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Radar Speed Enforcement in St. Louis and St. Louis County: Accuracy of Testing and Current Practices

RADAR SPEED ENFORCEMENT IN ST. LOUIS AND ST. LOUIS COUNTY: ACCURACY OF TESTING AND CURRENT PRACTICES

Admissibility of radar evidence in a prosecution for excessive speed requires proof that the principle of radar measurement is scientifically reliable and that the unit used to record the accused's speed was accurate and properly functioning at the time of his arrest.[1] In Missouri, judicial notice is taken that a radar unit, when properly functioning, "accurately measures speed in terms of miles per hour."[2] It is the purpose of this note to set out the judicial requirements for radar accuracy testing when radar evidence is used in a speeding prosecution, and to examine data from a field survey[3] which contrasts current testing practices of law enforcement agencies in St. Louis and St. Louis County with those requirements.

1. In addition, several other issues are typically raised in a trial when a motorist objects to the admission of radar evidence. While these are not the subject of this note, they may be briefly noted. The first is identification of the accused as the driver whose speed was recorded on the radar dial. See People v. Sachs, 1 Misc. 2d 148, 147 N.Y.S.2d 801 (Magis. Ct. 1955) (operator testified that he could distinguish "blips" of several cars); People v. Sarver, 205 Misc. 523, 129 N.Y.S.2d 9 (Ct. Spec. Sess. 1954) (operator identified defendant to "pick up" officer as driver in "green truck"); Comment, 24 Mo. L. REV. 196, 209-10 (1959); Carosell & Coombs, *Radar Evidence in the Courts,* 32 DICTA 323, 341-42 (1955). If two officers are involved, one recording and one arresting, the problem of the arresting officer using hearsay evidence arises. See Comment, 24 Mo. L. REV. 196, 210-18 (1959); Carosell & Coombs, *supra* at 355; Annot., 49 A.L.R.2d 469, 473-75 (1956). One of the principal Missouri cases, State v. Graham, 322 S.W.2d 188 (Mo. Ct. App. 1959) held that hearsay was not involved where the officer in the arrest car and the officer in the radar car communicated over their police radios to accomplish a "run-through" accuracy test.

Another kind of problem is the competency of the operator. While it is incumbent on the prosecution to establish the competency of the operator, it is generally not difficult, as Missouri has recognized that as little as one and one half hours of instruction in the mechanics of operating the set may establish satisfactory qualifications. State v. Graham, *supra* at 196.

2. State v. Graham, 322 S.W.2d 188 (Mo. Ct. App. 1959). This was reaffirmed by the recent case in the St. Louis Court of Appeals, City of St. Louis v. Boecker, 370 S.W.2d 731 (Mo. Ct. App. 1963). The only qualification the court in *Graham* placed on acceptance of inherent accuracy of radar was that the evidence should not be accepted if the speed was only excessive to the extent of the unit's engineering tolerances which could be established by expert testimony; as this was not in issue, however, the court's discussion is dictum.

3. All police departments in the St. Louis - St. Louis County area were contacted. A representative of each department which indicated that it used radar was interviewed. In addition, a judge from the St. Louis City Court, one from the St. Louis County Court, and six from the police courts of representative communities in the St. Louis area were contacted. Technical information was obtained from electronic engineers and from radar manufacturers.

I. Admissibility

Two recent Missouri cases have established the accuracy testing requirements for admissibility of radar evidence in speeding prosecutions.[4] In general, the proponent must establish prima facie that the radar unit was checked by some accurate testing device and that the check was made sufficiently near the time of its use to record the speed of the accused to preclude any intervening force distorting the unit's accuracy.[5] It is the accuracy of the testing device that has been the subject of controversy in the Missouri cases.

A. *Run-Through or Tuning Fork: A Duality*

The principal methods for establishing the accuracy of radar unts used in traffic observation are the "run-through" and the "tuning fork" tests. The vehicular run-through test is simply testing the radar with a control vehicle which is driven through the radar's zone of influence at a predetermined speed. The reading of the vehicle's speedometer is then compared with that of the radar's speedmeter. The tuning fork test is made by tapping a tuning fork which has been cut to vibrate at a certain audial frequency, and holding it in the beam of the radar. The sound waves generated by the fork activate the radar's speedmeter to register the speed which the frequency of the fork simulates.[6]

