Speed of Sound corrections for 100m and 200m. Scorekeeper ADDS time.
Starter should choose a consistent location for all heats of each event.

For 100m, the starter should be near the end of the 4x100 takeover zone between the 100m start line and finish.
For 200m, the starter should be on the infield, with a good view of all the athletes, about 5m inside the rail.

A100	**Estimate 0.23 sec.** Use table offet distance. Positive = move towards start line from end of 4x100 takeover zone.
H200	**Estimate 0.32 sec** for tracks with 100m straight, including most high school tracks. These have 63.06m curve diameter.
C200	**Estimate 0.31 sec** for IAAF tracks – usual at NCAA division 1 – with 84.39m straight and 73m curve diameter.

There are many greater sources of error than the exact starter location. The simplest, fairest approach is consistency.
For 200m, the careful calculation of the difference of arrival time of sound to the athletes is on reverse side.

Temp. F	Temp. C	Speed of Sound (m/s)	offset distance	A100 0.23 sec
50	10.00	337.36	-1.20	
52	11.11	338.03	-1.13	
54	12.22	338.71	-1.05	
56	13.33	339.38	-0.97	
58	14.44	340.05	-0.89	
60	15.56	340.73	-0.82	
62	16.67	341.40	-0.74	
64	17.78	342.07	-0.66	closer to finish line
66	18.89	342.75	-0.58	
68	20.00	343.42	-0.51	
70	21.11	344.09	-0.43	
72	22.22	344.77	-0.35	
74	23.33	345.44	-0.27	
76	24.44	346.11	-0.20	
78	25.56	346.79	-0.12	
80	26.67	347.46	-0.04	at 4x100 takeover zone
82	27.78	348.13	0.04	at 4x100 takeover zone
84	28.89	348.81	0.11	
86	30.00	349.48	0.19	
88	31.11	350.15	0.27	
90	32.22	350.83	0.35	
92	33.33	351.50	0.42	
94	34.44	352.17	0.50	closer to start line
96	35.56	352.85	0.58	
98	36.67	353.52	0.65	
100	37.78	354.19	0.73	

Speed of Sound corrections for 100m and 200m. Scorekeeper ADDS time.

Starter should choose a consistent location for all heats of each event.

Let A be the distance from the 100m start line to the beginning of the straight (dashed lane lines merge with solid).
A will be 0m on a 100m straight track, 10m when the exchange zone is exactly on the straight, and 15.61m on IAAF tracks.
Let B be the distance from the starter to the nearest athlete. This will usually be a stagger start line in lane 4 or 5.
Let C be the distance from the starter to the rail at the 200m start line for lane 1.
Extend the lane 1 start line into the infield. Let P be the distance of a perpendicular from the starter to this extended line.

Let S be the speed of sound according to the previous table. S depends on the temperature.

The curve diameter D is $2(100 + A)/\pi - 0.60m$
The distance of of the starter to the timing crew is $X = ((D - (C^2 - P^2)^{1/2})^2 + (100-A+P)^2)^{1/2}$

The time difference is $T = (X-B) / S$.

A	B	C	P	S (m/sec)	D	X (m)	T (sec)
0	10	15	10	346.00	63.06	121.62	0.323
0	10	15	10	350.00	63.06	121.62	0.319
0	10	15	10	340.00	63.06	121.62	0.328
0	15	15	12	346.00	63.06	124.37	0.316
15.61	8	15	12	346.00	73.00	115.70	0.311