

# CULVER'S GOING PLACES



THE 1946 CULVER MODEL V



that it would be the best that Al had ever done.

Then came the great day! And, brother, I can tell you first-hand it was worth all the waiting.

First a few taxi runs to feel it out on the ground, and it was everything I expected, so I decided to get it into the air and see how she responded. On the initial take-off run she hopped off the ground and was in the air before I knew it. A short circle of the field and when I brought the ship in I was as tickled as a little kid, for she came in and set on like a veteran, and all I could think was Ah-h-h!

The first hop on the new Culver Model "V" was the culmination of years of study, design, and just plain hard work, with always the thought in mind of making the personal airplane a truly practical form of personal transportation. At first I had a tendency to be tense and keyed to a high pitch of expectancy, but after the first few minutes I knew that we had something. For even though it was a fairly rough day the little job was exceedingly stable, both laterally and longitudinally. And even though

## "I Flew the New Culver First—Ah-h-h"

By **EARL PRICE**, Chief Test Pilot

CULVER AIRCRAFT CORPORATION

**N**OW they've done it. With 17 years of experience and 8,000 hours to better qualify me for this job, I have a feeling that a kid of tender years and little experience could have done the same thing. For they've built an airplane that literally flies itself.

After flying everything the Army had from 4 engine on down to the liaison jeeps, I came to Culver with the feeling that here was a concern that was really going places. And while waiting for them to tool up for production on a new military model, I worked in the Service Department as a mechanic. Of course, my purpose was selfish, for I wanted to know the company completely from the workers to the management. For if it was to be the company of my choice and my future, I felt that this was important.

By the time I was made Chief Test Pilot I was thoroughly acquainted with everyone in the organization. Al Mooney, Chief Designer, and I might add one of the most logical and practical in the business, was one of my best friends and I called him just plain "Al."

When we first started production on our current Army model, the PQ-14, it was a real thrill to fly these fast and highly maneuverable little airplanes. I spent many an enjoyable hour testing them. But here at Culver we all had something that lay in the future, for we knew of Al's work on the Model "V," which was to be the airplane we would produce for civilian consumption after the war. And for all of us it was a period of hard work, waiting, and anticipation, for we knew

the actual mechanics of flying the airplane were somewhat different from the earlier military models, I was amazed at the simplicity and the lack of concentrated effort that the ship required.

It becomes harder and harder for me to bring the ship back to the field, for it is always amazing me with its inherent stability and glide and climb control, which leave me with nothing to do except to decide what I want it to do next. The flying public is due for the most pleasant surprise in personal aircraft history when these babies start rolling off the line. Each succeeding flight leaves me progressively more enthusiastic, although I was riding on clouds after that first flight when I had Al Mooney as passenger.



# IT WAS

# worth waiting for!

WHEN the Culver Model V made its maiden test flight in September, the company already had on file 3,000 requests for Culver dealerships. Building a dealer structure then became a job of selecting from this list a group of men whose records would assure optimum success and whose business reputations were commensurate with the reputation of Culver airplanes.

Exhaustive investigation was conducted through bank and business references, and through a study of each man's individual and moral reputation in his community, as well as his aviation background. The result of all this study was the choice of a group of dealers, who will form the nucleus of the new Culver sales structure.

These dealers were then brought into the Culver factory at Wichita for a demonstration of the new Culver Model V, and for an intensive two-day meeting at which company officials outlined the company's plans for production, for sales and for advertising.

It was raining when the demonstration took place, but nothing could dampen the spirits of the eager group which watched Earl Price, chief pilot of Culver, take off in the Model V in an 8-mile cross wind. Several times the pilot brought the plane across the field at almost top speed, while the men thrilled to its clean lines and swift progress through the air. Then in contrast, he brought the plane across the field slowly, flying only 20 feet off the ground at 55 mph. Spontaneous applause broke out from the group as the pilot landed at the end of the demonstration.

A happy coincidence provided contrast as the demonstration was ending, when one of the old pre-war Culvers came in and landed at the Culver airport beside the new Model V — a flash parade of progress.

On-the-spot comments of these dealers are but straws in the wind, foretelling the reaction of the flying public when they, too, get their first demonstration of the new Culver Model V.



