Ercoupe* and continued to fly other civilian aircraft at every opportunity. After the war Keith continued in service in the Kansas Army National Guard (KANG) until retiring as a Warrant Officer in the mid-1990's. Keith was Vice President of 4<sup>th</sup> National Bank (now Bank of America) in Wichita, Kansas. During his post war military aviation career Keith flew the *Cessna L19 Birddog*, *DeHavilland Beaver*, *Sikorsky Sky Crane*, *Hiller helicopter*, *UH-1 Huey*, *OH-58 Bell Jet Ranger*, *Model 65 Beech Queen Air* (donated to the Kansas Aviation Museum in 1992 and delivered by CWO Keith Isham) and the *U-21 King Air*. After retiring from the KANG and Bank IV Keith continued flying Bell Jet Rangers and King Airs for LifeWatch in Wichita, KS.

Keith's son started riding in airplanes with his dad as an infant. Growing up around aviation set his destiny. In his early career he worked as an aircraft mechanic in Topeka, KS and Wichita, KS. While in Topeka he helped a friend rebuild an *Emigh Trojan*. He flew many hours building time in the Emigh. In 1972 he married Glenna, his life-long aviation companion. Glenna worked for EdoAire, manufacturing of aircraft instruments, in the mid-1970's.

In the mid-1970's Keith and the family decided to purchase a *Piper Cherokee 180*. The airplane sat neglected for several years. They spent all of their spare time bringing the Cherokee up to date, including the addition of wing extensions, wingtips, stabilator extension and a new dorsal fin. Working through the FAA they received STC approval, then PMA (parts manufacturing approval) and began selling the update modifications to other Piper Cherokee owners. The business grew, adding new STC's for the *Piper Arrow*, *Lance* and an engine conversion for the *Cessna R172K*. With their background in sheet metal manufacturing processes and tools they decided it was a natural fit to add *aircraft tools* to the product line.

Glenna managed the day to day operation of the business from the mid-1970's until 2005 when she became President of the corporation. All of their children worked in the business and developed a love for aviation. As adults the boys worked as sheet metal assembly mechanics for Boeing where they became experts at new state-of-the art aircraft manufacturing processes. Their daughter, a Six Sigma Green Belt, worked in manufacturing inventory for Boeing Commercial for several years, then at Cessna as a tool and parts buyer. Isham's have eleven grandchildren that already are showing enthusiasm for aviation from airplane toys and models to spending time at the “shop” and learning to fly.

The Isham family has accomplished many aviation projects including manufacturing and installation of their STC modifications on many hundreds of Piper and Cessna airplanes, helped build three Midget Mustangs and are building a Van's RV. The Isham's have owned ten airplanes since the mid-1970's, recently trading their Piper Cherokee 180 for a much newer and well equipped S-LSA airplane for the grandkids to learn in.

The strong aviation connections and skills of the Isham's have made Isham Inc. a significant supplier in the aviation industry.



## Van's RV Builder's Tool Kit

- *Highest Quality Kit available with 640-Pieces*
- *Includes the DRDT-2 & Pneumatic Squeezer*



The Isham **RV Tool Kit** includes the **Pneumatic Squeezer**, **DRDT-2 Dimpler** and all of the highest quality aviation sheet metal tools needed to build your airplane with professional results. Options are available to customize your tool kit for the quick-build airplane, RV-7, RV-8, RV-9, RV-10 or the RV-14. The tool kit may be customized to delete any tools you may already have, or to add any tools you want in your kit. The value of the basic kit by individual tools is \$3,689.00.

