

TAD-494.6

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ADVISORY CIRCULAR

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION**

SUBJECT: AIRSHOW WAIVERS

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1. PURPOSE. The purpose of this advisory circular is to provide prospective airshow sponsors with the information necessary to plan for and conduct safe, effective airshows. It is also intended to provide information pertaining to the procedures and requirements for issuance of airshow waivers.
 2. CANCELLATION. This circular cancels AC 91-45, "Airshow Waivers," dated June 10, 1976.
 3. BACKGROUND. Hundreds of airshow waivers are issued by the Federal Aviation Administration (FAA) each year. The experienced airshow sponsor is well acquainted with the requirements and procedures for obtaining the necessary waiver. However, in some instances, individuals or organizations attempting to SPONSOR an airshow for the first time are not aware that a waiver is required. Some new airshow sponsors have had this requirement brought to their attention the day before the show, by acrobatic pilots asking to review the terms and conditions of the waiver.
 4. FAA AIRSHOW WAIVER POLICY. In keeping with the Congressional charge to foster and promote civil aviation in the United States, the FAA has adopted a simple, straightforward policy that, "ANYTIME THE AGENCY DETERMINES AN AIRSHOW WILL NOT JEOPARDIZE PUBLIC SAFETY, AN AIRSHOW WAIVER WILL BE ISSUED." The primary concern in evaluating an application for an airshow waiver is safety. If spectator and public safety will not be jeopardized, a waiver will be issued. Regardless of the purposes for which an airshow is sponsored, unsafe shows or show sites will not be accepted.
 5. PLANNING. It is one thing for your club or organization to decide to sponsor an airshow, but properly planning for such an activity is an entirely different matter. There have been many instances where a group staged one airshow and, after its completion, immediately and unanimously voted never to engage in such an affair again.
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The one thing all of these groups had in common was that they did not plan properly. They had decided it would be a good idea to sponsor an airshow to gain funds for a worthy cause, but they did not consider the following:

- a. Type of Show. What sort of routines are you going to stage? Are you going to have small, slow-speed airplanes only, or will you attempt to get more modern aircraft, or even the Air Force Thunderbirds or Navy Blue Angels? Will you start the show with a hot air balloon meet? Do you plan on having a parachuting exhibition or model airplane racing? These decisions must be reached before you can determine which sections of the Federal Aviation Regulations (FAR) need to be waived. They also will have a bearing on your site selection.
- b. Status of Performers. Are you going to contract for professional airshow pilots or try to use local pilots? Before FAA will allow any pilot to perform low-level acrobatics in close proximity to spectators or other persons on the surface, their competency to safely perform individual routines must be verified. The professionals should have no difficulty in this respect, but if your local pilots do not hold FAA Statements of Acrobatic Competency, an FAA inspector will require them to demonstrate their routines prior to the show.
- c. Site Selection. Selection of a site for an airshow is of the utmost importance. If you select a site which will not permit the minimum separation distances discussed in Section 3 of Appendix 1 of this circular, your application for a waiver will not be approved. If the local airport environment will provide these separation distances, it should be given first consideration as a probable site since airshow pilots prefer performing with a runway within gliding distance of the demonstration area.
 - (1) Airport sites. Not every airport in the country is suitable for airshows, even for shows limited to slow-speed acrobatic aircraft. From a flow control standpoint, no site can match the airport. All the performers are available to the airshow controller, making it relatively simple to handle such contingencies as a missing performer, replacing an airplane, substituting an act, etc. Airports offer the advantage of making it possible for the performers to be seen by and personally mingle with the crowd. Nevertheless, the needs of the public and spectator safety must be served, so inspect the airport and the terrain surrounding it to ensure that it will be acceptable.