"This is the airplane that makes your annual trip a week-end jaunt." Judson G. Sherrill; Sherrillaire, Inc., Northfield Airport, Richmond, Virginia. Serving Virginia and the District of Columbia

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"Greatest improvement in aviation in the last decade." Harry Royster and E. G. Kidwell; Standard Aircraft Co., Central Airport, 13610 South Central Avenue, Los Angeles 2, California. Serving Southern California



"A new day for aviation." Alton H. Walker; Walker Aircraft Sales, Monterey Peninsula Airport, Monterey, California. Serving north central California



"Culver's still way ahead of the industry." Paul L. Cromelin; Municipal Airport, Aiken, South Carolina. Serving Georgia, western North Carolina and South Carolina



# Culver's New Model V with

# *Simpli-Fly* Control

By AL MOONEY, Culver Chief of Design

THE "Simpli-Fly" control on the New Culver Model V is something very simple and logical, and can be explained rather briefly. In the past, particularly in later years when people have been doing a lot of work on flaps, it was generally believed that there were two flap positions — up and down. On the particular flap the Culver Model "V" incorporated, there is an *optimum setting* for any flight condition that you might want to assume. There is a best take-off setting to get off the ground and over an obstacle in the shortest distance. There is a best setting for maximum rate of climb, for cruising, and for top speed.

Secondly, there is an interconnection between the flap and stabilizer, such that when you set the flap for optimum take-off, or whatever flight condition you want to assume, the airplane is perfectly trimmed. As a result, the plane tends to do what a good pilot would be doing through coordination of aileron, flap, and elevator. Along with this interconnection is a flight control dial on the instrument panel. It has two scales "Power off" and "Power on." Probably the best way to explain is that when you are ready to take-off you run the dial around to where it reads "Take-off," steer down the runway, and you will get the optimum performance on take-off. After you are in the air, the dial should be turned to "climb" and the airplane will automatically trim to climb, and you merely continue to steer.

This operation might best be explained by comparison with the gear shift in an automobile. First gear would be the take-off, second gear would be climb, and third, or high, gear would be the cruise setting.

On making your approach you will run the dial around to "Approach." At the "Approach" setting the plane is trimmed for the flattest possible glide for the greatest distance at a

speed of about 75 mph, with gear up. This also becomes quite a safety factor in the event you have any engine trouble. In coming into the field the "glide control band" makes it possible to match a point on the ground to the airplane, rather than matching the airplane to a point on the ground, as has been the general practice heretofore. I would also like to point out that it is not necessary to flare the plane as you land. A good pilot probably will, inasmuch as the landing will be a little smoother, but it is not necessary.

The "elevator" is of greatly reduced size in comparison with the stabilizer, and on this airplane it ceases to become an elevator. So far, for purposes of identification, we have called it a tail flap. This tail flap will only moderately change the attitude of the airplane. However, it becomes a stabilizing factor when fighting rough air, or when you flare for a landing.

Another thing that is different on this airplane is that power is not a determining factor as far as speed is concerned. It merely determines whether you go up or down. The flight control device, at a given setting, is the factor which determines your speed. Therefore, your speed will vary only a small amount at any given setting. If you get an engine failure on take-off, the airplane will glide down at the speed to which the airplane is trimmed.

Simpli-Fly control covers probably the Culver Model V's major departures from what we have known in an airplane before. Some of the minor changes also warrant a little discussion, one of which is the center of gravity. This airplane has more in-built stability than we have been accustomed to in a plane. In the past, it was not uncommon that in loading baggage, aircraft parts, etc. the c.g. traveled far back of where it should. The c.g. on this airplane is further

forward than that in most airplanes and travels only slightly regardless of loading. Another reason for the forward c.g. is that it takes the heat out of the elevator or tail flap.

The discussion to this point only has to do with longitudinal control, and goes a long way toward eliminating the possibility of stalls. The span distribution of airfoil sections is such that even at lowest speed there is a tremendous amount of wash-out on the wing tips, and it makes it impossible to stall the tips.

