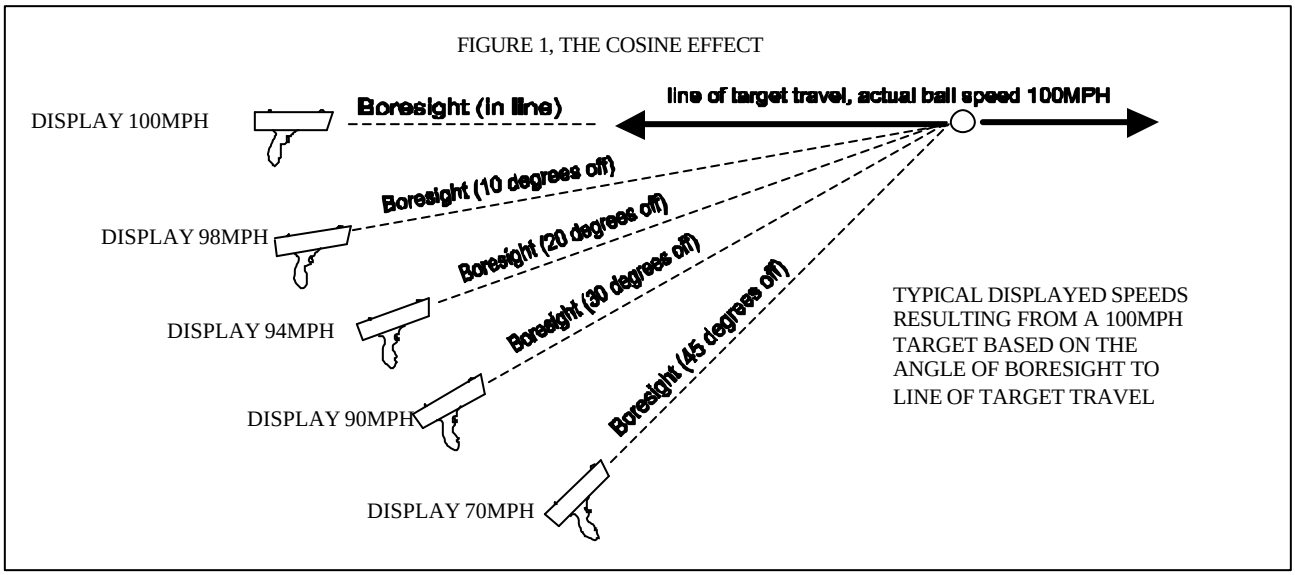
Sports Radar
PRECISION TRAINING INSTRUMENT
9119 W. Veterans Dr., FL 34448
Phone: (352) 563-5855 Fax: (352) 563-5927
Website: http:\\www.sportsradargun.com Email: trina@sportsradargun.com

APPLICATION NOTE

TITLE: Positioning the radar gun for optimum performance in various applications

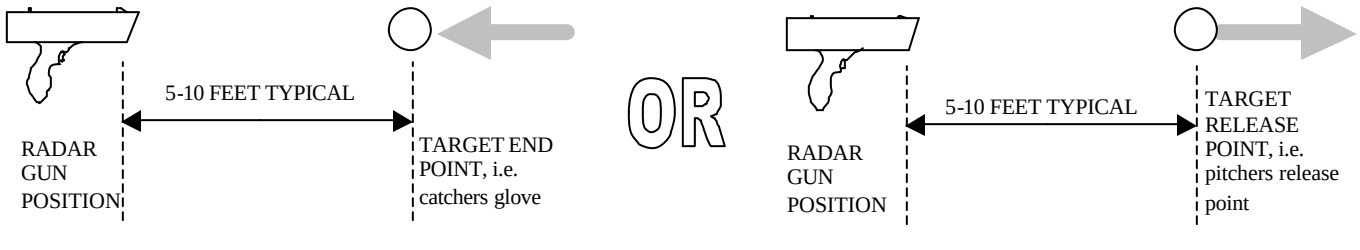
TO REDUCE OR ELIMINATE THE COSINE EFFECT (IN DOPPLER RADAR APPLICATIONS) AND ACHIEVE MAXIMUM ACCURACY, ALIGN THE RADAR UNIT IN THE LINE OF TRAVEL OF THE INTENDED TARGET. IF THE BORESIGHT OF THE RADAR UNIT IS NOT IN THE DIRECT LINE OF TARGET TRAVEL, THE RECORDED SPEED WILL BE LESS THAN THE ACTUAL BALL SPEED BY THE COSINE OF THE ANGLE BETWEEN THE BORESIGHT OF THE RADAR UNIT AND THE LINE OF TRAVEL OF THE TARGET (FIGURE 1).

