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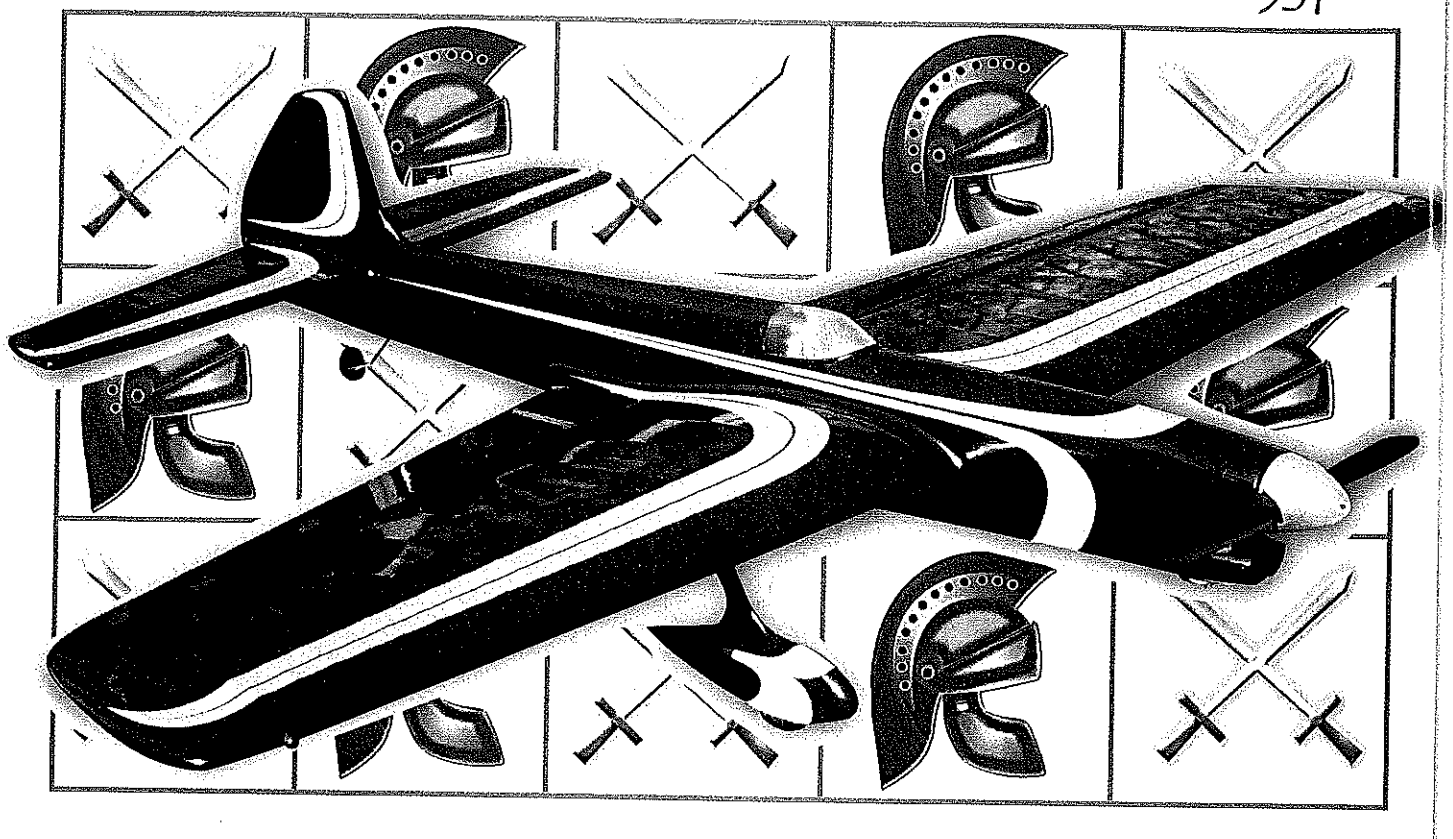
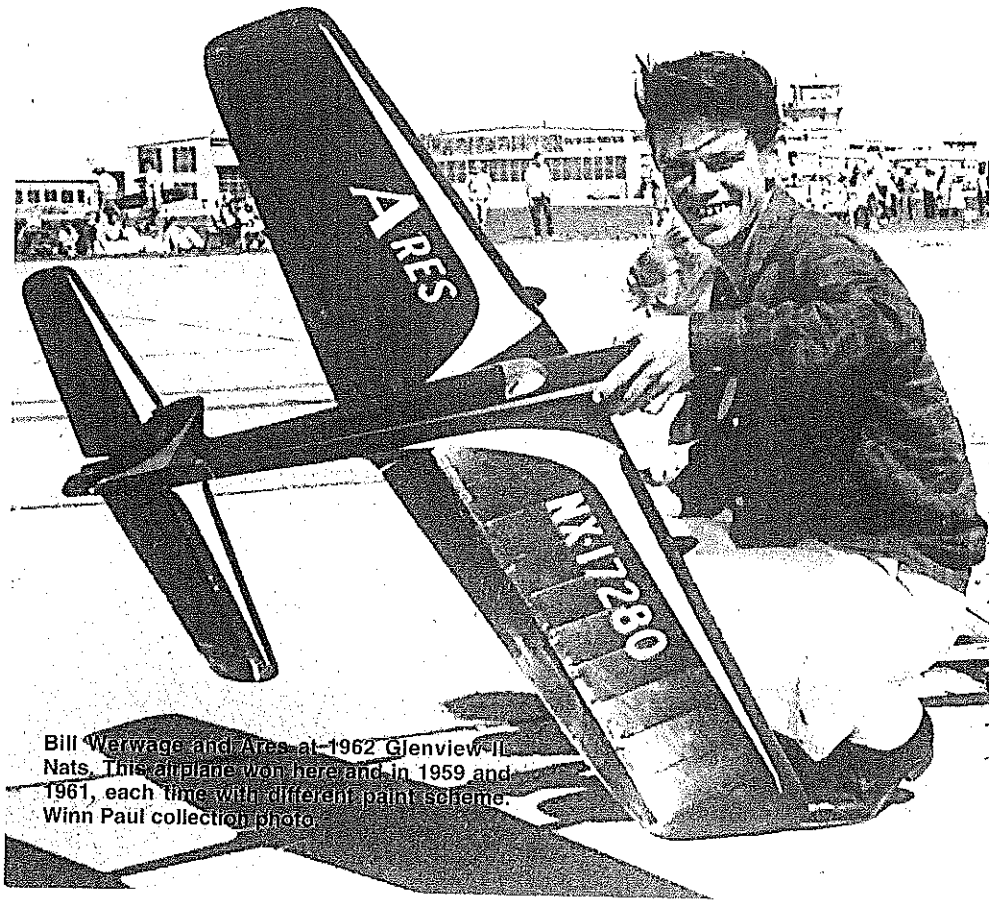