**Tool Kits starting at \$2,790.00**

**Quick-Build Tool Kits starting at \$2,720.00**

*List of tools on the next page . . .*

## Van's RV Builder's Tool Kit Contents

Excluding the RV-12

SM33	<b>DRDT-2 DIMPLER</b>	DT06	DRILL STOPS (4 PIECES)
SS20	3/32-#40 SPRINGBACK DIMPLE DIE	KT09	UNIBIT 1/4" – 3/4" BY 16THS
SS21	1/8-#30 SPRINGBACK DIMPLE DIE	AT01	AIR TOOL OIL
SS12	3/16-#10 SCREW DIMPLE DIE	AT02	AIR SWIVEL
SS14	#8 SCREW DIMPLE DIE	AT03	AIR FLOW VALVE
SS13	#6 SCREW DIMPLE DIE	BB10	TUNGSTEN BUCKING BAR
SS15	DIMPLE DIE ORGANIZER	CL01	CUSHION GRIP CLECO PLIERS
HT53	PRO SWIVEL HEAD POP RIVETER	CL02	3/32" CLECO FASTENERS (325)
SS16-26	3/32 SB POP RIVET DIMPLE DIE	CL03	1/8" CLECO FASTENERS (175)
SS16-27	1/8 SB POP RIVET DIMPLE DIE	CL04	5/32" CLECO FASTENERS (10)
AP22	<b>PNEUMATIC RIVET SQUEEZER</b>	CL05	3/16" CLECO FASTENERS (10)
AT23	3" C-YOKE W/SET HLDR & SPRING	CL06	1/2" JAW CLECO CLAMPS (4)
AT78	<b>ADJUSTABLE SET HOLDER Option</b>	CL07	1" JAW CLECO CLAMPS (4)
SS19	SQUEEZER WASHER SET (12)	CS08	MICROSTOP COUNTERSINK UNIT
SS01	1/2" X 1/8" FLAT SET (2)	CS02	#40 COUNTERSINK – 3/32" RIVET
SS02	1/2" X 1/4" FLAT SET	CS03	#30 COUNTERSINK – 1/8" RIVET
SS03	1/2" X 3/8" FLAT SET	CS05	3/16" #10 SCREW COUNTERSINK
SS05	3/32 UNIVERSAL CUPPED SET	CS06	#8 SCREW COUNTERSINK
SS06	1/8 UNIVERSAL CUPPED SET	DT01	MULTI-PURPOSE DEBURR TOOL
SS07	5/32 UNIVERSAL CUPPED SET	DT04	3M CUT & POLISH WHEEL 6"
SS08	3/16 UNIVERSAL CUPPED SET	DT08	1 X 1/2 3M WHEEL BUSHING (2)
AT17	<b>RIVET GUN (3X Professional)</b>	DT05	3M 1" CUT & POLISH WHEEL (2)
AT17A	STANDARD RIVET GUN SPRING	DT06	1" MINI WHEEL MANDREL
AT04	QUICK-CHANGE SPRING	SM30	SPEED DEBURRING TOOL
RS01	3/32" CUPPED SET 3.5"	DT09	FINE SCOTCH BRITE PADS (2)
RS02	1/8" CUPPED SET 3.5"	DT10	MEDIUM SCOTCH BRITE PADS (2)
RS04	3/16" CUPPED SET 3.5"	SM06	HEAVY DUTY FLUTING PLIERS
RS05	1" DIA. FLUSH SET	KT05	OFFSET LEFT TIN SNIPS – RED
RS06	1/8" DBL OFFSET CUPPED SET	KT06	OFFSET RIGHT TIN SNIPS – GREEN
RS24	BACKRIVET SET	KT07	OFFSET STRAIGHT SNIPS – YELLOW
AT20	<b>High RPM PALM AIR DRILL</b>	KT71	SKIN EDGE ROLLER/SEAMER
DB05	#40 AVIATION COBALT DRILL BIT (8)	KT37	3/32" PIN PUNCH
DB07	12" #40 DRILL BIT	KT38	1/8" PIN PUNCH
DB02	#30 AVIATION COBALT DRILL BIT (6)	GA01	RIVET HEAD GAUGE (4-PIECE)
DB06	12" #30 DRILL BIT	GA02	RIVET LENGTH GAUGE
DB10	#27 AVIATION COBALT DRILL BIT	GA11	MACHINIST RULE
DB09	#21 AVIATION COBALT DRILL BIT	RT01	RIVET TAPE DOTS FOR RIVET SET
DB04	#19 AVIATION COBALT DRILL BIT	HT08	PARTS MARKING PENS (3)
DB03	#12 AVIATION COBALT DRILL BIT	NPN	TECHNICAL MANUAL
DB11	1/4" AVIATION COBALT DRILL BIT		

**The Highest quality tools from Snap-On, Klein Tools & Others.**



## Van's RV Builder's Tool Kit Options

<b>QUICK-BUILD OPTION</b>	DELETES ½ OF 3/32 & 1/8 CLECOS
<b>RV-9 OPTION</b>	ADDS 100 3/32" CLECOS ADDS 50 1/8" CLECOS
<b>RV-10 OPTION</b>	ADDS 175 3/32" CLECOS (TOTAL 500) ADDS 75 1/8" CLECOS (TOTAL 250) ADDS RV-10 BUCKING BAR
<b>RV-14 OPTION</b>	ADDS SEVERAL SIZES OF: o Drill Bits o Countersink Cutters o Dimple Dies and other items unique to the RV-14
<b>SIoux 1412 DRILL UPGRADE or ORANGE DRILL UPGRADE</b>	YOU MAY UPGRADE IF DESIRED. The palm drill furnished in our kit is similar in size, noise and operation of the Sioux drill. <i>If you want, you may upgrade to the Sioux drill or our "Orange" drill. (We highly recommend the "Orange" drill at is nearly identical to the Sioux drill.)</i>
<b>SWIVEL FLUSH SET UPGRADE</b>	OPTIONAL SWIVEL FLUSH SET ALLOWS NOT BEING STRAIGHT ON RIVET HEAD AND PREVENTS SLIPPING. This is offered as an option because many builders prefer the 1" straight flush set as specified by Van's Aircraft.
<b>ADDITIONAL SQUEEZER YOKES</b> Longeron Yoke 4" Thin Nose w/set holder and spring	THESE YOKES ARE OPTIONAL. The alternative to using these yokes is to use the rivet gun and bucking bar. Builders that prefer the squeezer over the rivet gun may wish to purchase these optional yokes for their squeezer.
<b>TIGHT FIT ANGLE DRILL KIT</b>	OPTIONS INCLUDE A TIGHT FIT ANGLE DRILL KIT THAT INSTALLS IN THE CHUCK OF YOUR REGULAR DRILL. This is considered a "nice to have" option but is not required for the RV.
<b>STEEL BUCKING BARS</b>	OPTION TO ADD STEEL BUCKING BARS. Some builders prefer the old steel bars. Most builders say they use only the Tungsten and the steel bars rust in their tool box.



## Van's RV Builder's Tool Kit Option Photos

SnapOn Non-slip, swivel type flush set with rubber-guard and retaining spring. The poly guard swivel set allows RV builders to accomplish perfect, no slip riveting. Makes it easier for beginners to flush rivet if you have trouble holding the rivet gun in an exact straight position.



OPTION: This powerful 1/3 horse power drill is recently redesigned from the 1412 drill, the smallest made by SIOUX Tools. Only 6.3" long, it weighs just 1 lb-9oz! Includes a 1/4" capacity chuck and key. The Model SDR4P36N2 turns at 3600 RPMs. Not all builders are excited with Sioux's redesign of this drill. This new model is heavier than the 1412 and the trigger is not as sensitive at low speeds.

