Photographed in Australia, Tony Stinson is shown with his full size Aeronca 7-AC alongside John Marquette with his superb 1/3 scale reproduction.

AERONCA

7-AC CHAMPION

At last, a 1/3 Scale model of one of aviation's all-time classic trainers.

Text & Photos by Tony Stinson

Regular readers of R/C Modeler magazine will recall my article on John Marquette's 1/3rd scale Aeronca 7-AC and its dramatic appearance on the cover of the October 1987 issue. It drew letters and comments from many parts of the world and a request from Dick Kidd at RCM for a construction article. Like many modelers, John had built the model from sketches which he had scaled up. He did not work from a fully detailed construction plan. When John talked about "scratch building", he meant just that . . . working from measurements taken from the full size aircraft, or a 3-view. When the plan you see published here had been fully drawn in the United States, Dick Kidd called me at my office in Sydney and said, "Tony, this thing extends to five sheets. we have never published a 1/3 scale plan before. It will be the largest construction plan we have ever published". John R. Marquette died in August 1990, just three weeks after a copy of the plans arrived from RCM for review. Dick's comments about the size of the project pleased him greatly in his last days. John Marquette never did things by halves.

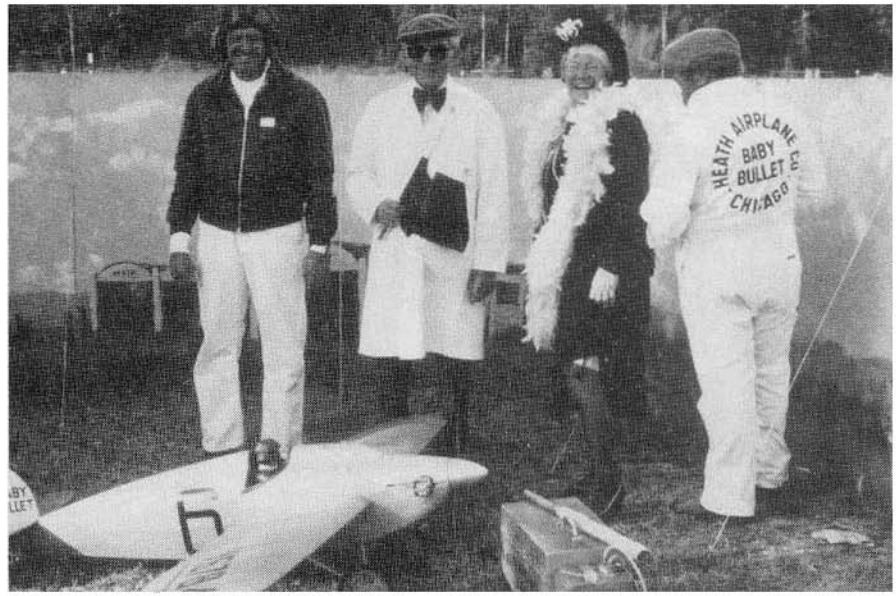
With the onset of WW II, John wanted to be a pilot and he enlisted in the Royal Australian Air Force in 1941. As with all R.A.A.F. pilots he learned to fly on Tiger Moths in Australia. He was then sent to

Wartime photo of John Marquette, age 29 in 1944.

AERONCA 7-AC

Designed By:
John Marquette
TYPE AIRCRAFT
Scale
WINGSPAN
141 Inches
WING CHORD
19⅞ Inches
TOTAL WING AREA
2802 Sq. In.
WING LOCATION
High Wing
AIRFOIL
Scale NACA (4412)
WING PLANFORM
Constant Chord
DIHEDRAL EACH TIP
3½ Inches
OVERALL FUSELAGE LENGTH
85 Inches
RADIO COMPARTMENT SIZE
Ample
STABILIZER SPAN
40⅝ Inches
STABILIZER CHORD (incl. elev.)
10¼ Inches (Avg.)
STABILIZER AREA
417 Sq. In.
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
12¼ Inches
VERTICAL FIN WIDTH (incl. rud.)
15 Inches
REC. ENGINE RANGE
.40-.50cc
FUEL TANK SIZE
16 Oz.
LANDING GEAR
Conventional
REC. NO. OF CHANNELS
4
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa, Ply, Spruce
Wing	Balsa, Ply, Spruce
Empennage	Balsa, Ply, Spruce
Wt. Ready To Fly	560 Ozs. (35 Lbs.)
Wing Loading	28¾ Oz./Sq. Ft.