1959 Ares

■ Bill Werwage, as told to Bob Hunt

The history behind the legendary machine and the man who designed and flew it



Bill Werwage and Ares at 1962 Glenview IL Nats. This airplane won here and in 1959 and 1961, each time with different paint scheme. Winn Paul collection photo.

THE STORY OF the Ares began several years before the design came into being. My life in modeling began in 1948, when my father brought home a Free Flight, stick-type model for us to build together. He didn't have previous experience in modeling, but he could build anything. He built a banjo and a guitar for me with no experience, so a model airplane was not too much of a challenge for him.

We completed the airplane and it seemed like fun, so we built other models. Some were 10¢ Comet and Cleveland stick-type aircraft, and some were the old Strombecker solid-balsa shelf models. I really enjoyed building, and I started making models on my own. Dad would come home from work in the evening and help me straighten out any miscues.

At roughly the same time, the famous Cleveland Air Races were being held each year at Cleveland Hopkins airport. We lived only a quarter mile from the location of one of the closed-course racing pylons. We would go and sit very close to the pylon; thinking about it now, we were probably not too safe. We could actually see the pilots' eyes when they rounded the pylon!

I rode my bicycle to crash scenes, and there were many in those days. Some of the victims were virtual unknowns, but some were the most well-known aviation names of the era. The world-famous Jackie Cochran and her husband owned one of the airplanes that crashed there. Apparently, she hired a pilot who was a well-known distance-racing record-holder. Closed-course racing was not his specialty, and he stuffed the "Begin the Beguine" P-51 Mustang.

This accident happened only a short distance from our new house, and dad and I drove out to the crash site. It was a gruesome scene, and it signaled the end of air racing over the new developments just outside of Cleveland.

Still, the color, sound, sheer power, and competitiveness had changed my life forever. Those airplanes were beautiful, and they affected my thinking from that point on about what an airplane should look like.

Our new home, in Berea OH, was surrounded by other known and unknown aviation enthusiasts—only these were modelers. One legendary modeler who lived only five houses away was Chet Lanzo, who is probably most well known for his Lanzo Bomber. However, Chet built many different types of models, and the one I remember best was a gorgeous Towline Glider. The workmanship in that airplane made me realize how far I had to go and how perfectly model-building could be done.

The most influential modeler to me in that area was unknown in the modeling world. His name was Bill Machovina, and he was my next-door neighbor. Bill flew profile Control Line Stunt airplanes, and he was very good at it. He was an engineer by trade, and his models displayed very good thinking in terms of vibration damping, alignment, and solid but light construction.

In 1959, Bill and Ares won the Senior Stunt crown and coveted Jim Walker trophy, which is emblematic of the overall winner in Stunt that year. Werwage photo.

At that point, all I wanted to do was learn to fly the models I was building. I got so desperate that I tied a string to the wingtip of my prized A.J. Savage model and swung it around in circles! I guess Bill saw this and took pity on me, because he invited me to learn to fly Control Line along with his two sons. Bill had an A.J. Walker Firebaby model, and he used it to instruct us all. I was seven, and I was hooked!

We quickly graduated to larger, higher-performance models. We cleared the large field behind our houses, used boards to take off from, and flew anytime we wanted. For me, that was all the time! I flew as much as the earnings from my paper route would allow in fuel purchases.

Shortly after that, I began going to Cleveland Hopkins airport to watch model-airplane contests. Bill didn't have an interest in flying in the contests, but I sure did. I guess all the influences of the color and competitiveness of the air races, the workmanship I'd seen in Chet Lanzo's models, and the engineering principals I'd learned from Bill added up to me wanting to compete. And I wanted to compete in the Stunt event.