Substantially, the Culver Model "V" is a two-control airplane in the air, inasmuch as you fly by wheel alone. We could have made it a full two-control airplane, but our analysis shows a strong disadvantage in the present two-control airplanes, and that is the hazard in cross-wind take-offs and landings. Therefore, we have left the standard rudder in the airplane for nose wheel control. It isn't necessary to use the rudder in the air — it is merely there to take the hazard out of cross-wind ground operation.

The control system in the New Culver has one other advantage, as we see it, and that is that a three-control pilot will be at ease while flying it, even though the heat has been taken out of the rudder, and the necessity of coordination has been eliminated.

Like all simple things, "simplified control" isn't quite that simple from a design standpoint. There are numerous minor things which go to make up this simplification of control, one of which is the flap. The flap on this airplane has a 70% span and continues right across under the fuselage, which is a brand new idea in the light airplane field. On the ordinary airplane the back part of the wing, where it joins the fuselage, is the point of highest disturbance. But on this airplane, because of the slotted flap, the



venturi effect sucks the air in along the fuselage, as well as around the butt of the wing, straightening the air flow out and, thus, getting away from buffeting.

The cabin of this ship is approximately 5 inches, or one shoulder, wider than that of the pre-war Culver.

The instrument panel will incorporate all standard flight instruments and the flight control dial, and will have room for additional instruments the purchaser might want. This airplane has a wheel in it, and it will be fixed so that when you want to get out of the plane the wheel can be moved to the center of the instrument panel out of your way. There will be provisions for two-way radio, but it will not come as standard equipment.

The hatch is hinged at the juncture of the canopy and the engine cowling. The entire canopy lifts up and the point of entrance is just back of the instrument panel, which eliminates the necessity of stepping on the seat.

Goodyear has developed a new rubber and nylon gas tank which we are using in this airplane. They are located in the leading edge of the wing and have a capacity of 35 gallons. It might be well to mention here that another argument for the c.g. being located where we put it in this airplane is that the gas and baggage have very little effect in the point of c.g., and in figuring your useful load you do not have to sacrifice gasoline for baggage, or vice versa.

As you know, we have not released any performance figures. One of the big reasons for this is that I have been Chairman of the Airworthiness Requirements Sub-Committee for the past several years, and one of the things we have been fighting for is that all performance figures are certified by the C.A.A. I think that this will go through about the first of the year, so we don't want to give out some figures which might have to be changed at the time they are certified by the C.A.A. However, in discussing the approach speed, at present it looks like it will be about 55 mph, and that it will set down at about that figure. That sounds pretty high until you stop to think that there are very few pilots that approach at any less than that with any airplane. In fact, I don't know of many pilots who approach in the slowest plane at less than 50 mph. We probably could set this airplane

down slower than that, but it would be at a sacrifice in control. In case you get into trouble and have to go down and forget your flight control, I believe the airplane will land at almost the same attitude at cruise that it does at approach. Of course, that would only apply when your power is off.

When you see this airplane fly you will notice that it violates some of the principles of flight which we have had in other airplanes. For instance, it flies with the cabin practically level and the tail slightly down. The reason for this is that the downwash air flow is over the cabin and down. Therefore, by slanting the top of the fuselage down from the cabin there is more lift over the entire surface of the fuselage, and with the fuselage slanting with the air flow you get more speed. However, to get back to the speed of the airplane, this much we can assure you — the Model "V" is faster than the old Culver.

From the standpoint of more range, more payload, more comfort, on substantially no more power than we had formerly, we think that we have made quite an advance in the light plane field with this airplane. We're not necessarily shooting at the same market as when we sold the old Culver. We're shooting at a bigger market — those people who want a combination of simplicity, safety, speed, and range. If the old Culver owner wants those things that's fine. Essentially, this airplane is for the business man who can't spend a year or two learning to fly, who has to have safe, economical, speedy transportation.

The decided dihedral of the wing tips is, primarily, a production economy. We find that it is simpler and more efficient to build the part of the wing which gets the most stress almost in a straight line, and take care of the dihedral at the tips. Also, it gets the tips up away from the ground and you aren't as apt to get them banged up. Also, there is a tremendous amount of wash-out on these tips which gives you better control at low speeds and goes a long way toward eliminating stalls.