BEST OPTION: This powerful orange drill is the nearly identical in size and speed as the original Sioux 1412 drill, and is just as powerful, smooth and quiet as the Sioux. Includes a 1/4" capacity chuck and key. (We highly recommend this drill over any others.)



The Tight Fit Drill Kit offers an economical option for an angle drill. Especially useful when installing aircraft systems.



Longeron Yoke



4" Thin Nose Yoke

These optional squeezer yokes allow riveting in tight places and around some structures.

Adjustable set holder for your Pneumatic Squeezer. This is a popular option which replaces the use of flat washers under rivet sets to adjust the gap between the squeezer sets.



## Van's RV Builder's Tool Kit Option Photos



Steel bucking bars are an option you can add to your tool kit. The kit includes a Tungsten bucking bar. Many builders have told us that the steel bars just sit in their tool box and rust. Most only use the Tungsten bar throughout the build process. These bars are handy, but not required, for the RV-10 and RV-14 build process.

Most builders purchase an extra countersink cage so they can set one up for 3/32 rivets and the second one for 1/8 rivets. Once they are set up there is no need to change the bit and re-adjust the depth, making it easier to use. Our countersink cages include a nylon foot to keep from marring your work.



Our pneumatic cleco tool eliminates the repetitive motion associated with installation and removal of cleco fasteners. Easy to operate lever throttle and 360-degree swivel with extremely quiet operation. Includes lightweight and easy to handle 6-foot air hose with standard 1/4 NPT air hose connection.

Add a 1/4" high quality die grinder for deburring, grinding and cutting aircraft parts.

This will work with the 1" 3M Deburring Wheel & Mandrel or with an optional Cutoff Disc and Mandrel for trimming aluminum sheet or parts.



## Van's RV-12 Builder's Tool Kit

- *Highest Quality Kit available with 463-Pieces*
- *Includes Van's Required Tools with Options for Nice-to-have tools*
- *Best Value, Warranty & Customer Service*



The Isham **RV-12 Tool Kit** includes the Riveters and all of the highest quality, professional aviation sheet metal tools needed to build your airplane with professional results. Options are available to customize your tool kit for the phase of your project or to add “nice-to-have” tools. The tool kit may be customized to delete any tools you may already have, or to add any tools you want in your kit.

*List of tools on the next page. . .*



## Van's RV-12 Builder's Tool Kit Contents

NPN	<b>HIGH QUALITY PNEUMATIC RIVET PULLER</b>
NPN	<b>CLOSE QUARTERS HAND POP RIVETER</b>
HT01	<b>3" HAND SQUEEZER</b>
SS01	FLUSH HEAD RIVET SET 1/8" (2)
SS04	FLUSH HEAD RIVET SET 1/2"
SS06	PROTRUDING HEAD RIVET SET 1/8"
SS20	3/32" RIVET DIMPLE DIE SET
SS20S	3/32" SMALL DIAMETER FEMALE DIE
SS21	1/8" RIVET DIMPLE DIE SET 100 DEG
SS14	#8 SCREW DIMPLE DIE SET
CL01	CLECO PLIERS, CUSHION GRIP
CL03	#30 CLECOS (350)
CL02	#40 CLECOS (50)
RV12-DB40	#40 COBALT AVIATION DRILL BIT (5)
RV12-DB36	#36 COBALT AVIATION DRILL BIT
RV12-DB30	#30 COBALT AVIATION DRILL BIT (3)
DB06	12" EXTENSION #30 DRILL BIT
DB10	#27 COBALT AVIATION DRILL BIT
DB04	#19 COBALT AVIATION DRILL BIT (2)
RV12-DB16	#16 COBALT AVIATION DRILL BIT
DB03	#12 COBALT AVIATION DRILL BIT (2)
RV12-DB11	#11 COBALT AVIATION DRILL BIT
DB11	1/4" COBALT AVIATION DRILL BIT
RV12-DB52	#52 COBALT DRILL BIT
DB48	3/8" COBALT AVIATION DRILL BIT
RV12-DB#3	#3 COBALT AVIATION DRILL BIT
RV12-DB11/32	11/32" COBALT AVIATION DRILL BIT
RV12-DB5/16	5/16" COBALT AVIATION DRILL BIT
CS08	COUNTERSINK CAGE
CS02	100 DEG MACHINE COUNTERSINK CUTTER W/ #40 PILOT
CS03	100 DEG MACHINE COUNTERSINK CUTTER W/ #30 PILOT
CS27	100 DEG MACHINE COUNTERSINK CUTTER W/#27 PILOT
CS30-120	120 DEG MACHINE COUNTERSINK CUTTER W/#30 PILOT
DB24	6-32 TAP
DB25	3/8-16 TAP
DB26	3/8-24 TAP
DB27	1/4-28 TAP
TH59	TAP HANDLES (3-PIECE SET)
KT09	1/4" -3/4" BY 1/16" STEP DRILL UNIBIT
KT05	LEFT HAND OFFSET METAL CUTTING SNIPS, RED
KT06	RIGHT HAND OFFSET METAL CUTTING SNIPS, GREEN
SM39	FLUTING PLIERS, DEEP V HEAVY DUTY
KT71	SKIN EDGE ROLLING TOOL
HT35	DEAD BLOW HAMMER, PLASTIC FACE
SM30	DEBURRING COUNTERSINK TOOL
DT01	MULTI-BURR DEBURRING TOOL
HT57	FILE SET

*The Highest quality tools from Snap-On, Klein Tools & Others.*



## Van's RV Builder's Prized Shop Equipment

The **DRDT-2 Dimpler** is the most sought-after piece of shop equipment by RV Builders. This dimpler makes precise, consistent and professional dimples. The DRDT-2 replaces the antiquated C-Frame & Hammer tool which is inconsistent, noisy and is difficult to use. The DRDT-2 is included in our standard RV Tool Kit. 22-inch deep and 4-inch height capacity. Powdercoated finish. Easily dimples up to 0.040 AL. Shipping weight is 60 lbs. Made in the U.S.A.