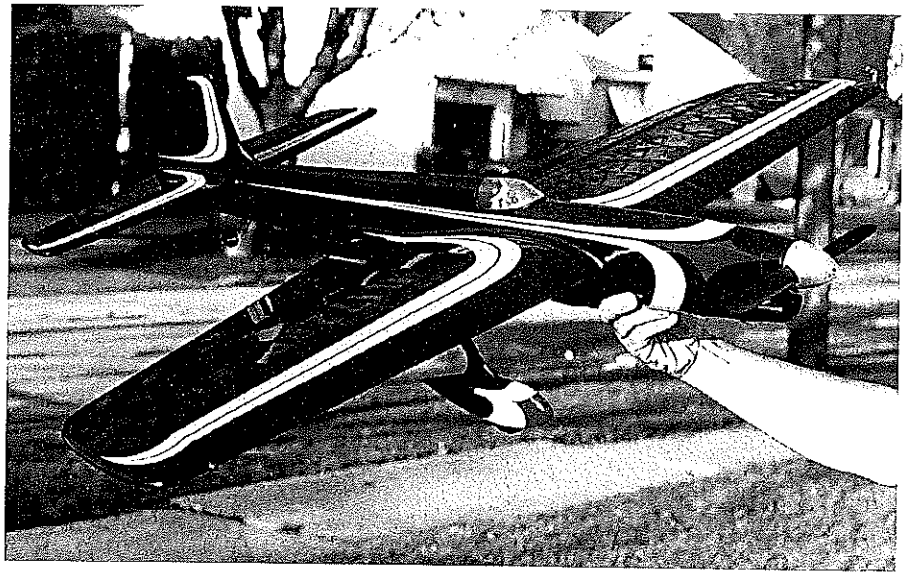
The 1958 Ares had rounder wingtips and was a bit smaller overall than the one presented here. Bill captured third with this model at the 1958 Nats. Werwage photo.

The next part of this story eventually led to the development of the Ares. A group of fliers at those contests I attended flew models that were obviously superior in every way to the rest of the competition. One flier and his model stood out from all the rest; his airplane was so colorful, stylish, and shiny that all I could think of was that it looked like an Easter basket! Many colors and an intricate trim scheme gave this aircraft a look all its own.

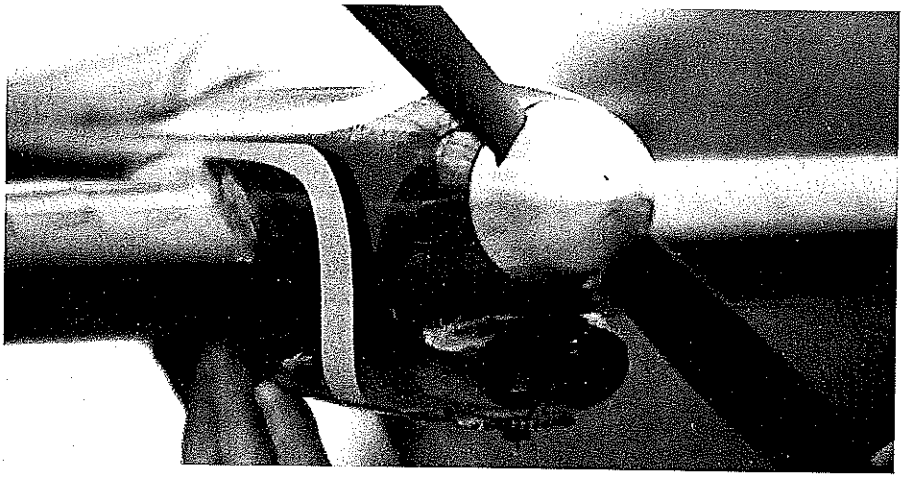
I later learned that I had been admiring 1949 National Stunt Champion Bob Dailey's airplane. This was the first of what has come to be known as Detroit or I-Beam Stunters.

It was obvious from the look of the ribbing in this model that it was constructed in a different manner from all other Stunt designs. There was no leading-edge sheeting, and I could not see a spar. It was reminiscent of the Free Flight models of the time. I couldn't see through the covering, so there was no way to determine how the model was constructed. I didn't find out at that time the secret of the look, but I couldn't forget it.

