

AGENDA ITEM 9.2

Known Sequence Sub-Committee Report Known Proposals 2016

Brian K. Howard, Chairman

Introduction

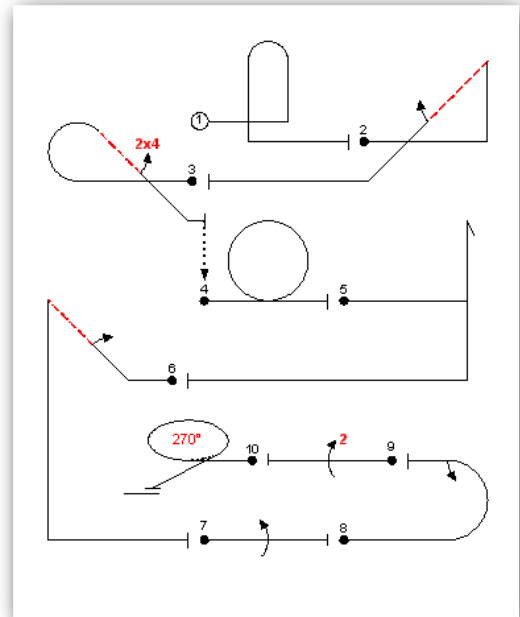
The IAC Known Sequence Sub-Committee (KSS) is charged with developing the Known sequences for the power and glider Sportsman and Intermediate competition categories. The KSS recognizes that both of these categories can be either stepping stones to the next higher category, or categories where, for a variety of reasons, a competitor plans to stay with no intention of moving up to one of the higher categories.

The goal, and challenge, of good Sportsman and Intermediate Known sequence design is then to provide something for both of these groups. The sequence should provide enough challenge that's it's fun to fly for anyone in the category, not so challenging that it dissuades pilots from competing, and reinforces certain skills endemic to the category in question which are necessary to both continue growing in the category and which lay the groundwork should the pilot decide to move up.

For the Known sequence design, it is also recognized that the pilots who do not intend to move beyond their category have the Free Program to craft sequences which push themselves and their airplane to whatever level of difficulty they choose. The Known Program must then primarily be designed for those pilots new or relatively new to the category to ensure the skill sets are there when the pilot opts to design their own Free or move up.

Beyond those basic philosophies, Knowns must be designed to comply with the IAC *Policy and Procedures* manual and to stay within the confines of real-world constraints such as altitude and wind limits as set forth in the IAC *Official Contest Rules* book.

The Sportsman and Intermediate Knowns presented in the following pages were finalized following the evaluation of multiple proposals and variations of those proposals from the members of the KSS. Each sequence fully complies with all the goals and constraints listed in the paragraphs above.





SPORTSMAN POWER

This sequence:

Contains all of the maneuvers which all basic aerobatic course stress: 45 lines up and down; half and full slow rolls; half-Cuban 8; full loop; Immelmann; hammerhead; pull humpty; and turns. These maneuvers and figures will reinforce that basic training and provide an opportunity to refine the Sportsman skill set.

Will fit the X axis of the box in very high winds. With proper drift management techniques, this sequence can be flown in a 20 kt. Y axis wind within 1,200 feet of the Y axis.

Works for non-inverted aircraft.

Has no G-LOC issues.

Will require the Sportsman competitors to learn proper wind correction in order to close the half loop segment on top of the Humpty and to wind correct for the downwind looping segment in the 5/8ths loop portion of #3 and the into-the-wind half loop up in #8.

Requires the pilot to master the slow roll and its hesitation variants (no more than 2 stops) as there are six Family 9 elements in the program.

Requires the pilots to develop the differing techniques for 'plane-to-plane' as well as 'plane-to-radius' transitions both upwind and downwind.

Requires a level of positional awareness to stay in the box during the final 270 turn and introduces the Sportsman pilot to Y axis orientation.



B	Contest:	Category: Sportsman	
	Date: 2016	Program: Known	Pilot's No. <input type="text"/>