John Marquette (1982) in his role as "starter" for air racing sequence of period costumed historic aviation event. John is second from left. Ian Watts (left) is the "racing pilot" of the Baby Bullet in foreground.

Canada for advanced training, then to the United Kingdom for combat. After spending time on strikes against shipping in the English Channel, he was posted to Italy and to a B-24 Liberator squadron. John always said that his days in Italy prepared him for his later career in the building industry. Tent living conditions at their base near Foggia were so bad that he built himself a "house" from packing cases.

After 3½ years away at war, John returned home in 1945 and set up in the home building business.

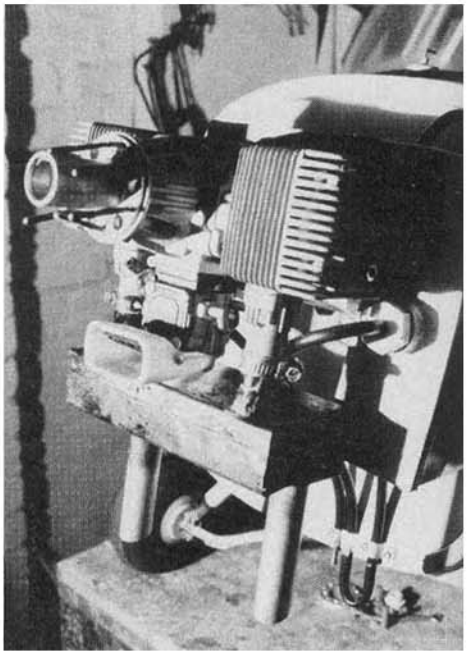
In 1955 he took up control line model flying and in 1957 he joined the Radio Controlled Models Club at Camden, near Sydney. In 1958, John became President of R.C.M.C., a position which, apart from brief spells he held until his death. That period encompassed one of the most remarkable model aviation careers imaginable.

In 1959 John formed a company called "Advanced Radio" and built Australia's first production model aircraft radio, the "Silvertone" single channel unit. The "Cicada" model he designed for that radio appeared in the first issue of the English model magazine RCM & E.

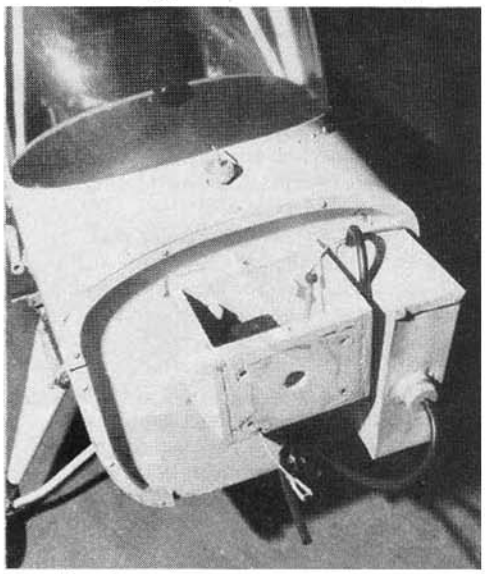
In 1961, John became President of the N.S.W. Aeromodelling Association and in the same year he flew a model from a helicopter across Port Phillip Bay in Melbourne.

In 1962, John's modeling efforts made it into the Guiness Book of Records when, seated in the rear of a station wagon, he flew a model 62.4 miles across the Australian countryside. I met John in 1971 when I joined R.C.M.C. in Sydney and took up R/C flying. As the club's tenure on its flying site seemed to become less secure every year, the "Boss" reached the then fantastic conclusion that it might be possible for us to

John Marquette with his 1/3 Scale Aeronca 7-AC beside the airplane he copied. Model has 11 ft. wingspan and is Tartan twin powered.