In *State v. Graham,*[7] the appellant had been convicted of excessive speed on the basis of radar evidence introduced at the trial over his objections. On appeal he urged that the evidence was inadmissible because the state had not proved that the unit used to record his speed was properly tested and properly functioning.[8] However, the conviction was affirmed as it was shown that the highway patrol had, shortly before defendant's arrest, checked the unit by a run-through with another patrol car and confirmed the check with a tuning fork test. The run-through car had been driven first at a speed of 50 miles per hour, then at 70, with the radar operator both times witnessing

4. City of St. Louis v. Boecker, *supra* note 2; State v. Graham, *supra* note 2.

5. *Ibid.*

6. The standard article cited by courts considering the problem of radar is a techinal explanation of the radar principle written by an electrical engineer. Kopper, *The Scientific Reliability of Radar Speedmeter,* 33 N.C.L. Rev. 343 (1955). Interview with Mr. David Winter, in St. Louis, Feb. 13, 1964 [hereinafter cited as Winter Interview]. Mr. Winter was the leading technical expert in the City of St. Louis v. Boecker case *supra* note 2. He holds patents in electronic circuits, and is a former professor of electronics at Washington University, St. Louis, Mo.

7. 322 S.W.2d 188 (Mo. Ct. App. 1959).

8. Because the arresting officer testified that he estimated the accused's speed to be over the legal limit and as the defendant had admitted to the officer that he was speeding, there was no question of submissibility of the state's case. *Id.* at 195.

the recordings of his speedmeter which corresponded to the speed registered on the patrol car's speedometer.[9]

In considering the *sufficiency* of the run-through as a test of the radar's accuracy, the court noted that as an automobile speedometer is only *"approximate"* in its accuracy, some control is necessary to insure its reliability.[10] It was recognized that the necessary "point of faith"[11] could be a master calibrated speedometer against which patrol cars would be periodically checked.[12] In *Graham* it was not established that the run-through car's speedometer had been checked, but the court held the check adequate notwithstanding, because the motorist's speed was excessive by the wide margin of 15 miles per hour.

In holding sufficient the run-through test, the court bolstered its decision by stating that "in addition, there was the *confirmation* of the tuning fork test."[13] By relegating the effect of the tuning fork test to confirmatory, and by its caveat that a different result might obtain if the "difference between the *allowed and actual* speed" made a "close case,"[14] the court left unsettled the issue of whether the readings from a radar would be reliable if the unit were tested only by a run-through or only by a tuning fork.[15] This became

9. Obviously, the officer in the radar car could not observe the radar dial and the auto speedometer simultaneously. Therefore, he had no personal knowledge that the respective speeds corresponded. Probably the officer driving the run-through car indicated his rate of speed over the police radio. Nevertheless, this was held not to be hearsay. *Id.* at 197-98.

10. *Id.* at 197.

11. *Ibid.*

12. For a discussion of the use of the master calibrated speedometer as a constant, see People v. Sachs, 1. Misc. 2d 148, 153-54, 147 N.Y.S.2d 801, 808-09 (Magis. Ct. 1955).

13. State v. Graham, 322 S.W.2d 188, 197 (Mo. Ct. App. 1959). (Emphasis added.)

14. *Id.* at 197. (Emphasis added.) While it is true that from the testimony of the officer that in his judgment the accused was speeding, some independent evidence of guilt existed, the court's source of the accused's *"actual"* speed is not divulged. The issue was whether, *measured by the radar unit,* the motorist was driving his truck at an excessive speed. In order to prove that he was, the prosecution had to prove that the radar was accurately measuring vehicular speed. The court held this to be established because of the excess over the allowed speed that the radar attributed to the accused. In plucking reliability from the wide margin between the "allowed and actual" speeds, the court lifted itself up by its own bootstraps.

15. It would seem that on the issue of accuracy testing the court established two logical *guides* if not rules. First, a run-through made by a patrol car whose speedometer was checked against a calibrated master speedometer would probably be (when a description of the testing was introduced into evidence as was not done in *Graham*) sufficient to make the radar evidence admissible. Unless the check on the speedometer had been made so long before the arrest as to be irrelevant, the time lapse would go to the probative force of the evidence. Secondly, if no proof existed as to the accuracy of the run-through car's speedometer the evidence would not necessarily be inadmissible if the test had been confirmed with a tuning fork and the accused's speed, as shown by the radar, was greatly above the legal limit, thereby eliminating the effect of any slight error in the radar's ac-

the precise issue faced by the St. Louis Court of Appeals in the case of *City of St. Louis v. Boecker.*[16]