wind direction

pilot
IAC

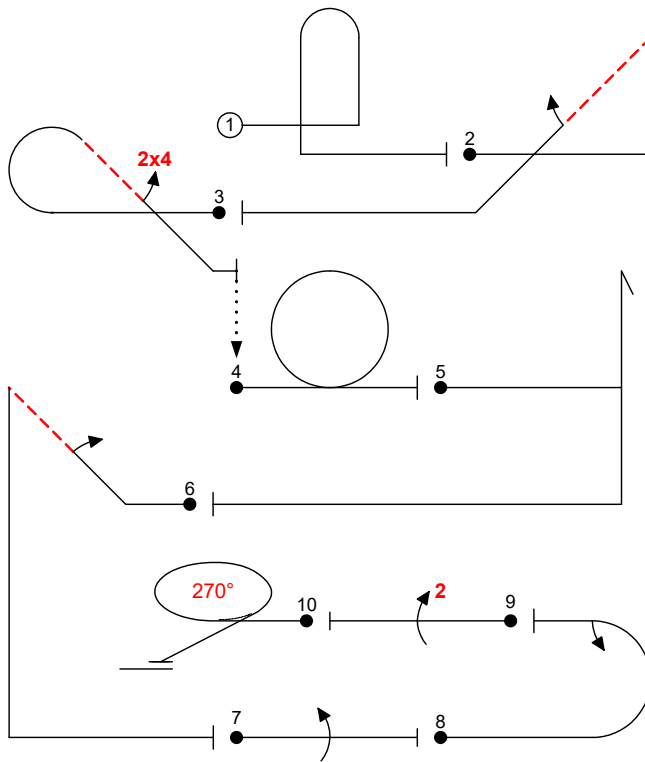


Fig 1	8.4.1.1	13	13
Fig 2	1.2.7.1 9.1.4.2	13 4	17
Fig 3	8.5.6.1 9.4.4.2	10 5	15
Fig 4	7.4.1.1	10	10
Fig 5	5.2.1.1	17	17
Fig 6	1.2.3.1 9.1.2.2	12 6	18
Fig 7	1.1.1.1 9.1.3.4	2 8	10
Fig 8	7.2.2.1 9.1.3.2	6 4	10
Fig 9	1.1.1.1 9.2.3.4	2 9	11
Fig 10	2.3.1.1	5	5

Total K = 126

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(signature/date)

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INTERMEDIATE POWER

The rationale/design objectives for the sequence include the following considerations:

It will fit the box in high winds - handles X axis winds of up to ~ 30 kts as well as a robust Y axis wind.

Altitude will not be a problem.

There are no G-LOC issues.

The sequence is not only “flyable” by the baseline Super Decathlon, as required by the IAC *P&P* manual, it is “winnable” by a practiced pilot flying the Super D.

Since as a matter of policy, Sportsman does not allow snap rolls, one of the purposes of Intermediate is to begin to develop the proper techniques for snap rolls. Most Intermediate pilots manage to learn to do the one snap that usually accompanies the Known and usually put the identical snap in their Free. By expanding that envelope a bit and having them become comfortable with the 1/2 snap variant, their muscle memory will be conditioned to the "same rudder in/out" that will hold them in good stead when/if they move to Advanced or design a Free Program with alternatives to the simple half roll. Currently, snap development is the greatest gap between Intermediate and Advanced. It is also noted that the 1/2 snap was used without issue in the 2013 Intermediate Known and that both snap rolls in the 2016 Known allow the pilot complete control over snap initiation speed.

The looping figures in the sequence require the pilot to demonstrate the ability to close/wind correct looping lines entered both up and down wind. Other essential skills for the Intermediate pilot are point rolls, the ability to roll in both directions, and vertical rolls. The sequence not only provides the opportunity to hone the skills in those types of rolls, the roll placement is designed to ensure the requisite energy is available to enable any airplane from the baseline Super D and up to cleanly execute the maneuver.

There is no spin. This is to allow the lower-powered aircraft to maintain more energy/altitude throughout the sequence. All Intermediate pilots are required to have a spin in their Free Program and be liable for spins in the Unknown Program.



B	Contest:	Category: Intermediate	
	Date: 2016	Program: Known	Pilot's No. <input type="text"/>