The **Pneumatic Rivet Squeezer** is easy to use and produces professional rivets and dimples every time. This tool is a highly prized possession of RV builders. Hand type rivet squeezers are difficult to use because both hands are required to hold the tool, leaving no hand free to hold or work with the part. The pneumatic squeezer requires only one hand to operate. Our standard RV Tool Kt includes the Pneumatic Rivet Squeezer with a 3" C-Yoke, which is the most versatile yoke for the RV project.

**MYTH #1 – “The C-Frame is required for riveting.”** *It is possible to rivet and back-rivet with a C-Frame, but why would anyone want to? The only function of a C-Frame for riveting is to hold the rivet set. The process of having to raise it up and prep for the next rivet is a painfully slow and a cumbersome effort that is totally unnecessary. Use the rivet gun without a C-Frame as it is much easier and faster.*

**MYTH #2 – “A hand squeezer is required to build the RV airplane.”** *There is no need to have a hand squeezer when you own a Pneumatic Squeezer. The Pneumatic Squeezer has a smaller working envelope to fit in more places. The pneumatic operates with only one hand unlike the two-handed “hands” squeezer .*



## Van's RV Builder's Rivet Gun Tools

The **3X Rivet Gun** is the preferred rivet gun by RV builders. The 3X has 2,160 blows per minute with a 2-7/8" stroke, will rivet up to 3/16" diameter rivets and includes a spring for straight rivet sets. The 3X Rivet Gun is included in the standard RV Tool Kit.



**MYTH #3 – “The 2X Rivet Gun is easier to control for beginners.”** Actually the 2X Rivet Gun is harder to control for beginners. The 2X hits lighter but it also hits much faster than a 3X. The faster blows per minute (BPM) of a rivet gun make it more likely to slip around during the riveting process. The easiest rivet gun to control is the 4X, but it is a too big for the RV projects. The 3X is much easier to control than a 2X and that is why builders prefer the 3X for RV builds.

A special **Quick-Change Spring** is included in our standard RV Tool Kit for use with flush rivet sets. This spring makes it easy to install and remove rivet sets from the rivet gun when not operating. The purpose of the spring is to hold the rivet set in the gun. A rivet gun should never be operated unless actually riveting or holding the rivet set against a solid surface.



The **Air Hose Swivel** keeps the air hose free from binding when riveting. These are primarily used in the rivet gun but may be installed on any air tools. One swivel is provided in the RV Tool Kit for the rivet gun.

The **Air Flow Valve** allows restriction of air flow for the Rivet Gun. This valve is a quick way to reduce the flow and slow the operation of air for any air tool. A flow valve is provided with the Rivet Gun in our RV Tool Kit.



## Van's RV Builder's Rivet Gun Tools - continued



Our RV Tool Kit includes Snap-On industrial rivet gun sets that are ground, precision polished and heat treated to drive perfectly set and un-marred rivets. The straight sets are available in 3/32", 1/8", 5/32" and/or 3/16" as called out for the driven AN470 round head type rivets in the various RV airplanes.

**MYTH #4 – “Use rivet tape to prevent the marring of the heads of your rivets.”** It is not necessary to tape the ends of your rivet sets unless the sets are poor quality. The photo to the right shows a closeup of a set of one of our competitors rivet sets. These will need tape or toss them and buy a good set to prevent marring.



The standard RV Tool Kit includes a Snap-On industrial **Flush Rivet Gun Set** for riveting AN426 flush type rivets. This 1" diameter flush rivet set is precision ground, highly polished and heat treated to drive perfectly set and un-marred flush rivets.

The Snap-On industrial **Double-Offset 1/8" Rivet Gun Set** is for riveting AN470 type round head rivets in hard-to-reach locations. This rivet set is provided in our standard RV Tool Kit.



## Van's RV Builder's Rivet Gun Tools - continued

The high-quality Snap-On industrial **Swivel Flush Rivet Set** replaces the straight flush set and is designed for builders that are concerned about their flush riveting skills. This set allows the builder some forgiveness if the rivet gun is not perfectly perpendicular to the rivet and the rubber shell helps prevent the rivet set from walking across the rivet and skin.



Our standard RV Tool Kit includes **Rivet Tape Dots** that stick on the flush rivet set to protect the rivet head and surrounding aluminum while riveting. The Dots last a long time and are much easier to use than conventional rivet tape. These provide the ultimate protection from marking of skins and rivets. Boeing uses these for protection during riveting.

The RV Tool Kit includes a 4-ounce bottle of high-quality **Air Tool Oil** for lubrication of the rivet gun, drill and any other air tools you may have.

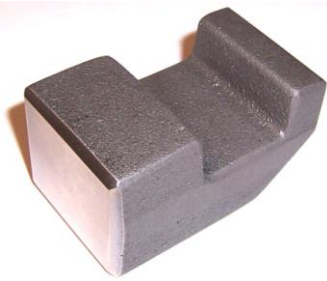


### **Tips for Beginning Riveters:**

- *Practice with a scrap piece of aluminum to set several rivets. Once you get a few good ones, walk away and do it again the next day, and next day. This is a skill you develop by practice to know the "feel" of setting a good rivet. Once you learn it you will not forget it.*
- *Make sure the rivet is not too long. Long rivets tend to bend over.*
- *Start by holding more pressure on the manufactured head (the factory pre-formed head of the rivet) than on the bucking bar. Hold the bucking bar steady and feed the bucking bar into the rivet to form the shop head (shank end you will be forming while riveting).*
- *Pay attention to the timing of how long you hold the trigger in. Most rivets will need one second or a few seconds depending on the size. This is also a technique you will learn over time.*
- *Try dropping the air line pressure down to 35 or 40 psi. This will help with timing and technique when learning.*

## Van's RV Builder's Rivet Bucking Bars

The optional high quality Snap-On industrial **Heel – Toe Bucking Bar** is the most versatile bucking bar. One end is designed to reach into tight spaces and the thicker end is for general riveting.