In *Boecker* no run-through check had been made of the radar's accuracy. The operator had, before his period of traffic observation, checked the unit by use of a single "30 mile per hour" tuning fork. The convicted motorist's appeal was predicated on the insufficiency of that test. His argument, based on *Graham,* supposed the necessity of a run-through. The city interpreted *Graham* as permitting singular use of a tuning fork. The court overturned Boecker's conviction. It held that both parties' interpretations of *Graham* were erroneous, because that decision had not set up one test as preferable but had based its holding on the "duality" of the two tests.[17]

The court in *Boecker* emphasized that the value of any test used to check a radar's functioning must be based on the accuracy of the testing technique —whether it be by tuning fork or run-through. It further stated that it did "not question the use of a tuning fork . . . as a matter of principle."[18] Therefore, both run-through and tuning fork are recognized by *Boecker* as sufficient independent tests when it is further shown that the particular test is valid and accurate.

"Duality" means no more than a corroborated test;[19] it does not require both tuning fork and run-through, although in *Graham* one test served to corroborate the other. If a run-through is the only test of a radar's accuracy, the run-through car's speedometer can be confirmed by a check against a master calibrated speedometer.[20] However, no standards exist in the Missouri cases to test the accuracy of tuning forks. The *Boecker* court did realize that inaccuracy of the tuning fork would materially affect the speed registered on the radar dial, but because no evidence had been introduced to show that the fork used by the arresting officer was accurate, the court did not discuss the methods to establish the accuracy of the *particular* fork used to test the radar.[21] The second part of this note contains proposed procedures to establish the accuracy of tuning forks.

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curacy. Whether either guide could ever be by itself a sufficient test the court did not decide.

16. 370 S.W.2d 731 (Mo. Ct. App. 1963).

17. *Id.* at 733.

18. *Id.* at 736.

19. *Cf.* City of Webster Groves v. Quick, 323 S.W.2d 386 (Mo. Ct. App. 1959). In this case the motorist was timed by a "speed watch device." The accuracy of that device was shown to have been checked by a run-through car whose speedometer was checked against a stop watch. The accuracy of the stop watch was established by showing that it was regularly checked.

20. State v. Graham, 322 S.W.2d 188, 197 (Mo. Ct. App. 1955). See City of Webster Groves v. Quick, *supra* note 19.

21. The court noted that no case had been found in which reliability was placed ex-

B. *Frequency of Testing*

In addition to the requirement that a reliable testing device must be used to ascertain whether a radar unit is properly functioning, the court in *Boecker,* impelled by the "nature and characteristics of the radar speedmeter,"[22] laid down a further testing requirement. It held that the radar must have been "tested and found to be operating properly at the site of and reasonably close to the time of . . . [the] arrest."[23] Because movement of the radar car from the place of the test to the place of traffic observation would result in a change of conditions which might distort the radar's accuracy, the court stated that radar evidence unaccompanied by proof of testing in proximity to the arrest would have no probative force and would be inadmissible.[24] This rule requires that each time the radar car moves to a new vantage for traffic observation or to chase and apprehend a speeding motorist the police must test the unit when it is again set up.[25]

II. Enforcement

The *Boecker* decision caused hurried conferences of judges, city attorneys and police officials in the municipalities using radar. From these meetings came various interpretations of the testing requirements set out in the opinion. Recommendations for changes in police radar operational procedure were made, and new procedures adopted.

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clusively on a tuning fork. For a consideration of techniques that could establish the accuracy of a testing tuning fork, see note 42 *infra* and accompanying text.

22. State v. Graham, 370 S.W.2d 731, 734 (Mo. Ct. App. 1963).

23. *Id.* at 737.

24. Kopper, *supra* note 6, at 353 recommended the following procedures.

(1) The meter should be checked at each site where it is set up.
(2) The meter should be checked before the period of traffic observation and afterwards.
(3) The check should be made by a run-through car having a calibrated speedometer. The speedometer should be periodically checked.
(4) If the reading between the car's speedometer and the radar dial vary by more than two miles per hour steps should be taken to locate the difficulty.

The author also described the kinds of things which could give a meter a false reading. They included swinging signs, swaying trees, flying birds and electronic machines emiting electronic signals such as diathermic machines. He noted that while these could cause excessive readings, the effect was usually only momentary and could be distinguished by an experienced operator. The effect of weak or worn parts in the radar unit itself could impair the accuracy of its readings, but would always do so by decreasing the reading.