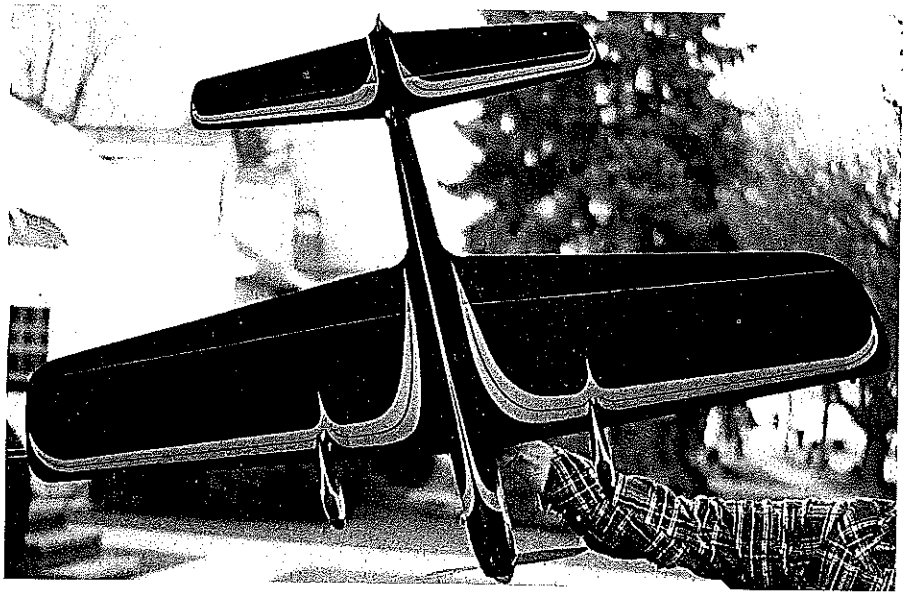
Three years later I started competing in the Stunt event, and I



This is a recently built replica of the 1959 Ares. Bill found that it has characteristics much like the original but flies even better with modern power. Hunt photo.



A focal point of the Detroit-type models of the classic era was the cowl inlet shaping. Each designer had his own special styling; here's Bill's. Hunt photo.



In a shot of the bottom of the Ares, the longer inboard wing is apparent. Forward-swept flap hinge line is noticeable. Note how trim accents pant placement. Hunt photo.

flew a stock Lou Andrews-designed Barnstormer. The top fliers of that era had apparently discovered the secret of Bob Dailey's construction because there were several I-Beam designs at the contests. I later learned that Bob had shared the construction technique with others.

The top names at that time read like a who's who of Stunt history. That is when I first saw Rolland McDonald, Art Pawloski, Rod Pharis, Ray Marlo, and the Ebejer brothers: Jim and Tom. The field looked like it was covered with Easter baskets! Their airplanes were in a class by themselves!

That was a very closed group of fliers, and they didn't rush to share their knowledge. After all, this was competition. And they had the edge! I can't really blame them for keeping some secrets.

I tried to engineer models that looked like theirs, but being a 12-year-old, it was an uphill battle. I really needed to look under the covering on their models. This is not to say that I didn't have some successes; I designed and built several original designs in that time frame of which I'm still very proud. Some of those were my Polaris, Comet, and Thor—not exactly famous models, but real stepping-stones for me.

Ironically, it was the aforementioned group of fliers' Combat models that finally revealed to me the secrets of the I-Beam wing. They used a similar construction in those airplanes, and I could study it easily because the covering was transparent Japanese tissue. Further construction secrets were revealed by carefully examining their Combat models after a crash. You can learn a lot from just keeping your eyes open and being alert!

Armed with this new information, I went back to the drawing board and workshop to produce my own versions of I-Beam-winged models. They flew okay, but I still

1959 Ares

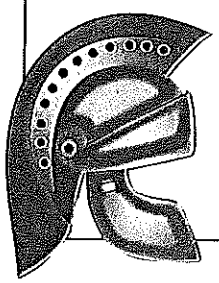
Type: CL Aerobatics

Wingspan: 50½ inches

Engine: Original 1959 version—Fox .35

Flying weight: 39 ounces

Construction: Balsa and plywood



Covering/finish: Japanese tissue and AeroGloss dope

wasn't getting performance that was much better than my previous models.

Then fate took a hand at a contest in Barberton, Ohio, where I met Milt Boos: a man who brought it all together for me. I was winning the Junior Stunt event that day, and Milt was easily walking away with the Open honors flying his outstanding version of Jim Ebejer's Neptune.

I was studying Milt's model as it sat in the pits when I heard a voice say, "For a quarter I'll take the cowl off and let you have a closer look." Milt had a big smile on his face as he said it, and from that point on we were great friends.

And I guess this kicked the door open to meeting and becoming friends with all the others I had admired for so long. From these guys I finally learned the missing details of I-Beam construction, and I started to build much higher-performance models.

But contrary to popular belief, I don't consider the Ares my first successful airplane. There were two earlier designs, of which several variants were built: the Lancer and the Vulcan. The Lancers were all of I-Beam construction, but the Vulcan was built in I-Beam and D-Tube versions. All these were good-flying airplanes, and even today I often fly a replica of my D-Tube-wing Vulcan in Classic Stunt competition.

The Ares Family: Yes, it's actually a family of models with the same name. The first Ares was fitted with a bubble canopy and had fuselage-mounted landing gear. It was painted turquoise green with light-red trim and black accents.

