

An aerial photograph of two skydivers in formation over a desert landscape. The skydiver on the left is wearing a black suit with 'AXIS' and 'MFS' visible on the back. The skydiver on the right is wearing a black suit with 'VERTICAL' visible on the back. They are both wearing helmets and are in a dynamic pose, with the right skydiver's arm extended towards the left. The background shows a vast desert with roads, fields, and some small buildings.

DECODING MFS VIDEO

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PHOTO BY DAVID CHERRY • GRAPHICS BY AXIS FLIGHT SCHOOL

Currently, USPA is the only national aeroclub that recognizes 2-way mixed formation skydiving—which contains both horizontal and vertical formations—as an official competitive event. Hopefully, as the discipline proves successful in the U.S., other countries will adopt it, too. MFS has a lot going for it: It creates well-rounded flyers who learn formation flying skills and all axes of body flight. Teams are easy to put together since they consist of only three people, and the formations can launch from virtually any aircraft. MFS also offers a great opportunity to prepare for competing in 4-way vertical formation skydiving.

Although MFS teams generally put most of their training focus on the performers, the camera flyers' performances are critical to success. The mixture of horizontal and

vertical formations makes flying camera for an MFS team very challenging because there is a lot of active flying necessary to get the best camera angle. Similar to freestyle camera flyers, MFS camera flyers have to adjust fall rate more frequently than they do in FS or VFS and avoid colliding with the team while getting the shot. However, unlike in freestyle, MFS camera flyers have leeway when choosing their vantage points because formation skydiving rules do not specify a camera flyer's position relative to the team; the rules simply require that the performers' hands (grips) are visible in a single frame. If a body part obscures (eclipses) the view of a grip, if the grip goes out of frame, if sun glare obscures the grip or if the grip is not visible on the video for any other reason, the judges will not award the team that point.

In FS and VFS, the performers are generally most concerned about maintaining pace and communication between one another and not with the camera flyer. Although it is the entire team's responsibility to present the grips on video so the judges can score them, it is the camera flyer who must work in order to sell the grips to the judges. In MFS, the team has to be a lot more cooperative to be successful. In many rounds, the combination of vertical and horizontal formations requires the camera flyer to film some formations from the side, others from above and even a few from below, and it may not be possible for the camera flyer to get to these places in time. Therefore, even the fastest team will come in last if the performers do not cooperate by making the grips visible to the camera flyer.

COMPARING DISCIPLINES

FS: The camera flyer generally exits from the camera step, which places the camera flyer above (trailing) the team. (See “Climb Out, Freak Out, Chill Out—a Guide to Filming Competitive 4-Way” by Niklas Daniel, February 2010 *Parachutist*.) Throughout the skydive, this position gives the camera flyer the best camera angle to catch all the grips. However, if the angle is too steep, the camera flyer can fall on the team, hurting the team’s score and possibly causing injury. In 4-way FS, the camera flyer does not have to have the same flying abilities as the team members to be effective. The learning curve is steep at first but then quickly flattens, which (to be honest) can make FS camera flying a bit boring after a while.

VFS: Camera flyers generally exit from the front-float position, putting them below (leading) the team. Most VFS camera flyers exit in a head-down orientation while looking past their legs back up at the team. (See “VFS Camera Tricks and Traps” by Niklas Daniel and Sara Curtis, June 2011 *Parachutist*.) Camera flyers who are too steep may burble their teams and hinder performance. Flying camera for VFS generally requires greater body-flight skills and awareness than FS, and the multi-level formations and head-up points can make capturing grips much more challenging. The VFS camera flyer has to be present for the team’s prep and move around the sky much more than in FS.

MFS: The camera flyer must strategize which exit position to take—camera step, front float or even jumping after the team—based on whether the team is launching a horizontally or vertically oriented formation. For horizontal formations, the camera flyer can launch from the camera step—either on the belly or in a sit—to be above the formation. For vertical formations, the camera flyer can launch head-down from front float to get below the formation and then transfer to a head-up orientation on the hill.

