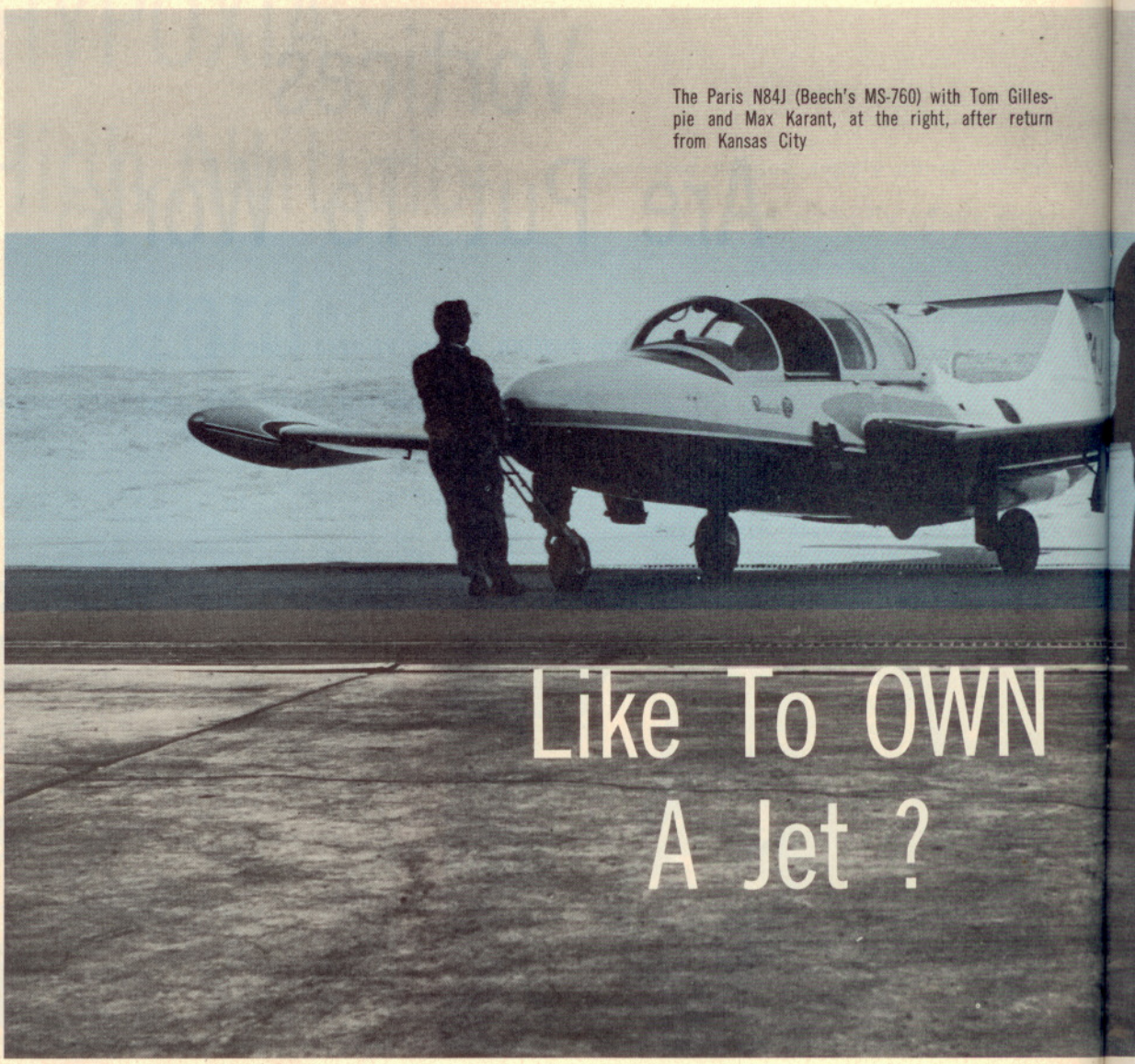
Like To OWN A Jet ?

A quarter of a million will get you a Beech private jet, but PILOT editor finds it isn't for the casual flyer



The Paris N84J (Beech's MS-760) with Tom Gillespie and Max Karant, at the right, after return from Kansas City

Want to buy a jet? Not a surplus military job, with all sorts of restrictions attached. This is a full-fledged, four-place, certificated private airplane now on sale in the United States.

Well, all you need now is the money —$210,000 to be exact. You can get delivery in a relatively short time, after which you can join two other AOPA members who have already taken delivery on their own private Morane-Saulnier MS-760's, sold and serviced in the United States by Beech Aircraft.