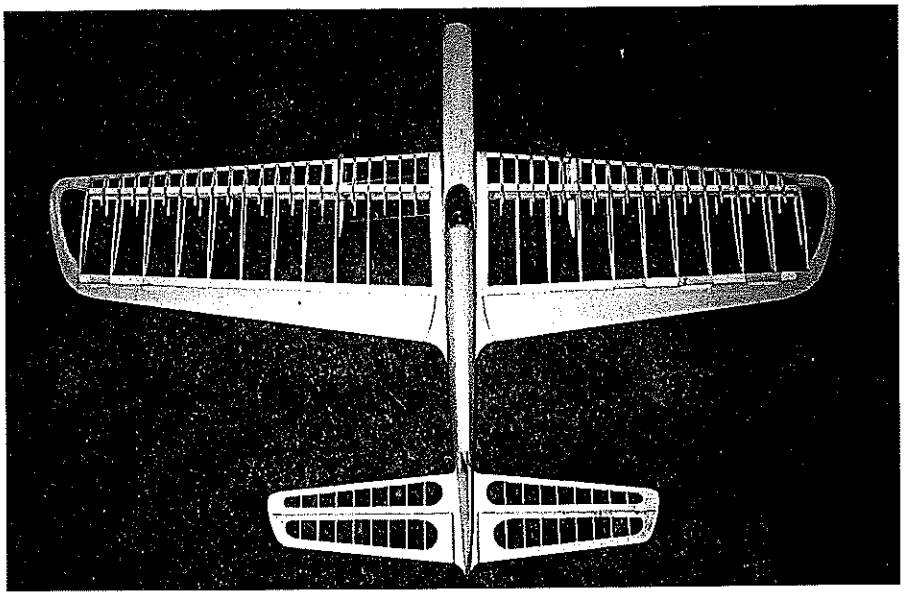
This model won the 1957 King Orange Internationals for me, flying against a very competitive adversary: Eddie Mays. I was proud of this because Eddie was highly respected as a flier who had won the 1955 Nationals (Nats) when he was just 11 years old.

This airplane featured the first iteration of what was to become the distinctive Ares airfoil. It was a derivative of the shape Jim Ebejer used on his Neptune, only with a larger radius leading edge. My thought was to maintain lift and increase the airflow to the flaps.

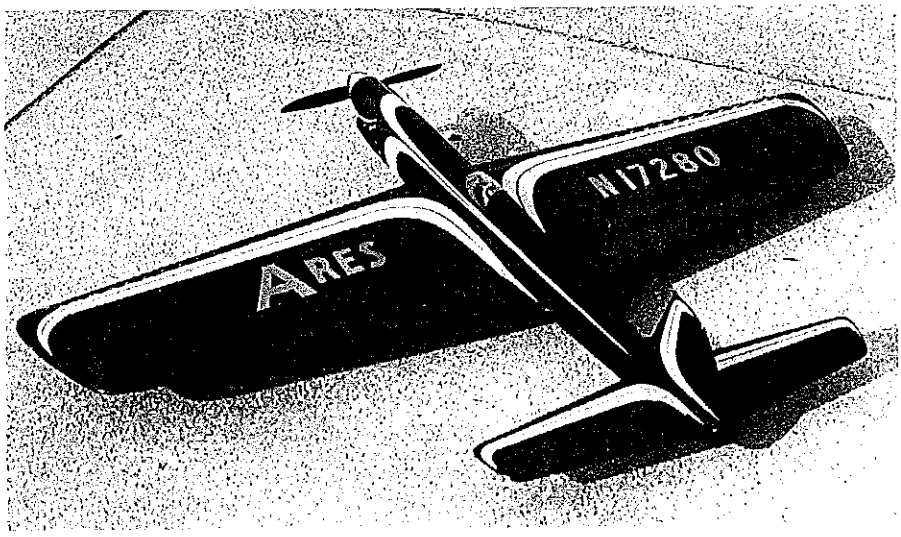
The next Ares was the 1958 version which was fitted with a turtledeck, wing gear, a longer stabilizer and elevator assembly, and the same airfoil as the first Ares. The turtledeck was added in an attempt to increase the aft side area. Art Pawloski's Atom, Rolland McDonald's Strathmoor, and Ray Marlo's Pegasus had this turtledeck look, so I thought this was a good time to incorporate that feature!

Of these mentioned designs, I borrowed the most from the Atom in terms of side-view aesthetics, but the aerodynamics of the two models was vastly different, especially in airfoil contour.

The 1958 Ares—which was painted green, gold, pink, and white—was a good airplane, but there was room for improvement. It was smallish, at