Twin Tartan engine installation. Note scale muffler arrangement.



Engine mount detail. The engine compartment is kept simple.

actually buy a model flying field. In what surely represents the attitude of model flying club presidents everywhere, John said, "That way **nobody** will be able to bloody-well push us around".

Sure enough, a 20 acre flat field was found just a few miles away in the flood plain of the Hawkesbury River among vegetable farms. A company was formed and debentures were sold to members. The field was developed into one of Australia's finest model flying fields. And nobody has ever "pushed us around". Located close to Richmond AFB, Marquette Field was used as the home base for modelers participating in the 1988 Australian Bicentennial Airshow. We had the honor of hosting the Byron team there then on their first performance outside the United States.

In 1975, John was manager of the Australian team at the World Aerobatics (pattern) championships at Gorizzia, Italy. In 1981, John renewed his pilot's certificate and took up flying as an instructor for the Boy Scout Association's aviation activities based at Camden, south of Sydney. Of course he was also able to build superb models to demonstrate aircraft control functions to students.

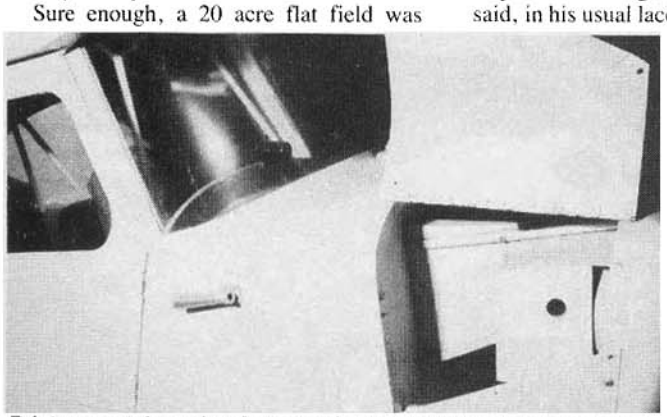
In the late 70's, I began what became a yearly pilgrimage to the EAA convention at Oshkosh.

When we returned with our Aeronca 7-AC on the historic Qantas "Oshkosh Express" 747 flight in August 1981, John said, in his usual laconic way, "If you built a big enough model of that design it would probably fly as well as the real thing". It took us six months to fully restore our little Aeronca and when we took it to Camden, John flew it most weekends he was down there. And he made the decision to build a one-third scale replica for radio control.

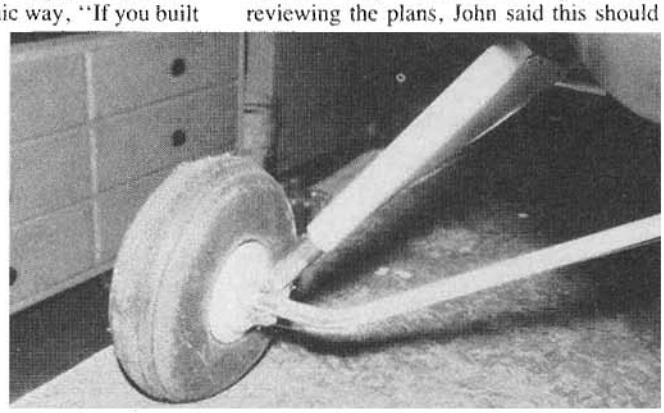
The Model

The most difficult part of this presentation is that John Marquette was not able to write the construction article before he became too ill to do so. Clearly, it is a project which will appeal to the well experienced modeler only, at least in its present form.