- (2) Fairground sites. Some highly experienced airshow sponsors have moved from airports to county fairgrounds for their shows. From the controller's and sponsor's viewpoints, they offer several advantages not normally found at an airport. The grounds are generally well fenced, making crowd control a simple task. They also frequently have grandstands, or bleachers, concession stand areas, well-marked first aid stations, police and sometimes a fairground fire department. In addition, the typical county fairground is far better able to cope with the amount of vehicular traffic generated by a properly advertised airshow than the typical airport, which may have only one or two access roads.
 - (3) Other airshow sites. A lot of would-be airshow sponsors have given up after finding that their local airport cannot be approved. Some have taken a look at the fairgrounds and given up after finding it as unsuitable as the airport. A few have had the foresight to call on their local FAA inspector prior to abandoning plans for an airshow. In many such cases, the inspector has suggested that they hold the airshow over a lake or other open area bordering the edge of town, or at a park where plenty of open area could be found. In any case, the area and immediate surrounding area over which the acrobatic demonstrations are to be conducted must be void of inhabited structures.
 - (4) Charts/photographs of sites. Even if the FAA inspector is familiar with the area, the task of evaluating site suitability can be greatly simplified by furnishing an up-to-date chart of the area. Even better would be aerial photographs showing the airport or center of the site, and ranging out for a radius of from one-half to two and one-half miles, depending upon the type of show being planned. On these charts or photographs, draw in the appropriate deadlines, spectator areas, control center, location of emergency facilities, etc. A copy should accompany the application form.
- d. Policing. Depending upon the type of spectator-restraining fences or barriers available, crowd control personnel may be necessary. If the entire spectator area is enclosed by a high, sturdy wire mesh fence, there will be little need for crowd control personnel. However, if the spectator restraint is nothing more substantial than a rope, crowd control personnel will be essential to prevent interruption of the show when a spectator

gets into an unauthorized area. If the local law enforcement agency will furnish personnel for crowd control, they are far more desirable and effective than untrained individuals. The FAA does not require uniformed POLICE to control spectators. You can use Boy Scouts, Civil Air Patrol Cadets, members of your own organization, or whomever you wish. However, keep in mind, that if crowd control is lost to the extent that the monitor feels safety is being jeopardized, the airshow controller will be so advised, and the show will be halted until control is regained. On a few occasions in the past, the sponsor was unable to regain control of the crowds, and the waiver had to be cancelled, thereby stopping the show completely. **DO NOT LOSE SIGHT OF YOUR RESPONSIBILITY FOR SPECTATOR PROTECTION. KEEP THEM UNDER CONTROL. FAA DOES NOT CONTROL AIRSHOW CROWDS. THIS IS ONE OF THE RESPONSIBILITIES YOU ASSUME AND ARE HELD ACCOUNTABLE FOR WHEN YOU ARE ISSUED AN AIRSHOW WAIVER.**

- e. Emergency Facilities. There have been some controversies over the minimum emergency facilities necessary for an airshow. Appendix 1 covers what is generally considered the necessary minimum. For your own protection, you might consider providing more than the bare minimum specified by the FAA. The FAA will not require you to provide emergency medical treatment facilities for persons who might be injured by barbed wire fences, the collapse of bleachers, the explosion of a hot coffee urn, or all other injuries that could occur, but are not the result of any of the aerial activities. Some professional performers will not accept a contract or an invitation unless the sponsor obtains liability insurance, provides adequate first aid and emergency medical transportation, etc. Other performers might demand that, for their own protection, you furnish a fire truck with trained personnel. Generally, the FAA is not going to require much more in terms of emergency facilities than are normally found at airports. Off-airport sites can be another matter, and before selecting such a site, give serious consideration to what you are going to provide.
- f. Normal Airport Traffic. If the show is conducted at an airport and the airport you select for an airshow site is served by a scheduled commercial air carrier, your show schedule should be worked around the scheduled times of arrival and departure. Most airshows last from two to three hours and make the problem of one or two scheduled operations relatively simple to plan for. Check with the airport manager before setting up your schedule. The manager should be able to inform you of any conflicts.