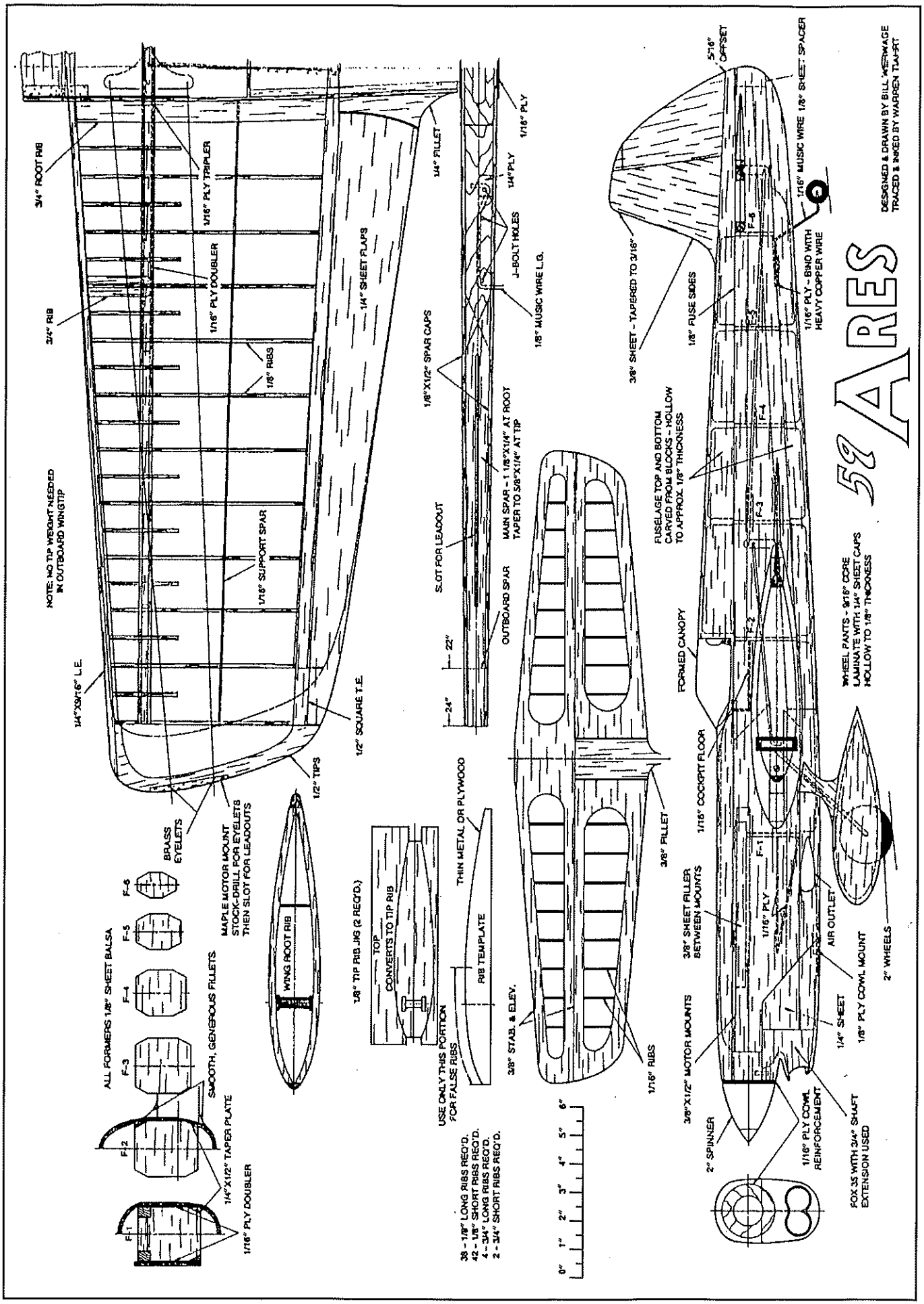
In the uncovered framework of Ares, it's easy to see I-Beam spar and strip rib construction. Note half ribs and ribbed tail assembly. It's light! Werwage photo.



Ares is an aggressive design that still presents as a modern-looking model today. Low-slung turtledeck and flowing lines are timeless. It's a thoroughbred. Hunt photo.

An invitation from the Ares pilot: "You have the real Ares plans now. Build one, and let's meet at a contest. Just one thing: Come well practiced!" Hunt photo.

Full-Size Plans Available—see page 191



approximately 530 square inches, and it needed a bit more wing and flap area. It did manage a third-place finish for me that year at the Nats behind my protégé Steve Wooley—who flew his legendary Argus—and the Champion, Art Pawloski with his Atom. All three were I-Beam models! And Art went on to win the Walker Trophy as a Senior!

Here we are, the reason for all this in the first place, at the 1959 Ares. It was slightly larger and lighter and had more flap area than the 1958 version. I also moved the center of gravity farther aft than on any of the previous models. This helped make a more responsive airplane, and it did indeed have more cornering ability than the others. It also retained the ability to fly smooth maneuvers, so it stood head and shoulders above them in all-around performance.

The 1959 Ares looked pretty good too! It was the first of my dark-blue Ares models and was trimmed in light blue and red. This was the same basic color scheme of the Neptunes built by Jim Ebejer and Milt Boos. I really liked those models' look and tried that scheme on the Ares.

This is where the story really gets interesting and a bit confusing for many. The Ares was published after the 1959 season and eventually kitted in 1961, but neither the kit nor the plans versions was accurate compared to the original airplane I flew in 1959.

Perhaps it's time for some true confessions. True to the spirit of the Detroit group that tended to keep the really good things quiet and retain the competitive edge, I released the plans for what was basically the 1958-version Ares. I knew the 1959 model was better, and I really didn't want to have to compete against it! Whew! I feel better now.

The kit was never right. The Ambroid company promised me that the model I presented them (the 1958 version) would be produced in such a manner to allow an average good builder to construct a competitive model from the kit. In reality, the kit engineering and wood selection were not good, and those who built the kit never got what they thought they were paying for. I feel bad about that, but I had no control over the kitting process after Ambroid purchased the design.

I built two more Ares models in the winter of 1959-1960. They were a bit more experimental in concept, with the airfoil's high point moved farther aft in search of increased stability and wind penetration.

Our power was limited in those days, so we tried every avenue in search of more aerodynamic advantage. We all wanted to be the "Wind King," but we had essentially the same amount of power: the Fox .35. These models fell short of my expectations, and I decided to fly the 1959 Ares again for the 1960 season.