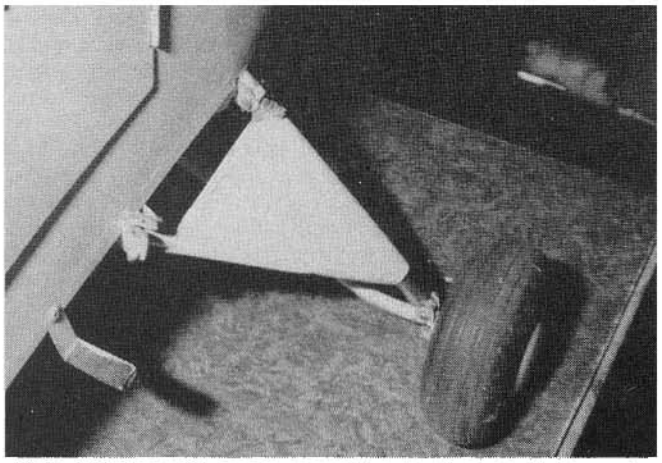
The design is not that of a typical scale model. The whole concept is one of replication. It is also clear that most modelers contemplating taking on the task will obtain nearly all of the information they need from the well detailed plans. The original model did not employ spruce in its construction as that material is not generally available in Australia. A Malayan timber called Aluce was used. However, intending builders may certainly use spruce. In reviewing the plans, John said this should



Printers metal used to form cowl. Nosebowl is fiberglass. Note rivet detail around windscreen.

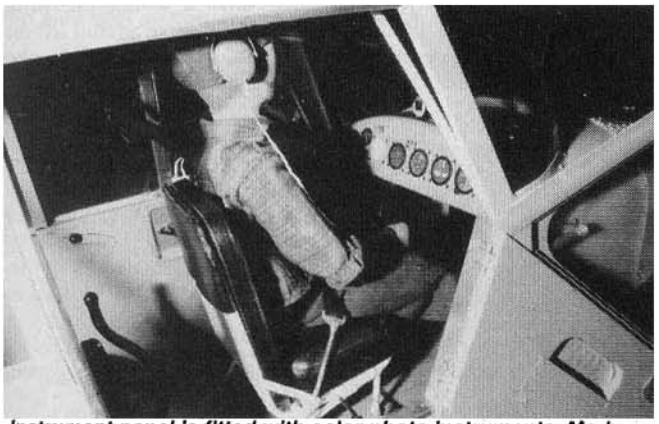


Scale landing gear on this model is complex and time consuming to make, but worth the effort. Note scale brake cable routed under center arm.

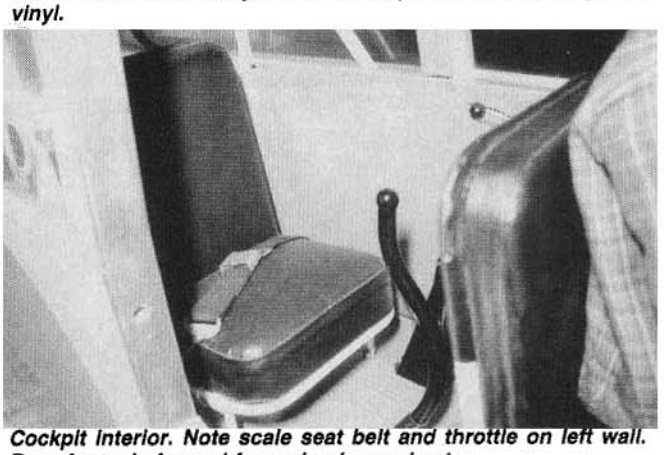


Right L/G leg with scale operation duplicated. Note scale doorstep bolted on.

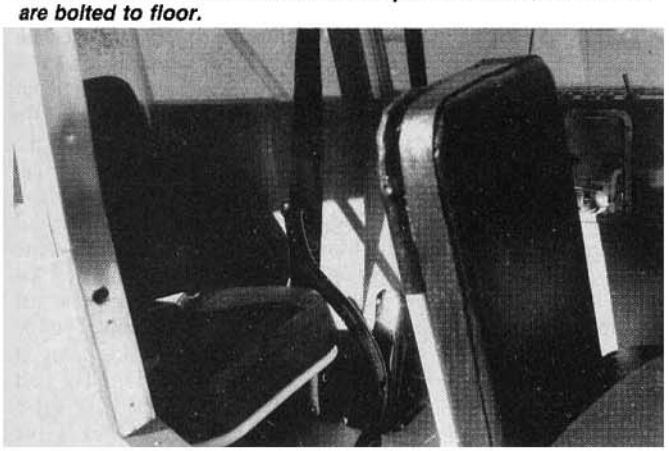
This is where the Aeronca has it all over the J-3 Cub. Cockpit room and ease of entry. Interior cockpit and door facings are vinyl.