But is that all there is to it? Not by a darned sight, as this writer found out when he spent a day recently at the Beech plant, getting checked out in this wonderfully-exhilerating little airplane. In some ways the MS-760 (or, as the French parent company named it, the *Paris*) is a gentle, pleasant private airplane. But in many other ways—important ways—the *Paris* is not for the average private pilot who happens to have a lot of loose cash lying around.

It's probably an oversimplification, and in some ways unfair, but I'd say the *Paris* requires at least a semi-professional pilot to fly it regularly. By semi-pro, I mean the pilot can hold a private certificate, but he should have a fair number of hours—a goodly number of them in fast airplanes with high wing-loading. Above all, he must have a current instrument rating—and he'd better be a pretty good instrument pilot, because the "milling around" factor in the *Paris* is quite limited when compared with, say, a *Bonanza*, 182, or Aero *Commander*. Once he's airborne in the *Paris*, the pilot must know exactly what he's doing at all times, what he's going to be doing 10 minutes from now—and he must be prepared to snap quickly and efficiently to an alternative with a minimum of wasted motion.

Being a jet, the *Paris* is plagued with one overriding problem: high fuel consumption. She carries a total of 370 gallons; 246 in the main tanks, 124 in the wing tips. At 20,000 feet and normal cruising power (21,000 r.p.m.) fuel consumption is 133 g.p.h. That means the tanks run dry in 02:47. That's a good cruising altitude

for a reasonable fuel consumption, yet it's obvious you can't do much fumbling around under such limitations. But look what happens if you fly at just 10,000 feet at normal cruising power. Fuel consumption goes up to 176 g.p.h., and maximum endurance drops to 02:06. Come down to 7,000 feet and consumption goes up to 188 g.p.h., endurance drops to 01:58; at 3,500 feet consumption is 202 g.p.h. and endurance is 01:50. Obviously, the margin for error is nothing like we're normally accustomed to in general aviation.

One thing is clear. To get reasonable range you must fly high. To fly at 20,000 feet regularly you'll hardly ever be able to avoid some

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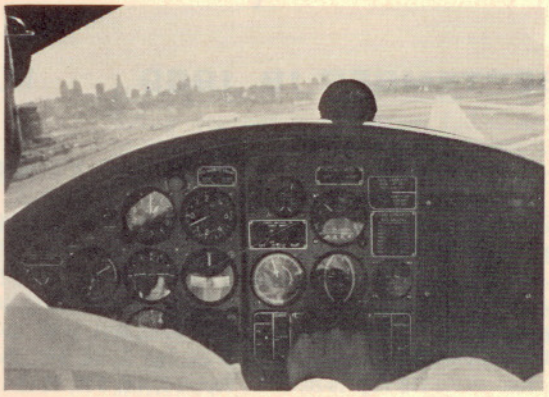
by MAX KARANT • AOPA 18

Instrument panel of Paris, shot by Jim Yarnell while the jet was cruising at 15,500 feet; Karant's hand is at the left. Airspeed indicator shows 240 knots indicated or 350 knots true airspeed; engines are turning at 21,250 r.p.m., fuel flow is about 700 liters per hour (184 g.p.h.). Photo was taken between Beech plant and Emporia, Kan., omni

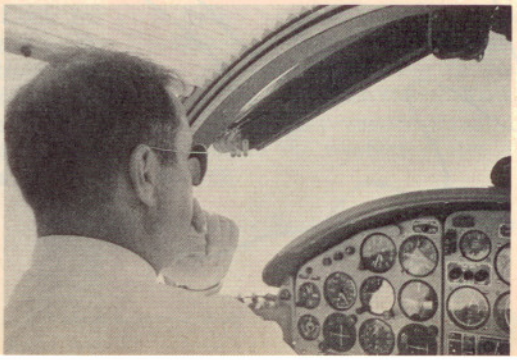


MS-760's instrument panel on final at Kansas City Municipal Airport—altitude 1,000 feet; descent, 500 f.p.m.; indicated airspeed 110 knots; engines turning 19,000 r.p.m. Note Speed Control System dial above instrument panel, showing approach to be slightly on fast side

Photos by Jim Yarnell

Paris at Kansas City Municipal just before taking off for return flight to Wichita (airline terminal building and downtown Kansas City in background)

This is 'The Position' for flying N84J at cruise: feet flat on floor, control stick lightly between thumb and forefinger, eyes scanning flight instruments and sky outside. This picture was taken on flight back to Beech plant. Statistics: altitude, 14,500; heading about 220°, r.p.m., 21,250. Note louvered sun shades overhead and in upper windshield