- g. Vehicular Traffic Problems. The problem of controlling vehicular traffic to and from the airshow site is often overlooked. If part of a road, street, river or open overwater area has to be blocked off during the show, it is essential that there be adequate traffic control officers to ensure that the street or other surface vehicular movement area remains closed. There have been cases of airshows being interrupted because a car, which was parked on the shoulder of a show site access road to enjoy the routines, was directly beneath the acrobatic area. Cooperation from the local police is essential. Contact them during the initial planning.
6. APPLICATION. The forms for applying for a waiver can be obtained from any General Aviation/Flight Standards District Office. Included are instructions for completing the form, but if there are any questions, such as the regulations which need to be waived, the area of operation, emergency facilities, etc., call the district office which will be responsible for approving or denying your waiver for guidance. By all means submit your application for an airshow waiver well in advance of the date of the show. This will allow sufficient time to correct any discrepancies which become evident during the approval process. To be safe, always submit your application at least two weeks in advance, but even a month's notice would not be considered excessive.
7. PRESHOW ACTIVITY. Things have a tendency to get hectic prior to the start of even a properly planned airshow, e.g., performers asking when and where the preshow briefing is to take place, fire department personnel trying to find out where their trucks and ambulances are to be stationed, concession stand operators looking for electrical outlets, etc. If you have not delegated responsible people to handle each and every aspect of the numerous functions associated with a successful airshow, last minute problems will crop up. One thing that is required of all airshow waivers is the preshow briefing of all performers. When there are teams of performers, it is permissible for the team leader to attend in lieu of every member. Nevertheless, it is imperative that the briefing cover every aspect of the show. If ground-to-air signals are to be used, they must be clearly understood by all participants. The signals used to discontinue a routine or recall performers should be emphasized. Locations of deadlines must also be known to all performers if a safe airshow is to be ensured. The FAA monitor is not responsible for conducting the preshow briefing, but he is responsible for seeing that it is conducted, and conducted properly. If the show is to be conducted at a nonairport location, special procedures for the preshow briefing of the performers must be established.

8. RUNNING THE SHOW. Experienced, successful airshow sponsors have learned the value of establishing a central control station manned by one individual. This is the airshow controller, who is assigned the responsibility for seeing that the show is run properly and that all terms and limitations of the waiver are complied with. The airshow controller must be fully familiar with the waiver, as well as being aware of the identity of the FAA airshow monitor and other individuals assigned the responsibilities of crowd control, emergency facilities, transient aircraft lookouts, etc. In the event the crowd gets out of control, it is the airshow controller's responsibility to discontinue the aerial demonstrations until control is regained. If a transient aircraft enters the local area, it is the airshow controller's responsibility to advise pilots performing aerial demonstrations to discontinue and avoid the transient aircraft. The FAA monitor may advise the controller of problems that might have an adverse effect on safety if corrective action is not taken, but the monitor is not responsible for running the airshow.

9. POSTSHOW PLANNING. Many airshow sponsors have learned the hard way that their jobs were not over with the conclusion of the last aerial routine. They had failed to make arrangements for postshow events that were sufficiently attractive to ensure an orderly disassembly of spectators from the show site. At airport show sites, they have found that half of the hundred or so pilots who had flown in to enjoy the show wanted to be the first to take off for home. With the disappearance of crowd control personnel, hundreds of spectators would begin dodging in and around the airplanes being taxied to the runway. With a thousand or so cars in the parking lot filled with drivers impatient to get moving, the result was often a demolition derby twice as thrilling as the airshow itself. The successful airshow sponsors spend as much effort planning for postshow attractions as for the actual show. They have learned that the more spectators you can keep at the show site for thirty or forty minutes after the show, the safer it is. There are many ways to keep the spectators around. It is a good idea to have the airshow pilots agree not to mingle with the crowd during the show because their presence can detract from ongoing routines. Have the pilots stay around after the show to sign autographs and have their pictures taken. Volunteer fire departments are always raffling off something or other. Suggest that they hold the raffle drawing thirty minutes after the show ends, which will give them an opportunity to sell more raffle tickets.

If there is a display line of antique aircraft, announce to the crowd that after the show, they can get a closer look provided they DO NOT TOUCH. If none of these postshow attractions are available to you, you might consider spending twenty or thirty dollars for some model airplane kits; in your advertising, tell the spectators to keep their admission ticket stubs for model airplane prize drawings after the show ends. It is surprising how hard a ten year old will fight to stay at the show site until the last prize has been given away. Anything you can do to keep part of the crowd around after the show will be well worth the cost and effort.

