

■ ■ You are parked on the ramp, engine idling, and the ground controller notifies you that he has your clearance. Are you really ready to copy—or does the prospect of a hurried attempt to scribble your way through a rapid sequence of directions unnerve you?

If you are a seasoned IFR pilot, you most probably are comfortable with this procedure because you know you can do it with no hesitancy. But there are certain basic problems with clearance

copying that seem to be common to instrument students and newly rated instrument pilots. Once defined, they are relatively easy to overcome.

First, although your clearance is usually prepared by a computer and is highly adapted to presentation by means of symbology and hieroglyphics, it is really just a simple narrative of instructions as to how your flight is to proceed. All clearances contain three basic elements, and they will be given to you in

this order: *clearance limit*; *routing*; and *altitude*.

Your *clearance limit* is the farthest point to which your flight is cleared as of the time you receive your clearance. Normally you will be cleared to the destination airport when you receive your initial clearance, but occasionally, the computer will clear you only to some arrival fix near the destination because of heavy traffic, navigation equipment malfunction, or local procedure.

Your *routing* really doesn't need much discussion, and consists of a description of the airways which your flight is to use. You may be given a standard instrument departure (SID) or its equivalent to get you out of the terminal area; you may be cleared "direct" between certain fixes; and you may be advised that you are "cleared as filed" or that you are to fly "flight plan route."

The latter two possibilities are different ways of saying the same thing. That the computer has approved the route you suggested, with no changes. It is also possible that on the more lengthy trips or complex routings requested, you may be "cleared as filed" with certain exceptions, and the exceptions will be made clear to you by the controller giving you the clearance.

Finally, you will be given an *altitude* to maintain. Normally, you will be instructed simply to climb and maintain a certain cruise level, but in the busier terminal areas, you may be told to climb to an interim altitude and expect a different altitude either at some geographical location or upon the expiration of a certain number of minutes after departure.

If, when requesting your clearance, you remember that the controller is going to tell you (1) where you are going, (2) how you are to get there, and (3) how high you are to fly, you will be better prepared to anticipate his instructions.

I have seen instrument pilots using a wide variety of knee-boards, lap-boards and other devices to hold their charts, scratch pads, flight log, flashlights, sun-

Ready to Copy

Clearances are no chore when you know what to expect

Figure 2

Clearance limit	R/C A	BAL 1513			Departure time
	F2 PT				
	93	E	F	A	
Routing	PXT	1520	P Δ	1521	
	213	28	G Δ	29	Flight log
	T Δ	44	PXT	44	
	D	57	T Δ	56	
Altitude	15 18 10 min.	10	RIC	09	
Special departure instructions	RHV				
	120.65				
	4123				
	119.6	Pick up laundry			Notes
Enroute-communications frequencies as assigned	134.5				
	124.8				
	121.1				

glasses and all manner of items, but I personally have found no device more sensibly priced or more practical than a legal-size clipboard. I have added a 39-cent spring-type clip to the lower right hand side of the clipboard, and use this for holding a four- by six-inch pad.

I place the clipboard sideways on my lap, with the main clip at the left-hand side. Enroute charts, folded up to expose the part required for a given portion of a flight can be held under the main clip and the pad is available for copying the clearance and maintaining a simple flight log. Any ballpoint pen with a pocket clip can be hooked onto the chart on the left side of the clipboard, ready for quick use. Approach plates can be removed from their binder, if you like, and also held by the clip on the left side. I simply put the entire book of plates on my lap on top of the clipboard, and turn it to the appropriate page.

Once you have learned to anticipate what the controller will say when he is giving you a clearance, the next problem is to write it down. Interestingly, the FARs do not require either that you write your clearance down, or that you read it back. However, it is obviously a good operating practice to do both, and besides, if something goes wrong, your accurate read-back on the FAA voice tapes may keep you out of trouble.

Many pilots have a tendency to try and write down too much information. The short-term memory capability of most pilots is sufficient that they can remember simple instructions given to them while enroute, such as altitude and heading changes, and that all-time favorite, "cleared for the approach." It is also unnecessary to record such words and phrases as "ATC clears," "Victor," and the N number of the airplane.

You will need to adopt a set of clearance shorthand symbols which work for you. All of the instrument training handbooks have suggested symbols, and you may want to adopt some of them or make up your own. Whatever works for you is what you should use.

However, with regard to actually writ-

ing your clearance on paper, all of the handbooks suggest that you write from left to right, across the page. This method has a tendency of running one group of symbols into another, and can be most confusing. I like to write my clearances in vertical columns, from top to bottom, with a different symbol or group of symbols in each vertical position.

For example, I frequently fly from Baltimore to Richmond and my clearance usually sounds something like this: "ATC clears Mooney N10SF to the Richmond Airport via a Friendship Two departure, Pasadena transition, Victor 93, Patuxent VOR, Victor 213, Tappahannock intersection, direct. Climb and maintain 5,000, expect 8,000 ten minutes after departure. Maintain runway heading for vectors. Contact departure control 120.65. Squawk 4123." I would copy this clearance as shown below in Figure 1.

As the flight progresses, the various communications frequencies should be written down so that you may go back to the old one if you have any difficulty in communicating with a new controller you have been handed off to.

Finally, the clearance, as copied, occupies only the left side of the pad, leaving plenty of room on the right side to maintain a very simplified flight log. At the top of the log, I always write down the time of departure, so that I will know when I am cleared for an approach at the arrival airport in the event of communication failures. Additionally, this information is necessary for fuel management.

My flight log consists of three columns which may be labeled either mentally or on the pad as "Estimated Time," "Fix," and "Actual Time." The first fix is entered, together with your estimate of arrival. Upon arrival, enter your actual time, and using your time elapsed and the distance between fixes, you may make an estimate of your time at the next fix, and so on. After the completed flight to Richmond as described above, my entire four by six pad might look as shown.

For my own purposes, I use the clearance shorthand symbols shown in Figure 2.

Remember, the important part of copying ATC clearances is understanding. Both you and the controller must understand and agree on your clearance. It seems to many instrument pilots and most students that controllers go out of their way to read clearances too fast, and usually the more complex the clearance, the faster it is read. The controller will be glad to read it to you slowly if you request him to do so, and your request should be made during the initial call up, so that the clearance does not have to be read twice.

Keep your wits about you, anticipate what the controller is going to say before he says it, don't waste time or get behind by writing down unnecessary information, and you will find yourself sounding more and more like a professional pilot—and not tightening up when the voice asks, "Ready to copy?" □

Figure 1

A	Airport
V	VOR
T	Transition
Δ	Intersection
┌	Climb and maintain
RH	Runway heading
√	Radar vector
X	Expect
EFC	Expect further clearance
FPR	Flight plan route
RT	Right turn
LT	Left turn
INT	Intercept
R	Radial
↘	Cross