Own A Jet

(Continued from page 25)

kind of instrument weather, in climbs and descents if nothing else. A 5,000 foot overcast poses no hardship at all to the typical general aviation pilot. But the pilot of the *Paris* had better either have an instrument rating so he can climb up to 20,000 feet, or leave it home and go by some other means. And even when the *Paris* pilot does have his instrument rating, he'd better be pretty nimble with it. With such limited range he'll normally stay high as long as possible before getting to his destination. Then he'll be faced with a comparatively high-speed instrument approach down into those altitudes at which fuel consumption goes up by leaps. Once he gets down low he'll probably have little time to fumble around. Generally speaking, he'd better be right the first time. But this is nothing peculiar to the *Paris*. It's peculiar to the jet engine, and if and when general aviation gets into jets, the problem will be widespread and one of the most important factors faced by general aviation jet pilots.

Having had some previous experience in jets, I wasn't nearly as shocked over this situation as would be the average private pilot getting in the *Paris* for the first time. Also, I have an instrument rating, and was fully prepared to use it at a moment's notice.

I spent most of a day with Beech's demonstrator (N-84J) and Tom Gillespie, Jr. (AOPA 176827), who is in charge of the *Paris* project for Beech. We'd set it up so that I'd actually get checked out, down to and including a cross-country flight.

Tom, who's an old military hand with jets, started me out in the customary manner: walking around the ship, explaining, demonstrating, opening up key hatches, and so on. The *Paris* is a compact little ship, but there's a lot of hardware and machinery packed into it. Because things are liable to happen very fast in any jet airplane, I asked all sorts of questions, some (to Tom, at least) probably foolish. But I felt more comfortable flying the ship afterward; I don't like to have mysteries crop up in midair.

The *Paris* is roughly the same size as the single-engined *Bonanza*. Wing span is 33 feet 3 inches; the *Bonanza's* is 32 feet 10 inches. But there's a pronounced difference in weight. Gross weight of the *Paris* is 7,500 pounds; the current Model J *Bonanza* is 2,900 pounds. And the *Paris* has two jet engines, each developing a maximum of 880 pounds static thrust.

The cabin looks quite conventional, with leather-upholstered seats for four. The cabin hatch slides backward to open, and is sealed forward for flight—sealed because it is pressurized. A small portable stepladder hooks into either side of the fuselage outside the cabin, and you climb aboard that way. When everyone's in, there's an easy system for disconnecting the ladder and stowing it aboard.

The first time you face the instrument panel you know for sure that the *Paris* is not for the casual Sunday-afternoon pilot. You can get an idea of the complexity from those parts of the instrument panel that show in the accompanying photographs. Quite a few items don't show in the pictures. There is a complete panel of switches, indicators and instruments clear across the width of the cabin, below the main instrument panel and just ahead of the pilot's and copilot's knees. Obviously, the cockpit checkout is of necessity detailed, careful and lengthy. While there aren't propellers, mixture controls, etc., to worry about, there are instruments peculiar to jets that are totally new to the inexperienced pilot. Like the fuel flow meter, tail pipe temperature gauges, dive brakes, electric trim tabs, and so on.

There's only one practical way to learn what all the strange gadgets are for, and Tom set out to teach me. We made several takeoffs and landings at the Beech airport, while I learned to work all the items on the checklist instinctively. The checklist is a vital part of this airplane. Much as Tom has flown these airplanes, he follows the checklist religiously for every phase of the ship's operation. Take the part marked "As you enter the cabin," for example:

1. Check battery voltage. If it's over 25, you can start the engines on the plane's battery. If not, use an auxiliary power supply.
2. Check landing gear control down.
3. Check limitations of loading.
4. Parking brakes on.
5. Right rudder pedals free or locked (depending on who's in the seat).
6. Master switch on.
7. Generator switch on.
8. Check main and wing tip fuel gauges.
9. Fuel transfer switch off.
10. Fuel flow meter set at 000.
11. Canopy seals for pressurization, deflated.
12. Test following indicator lamps: dive brakes, landing gear posi-

the dust out along the swept-back wings so that it can be swept downward by the vortices, result in laying a swath of evenly distributed dust directly under the plane. Dust from a conventionally equipped plane does not reach the ground until the plane has gone 50 to 80 yards past the point where the dust was released."

Nissen has found no undesirable flight characteristics resulting from the installation of spreader wings and an FAA flight examiner reported finding no flight faults.