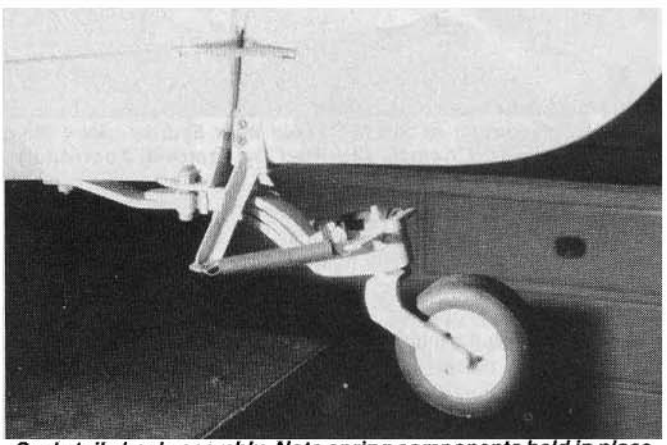
Instrument panel is fitted with color photo instruments. Modern radio is 720 channel unit fitted under panel on left. Seat frames are bolted to floor.



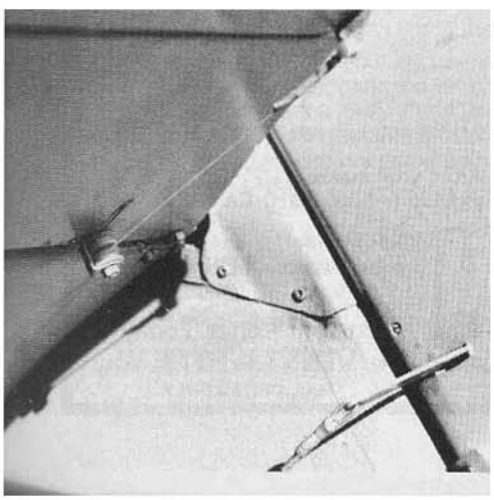
Cockpit interior. Note scale seat belt and throttle on left wall. Door frame is formed from aluminum sheet.



Cabin interior showing switches and fuel control on wall. Seats nicely duplicated.



Scale tailwheel assembly. Note spring components held in place with nylock nuts.



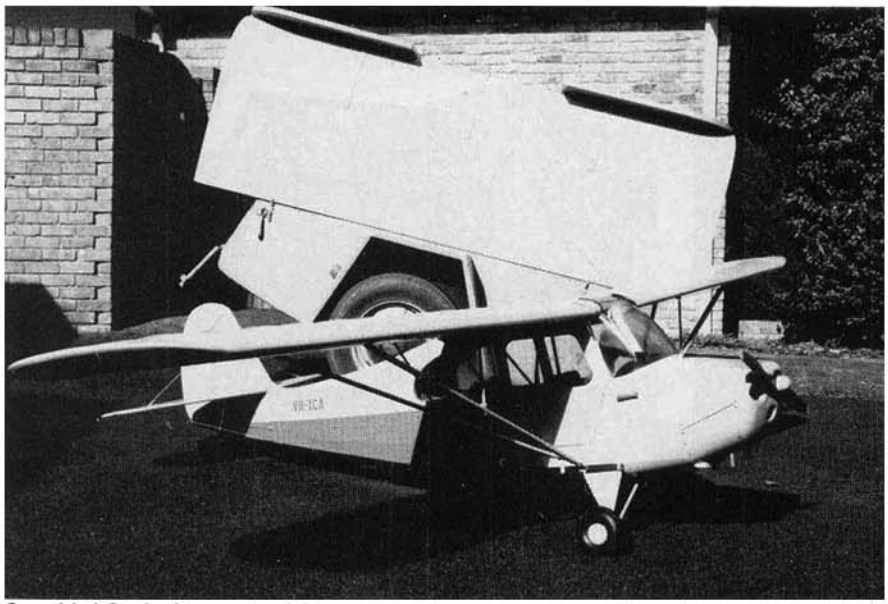
Underside of elevator showing scale pulley for elevator trim tab.