The optional **Mini Bucking Bar** made by Snap-On industrial is great for getting into tight areas and for reaching around areas where a notched bucking bar is needed.

The optional **Bulkhead Bucking Bar** by Snap-On industrial is great for riveting around bulkheads and stringers. The notched bucking bar provides access to hard to rivet areas.



The **Tungsten Bucking Bar** is the premier bucking bar that is highly prized by RV builders. This bar is 4" x 1" x 5/8" and has an angle on one end. This configuration can be used in most areas that are riveted for all of the RV airplane models. The tungsten bar is easier to use because the heavier weight bounces less than steel. This Tungsten Bucking Bar is included in our standard RV Tool Kit.



The **RV-10 Bucking Bar** is needed for the RV-10 empannage build. This special bucking bar is included in the RV-10 Tool Kit.



## Van's RV Builder's Rivet Squeezing Tools



The **Pneumatic Rivet Squeezer** is easy to use and produces professional rivets and dimples every time. The pneumatic squeezer requires only one hand to operate. The throttle controls the speed of the rivet set movement. Shown with a 3" C-Yoke, which is the most versatile yoke for the RV project.

A popular rivet squeezer upgrade is the **Longeron Yoke** with a 2-1/2" reach and 1-1/4" gap. This yoke will work with the standard set holder and the adjustable set holder that are available with the basic tool kit. Heat treated then precision machined from 4130 steel.



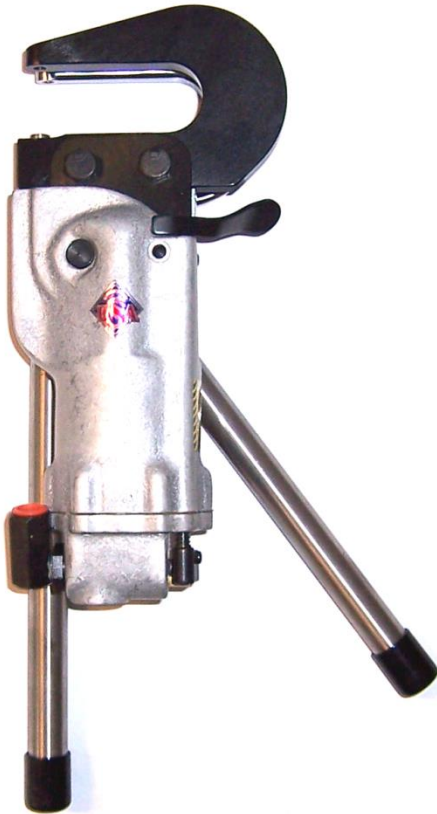
Another popular rivet squeezer yoke is the **4" Thin Nose (No Hole) Yoke**. This yoke has a special longer set holder to fit the 1/14" base. The set holder and spring are included with this upgrade on the RV Tool Kit. Heat treated then precision machined from 4130 steel.

Our RV Tool Kit options include an **Adjustable Set Holder** for the pneumatic squeezer for use with 1" thick base squeezer yokes. The 3" C-Yoke and Longeron Yoke are examples of 1" base yokes. Not recommended for 3/32 rivets. ***This Adjustable Set Holder (and quick-change pins) are included in our "Industrial Squeezer Upgrade" special offer in our web catalog. The industrial upgrade option is highly recommended.***



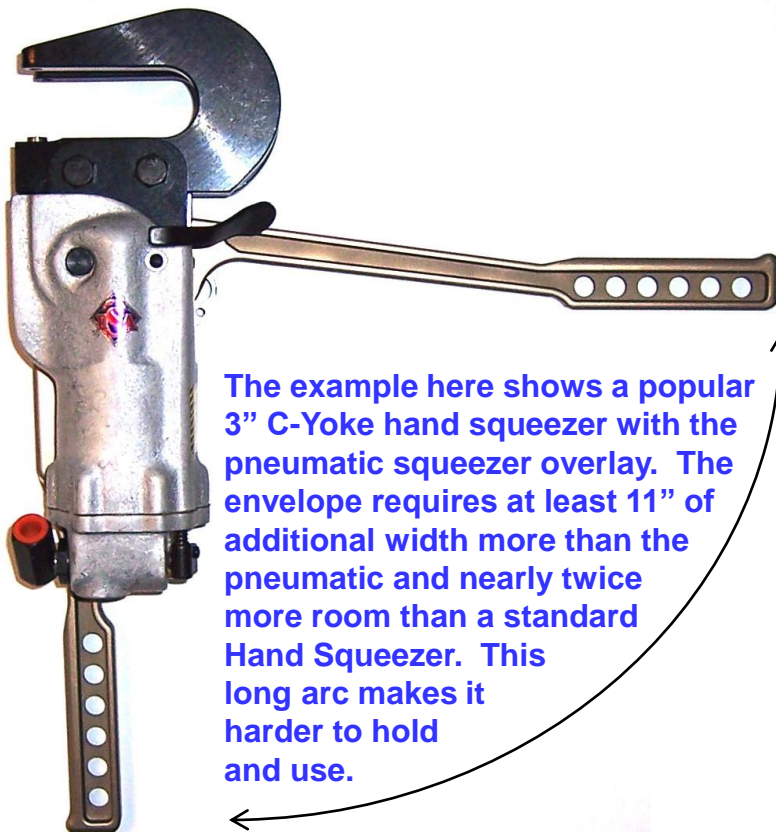
12 special thickness stainless steel **Squeezer Set Washers** are provided in the standard RV Tool Kit for manual adjustment of sets, used with the fixed set holder that is included in the Rivet Squeezer.