In case you have to go down through an overcast, the thing to do in this airplane is to set it for "Approach" and leave the airplane alone. It isn't necessary to spiral, but you can if you want to. My recom-

mendation would be to leave the plane alone at that dial setting. If you have to go down in fog, set your dial so that you will have the lowest speed in the glide control range and feel your way down with power. One thing I would particularly like to stress is that you can fly with your dial set in the glide control range at 55 mph, *with power*. In other words, this airplane is essentially and fundamentally designed to give you speed, combined with other things which we have discussed, but *it is possible to safely fly this airplane at 55 mph*. If you have no power and your dial is set for glide control at 55 mph, you will still come down at the same air speed. Here again, I want to remind you that your flight control is also your speed control, and you will come down at the speed for which your flight control dial is set. The thing to remember is that if you have to set down, have the dial set for the lowest flap setting to give the lowest speed.

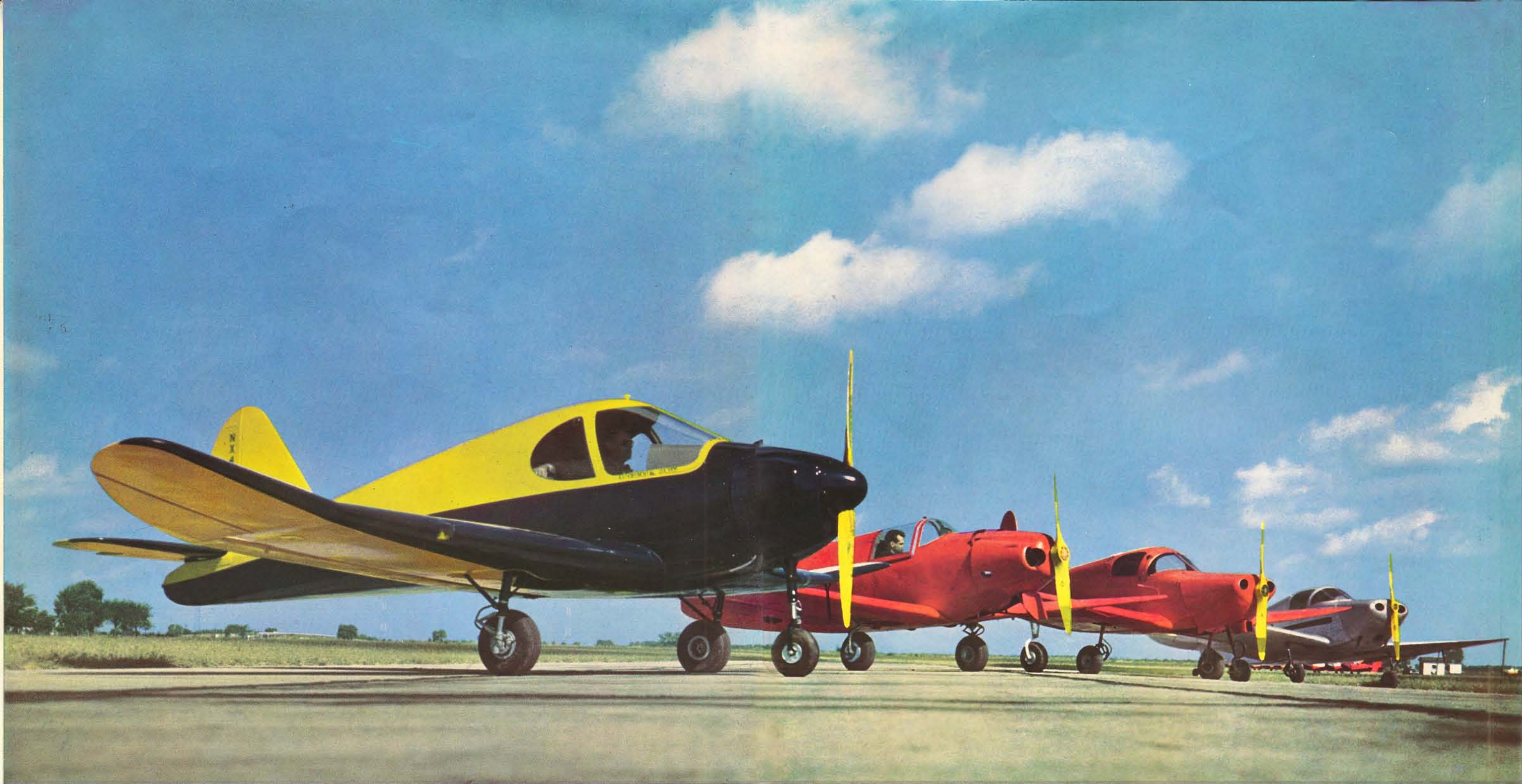
There will be pilots who will say "Well, heck, I can't do any acrobatics with this airplane." You definitely cannot stunt the new Culver, that's true, *but you can do precision flying with it*. Some of the most beautiful flying I have ever seen is precision flying. With this airplane you can work out your own maneuvers. You can do precision take-offs and come across the field at 60 mph, fly around the field and come back at top speed, do beautiful turns, and the first thing you know you've worked out a pretty good routine. You aren't tied like you would be in a two-control airplane which won't make precision turns, and you can make approaches which are as beautiful as any you can make with a three-control airplane. This airplane can also be slipped moderately. However, it can only be slipped to the extent of your rudder control.