10. INDUSTRY ASSISTANCE. Many would-be airshow sponsors do not know that there are industry organizations they can call on for expert guidance in planning for and conducting safe, effective airshows. The International Council of Air Shows (ICAS), P.O. Box 26, South Milwaukee, Wisconsin 53172, is comprised of airshow sponsors from all over the world. The ICAS can provide very valuable assistance and guidance to the would-be airshow sponsor. There are also clubs and associations formed by airshow performers that can be of assistance. In addition, there are several commercial airshow groups that offer a wide variety of services, ranging from assisting to actually contracting to stage an entire airshow for any interested organizations. Virtually all of these clubs, associations, and commercial groups are affiliated with the Experimental Aircraft Association (EAA), P.O. Box 229, Hales Corners, Wisconsin 53130. For further information, the new airshow sponsor may wish to contact the EAA.


R. P. SKULLY
Director, Flight Standards Service

AIRSHOW WAIVERS

SECTION 1 - GENERAL INFORMATION

1. FEDERAL AVIATION REGULATIONS (FAR). In general, the rules which must be waived for an airshow are contained in Part 91, General Operating and Flight Rules, and Part 105, Parachute Jumping. Prospective airshow sponsors may wish to obtain copies of these or other FARs by addressing their request to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
2. REGULATIONS AFFECTED. There are several factors which the prospective airshow sponsor must consider which will directly affect the rules to be waived. These include show site, type aircraft maneuvers to be performed, etc. Some shows will require nothing more than waiving Section 91.71(d) to permit acrobatic flight at less than 1,500 feet above the surface. Others will necessitate waiving aircraft speed limitations, minimum safe altitudes, limitations while operating in the vicinity of airports, or even within a Terminal Control Area (TCA). Sections 91.70, 91.71, 91.79, 91.87, 91.89, and 91.90 may have to be waived, depending upon the location and complexity of the airshow.
3. REGULATIONS WHICH CANNOT BE WAIVED. To meet FAA's safety obligations, the following rules will not be waived for an airshow.
 - a. Section 91.71(a) and (b). Regardless of altitude, acrobatic flight will not be permitted over any congested area or open air assembly of persons. For the purpose of airshow waivers, "Acrobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight."
 - b. Section 91.79(a), (b), and (d). Waivers of the 500-foot rule may be issued only to allow flight closer than 500 feet to property on the surface, but never to allow operations closer than 500 feet to persons on the surface or over flight of the spectator area.

SECTION 2 - APPLICATION

4. GENERAL. FAA Form 7711-2, (Application for Certificate of Waiver or Authorization), OMB No. 04-R0073, is used for application for a Certificate of Waiver or Authorization. It is an all-purpose form which is self-explanatory but, for certain operations every item on the form may not be applicable. However, in other cases, additional information may need to be furnished.
5. COMPLETION OF FAA FORM 7711-2. For purposes of clarity and uniformity, each item of the form will be discussed separately.

- a. Name. This should always be the name of the person making application. If the applicant is representing an organization such as the Junior Chamber of Commerce, this should also be identified.
- b. Permanent Mailing Address. Self-explanatory.
- c. Authorize Nonobservance of FAR. The airshow sponsor may not know what FAR will need to be waived. In this instance, it may be desirable to request a planning meeting with the appropriate FAA office.
- d. Performance. It will not be necessary to describe every airshow demonstration in this section of the form. It will suffice merely to use the word "airshow," since another section of the form covers the schedule of events.
- e. Area of Operations. Seldom is it adequate to complete this item simply by use of the name of an airport or other geographic location. The show maneuvering area may require a cylindrical volume of airspace with a radius of 3 miles from the surface to 5,000 feet or it might require prescribing a cell of airspace such as, bounded by the N/S runway (or other geographical reference) and a point 5,000 feet east from the surface to 7,000 feet. At off-airport locations, the boundaries should be described using rivers, roads or other easily identifiable land marks. In most cases, it will be preferable for the airshow sponsor to furnish a chart, map, drawing, or up-to-date aerial photograph to show the area of operation. In this event, Item 5 should indicate that the area of operation is shown on an attached photo, map, etc.
- f. Time Period. Self-explanatory, except that the airshow sponsors may wish to schedule an alternate date in the event the show must be postponed due to inclement weather.
- g. Aircraft Make and Model.
 - (1) In the majority of cases, the sponsor will know in advance what aircraft will be used. If so, they should be listed. However, the sponsor of an open contest, which includes competitive acrobatic events, may not know in advance all aircraft which will be entered. If necessary, this item may be accepted with a statement, "list of aircraft to be furnished on (date)."
 - (2) Pilots. As in paragraph (1) above, the sponsor may not know the names of all pilots that may participate in a competitive event. As discussed above, just as supplemental lists of aircraft may be accepted, so may supplemental lists of pilots.