FIGURE 1, THE COSINE EFFECT



THE RADAR UNIT WILL READ TARGET SPEEDS ACCURATELY FOR BOTH TARGETS MOVING TOWARDS THE BORESIGHT, OR MOVING AWAY FROM THE BORESIGHT OF THE RADAR UNIT. FOR OPTIMUM PERFORMANCE AND ACCURACY THE RADAR UNIT SHOULD BE NO MORE THAN 12 FEET FROM EITHER THE RELEASE POINT, OR END POINT OF THE TARGET (FIGURE 2).

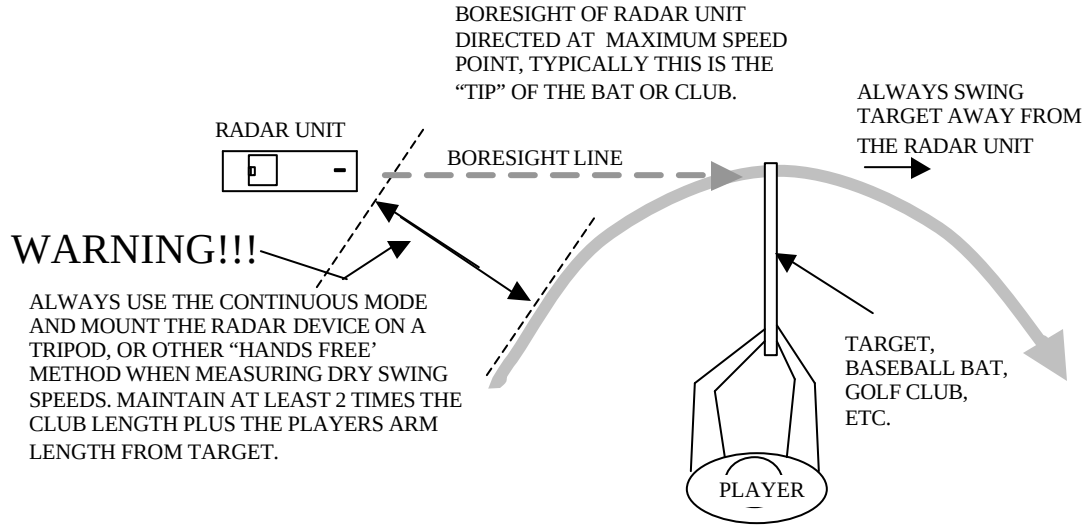
FIGURE 2 GENERAL SET UP for optimal performance



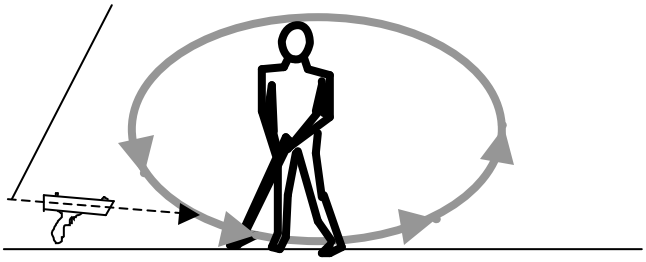
MEASURING PRACTICE SWINGS WITH THE SR3500 OR SR3600 RADAR GUN.

THE UNIQUE SPEED DETECTION METHOD OF THESE RADAR GUNS ALLOWS VARYING SPEED, SHORT TRAVEL TARGETS TO BE ACCURATELY RECORDED. FIGURE 3 SHOWS A TYPICAL SET UP TO READ THE MAXIMUM SPEED OF A BASEBALL BAT, GOLF CLUB, HOCKEY STICK OR OTHER TARGET.

FIGURE 3, MEASURING DRY SWING SPEEDS



KEEP THE RADAR UNIT BORESIGHT IN LINE, OR AS CLOSE AS POSSIBLE TO THE LINE OF MAXIMUM TARGET SPEED. FOR GOLF OR HOCKEY, THE RADAR UNIT SHOULD BE AS LOW AS POSSIBLE BECAUSE THE MAXIMUM SWING SPEED SHOULD BE AT GROUND LEVEL



TIP:

WHEN MEASURING BAT OR CLUB SPEED, OR TARGETS WITH VARYING SPEEDS AND / OR NON LINEAR MOTION, THE INTENDED TARGET SHOULD BE AS CLOSE AS IS SAFELY POSSIBLE TO THE BORESIGHT OF THE RADAR UNIT AND THE INTENDED MAXIMUM SPEED POINT OF THE TARGET.