25. This requirement would, of course, make crucial to the efficient operation of the one man car set-up the courts' acceptance of testing by a tuning fork exclusively. It would be a simple matter for an officer operating a one man car to tap a tuning fork and hold it in front of the radar's beam to get a reading each time he sets up at a new location or returned from chasing and arresting a speeding motorist. It would make use of radar considerably less practical if before (or perhaps after) each arrest or change of location the unit had to be tested by a run-through.

A survey was conducted of the law enforcement agencies in St. Louis and St. Louis County[26] to determine the effect of *Boecker* on municipal radar speed enforcement.[27] The survey showed that as a direct result of their interpretation of the *Boecker* decision, eleven police departments have adopted the run-through to supplement tuning fork tests. Eight departments were using both tests when the decision was distributed, and all have continued to use both tests. One municipality uses a run-through test "once or twice a week" as a "back up" test to its use of tuning forks. Only one city still clings to exclusive use of tuning forks. Thus, the practical effect of *Boecker* has been the installation of the run-through test as an integral element in police accuracy testing procedure.

A. *St. Louis*

The reaction of the St. Louis Police department to the *Boecker* decision is graphic of the problems encountered by many St. Louis area police departments in adjusting to the run-through test "requirement." Before the decision, the St. Louis police department used the one car method of traffic observation, with the tuning fork as the sole accuracy test. The radar set-up procedure was:[28]

(1) Turn on the set and allow 5 to 10 minutes for it to warm up.
(2) Check to see that the meter reads zero and adjust it if it does not.
(3) Check the set with two tuning forks, one cut to register 30 miles per hour and one to 45 miles per hour. If the meter reading varies more than 2 miles per hour from the indicated speed on the fork, bring the unit to the repair shop for further checks before any timings are made.
(4) Each time the unit is moved, repeat steps (1) through (3).

In addition, each radar unit was to be taken into the police radio shop for periodic "bench" tests using an elaborate selection of highly accurate elec-

26. The survey is described in note 3 *supra*. It should be noted that the St. Louis area presents a unique opportunity, with its many municipalities, for a law-in-action study of enforcement practices. These practices reflect varied interpretations of law, various enforcement needs and policies of the police and therefore provide ripe material for a study of how nearly everyday police practices match the pattern cut by the courts and legislature. The City of St. Louis lies adjacent to and is politically distinct from St. Louis County, which contains ninety-seven municipalities. For a more detailed account of the political structure of St. Louis and St. Louis County, see Note, 1964 WASH. U.L.Q. 98 n.5.

27. The St. Louis Metropolitan Police Department, St. Louis County Police Department, Missouri State Highway Patrol-Troop "C" and seventeen county municipalities are using radar to enforce their traffic laws. A representative of each was interviewed. The information from that survey provides the authority for the material in the text in this portion of the note. Normally, no reference will be given to the survey nor will the municipality whose practices are being discussed be identified.

28. Interview with Capt. Schumacher, Commander, Traffic Division, St. Louis Metropolitan Police Department, Dec. 20, 1963 [hereinafter cited as Schumacher Interview].

tronic equipment. While the radar set was being "bench" tested, the tuning forks used with the set were to be checked for accuracy.

After *Boecker* was decided, representatives of the police department and the city attorney's office met and reviewed the city's radar set-up procedure Based on their interpretation of the case, a new two car procedure was developed:[29]

(1) Turn on the set and allow 5 to 10 minutes for it to warm up.
(2) Check to see that the meter reads zero and adjust it if it does not.
(3) Check the set with 25, 30, 35, and 40 mile per hour forks—the radar operator holding the fork and the pursuit car driver observing.
(4) Same as step (3) above, but the driver holds the fork and the operator observes.
(5) The driver drives the pursuit car through the radar beam at the legal limit, the operator observes the radar dial and the speedometer and radar readings are compared.
(6) Same as step (5) above with the radar operator driving the car and the driver observing radar dial.
(7) Each time the set is moved, repeat steps (1) through (6).
(8) If any of the test results vary more than 2 miles per hour from the radar reading, the unit should be brought to the radio repair shop for further checks before any timings are made.