I would again like to call your attention to the stability of this airplane. Anyone who has flown a light low wing airplane in the past knows that the stability usually decreased with decreased speed. In working out the flap arrangement on this airplane, we have found that this airplane has more stability at low speed than at high speed.

Just like all airplanes, the old Culver was copied to a certain extent. But so far as I know no one has, as

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## Six Generations of Fine Aircraft

Great names in industry become great because of some outstanding achievement; because they bring to the public something better, more economical, or more convenient than what it had before. Great names remain great only when they continue to improve what they offer the public, so they are constantly able to offer something better; not only something

better than anyone else offers but better than they themselves offered before. Great names remain great only when they keep ahead of progress, not just abreast of it.

That's what Culver has done, in each new design. You might say there were six "generations" of Culvers, each with something new added. First, there was the pre-war commercial

Culver, which was known for its high speed and clean lines. We now call it the "dear departed friend," for while it was something special in its day, its day is done, and it's time for the brand new generation to take over. That's the new Culver Model V, of course; by far the most progressive member of the Culver family to date.

But in between the old pre-war Culver and the brand-new Culver V, there are some other Culvers you

should meet, in order to understand the full heritage of the new model. You've heard little or nothing about the four models that preceded the new Model V, for these Culvers went to war. They were the PQ-branch of the family—the radio-controlled target ships that did so much to make America's anti-aircraft and aerial gunners the best-trained in the world. Actually, you might say there were five members of the PQ Culver clan, for the

XPQ15, while still in the experimental stages, already promises to overshadow the performance of its two most famous relatives, the PQ-8 and PQ-14. The importance of the PQ Culvers to the commercial world, however, is the heritage they passed on to the new Culver Model V.

From the PQ-8, the very first military model Culver, the Model V got its anti-stall anti-spin characteristics inherent in the wing structure, for

that is the first thing the Culver had to do to get into the Army. If a plane under radio control ever goes into a spin, it cannot be brought out of it, so the first change made to adapt the commercial Culver to radio control use was redesigning of the wing for anti-stall. On the first military Culver, the landing gear was not retractable; it was from a later Culver PQ member that the new Culver

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"A mighty fine airplane. Just the thing we've been waiting for." Jerry Francis and Howard Angell; Advanced Aviation Association, Capital City Airport, Lansing, Michigan. Serving Michigan



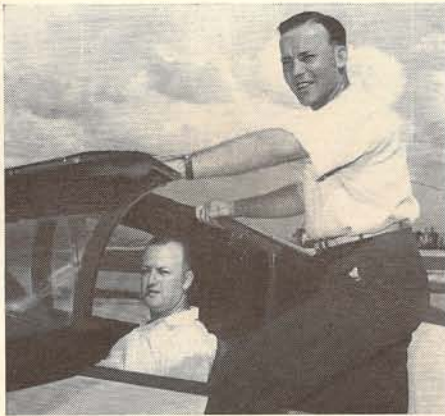
"It used to be fun to sell the old Culver but, brother, this is paradise. What a ship!" Frank Knapp, Outlaw Field, Clarksville, Tenn., serving central Tennessee and central Kentucky