Of all the disciplines, MFS is the most challenging for camera flyers. There can be drastic fall-rate changes as the team transitions between horizontal and vertical points, and since there are only two performers, the pace is fast. In addition, the camera flyer must know the formations as intimately as the performers to anticipate the location and timing of the build. The camera flyer must analyze the flying challenges of a draw and make the rest of the team aware of them to determine what the team can do to clearly present grips in the video. In addition, the camera flyer must have just as good—if not

better—flying skills than the rest of the team in order to chase the grips down. Poorly shot video means no points for the team.

MFS VIDEO STRATEGY

AXIS Flight School created an MFS draw generator (drawgenerator.axis.tools) to help jumpers better understand the formations and their ideal position in them. This includes a visual tool—a dart—to help camera flyers find the best vantage point to capture each random and block move.

The Dart (Camera Position)

A dart will naturally orient itself with its tip toward the relative wind. The three views of a dart indicate which position is optimal for filming a particular formation if the draw for the round permits it. If the draw for the round forces the camera flyer to film a formation from a position different than the ideal one, the subjects may need to make adjustments in order to properly present the required grips to the camera.

The beauty of this system is that it reveals specific problem areas (red flags) for grip presentation to the camera that the whole team needs to be aware of. As the camera flyer may not always be physically capable of reaching one vantage point from another in a reasonable time span, the performers may have to alter their grip presentations to make the build of the formation more obvious on video.

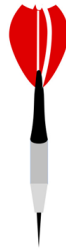
Best Viewing Angles

Looking at the entire dive pool, the best viewing angle for the majority of formations is from above, with 18 of the 30 formations best captured from this vantage point.

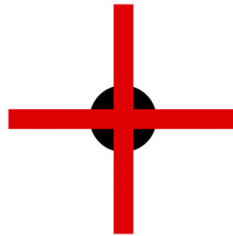
View from above: 11 randoms, 7 blocks

Side view: 4 randoms, 1 block

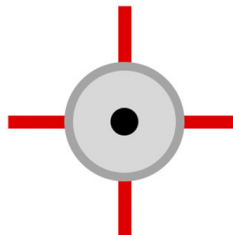
View from below: 3 randoms, 4 blocks



You can see all parts of the dart. This symbol indicates an edge-on view. The camera view is on level with the subjects.



You can see only the flight (the “feathers”) and the shaft. This symbol indicates a view from above. The camera flyer is trailing (above) the subjects, looking into the relative wind.



You can see only the point, barrel and parts of the flight. This symbol indicates a view from below. The camera flyer is leading (below) the subjects.

I DECODING MFS VIDEO

USING THE CAMERA CODE

The team's camera flyer should memorize the required sequence of moves for each round (just as the performers memorize their dive flow) and not just lurk or be along for the ride. This allows the camera flyer to anticipate the formations, location and timing of grips, and level changes. Novice camera flyers can simplify and learn only the order of locations relative to the team (so instead of remembering 30 formations' worth of moves, memorize the order of the three positions—above, on level and below).

A randomly drawn sequence may look something like the draw shown below:

M and 5 are vertically oriented formations, while 8 is horizontal. It's best to view 5 and 8 from above, while the M is best viewed from below because the leg grip will not be visible when filmed from above. This is a red flag, a dramatic change in location of the ideal camera angle. In this case, the performers will have to present M (the stairstep) well, as the camera flyer will not be able to change location quickly enough. The solution is to

pick up the grip on the side of the leg and have the camera flyer capture it from the side.

Using a system that incorporates the camera flyer in the plan—avoiding ambiguity while not dictating specific engineering—will help any MFS team succeed. For all formation-skydiving disciplines, the camera flyer plays a key part on the team. But in MFS, the camera flyer must be incorporated as a true equal member and integrated into the dive plan. Simply put, you cannot “dog it” in MFS.



ABOUT THE AUTHOR

Niklas Daniel, D-28906, is co-owner of AXIS Flight School in Eloy, Arizona, which makes its MFS draw generator available at drawgenerator.axis.tools. He is a full-time coach of individuals and teams and competes at the world level as an inside flyer on 4-way VFS team Arizona X-Force. Daniel has filmed high-profile teams such as FSTeam Arizona Airspeed and VFS team Arizona Arsenal, and he coached Team EagleBear, which placed second at the USPA Nationals in open MFS.