While Nissen has applied for patents on his Span Flow spreader, he modestly points out that his invention is just a simple airfoil that he has put to work to harness three elements of the science of flight—the outward flow of air over swept-back wings, downdraft from lowered flaps, and the dispersing force of wing tip vortices. It's a new wrinkle in the 36 years of farming from the air and the Span Flow spreader is a device which can be installed on a majority of the thousands of planes being used for crop dusting.

tion indicator, two cabin pressurization warning lights, two fuel transfer lights, two starters, two fuel pressure gauges, generator, two fire warning lights.

13. Check oxygen bottle.
14. Air conditioning cock on "hot."
15. Emergency cabin air intake shut.
16. Emergency landing gear and dive break control selector normal.
17. Stabilizer at neutral.
18. Aileron trim tab neutral.
19. Select flap position.
20. Test dive brakes.
21. Test all radios.
22. Stow ladder inside cabin.

That, mind you, is only that part of the checklist you use as soon as you've climbed into the cabin. An even more elaborate portion covers the starting of the engines, 11 steps to check just before takeoff, then the actual takeoff. Then there's a detailed checklist for cruising, descending to approach, approaching, landing and parking. And the emergency procedures alone are covered with a checklist equal to the entire "routine" checklist once again.

So the *Paris* may look like a hot rod for wealthy private pilots, but it really isn't. It's a complex small transport, with very limited duration thrown in. And in normal operations the pilot should be so thoroughly conversant with all these complexities that he can perform most of these tasks rapidly and instinctively, while concentrating on demands being made on him from outside the cockpit (traffic control, communications, and so forth).

Among the points Tom quickly hammered home came up almost with my first takeoff. Never—never!—do you taxi down to the end of the runway, swing around into the wind, and then

shove the throttles wide open as you roll into takeoff position. This is apparently a short cut to the graveyard in a jet, and I almost tried it once. You taxi into position, check everything over once again, hold the brakes locked, ease in full power, check the engine instruments, then release the brakes with a snap. Tom tells me that there were several crackups in the early days of jets, caused by pilots treating this part of the flight like they did in conventional planes. The initial surge that goes with maximum thrust with brakes locked is the all-important "extra something."

Like all jets, the *Paris* is slow on the takeoff. Acceleration picks up rapidly after the slow start, particularly once you break ground and get the wheels up. It's Tom's feeling that the minimum-sized runway that should be used regularly by the *Paris* should be the equivalent of 3,800 feet long at sea level, and paved.

One of the first things you notice about the *Paris* is the total lack of torque. As a matter of fact, I began instinctively pushing in a little right rudder as I started down the runway—and promptly started off to the right. In a normal takeoff you simply point the nose straight down the runway, lock the brakes, apply full power, wait a moment, release the brakes and hold that heading, either visually or on the gyro compass. You leave the nose wheel on the ground until the airspeed reaches 75 knots (86 m.p.h.). Then you ease the stick back gently until the nose wheel comes up. The ship then flies itself off at about 95 to 100 knots (110-115 m.p.h.). Once off the ground, you tap the brakes gently to stop the wheels from spinning, then retract the gear. It's here you quickly begin to realize you're in a jet, because the acceleration goes up by leaps. On my first takeoff in the *Paris* I stayed low and in the traffic pattern—well more or less, because you find yourself going so fast that the "traffic pattern" becomes a high-speed tour of the immediate area. You leave the flaps down (they're always used for takeoff) until you're between 150 and 160 m.p.h.

During the landing and takeoff practice, I was so concerned with the high-speed local flying I was doing at low altitude that it was difficult to concentrate on things inside the cockpit. Fortunately, the *Paris* is quite simple to operate once you've levelel off for cruising flight.

Considering the fact that the *Paris* is both much heavier and faster than the types I've been accustomed to flying, I'd say my approaches and landings were pretty good — particularly with Tom voicing occasional, strategically-located bits of verbal advice beside me. You throttle back to 18,500 r.p.m., pop out the dive brakes to slow you up, then drop the landing gear at about 184 m.p.h. These high numbers take some getting used to; I'd be afraid the wheels would blow clear off a retractable-gear lightplane at such speeds. Once you get the gear down, you pull in the dive brakes and start using a bit of flap. The trick is to get the ship stabilized at an approach speed of about 125 m.p.h., then just fly it down to the runway.