not involve any weight penalty. Operation of the model's flying surfaces is by cable, as with the full size aircraft. This factor applies throughout most of the construction.

We always considered the operation of the landing gear on the full size airplane as one of its finest features. It was way ahead of its time in landing gear design. John Marquette was keen to duplicate this in miniature and the plans show a good illustration of the parts which need to be made.

(Editor's note: A fiberglass cowling, full molded windshield and a photo study is available from R.C. Sweitzer Enterprises, P.O. Box 834, Hillsboro, Oregon 97123, 503-640-5102.)

John always felt that kit manufacturers marketing versions of the Aeronca 7-AC had failed to get the windscreen right. This airplane uses a blown "bubble" windscreen and a large oven or other substantial means will be needed for this task. Once a male mold is made, a local blow molding company should have no trouble in producing a copy of it. However, it will be important to use 1/16" plexiglass for the



One-third Scale Aeronca 7-AC with special trailer built for it by John Marquette.

Mid-winter morning at R.C.M.C. field near Sydney. John Marquette readies for first take-off of the Champ, assisted by famous Australian scale modeler Ross Woodcock (1983).

windscreen. With a bubble of material any thinner than this, damage will result.

The original model had a flying weight of 35 lbs. A Tartan G-77 engine was used. Considerable propeller trouble was encountered with the multi-bolt attachment system on the older model Tartan, thus John's modification to a single bolt prop mounting.

With this, the Tartan has no trouble handling the weight and remembering the fact that the full size 7-AC only has 65 horsepower, the realism in the way this model handles has to be seen to be believed.

The experienced modeler on studying these plans (which can take hours, believe me!) will come to the conclusion that much could be done to remove weight and construction time from this design. That is a proposition which John Marquette readily agreed with. Certainly, if a kit manufacturer were to consider producing this design, plenty would be done in this area. The one thing which should not be attempted by a builder of this model is to beef it up. The model is very strong as it is currently illustrated and it has very forgiving flight characteristics.

Of course other engines could be contemplated to supply the power. When it is remembered that the model was built in 1984, there has been a quantum leap in technology for large model aircraft engines during the intervening years.

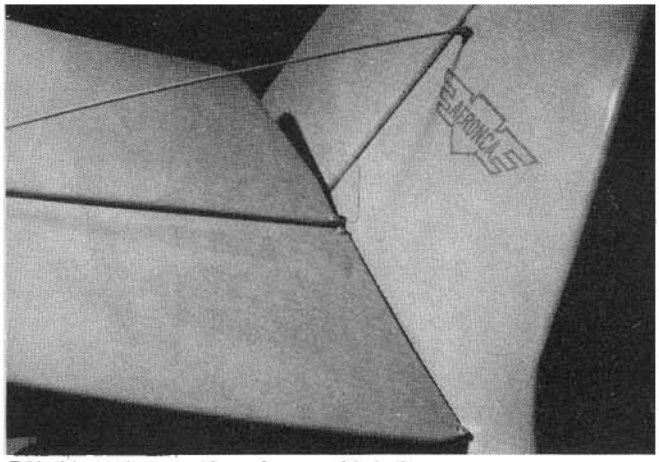
Solartex was used to cover the original model and it was painted with automotive enamel. Modelers thinking of building the Aeronca 7-AC have a wonderful factor going for them: All of these aircraft left the Middletown, Ohio plant in the same color scheme! As a small aside, when we looked at the many Aeronca 7-AC airplanes at Oshkosh, before buying our own, it was noticed that they were all painted in different shades of orange and yellow. Whose was right? When we restored our 7-AC in Sydney, we researched the color schemes thoroughly and could still get no answer as to which were the "right" shades to use. Finally, I said, "Look, we're doing this in Australia! This is the only Aeronca 7-AC in the country . . . surely nobody will know the difference!"