"We expected something evolutionary but nothing so revolutionary." Ken Hockensmith and Rege Ott; Pacific Skycraft Co., Inc., 722 SW 18th, Portland 5, Oregon. Serving Washington and Oregon



"My experience in CAP with the old Culver made me a believer in the Culver product and in the truthfulness of Culver advertising when it comes to their guarantees. But this new ship sets my thinking away ahead, for Culver has again shown its leadership in the Model V." — Vic Schroeder, Central Aviation Corp., Municipal Airport, Omaha, Nebr., serving Nebraska and Iowa



"We have dreamed of this day; we have dreamed of this ship, but the Model V surpasses anything in our dreams." Jim Raulerson and Pat Johnson, Florida Aircraft Distributors, Peter O'Knight Airport, Tampa, Florida, serving Florida



"We're in business. We're in business. We're in business." J. W. Marshall; 121 Love Field, Administration Bldg., Dallas. Serving Texas



"We used to have to sell Culvers. Brother, with this ship we'll just take orders. Wait till the public finds out!" Kenneth Starnes, Municipal Airport, Conway, Ark., serving northern Arkansas and western Tennessee



"You have retained the big feature of the old Culver, which was performance, but added the greatest innovation ever to hit the light plane field, opening flying to the masses through offering safety and simplicity of operation." Haynes Burrus and Jack Hunter, Box 585, Tucson, Ariz., serving Arizona



"I only have western Missouri and the trade areas of metropolitan Kansas City, Missouri, and Kansas City, Kansas. I wish I had the United States. What a pleasure it's going to be to sell this airplane and what a market there'll be for it's the only new thing I've seen in my 17 years of aviation." Charley Toth, Municipal Airport, Kansas City, Mo., serving western Missouri and trade areas of metropolitan Kansas City, Mo., and Kansas City, Kans.



## Culver's New Model

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yet, quite made the mark that the old Culver did. We expect that the same will be true with this airplane.

The Culver Model "V" will be so completely tooled that maintenance and parts will be no problem when repairing these ships in the field. We are going to install a good grade of instruments as standard equipment, which, by the way, will include sealed-beam landing lights in the leading edge of the wing, but on the extra instruments it will be up to the individual to decide what he wants.

This basically is a cross-country airplane with utility, it is good for instruments, it is safe, economical, and speedy. We think we really have the answer for this particular type of airplane.

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## Six Generations

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Model V got its electrically retractable gear.

One of the finest things about the military Culvers, so far as the commercial flier is concerned, is the fact that Culver engineers were able to test every advancement on the new Model V, through radio control, on the military Culvers and to prove in action every revolutionary change.

Of course, the outstanding advancement in the new Culver Model V is the Mooney Simpli-Fly Control, which was made possible only through the company's experience with the radio-controlled models. When Culver engineers saw the little PQs maneuvered into every flight position solely by radio control, they knew that much of the operation of an airplane could be made automatic. Simpli-Fly Control was the ultimate result of Culver engineers' study of the automatic features of radio-controlled flying.

Yes, the Culver Model V inherited a great deal from the generations of Culver which went before it, but it's a family resemblance only. For the Model V is a new plane from a performance standpoint — new to the industry, and new to the flying public. And this newest member of the Culver family is destined to make flying history of its own, adding new honors to an already great name.