## Van's RV Builder's Rivet Tools



**MYTH #5 – “You need a hand squeezer to get into some areas easier than a pneumatic squeezer.”**

*This is totally false. A pneumatic squeezer will rivet within a smaller envelope than a hand squeezer. It operates with one hand versus two required for the hand squeezer. The photo on the left shows the typical envelope for the pneumatic squeezer overlay on a hand squeezer. Some hand squeezers (like the overlay below) have a huge envelope that will prevent use in many areas, not to mention the difficulty of using two hands to operate the squeezer while holding your work pieces.*



**The example here shows a popular 3” C-Yoke hand squeezer with the pneumatic squeezer overlay. The envelope requires at least 11” of additional width more than the pneumatic and nearly twice more room than a standard Hand Squeezer. This long arc makes it harder to hold and use.**

*All of our squeezers and the DRDT-2 accept standard 3/16” shank Dimple Dies and Rivet Sets. This provides complete versatility to use the dies and sets in all of the tools included in our RV Tool Kits.*





## Van's RV Builder's Squeezer Dies & Sets



Our standard RV Tool Kits include all of the AN426 type **flush** and AN470 type **round head** dies, spring back dimpling and screw **dimple dies** specified for your airplane model to provide you with a full range and sizes needed for your project. The RV-14 includes some special dies for that model. These dies work in the DRDT-2 Dimpler, hand squeezers and the Pneumatic Squeezers.

Spring Back Dimple Dies are designed to allow the metal to “spring back” into shape after dimpling. Our Spring Back Dimple Dies are CNC machined properly with the correct angles to produce the proper spring back action on the skin. We guarantee that these dies are as good as or better than any supplier!



Our kit line of round-head rivet and flush rivet squeezer sets are AN470 dies in 3/32”, 1/8” and 3/16”. AN426 dies are 1/2” in diameter and are 1/8”, 1/4”, and 3/8” tall. Two 1/8” dies are included for some riveting operations required on the RV. These dies are precision machined and cups are highly polished to set perfect rivets every time. Snap-on Industrial made in the U.S.A.

**MYTH #6 – “Company XYZ created the spring back dimple die for RV airplanes.”** *The spring back type dies were developed by the Aluminum Company of America for the U.S. National Advisory Committee for Aeronautic (NACA) in August of 1942. The concept of these dies is very simple – and difficult to improve upon over the controlled testing environment used when they were first developed for NACA. Google “Design of Tools for Press-countersinking or Dimpling 0.040-inch-thick-24S-T Sheet”. The only way to create a “perfect” installed rivet is to use a “dimpling block” as in our manual. As a point of interest, this same XYZ company did build a RV-4 in 1989.*



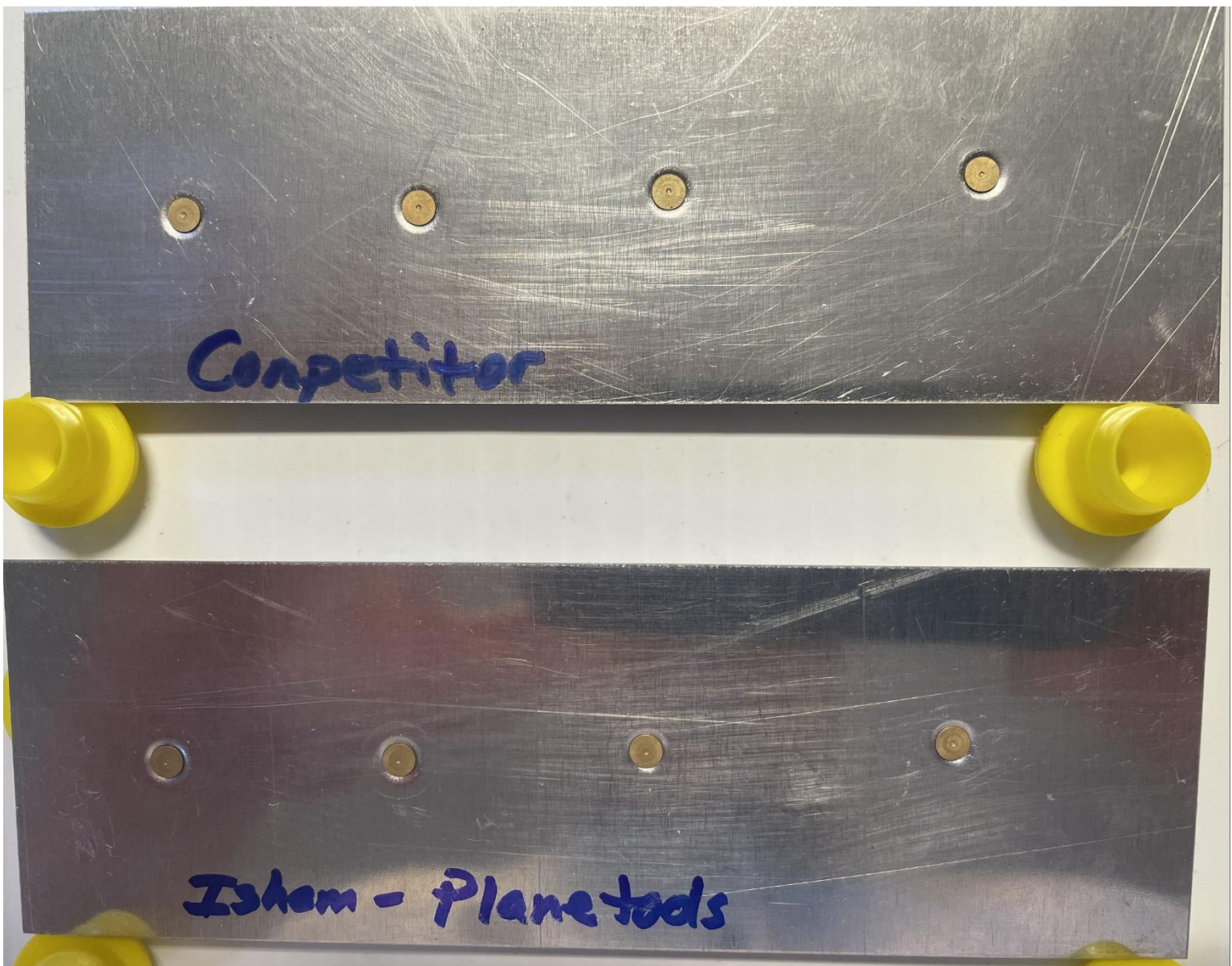
**MYTH #7 – “Company XYZ created the best springback dimple die for RV airplanes.” HERE IS THE TRUTH. . .**