wind direction

pilot

NAC

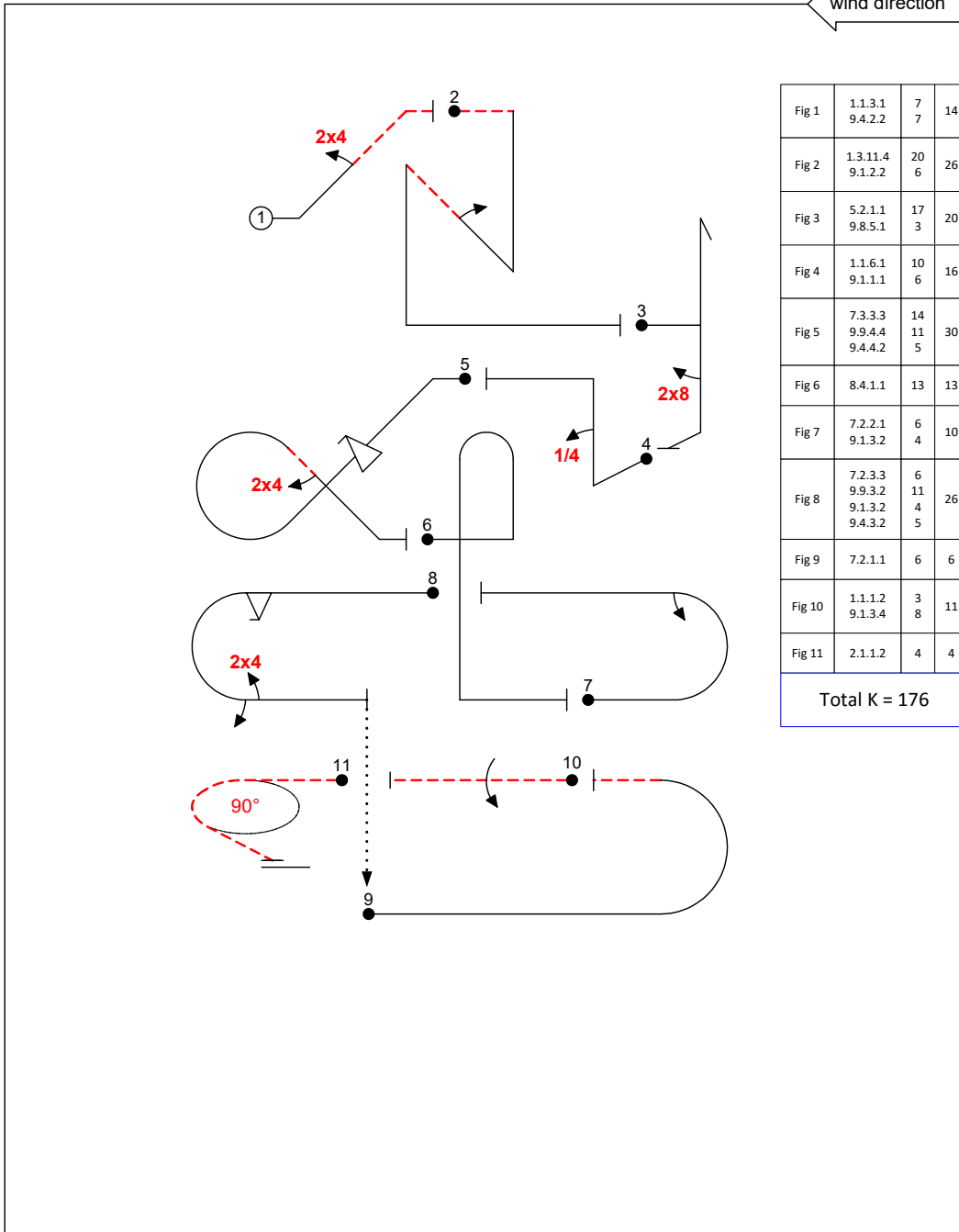


Fig 1	1.1.3.1 9.4.2.2	7 7	14
Fig 2	1.3.11.4 9.1.2.2	20 6	26
Fig 3	5.2.1.1 9.8.5.1	17 3	20
Fig 4	1.1.6.1 9.1.1.1	10 6	16
Fig 5	7.3.3.3 9.9.4.4 9.4.4.2	14 11 5	30
Fig 6	8.4.1.1	13	13
Fig 7	7.2.2.1 9.1.3.2	6 4	10
Fig 8	7.2.3.3 9.9.3.2 9.1.3.2 9.4.3.2	6 11 4 5	26
Fig 9	7.2.1.1	6	6
Fig 10	1.1.1.2 9.1.3.4	3 8	11
Fig 11	2.1.1.2	4	4
Total K = 176			

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SPORTSMAN AND INTERMEDIATE GLIDER

The glider sequences have been vetted by both the glider experts on the KSS and several top-level glider competitors and instructors outside the KSS to ensure flyability by the baseline gliders currently competing. Like the power sequences, the glider Knowns require skills in wind correcting looping lines, slow rolls, 45-lines, turns, and hammerheads. The Intermediate glider Known adds additional work on the Y axis. Neither sequence has altitude or glider flight envelope issues.