# Authorized Culver Dealers

(Partial List)

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|--|--|
| Paul L. Cromelin, Municipal Airport, Aiken, South Carolina                       | Kenneth Starnes Aviation Service, Municipal Airport, Conway, Arkansas                  |
| Advanced Aviation Associates, Capitol City Airport, Lansing, Michigan            | Florida Aircraft Distributors, Peter O'Knight Airport, Tampa, Florida                  |
| Pacific Skycraft Company, 722 S.W. 18th Avenue, Portland 5, Oregon               | Ralph Cox, Jr., Allegheny Aviation Sales, R.D. 8, Box 697, Pittsburgh 15, Pennsylvania |
| Hunter-Burrus, 3005 Flowing Wells Rd., Box 585, Tucson, Arizona                  | Sunny State Aircraft Sales, 900 North 4th, Albuquerque, New Mexico                     |
| Aircraft Distributors, 157 North Emporia, Wichita, Kansas                        | Toth Aircraft & Accessories Co., Municipal Airport, Kansas City, Missouri              |
| Knapp Sales & Service, Outlaw Field, Clarksville, Tennessee                      | Roth Airways, R.R. No. 4, Oskaloosa, Iowa  |
| Jimmy Marshall, 121 Love Field, Administration Bldg., Dallas, Texas              | Westair Sales, 221 David Keith Bldg., Salt Lake City, Utah                             |
| Standard Aircraft Company, 13610 South Central Avenue, Los Angeles 2, California | Ohio Aircraft Sales, 956 East Court St., Cincinnati, Ohio                              |
| Walker Aircraft Sales, Box 235, Monterey, California                             | Smyer Aircraft Sales & Service, Ponca City, Oklahoma                                   |
| Sherrillaire, Inc., Northfield Airport, RFD No. 4, Box 599, Richmond, Virginia   | Badgett Aviation Company, Municipal Airport, Shreveport, Louisiana                     |
| Vic Schroeder, Central Aviation Corp., Municipal Airport, Omaha, Nebraska        | Sky Service System, 320 S. E. Riverside Drive, Evansville, Indiana                     |

## Proposed Standard Equipment

(Culver will be fully equipped with all necessary flight equipment)

- |   |   |
|---|---|
| 1. Starter (Delco)                          | 23. Culver Simpli-Fly Control   |
| 2. Generator (Delco)                        | 24. Individual Air-Foam Seats (Adjustable)  |
| 3. Controllable or Constant Speed Propeller | 25. Retractable Tricycle Landing Gear (Electrically Operated with Emergency Hand Operation) |
| 4. Cabin Heater and Ventilator              |   |
| 5. Tachometer                               |   |
| 6. Compass                                  |   |
| 7. Oil Pressure Gauge                       |   |
| 8. Oil Temperature Gauge                    |   |
| 9. Fuel Quantity Gauge                      |   |
| 10. Fuel Pressure Gauge                     |   |
| 11. Altimeter (Standard)                    |   |
| 12. Air Speed Indicator                     |   |
| 13. Ammeter                                 |   |
| 14. Position Lights                         |   |
| 15. Landing Lights                          |   |
| 16. Provision for Two-way Radio             |   |
| 17. Cabin Lock                              |   |
| 18. Jack Points                             |   |
| 19. Tie-Down Rings                          |   |
| 20. Parking Brake                           |   |
| 21. Fuel Injection (Ex-Cell-O)              |   |
| 22. Battery (Reading Non-Spill)             |   |

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## Special Equipment

1. Sensitive Altimeter
2. Rate of Climb Indicator
3. Bank and Turn Indicator
4. Clock
5. Radio Receiver
6. Radio Transmitter
7. Reel Antenna
8. Special Finish
9. Outside Air Temperature Gauge
10. Special Luggage
11. Seat Slip Covers
12. Sun Visor

Wing Span.....	29'
Length (Overall).....	20-6
Height (Rudder).....	6-9½"
Stabilizer Span.....	9-2
Wing Dihedral.....2°-40' Tip.....	10°
Wing Area including Flap Area.....	125.9
Landing Gear Tread.....	8' - 1½"
Main Gear Tire Size.....	600 x 6
Nose Gear Tire Size.....	500 x 4
Cabin Width (Inside).....	40"
Baggage Capacity (Forward).....	60 lbs.
Duffie Capacity (Rear).....	20 lbs.
Gas Capacity.....	35 gals.
Cruising Range.....	In Excess of 720 miles

Cruising Speed.....Faster than the Old Culver\*  
Continental 85 HP Fuel Injection Engine  
Useful Load.....681 lbs.

\*Culver does not wish to quote definite performance figures until certified by the Civil Aeronautics Administration.

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