To implement its new procedure, the city had to buy twenty new tuning forks, a new police cruiser, six two-way radios for communication between the operator and the pursuit car, six spare batteries, and six battery chargers for the new radios. Five additional patrolmen were required to make up the radar patrol at a time when the St. Louis Metropolitan Police Force is undermanned by about 400 men. The shortage of officers permits only three of the city's four radar sets to be used at one time. While the total number of radar arrests has not changed, the manpower and equipment expense of each ticket has more than doubled.[30]

B. *County Municipalities*

Many of the smaller communities in the St. Louis area have only one or two officers on patrol at a time.[31] A radar operation procedure requiring two men would leave the community without anyone attending the other police duties and, of course, would be impossible if only one officer were on duty. If a one car procedure is adopted, the employment of a run-

29. Schumacher Interview.

30. Interview with Mr. James Schmitt, Clerk of the St. Louis Municipal Courts, Jan. 10, 1964.

31. This information was gathered when all the county municipalities were contacted to determine if they used radar in traffic law enforcement in the survey described note 3 *supra*.

through test requires that a "test driver" be called away from his regular police duties each time the unit is moved. Both situations reduce the efficiency of the police departments and tend to restrict the use of radar severely. Most of the smaller St. Louis County communities using radar employ the one car system. As all but one of these communities use the run-through test, it must be assumed that other police duties have been sacrificed to accommodate the requirements of radar procedure.

C. *Expert Opinion on Testing Accuracy and Needs*

The court in *Boecker* relied in part on the testing procedure suggested in a Law Review by a radar expert.[32] The expert proposed the run-through as part of the standard testing procedure.[33] However, in the decade since his article was published, changes in technology have made practicable a radar arrest procedure which can be performed by a single officer. When radar was first used to enforce speed laws about ten years ago, the standard procedure employed two cars. The vehicle which contained the radar meter assumed a stationary position along the highway. As it clocked the speed of passing motorists, it would relay to the chase car stationed down the road the description of the speeding car. The officer in the second car would stop the motorist.[34]

Present-day radar is a streamlined transistorized unit, which permits one officer in one car to both "clock" and chase motorists. If a testing procedure which could be simply and quickly performed by that officer were acceptable to the courts, speed enforcement by radar could operate at maximum efficiency. Conversely, if two cars and two officers are necessary, a municipality's decision to continue to use radar would require it to increase considerably the personnel and equipment of its force. In adition, the use of two officers permits the problem of hearsay to crop up when proof of testing and identification is offered.[35]

If the tuning fork is to be used exclusively, the police departments will have to develop techniques for testing the forks, as the doctrine of "*duality*" requires it to be shown that a test was made on the radar *and* the testing de-

32. Dr. Kopper's recommended procedure is set out in note 24 *supra.*

33. The court in City of St. Louis v. Boecker, 370 S.W.2d 731, 737 (Mo. Ct. App. 1963) quoted from the author's recommendations. In so doing, the court impliedly affirmed his suggestion that a run-through be part of the testing procedure. This and the court's statement that its exhaustive research had failed to disclose any case in which a tuning fork test was accepted as sufficient by itself to test a radar's accuracy, are the part of the court's holding that would support the conclusion that the run-through must also be used.

34. See Comment, 24 Mo. L. REV. 196, 204-09 (1959).

35. See note 1 *supra.*

vice.[36] A part of the survey was devoted to collecting expert opinion on the subject of tuning fork reliability.

The relative value of run-through and tuning fork tests was discussed with several experts in the field of electronics. They were of the unanimous opinion that a tuning fork is clearly the most desirable accuracy test of a radar used to observe traffic. In contrast, the automobile speedometer was generally believed to be inaccurate. Police officials interviewed stated that error of between three and five per cent was expected in automobile speedometers due to tire wear and pressure, road conditions and weather.[37]

Although error is expected in speedometers, Mr. David Winter, the expert witness who testified in the *Boecker* case, when interviewed stated that a tuning fork which has been properly manufactured and given reasonable care is subject to almost no error, certainly less than one per cent.[38] He noted that initial accuracy of a tuning fork can be proven by checking it against WWV (a standard radio signal broadcast by the United States Bureau of Standards). Once the accuracy of a tuning fork has been established, it will remain accurate unless subjected to severe misuse. Slight scratches or dents will make no significant change in the accuracy of the instrument.

Mr. Richard Rockafellow, Sales Engineer for Eastern Industries, Inc., and Mr. Ralph Henry, Chief Engineer for Muni Quip Corp., recommend that tuning forks be used to calibrate radar equipment manufactured by their companies. Both of them specifically recommend that the run-through test not be used due to the inaccuracy expected from an automobile speedometer.[39]

The Electro-Comm Company of Maplewood, Missouri, performs most of the electronic maintenance work for the St. Louis County municipalities that use radar. Mr. Paul Wellborn of that company has found only one tuning fork which was not accurate within one per cent in about six years of testing police radar sets and their tuning forks.[40] The defective fork had been severely damaged, and was so far out of tune that even an untrained ear could have recognized that something was amiss. Mr. Wellborn pointed

36. City of St. Louis v. Boecker, 370 S.W.2d 731 (Mo. Ct. App. 1963).

37. The falibility of automobile speedometers was also noted by the court in *Boecker, supra* note 36, at 736.

38. Winter Interview.

39. This information is contained in a letter from Sergeant Herbert Bosch to the Commander of the Communications Technical Section of the St. Louis Municipal Police Department, Sept. 19, 1963, a copy of which is on file in the *Washington University Law Quarterly* office.