This page shows photos of our main competitors springback dimple dies compared to our PlaneTools springback dimple dies.

Two pieces of aluminum skin were drilled together so holes were all identical before dimpling.

The pneumatic squeezer was set with the dimple dies touching (no gap) for both the Competitor and Isham dies.

Both samples show that the springback works and there is no distortion in the aluminum after dimpling.





**COMPETITOR'S DIMPLE DIE**



**PLANETOOLS DIMPLE DIE**

This closeup of the rivet installed shows the difference in the quality of the dimple.

Our competitor's dies over dimple the depth of the rivet hole. This has been a continuous noted complaint for their dies. Many builders complain that their rivets have a gap around the edges. This is because the rivet dies set the rivets too deep, below the skin surface rather than flush with the finished skin.

Our Isham PlaneTools dimple dies set the rivet in the correct position, flush to the surface of the skin. The installation is much smoother and noticeably more professional than airplanes built using our competitors dies.

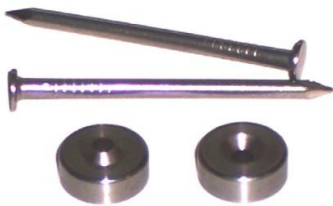


## Van's RV Builder's Pop Rivet Tools



Our RV Tool Kit includes a high-quality **Swivel Head Pop Rivet tool** for use riveting or with our Spring Back pop rivet dimple dies. The head of this tool swivels to allow the builder to reach areas that would be impossible with a standard straight head pop riveter.

The **PRP26A Pop Rivet Tool** is too overpriced for RV-12 tool kits. A tight space riveter is required for the RV-12. We provide RV-12 builders with a high-leverage hand riveter that makes setting Pop rivets much easier than conventional hand riveters in tight spaces.



Spring Back **Pop Rivet Dimple Dies** are provided in our standard kit with 3/32" and 1/8" stems to dimple in areas that cannot be reached using standard dimple dies. These stainless dies include stainless steel nails and can be used repeatedly for dimpling hard to reach locations.



This high-quality pneumatic and hydraulic pop riveter pulls 1/8, 5/32 & 3/16 Aluminum or Steel Pop Rivet shanks and is included in our RV-12 kit. If you are looking for a high-quality, dependable, high-speed, low maintenance riveter, you will be very happy with this unit.



## Van's RV Builder's Drilling Tools

The **3,600 RPM Palm Drill** is light weight, quiet, small, fits nice in the palm of your hand, and is less fatiguing than larger drills. For aluminum the higher RPM drills are better to drill clean, round holes and require very little pressure to penetrate the aluminum. This palm drill is standard in our RV Tool Kit.



Our "Orange Drill" is nearly identical to the Sioux 1412 Palm Drill that was recently discontinued by Sioux. It is a 3,600 RPM drill, 1/4" chuck, 0.33 horsepower non-reversible unit. This drill weighs just over a pound and is just over 6" long. Similar in size and operation to our standard palm drill but is much quieter and has a much better teasing trigger for speed control.

The RV Tool Kit includes **Cobalt Aviation Drill Bits**. These are genuine aviation 6" bits as opposed to standard jobber bits which are a much cheaper bit. In most kits we provide 8 #40, 6 #30, and 1 each of the #27, #21, #19, #12 and 1/4" bits, in addition to a #40 12-inch long and #30 12-inch long bit. Some models have additional sizes and quantities. Most competitors use cheap "jobber" drill bits.



### Myth # 8 - Did you know . . .

*If someone tries to sell you "jobber" drill bits for your airplane project, RUN AWAY! True aviation standard drill bits are 6" long. The longer drill bit allows the operator to walk the drill to the center of a hole easier than a short jobber bit. The longer bit is much easier to hold straight to the hole or rivet being drilled. The longer aviation bit has room for a drill stop to be properly installed. Once you use the true aviation bits you will never want a jobber bit again.*

## Van's RV Builder's Drilling Tools – continued



The **Professional Tight Fit Drill kit**. This kit includes 12 popular size 1/4-28 threaded bits, adaptor to attach to the palm drill for drilling in tight areas. This option is especially useful when installing systems in tight places including cables, tubes, wire bundles and clamps.

The high quality Unibit in the RV Tool Kit is clearly marked to indicate the size of the hole needed. This bit is very sharp and cuts through aluminum like a knife through butter, leaving a very clean hole exactly the size you need.