The *Paris* was equipped with an old friend, the Safe Flight Instrument Corporation's "Speed Control System." The little indicator sits right up on the ledge over the instrument panel, between the two pilots. I've had one of the earliest cruder versions in my *Bonanza* for several years, and regard it as probably the most useful, safest flight instrument in the airplane. Tom feels pretty much the same way about the *Paris* installation. So rather than try to do all the mental gymnastics pilots usually try, what with weight, altitude, temperature and speed running the gamut of a wide variety of variables, I just flew the *Paris* so as to keep the SCS needle slightly above the center dot, and put it right down on the runway. I also used it on takeoffs.

Stall warning also is part of the Speed Control System installation. The *Paris* has a stick shaker instead of the customary horn and light. Quite by coincidence, I've had an experimental stick shaker in my airplane for several years, and I think it's far superior to the horn-light system.

After a few landings and takeoffs at the Beech factory, I was ready for a cross-country flight—if you can call a mere 190-mile flight for lunch "cross-country." We'd decided to fly to Kansas City for lunch. The weather was excellent with unlimited ceiling, so we went VFR. We made the northbound trip at 15,500 and covered the 190 miles in 36 minutes. That's a block to block speed of 316 m.p.h. We made the return trip at 14,500 in 35 minutes, for an average of 325 m.p.h.

Most notable things that impressed me were the fact that the airplane is so sensitive on the controls and, moving so fast, that there's no time whatever for sightseeing. Actually, it should have an autopilot, because to hand-fly the *Paris* requires constant, although very light, control. As Tom put it, "You can't do much looking out the window with this baby, because when you look out the window she looks out with you." I quickly learned that the trick is to get her up to altitude, trim her out carefully with the sensitive electric control button on top of the stick, then just settle down and continuously scan altimeter, rate of climb, compass, omni and outdoors, in just about that order. Matter of fact, Jim Yarnell, Beech's top-notch photographer and an experienced pilot, went along on the flight to Kansas City, and got a shot of me in the pose that is undoubtedly typical of anyone flying this ship cross-country. Jim took all the pictures that accompany this article, as well as the color cover shot of N84J.

If you're the kind of pilot who gets impatient waiting for the altimeter to get where you want it, you should try the *Paris*. It winds and unwinds so fast that you quickly learn to keep your sightseeing and casual conversation to yourself. Under actual instrument conditions I don't think I'd even glance at Marilyn Monroe if she were beside me.

Though the normal rate of climb from takeoff is less than 2,000 f.p.m. with a full load, once the flaps and gear are up, the *Paris* begins to change altitude like a true jet. The pressurized cabin, for example, enables the pilot to descend at 3,000 f.p.m. at will.

You soon become very sensitive to the large instrument in the center of the instrument panel, just above the center throttles. Because this is a French airplane, the instrument is labelled "L/H X 100," which means the instrument tells the pilot how many hundreds of liters per hour the engines are gobbling. And there's a little window in the bottom of the instrument, with numbers clicking off like a speedometer. You set this diabolical little counter at zero when you start, then watch the numbers begin clicking off at what seems like a terrifying speed, the moment you start the engines. And those numbers do move at terrifying speed at low altitudes; they're telling you constantly how many liters you have burned up to that instant. As I've already pointed out, the *Paris* carries a total of 370 gallons. That's 1,410 liters. And the way that counter keeps unwinding you can quickly see why everything you do in this—or any—jet had better be right the first time.

N84J is equipped with a complete Wilcox "package" radio installation in the nose. For private pilots like myself, the opportunity to try out this excellent equipment was an added source of pleasure. I hardly had time to get out of the Wichita area before I was talking with Kansas City. Jay Wilcox (AOPA 83272) has been making quite a name for himself producing airline electronic equipment. Now — having started as a lightplane pilot himself—his thriving company is working on a line of lower-priced equipment for the likes of us poorer people.

The only practical way I could find to fly the *Paris* to Kansas City and back was essentially on instruments. The old school of pilotage navigation has no place in this airplane; I had all I could do to keep an eye on the Kansas Turnpike, which is the most prominent landmark in the entire area. Instead, I tuned ahead to the Emporia omni, and headed right for it while climbing to altitude. By the time we got there I tuned ahead to the Kansas City omni, then set the ADF on the Kansas City outer marker. Then it was time to start down. Any attempt to fly by pilotage would have probably taken me halfway out of the state—and made that fuel counter spin like crazy.

I can only come to one conclusion after spending this time with the *Paris:* at the very least, this is an airplane for the semi-pro. He must be sharp on instruments, sharp on procedures, and be able to think ahead to an extent rarely required of the average nonprofessional pilot.

Except for these sharply limiting requirements, however, the *Paris* is about as delightful a flying machine as us mere mortals will get to fly in a long time. It's hard to beat for sheer fun.

All you need is a small fortune. END