The results of the 1960 Nats in Dallas TX are still a mystery (misery?) to me. The Ares that had garnered the top appearance points for me in 1959—and was still in excellent condition—received only six points (or, lower than minimum!) at processing. There was no hope of me winning the contest with that handicap. That's water over the dam, but it is still one of the most disappointing and bitter memories of my Stunt career.

In the winter of 1960-1961 I built a new, much larger Ares, and I rebushed the controls in the Ares I had been competing with for two years. That model also received a fresh finish; I painted it dark blue with a medium-blue-and-red trim. That is essentially the same scheme I have on my current Ares that I use for Classic Stunt contests from time to time.

The larger Ares was not the first of the Super Ares models, but rather an attempt to combine the advantages of the existing small Ares design and those I saw in Lew McFarland's excellent-flying but ill-fated 1960 Humbler. (The bellcrank in that aircraft was pulled out during processing at the 1960 Nats.) Lew later renamed that design the Shark 45.

The airplane I produced with this combination of ideas was, quite frankly, a dismal failure! I instantly realized that the airfoil used in my hybrid design was the culprit. The center of pressure was way too far aft on that wing, causing it to stall prematurely.

So the well-traveled Ares from 1959 and

1960 went to battle again. (The name Ares is from Homer's mythical adventure series *The Iliad* and *The Odyssey*, and he was the Greek god of war. I still like that name!)

After the "Dallas Debacle" I was determined to get this whole program back on track with a win at the 1961 Nats in Willow Grove PA. I looked at this as pretty much a "business trip" in my approach to preparation and execution. The result was a second national championship for the design and more than a bit of vindication for me. The wound from the previous year was finally closed!

The last chapter of the original Ares saga ended with a third championship at the 1962 Glenview IL Nats. I used the same model I had for the past three years, but I had given it a total refinish from the previous winter.

Up to this point, all the Ares I had built were at or less than 39 ounces in finished weight. Because of this, I was able to go to a $^2/_3$:1 flap-to-elevator-movement ratio. The 1959 Ares' second refinish brought the weight up to 42 ounces and required a change to just less than a 1:1 ratio to provide more lift to carry the added weight. This certainly underscores the need to keep the airplane light! More flap movement means more drag. In this case, less is more.

That Ares logged many flights during its life span, and it was still performing well when it was retired from competition in the fall of 1962.

However, that wasn't the end of the Ares story. Right after the 1962 Nats, Steve Wooley and I paid a visit to Bob Gialdini and Mario Rondinelli in Milwaukee WI. We all flew each other's airplanes, and the Ares was getting very tired and had gained some weight from fuel-residue soakage. I realized it was time for a change, and I had several ideas I wanted to try.

Remember that larger Ares I told you about that was disappointing? I stripped the covering off of that model and reribbed it with a new airfoil that featured a much farther forward high point than I had used originally. This airplane showed a great deal of promise and won several local and regional contests. It was renamed the Mariah.

Paralleling the development of all the airplanes I've spoken about was an ongoing engine program. I was, and still am, interested in producing as much usable horsepower as humanly possible from my Stunt engines.

The Fox seemed to be the only viable choice in that early time frame, and to Duke Fox's credit, they were light and had the right "break" characteristics to suit the event's needs. But they were limited on power output and how far they could be tuned to produce more power.

In an effort to get the most from the Fox, I experimented extensively with head design. There was a high-compression head available from Fox that had enough

"meat" to allow me to try different combustion-chamber shapes and to raise the compression ratio. It was much more difficult in those days to get a really strong-running engine *and* retain the well-mannered characteristics for which the Fox was famous.

Just about the time I would really get an engine to produce some serious power, the crankpin or the front of the crankshaft would break. It was frustrating. So a few of us began looking for an engine that would be capable of producing the power we wanted without breaking.

Ed Kammerer, my good friend and flying partner of the time (who placed second at the 1962 Nats), and I had already started experimenting with the Johnson line of engines. There was a .32 and .35 that were definitely more powerful than the Fox but were far less well behaved in terms of stunt-run characteristics.

While I was at the 1959 Nats I had the opportunity to meet Hi Johnson, and I even got the chance to visit his shop in the Los Angeles area. From the start I liked Hi and his open approach to engine development. We talked about my needs for a Stunt engine, and we started to develop one that would hopefully be better in every way.

Anticipating that we would be successful in this quest, Ed and I began to design and build some larger airplanes that were still of the .35 size. The Johnson certainly delivered more power, and we decided it would be to our advantage to go to a somewhat larger airframe than our 50-inch Ares-type designs. We developed models with 53- and 54-inch wingspans and thicker, blunter airfoils.

Unfortunately the Johnson seemed untamable, and we ended up putting Fox .35s in those airplanes with lots of nitromethane! These were great-flying models in everything but a really big wind. Ed liked his and used it in competition in 1962, but I opted to go back to the smaller model, also with the Fox.

I had always wondered what might have happened if we had been able to get what we wanted from the Johnson in that model—and now I know! Recently I built a replica of the same airplane I built for the Johnson in 1962, and I installed Randy Smith's AeroTiger .36 AAC. This is a fantastic Stunt engine; it's light, extremely powerful, well behaved, and long-lasting with modern metallurgy. It's everything we wanted back then and more.