- h. Sponsors. If the airshow waiver application is made on behalf of an organization such as the Chamber of Commerce, this section should clearly identify the sponsoring organization. The person signing the application for such a sponsoring organization will be held directly responsible for compliance with the waiver and its conditions and limitations. This section does not preclude an individual from sponsoring an airshow.
- i. Permanent Mailing Address of Sponsor. Self-explanatory.
- j. Policing. The need for policing depends upon several factors. If an eight-foot heavy gauge wire fence is to be constructed entirely around the spectator area, there should be little need for special crowd control personnel. On the other hand, if a rope is used to designate the spectator area, it may be necessary to have special crowd control personnel. With respect to crowd control, it is the sponsor's responsibility to ensure that unauthorized personnel do not enter the flight area. If the sponsor does not provide adequate crowd control, the show will be interrupted in the event the flight area is entered by unauthorized personnel. One policing need that is often ignored is that of roads, highways or waterways. At many airshow sites, the acrobatic maneuvering areas are over roads highways or water areas where vehicular or boat traffic is present. This will present a problem unless arrangements are made with the controlling agencies to preclude traffic and that adequate traffic personnel are provided to ensure its exclusion during the performances.
- k. Emergency Facilities. Emergency facilities have also caused problems for show sponsors. As discussed previously, the application form serves as an all-purpose form and, therefore, contains items that may or may not be appropriate to emergency facilities. Normally, the following facilities will be adequate:
- (1) Physician. Except for shows that are an excessive distance (in surface vehicle time) from a hospital or medical clinic, an emergency rescue squad or first aid station can be substituted for a physician.
 - (2) Ambulance. If an emergency rescue squad is provided, this will be automatically taken care of. If there is a physician in attendance, any vehicle acceptable to him for emergency transportation is sufficient.

- (3) Fire Truck. If the airshow is properly planned and controlled, the only need for a fire truck is for protection of the performers. If the performers are willing to accept a pickup truck with fire extinguishers, this should be adequate.
 - (4) Crash Equipment. Most locations where airshows are conducted will not have crash equipment available. If they are available, fine; if not, they will not be required.
 - (5) Other. It is not required that this block be completed. However, the following is an example of how this section may be useful. A sponsor may wish to have a helicopter and pilot available for emergency transportation of spectators who might be injured or become ill during the show. In this instance, by describing this OTHER emergency facility, the applicant may be relieved from having to fill in the other blocks shown in the emergency facility section.
1. Air Traffic Control. Air traffic control for airshows can be handled in many ways. If the show is at an airport and the airport is served by a control tower, this problem will be negligible. Radio communications or prearranged ground-to-air signals can handle traffic control. Even if every airplane in the show is equipped with a two-way radio, it is advisable to have a ground-to-air recall signal provision. If the airport is served by a scheduled air carrier, arrangements must be made for the arrival and departure of such aircraft.
 - m. Schedule of Events. The schedule does not have to be in sufficient detail to serve the needs of an announcer, but it does have to be adequate for the FAA airshow monitor to keep track of the show. In most cases, identification of aircraft and performers in sequence of their appearance will be satisfactory. Any amendment to the schedule of events that adds an event should normally be submitted 48 hours in advance. Cancellation of events will not require advance notice.