B	Contest:	Category: Sportsman Glider	
	Date: 2016	Program: Known	Pilot's No. <input type="text"/>

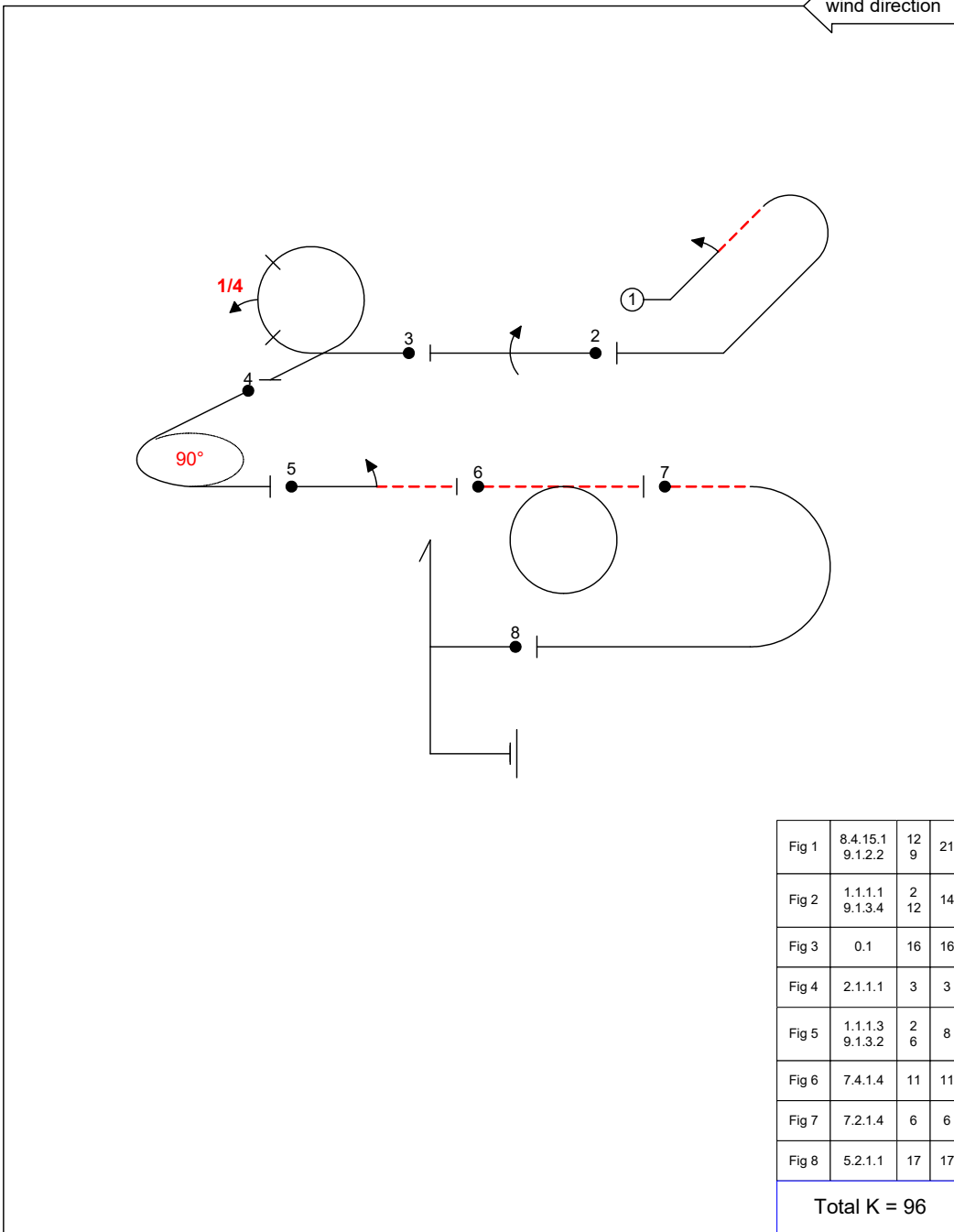
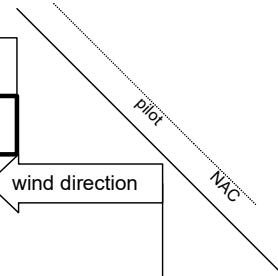


Fig 1	8.4.15.1 9.1.2.2	12 9	21
Fig 2	1.1.1.1 9.1.3.4	2 12	14
Fig 3	0.1	16	16
Fig 4	2.1.1.1	3	3
Fig 5	1.1.1.3 9.1.3.2	2 6	8
Fig 6	7.4.1.4	11	11
Fig 7	7.2.1.4	6	6
Fig 8	5.2.1.1	17	17
Total K = 96			

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GLIDER FREE PROGRAM CHECK BY: (signature/date) _____

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B	Contest:	Category: Intermediate Glider	
	Date: 2016	Program: Known	Pilot's No. <input type="text"/>