When we entered the airplane for its first classic competition, the judges were experienced EAA judges from Oshkosh who knew all about color schemes for Aeroncas! We still won the competition.

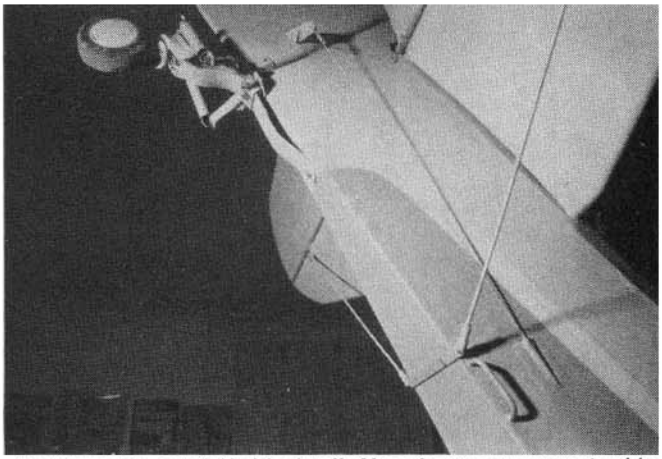
While the task of building John Marquette's 1/3 scale Aeronca looks a daunting one, I can assure you it is worth the effort. Unlike our situation in Australia, most parts of the U.S. and Canada have "building seasons" when it is not practical to fly. Maybe this will take two of those to get through. John Marquette estimated that the project took him 1,000 hours. But that included research and design time. If you do decide to take on the job, one thing is certain . . . everything at your flying field will stop dead in its tracks when you arrive with this machine. And if your

From RCModeler Nov. 1991

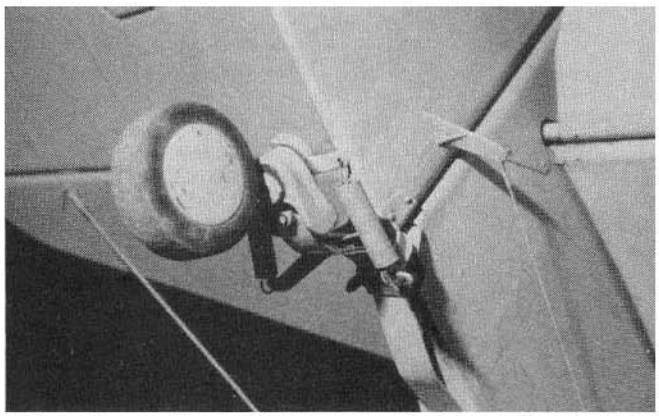
THE PHOTOS BELOW ARE FROM A 2ND AERONCA MODEL BUILT BY BOB HAMILTON



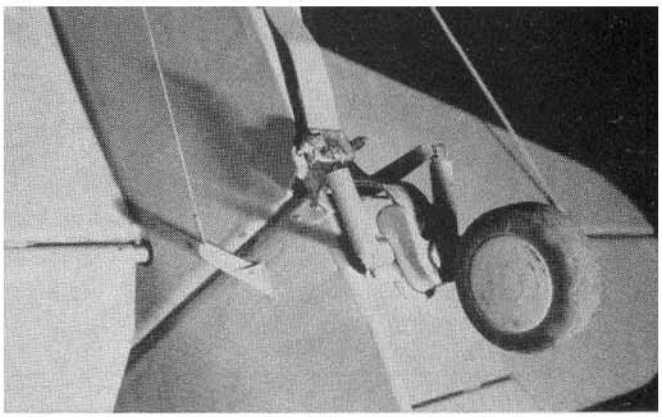
R/H side stab mounting shown with bolts.