This brings me to making a point about today's Classic Stunt event. I like the fact that we are flying and revering the great, aesthetically pleasing models from the bygone era. Truly that was the golden age of original thinking in terms of airplane design. The many and varied shapes and colors of those models is the reason why the Classic Stunt event flourishes today. Apparently many modelers feel the same way.

It's human nature to look back at earlier times and remember only the good, but not everything about the past is all roses and castor oil! Or in the immortal words of the late Ella Fitzgerald, "Things ain't what they used to be, and they never were."

These were great model designs by and large, but the engines of the day never let us realize their full aerodynamic potential. Those airplanes are capable of "modern" flight performance when properly powered. We owe those models and their designers that opportunity. In terms of power, these *are* the good old days! Or, as Ella might say, "Things ain't what they used to be ... but they are now!"

If you would like to try the larger Ares, plans will soon be available. Warren Tiahrt is getting ready to ink them, and their availability will be announced in Frank McMillan's Control Line Aerobatics column and in *Stunt News*, which is the official publication of the Precision Aerobatics Model Pilots Association, or PAMPA.

The Super Ares was an extension of this development program, but like the bartender in the movie *Irma La Douce* said, "That's a story for another time."

I wish that every Stunt flier could have had, or will have, a model that forms and shapes their lives in this event in as positive a sense as the Ares has for me. I

hope many of you will opt to build an Ares now and share a part of my past with me.

I'd especially like to see that grand old man of Stunt, Paul Walker, build one of these. I would enjoy the sound of four Foxes barking together ...

I-Beam Construction: Unlike D-Tube or C-Tube wings that are built as a separate unit then installed in a fuselage, the I-Beam wing is built as an integral part of the body. Even a look at the plans may leave you confused about the sequence and steps required, so let's go over this briefly.

A great aid in understanding this construction is the video I did with Bob Hunt entitled *How to Build I-Beam Wings*. It covers every aspect of the process and includes all the things I've learned from building more than 80 models with this type of wing. The video is available from Robin's View Productions.

Basically, the process begins with a fuselage crutch assembly with holes cut through the sides to allow the main spar, leading, and trailing edges to pass through. The spar is made from ¼ balsa with 1/16 plywood doublers on either side and ⅛ x 1.2- inch-balsa caps on the top and bottom. If you can visualize this spar from the end, it has the shape of a capital "I."

The spar is slid through the inverted fuselage crutch, then it is lined up square and glued. Two ⅛-sheet-balsa fixtures are made that will support the spar and the leading and trailing edges accurately at either end of the wing. This forms a self-aligning fixture on your bench. The balsa end fixtures will eventually be trimmed to become the last rib on either side.

The ribs for the I-Beam wing are stripped from sheet-balsa stock using a template. These ribs are installed by trimming the aft end until they sit properly on the top of the spar cap and butt up against the leading and trailing edges. After the top ribs have been installed, the fuselage and wing assembly is inverted on the bench, and the bottom ribs are installed in the same manner.

Tapered wings are very easy to make accurately with this method. For each bottom rib, there is a corresponding top rib at the same position to form a complete symmetrical airfoil. Half ribs are added in the same manner.

This is a basic explanation of the I-Beam concept. The video covers all these steps, and much more, in extreme detail. Once you have built one of these wings, you will be amazed by the speed and accuracy that can be achieved.

Finishing: Do you remember when I spoke about first seeing Bob Dailey's I-Beam model and thinking that it looked like an Easter basket? It was the finish glistening off all those ribs that really caught my eye. I like the look of a high-gloss finish on these wings.

Lately I've been using the Brodak line of model-airplane finishes (butyrate dope) to paint my models. I've been extremely pleased with the results. Brodak's system is consistent and easy to use. The clear lays out better than any other type of dope finish I've used, and the drying properties allow sanding much earlier than ever before. I highly recommend the Brodak paint line.

Everyone has his or her own favorite method of finishing. I won't go into detail about mine here, but I will caution you to be very careful to keep the finish light. Many potentially great Stunt models have been ruined by applying too much finish. It's not how much you put on that counts; it's how much you sand off!

The original Ares weighed 39 ounces, and the design will fly well at as much as 42 ounces. Beyond that, the performance will diminish. Choose your wood carefully, build neatly, use glue sparingly, and be careful with the finish weight. Many Ares models have been built at less than 40 ounces, so there's no reason for you to build one any heavier! Easter baskets are not designed to carry bricks.

I flew my Ares models on 61.5 feet of .015 braided lines (center of handle to center of bellcrank). With the more modern, high-output engines, you can safely go to 64 feet.

You can use a Fox .35 and have a model that is representative of those I flew at the Nats in the late 1950s and early 1960s, or you can opt for my choice of more modern power, such as the AeroTiger .36, and see what this design is really capable of. Either way, I invite you to come and visit my world—past and present! *MA*

Bill Werwage
111 Jacqueline Dr.
Berea OH 44017

Sources:

AeroTiger .36 AAC:
Aero Products
1880 Scenic Hwy. N.
Snellville GA 30039

Brodak Paint System:
Brodak Manufacturing
100 Park Ave.
Carmichaels PA 15320

How to Build I-Beam Wings video
Robin's View Productions
Box 68
Stockertown PA 18083