High quality **Spring Drill Stop set** of 4 to place over the drill bits to prevent penetrating too far and to preclude skin damage when the drill penetrates the hole.

### **Myth # 8 – Backrivet Plate . . .**

*A 1/4" or 3/8" thick backrivet plate is not adequate for backriveting. Although it is cheap to ship, the thin plate will bounce when riveting. It is best to purchase a piece of scrap steel locally that is at least 1/2" thick and at least 4"x20" with one smooth side. This will work best for backriveting.*



## Van's RV Builder's Cleco Tools



Cushion Grip **Cleco Pliers** are provided in our RV Tool Kit for use with standard clecos and the clamp type clecos used to temporarily fasten parts together.

Most RV Tool Kits include 325 **3/32" Clecos**. Our clecos are manufactured in the USA by California Associated Products or Zephyr U.S.A.



Most RV Tool Kits include 175 **1/8" Clecos**. Our clecos are manufactured in the USA by California Associated Products or Zephyr U.S.A.

Our RV Tool Kit includes 10 **5/32" Clecos**. Our clecos are manufactured in the USA by California Associated Products or Zephyr U.S.A. These are necessary in some areas of assembly.



Our RV Tool Kit includes 10 **3/16" Clecos**. Our clecos are manufactured in the USA by California Associated Products or Zephyr U.S.A. These are needed in some assembly operations.

Our RV Tool Kit includes 4 **1/2" Cleco Clamps** used to hold parts for drilling or bonding.



Our RV Tool Kit includes 4 **1" Cleco Clamps** used to hold parts for drilling or bonding.

## Van's RV Builder's Countersink Tools

The high-quality **Countersink Cage** in our RV Tool Kit uses ¼-28 threaded countersink pilot cutters to make perfect countersink cuts in aluminum. This unit is manufactured with two sets of bearings to assure long life and high-speed capability and includes a nylon end to protect aluminum from scratches. We recommend adding a second cage for your project.



Our industrial quality **Countersink Pilot Cutters** have ¼-28 threaded ends for use with the countersink cage. Our kit includes the #40 (3/32"), #30 (1/8" and #6 Screw), 3/16" (#10 Screw) and #21 (#8 Screw) pilot cutters. Additional sizes are included in some RV Model kits.

### **About Countersinking. . .**

*Countersinking is normally done when the aluminum is thick enough to countersink without enlarging the pilot hole. For thin aluminum you should use a dimple where possible.*

*If you do need to countersink a hole in thin aluminum make sure to add a sacrificial piece of aluminum to the back side of the part. This prevents the pilot hole from enlarging which could result in significant damage to the part.*

*There are many opinions on how to countersink. One is to run the bit very slow with a battery powered drill. Another is to run it very fast (3,000 rpm and up). It is also possible to countersink using the Speed Deburr Tool by hand. Any of these will prevent chatter. As long as the pilot hole is the correct size and the material is thick enough to support the pilot completely as it cuts the material you will not get any chatter.*





## Van's RV Builder's Deburring Tools



The high quality **3M Cut and Polish Wheel** is used to deburr edges of parts. This wheel is mounted in a bench grinder and uses reducer bushings to convert the 1" center hole to a ½" bench grinder shaft which is the common size. The wheel is 6" diameter and is 1" wide and will typically last for the duration of the RV airplane project.

Our ¼-28 threaded **Speed Deburring Tool**. This tool accepts any bits that use the standard ¼-28 threads. A special ¼-28 countersink bit is included for use in this tool to remove burrs from the holes in the aluminum.

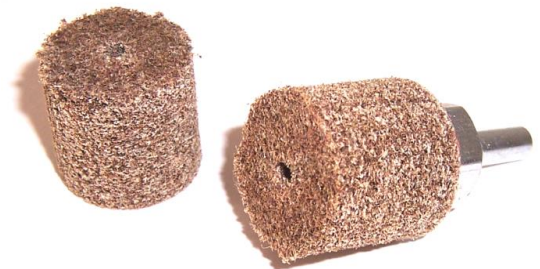


**ScotchBrite pads** for preparing aluminum for priming.



The Multi-purpose swivel deburring tool is used to deburr straight edges or large holes, such as lightning holes.

Small 1" diameter **3M Cut and Polish Wheels** are provided in our kit to deburr large holes or smooth almost any parts. This wheel is mounted in a die grinder and uses a screw in mandrel. Very handy for cleaning up edges on small parts and lightning holes.



## Van's RV Builder's Hand Tools

Our **Offset Aviation Tin Snips** are in three color-coded configurations, left cut, right cut and straight cut. These high-quality snips provide a very clean cut and are easy to manipulate to make cuts in the aluminum in the exact location you need.



The highest quality **Pin Punches** are used in removing rivets that are drilled out and for aligning holes while assembling parts together. These do not bend like cheap versions.



Our heavy duty **Fluting Pliers** are for use on parts that require gentle or sharper radius bends and deeper flutes to straighten the part. High leverage makes it easy on the hand to form deeper flutes.

A precise **Shop Head Rivet Gauge** four piece set allows accurate checking of the finished rivet shop head. The gauges are coded for each size of rivet so precise accuracy is obtained.



The **Rivet Length Gauge** takes the guesswork out of determining the length of a rivet.

Our Heavy duty professional 12" **Machinist Rule** marked in 100ths and higher for precise measurement and marking of your RV airplane components.



Our fine point **industrial Sharpie Markers** are formulated to not harm aluminum.



## Van's RV Builder's Tool Simple Warranty

*We stand behind our LIFETIME guarantee.*

*We guarantee each of the tools in our kit will work equal or better than our RV Tool Kit competitors.*