SECTION 3 - STANDARD LIMITATIONS

6. GENERAL. Each airshow site must be evaluated to ensure that safety will not be derogated. The following are standard limitations which are applicable to every show.
 - a. "Dead Line" - Separation From Spectator Areas. Acrobatic aircraft that have a cruise speed (75% power-straight and level) in excess of 180 m.p.h. (156 knots) must be separated from designated spectator areas by a minimum of 1,500 feet. Aircraft with lower cruise speeds

(75% power-straight and level) may be permitted to perform acrobatics at a 500-foot minimum separation. Deadlines should be clearly visible from the air. Rivers, roads, and runways all make excellent deadlines.

- b. Takeoff and Landing Areas. Spectator areas must be at least 200 feet from active runways or other takeoff and landing areas, with the exception of runways used by airplanes with normal landing speeds in excess of 100 knots, which should be 500 feet or more from the spectators. In addition, the "flying farmer" or "drunken spectator" acts or other routines involving excessive maneuvering immediately after takeoff or just prior to landing, must be separated from spectators by at least 500 feet.
 - c. Engine Run Areas. Areas where engines, propellers, or rotors will be turning must be at least 100 feet from the spectator area unless they are enclosed by a barrier that will prevent entry by unauthorized personnel.
 - d. Helicopter Demonstration Separation Distances. Helicopter demonstrations do not require deviation from the FAR, but in the interest of safety, a routine consisting of no more than two helicopters should be kept at least 200 feet horizontally from the spectators. Routines such as a square dance involving several helicopters should be kept at least 500 feet from the spectators.
 - e. Other Considerations. During many airshows, there will be helicopters taking VIPs for rides or serving as emergency vehicles. The landing and takeoff areas used by these aircraft should be enclosed in a manner that will prevent unauthorized persons from entering the helipad area. The pads should be located so the pilot will not have to pass over spectators during takeoff or landing. The same considerations should be given helipads that a police helicopter might use during a show.
7. SPECIAL PROVISIONS. Every airshow waiver will contain a list of special provisions to ensure that spectator or public safety will not be jeopardized. These special provisions, just as the standard limitations, are based primarily on the type of show and the local environment. While in some instances they may be complex and lengthy, the sponsor and the person designated as the airshow controller must be familiar with each and every special provision. In addition, performers must be advised of the terms and conditions of any special provision that affects their routines.

SECTION 4 - AIRSHOW MONITOR

8. GENERAL. There will be an FAA-designated monitor for every airshow. Whenever possible, the monitor will be an FAA inspector, but it may be necessary to designate an individual other than an FAA employee to serve in this capacity.
9. MONITOR AUTHORITY. An airshow monitor is responsible for ensuring that the terms and conditions of the waiver are complied with. He is also responsible for ensuring that appropriate corrective action is taken in the event any situation develops which, if permitted to continue, would jeopardize spectator, public, or air traffic safety. In such cases, the monitor will advise the airshow controller of the situation, and it is the controller's responsibility to take corrective action. If such action is not taken, the monitor can advise the sponsor that the airshow waiver is cancelled.
10. MONITOR RESPONSIBILITY. The monitor should arrive at the show site in sufficient time to fulfill preshow inspection and surveillance responsibilities. These responsibilities include:
 - a. Spectator Areas. Check the means provided to isolate spectators from:
 - (1) Flight areas;
 - (2) Duty runways;
 - (3) Runup areas; and
 - (4) Other operational areas such as emergency or police helipads, parachute landing targets, etc.
 - b. Aircraft. Check to see that the aircraft are consistent with those listed on the waiver application. Substitution of aircraft must be approved by an FAA inspector.
 - c. Pilots. The monitor must verify that each airshow pilot is competent to safely perform his or her routine. If a sponsor is informed that it will not be possible for an FAA inspector to monitor the show, the sponsor should advise all participating pilots that if they do not hold Statements of Acrobatic Competency, they will not be permitted to perform. This requirement does not apply to pilots of an official military demonstration team.
 - d. Preshow Briefing. The monitor is not responsible for conducting the preshow briefing, but should ensure that all pertinent information is covered; i.e., location of deadlines, ground to air signals (if applicable), etc.

5/16/77

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Appendix 1

- e. Non-FAA Employee Monitors. Since the duties of the airshow monitor require continual inspection and surveillance during showtimes, those persons designated by the FAA as airshow monitors may not participate in any airshow routine or act.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Washington, D.C. 20591

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