MEASURING BATTED BALLS OR HIT GOLF BALL SPEEDS.

TYPICALLY WHEN A BALL IS STRUCK WITH A CLUB THE BALL SPEED WILL BE GREATER THAN THE CLUB SPEED. THE RADAR UNIT WILL TYPICALLY DISPLAY THE FASTEST SPEED RECORDED, HOWEVER OTHER MOVING OBJECTS, SUCH AS THE BAT OR CLUB CAN BE SEEN AS A "LARGER TARGET", AND THESE "TARGET" SPEEDS MAY BE REGISTERED. TWO METHODS CAN BE USED TO REDUCE THE POSSIBILITY OF THE RADAR UNIT REGISTERING THE WRONG TARGET SPEED.

1. USING TRIGGER TIMING TO START THE SPEED READING.
2. PLACING THE RADAR UNIT IN FRONT OF THE CONTACT POINT.

FIGURE 4 DEPICTS THE 2 METHODS. NOTE THAT SMALL RADAR CROSS SECTION TARGETS SUCH AS A GOLF BALL REQUIRE THE RADAR UNIT TO BE CLOSER TO THE MOVING TARGET IN ORDER TO GET AN ACCURATE READING.

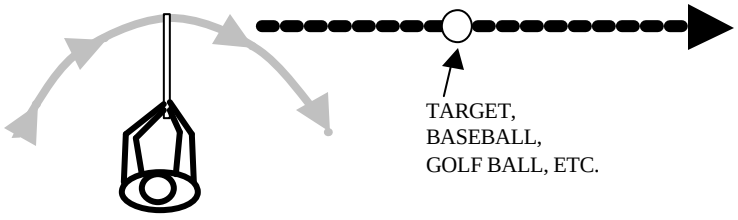
FIGURE 4, TWO METHODS OF RADAR DEVICE POSITION FOR READING LAUNCHED TARGETS

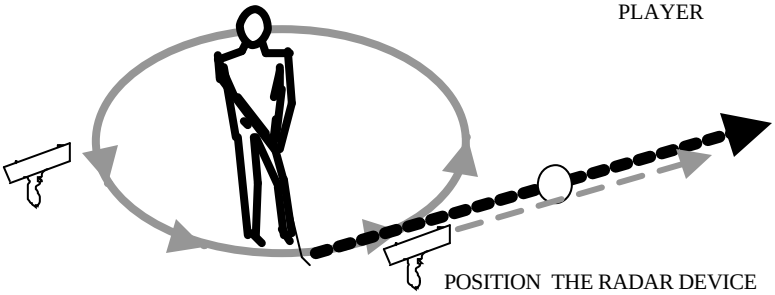
1 USING THE TRIGGER MODE, TIME THE TRIGGER PULL JUST AFTER THE TARGET IS STRUCK

RADAR UNIT

BORESIGHT LINE

USING THE TRIGGER ALWAYS MAINTAIN A SAFE DISTANCE FROM THE SWING ARC AND BEHIND THE TARGET LAUNCH POINT.





POSITION THE RADAR DEVICE BORESIGHT IN THE SAME LINE AS THE INTENDED TARGET LINE OF TRAVEL.

2

WARNING!!!

WHEN PLACING THE RADAR DEVICE IN FRONT OF THE TARGET LAUNCH POINT ALWAYS USE THE CONTINUOUS MODE AND MOUNT THE RADAR DEVICE ON A TRIPOD, OR OTHER "HANDS FREE' METHOD TO AVOID BEING STRUCK BY THE TARGET.

RADAR UNIT

BORESIGHT LINE

TIP:

YOU CAN MAKE A SHORT "MONOPOD" STAND FOR THE RADAR GUN WITH A STANDARD SHORT PIECE OF ¼-20 THREADED ROD AND A NUT. SCREW ONE END INTO THE RADAR GUN HANDLE ABOUT 3 TURNS, AND TIGHTEN THE NUT, PLUG THE OTHER END INTO THE GROUND TO MAKE A "SHORT MONOPOD" STAND