40. Interview with Mr. Paul Wellborn of Electro-Comm., in St. Louis, Jan. 14, 1964.

out that tuning forks are used to calibrate the complex electronic devices used to test radar sets "on the bench."

Sergeant Herbert Bosch of the Technical Section, St. Louis police department, agreed that the tuning fork provided a much better check of the accuracy of a radar set. He commented that the resumption of the use of run-through tests in St. Louis would serve no useful engineering purpose.[41]

D. *Recommended Testing Procedure*

The following radar set-up procedure is based on police enforcement needs, expert opinion in the field of radar accuracy and an interpretation of *City of St. Louis v. Boecker*.[42]

(1) Turn on the set and allow about 10 minutes for the set to warm up.
(2) Check the dial to see that the meter reads zero. If the meter does not read zero, adjust to read zero.
(3) Check the set with *TWO* tuning forks cut to read 30 miles per hour, and with *TWO* forks cut to read 45 miles per hour.
(4) If the reading on the dial varies as much as 2 miles per hour from the indicated speed on the tuning forks, return the set to the shop to have the set and tuning forks checked for accuracy.
(5) Repeat steps (1) through (4) each time the set is moved.
(6) Before the set is taken out at the beginning of a tour of duty, check the set with a 30 mile per hour master fork that is kept in the office. The master forks should be kept in a safe place in the police department office, and used only to check the set when it is taken out on patrol, and to recheck the set at the end of the patrol.
(7) Record each check and each ticket given on the radar log. The set should be given periodic "bench tests." While the set is being "bench tested" the tuning forks should be checked and certified accurate. Records of all tests of the unit must be kept.

The use of two forks at both the 30 and 45 mile per hour level gives the required proof of the accuracy of the testing device used, one fork testing the other. The master fork test supplies an additional check on the proper functioning of the set, following the suggestion[43] that showing that an instrument was properly registering at the beginning and end of a set of measurements is taken as proof that the instrument was measuring correctly during the set. The "bench tests" and certification of the tuning forks are additional assurances of accuracy.

The *Boecker* case points up another aspect of the admissibility of radar evidence. All of the tests of the accuracy of the set are of no value if they

41. Interview with Sergeant Herbert Bosch of the Communications Technical Section, St. Louis Police Department, in St. Louis, Dec. 18, 1963.
42. 370 S.W.2d 731 (Mo. Ct. App. 1963).
43. Kopper, *supra* note 6, at 353.

are not admitted into evidence. Had the old St. Louis radar procedures been followed, and proper records kept of the tests made, the arresting officer could have testified to the fact that the tests had been made, and Mr. Winter would have replied to the proper hypothetical question that in his professional opinion the radar was functioning properly at the time the arrest was made. In the absence of records, the arresting officer was able only to testify that a test had been made on the morning of the arrest: the time and location of the tests being unknown. An integral part of the radar procedure should be a radar log showing (1) the name of the officer using the set; (2) the time and date of the operation; (3) time of each test; (4) location of each test; (5) results of each test; (6) time and location of all arrests; and (7) a summary of the traffic conditions at the time of each arrest.

Conclusion

The accuracy testing requirements for admission of radar evidence in prosecution for speeding have been promulgated by two recent Missouri cases. Essentially, admissibility is conditioned on a prima facie showing that the radar unit was properly functioning at the time of arrest. In order to show proper functioning, the prosecutor must establish that the radar unit was tested, that the accuracy of the testing device was confirmed and that the test was made proximate to the time and place of traffic observation.

Because it is possible to satisfy these requirements when a tuning fork is the only test used, and because the court has recognized that such a testing technique is sound in "principle," it is asserted that Missouri law permits police departments to test radar with only the tuning fork as a confirmation of the radar's accuracy and admit these radar readings in prosecutions. However, because of apparent misinterpretation of the cases, many municipal police departments in the St. Louis and St. Louis County area have abandoned exclusive use of tuning forks and have adopted the more expensive and sometimes completely disabling procedure of testing by both the run-through and the tuning fork.