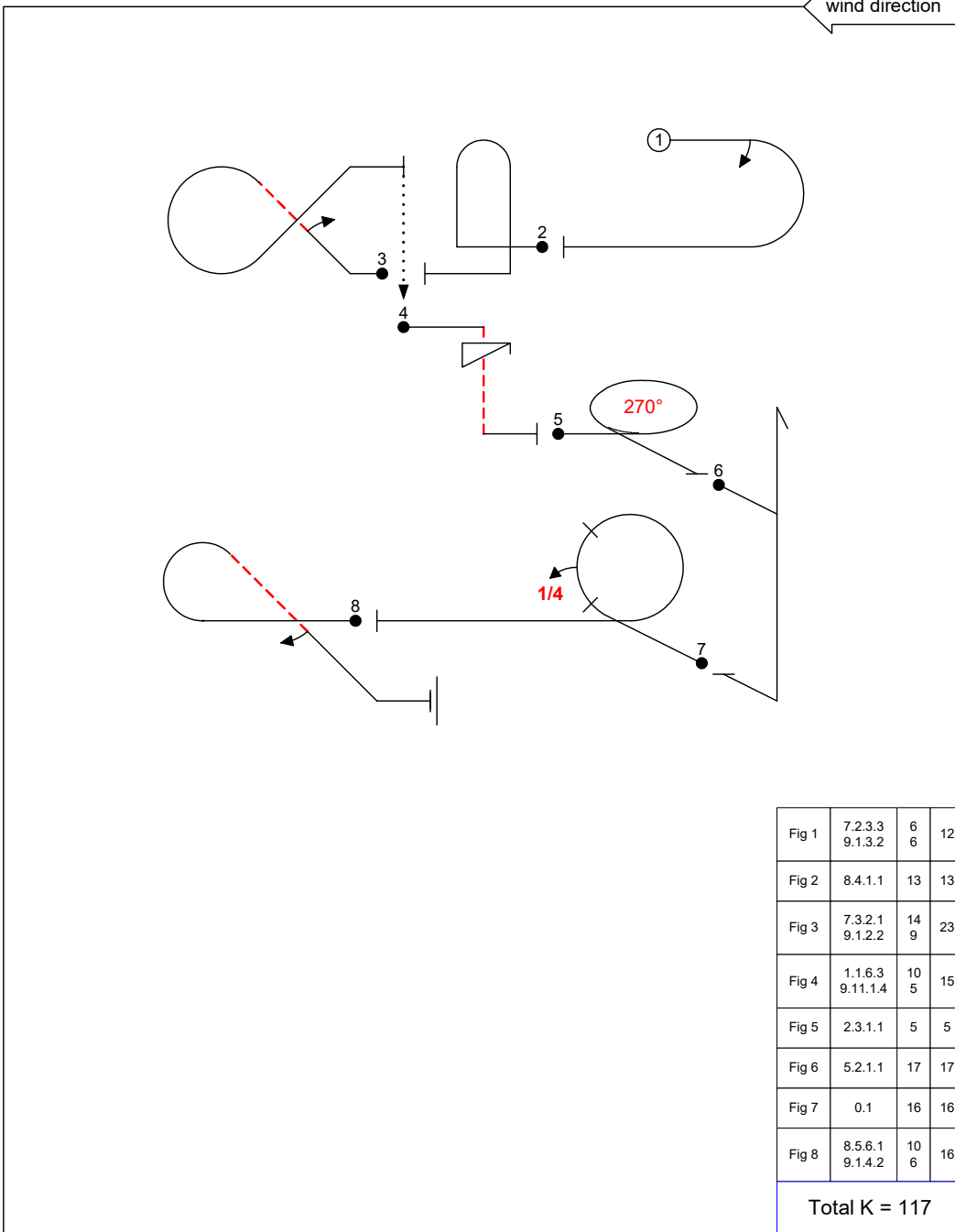
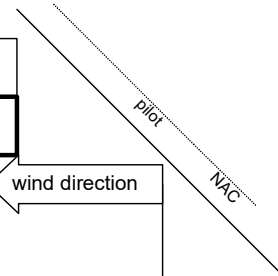


Fig 1	7.2.3.3 9.1.3.2	6 6	12
Fig 2	8.4.1.1	13	13
Fig 3	7.3.2.1 9.1.2.2	14 9	23
Fig 4	1.1.6.3 9.11.1.4	10 5	15
Fig 5	2.3.1.1	5	5
Fig 6	5.2.1.1	17	17
Fig 7	0.1	16	16
Fig 8	8.5.6.1 9.1.4.2	10 6	16
Total K = 117			

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