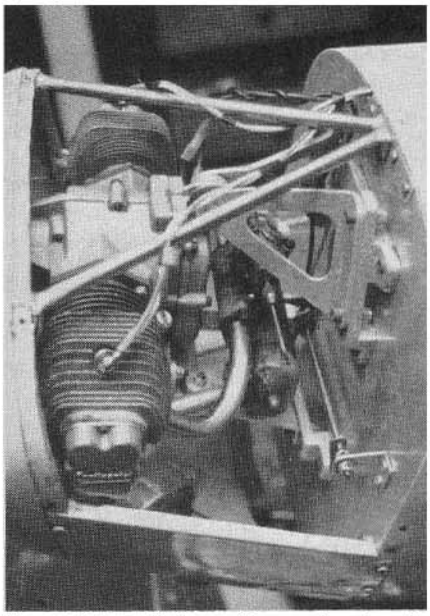
Rudder cable exit R/H side detail. Also shown are support cable attachments for stab and tail lifting handle.



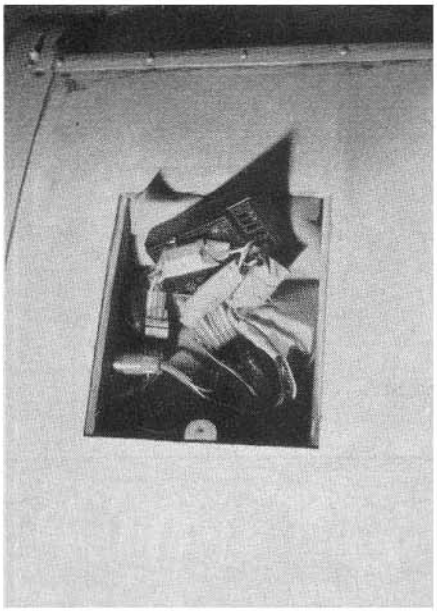
Tailwheel mounting detail. Wheel steering is operated through springs mounted on rudder.



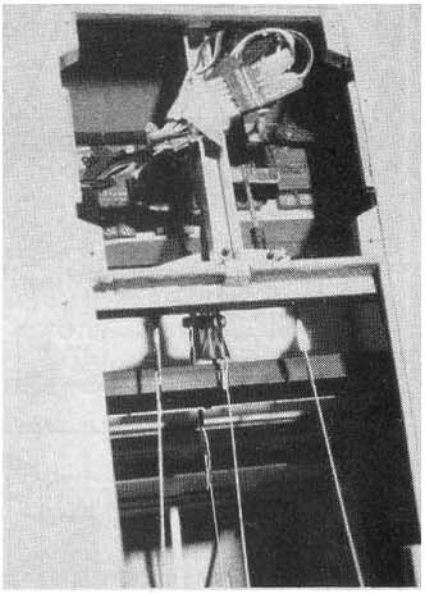
Right side tailwheel detail. Elevator trim tab shown is not functional.



Kavan 50 installation with nosebowl and lower cowling in place.



Aileron control operations in cabin top. Note receiver and connections going to wing mounted servos.



Fuselage mounted control location showing servos for rudder and elevator. These use two servos each, but this arrangement can be changed to suit individual requirements. Hatch is located under cabin section in fuselage.

workmanship is good, you should win plenty of contests. John Marquette was a winner. He would like that.

(Editor's note: Additional scale reference material available: A book entitled "Aeronca — The Best Of Paul Matt". It has 3-views and much more, available from, Aviation Heritage, SunShine House, Inc., 806 Lockport Road, P.O. Box 2065, Terre Haute, Indiana 47802.

The price is $19.95 (#301) plus $2.50 shipping/handling. For orders only (800) 999-0141 with Visa/MasterCharge.

Photo packs are available also from Scale Model Research, 2334 Ticonderoga Way, Costa Mesa, California 92626, 714-979-8058. Bob Banka has many on the champ in almost every paint scheme. □