1. Time release devices used for the release of approach or time locking must be adjusted as follows unless otherwise authorized by the Chief Signal Engineer:
   (a) Interlocking high signals in accordance with Figure A or B but not less than three minutes.
   (b) Interlocking dwarf signals governing movements at higher than slow speed in accordance with Figure A or B, but not less than three minutes.
   (c) Interlocking dwarf signals governing movements at slow speed, not less than 45 seconds.
   (d) Interlocking dwarf signals governing movements at restricted speed, not less than 15 seconds. (Note 1)
   (e) Electrically locked hand operated switches in accordance with Figure C or D, but not less than three minutes.
2. At interlockings equipped with adjustable releases, revised timing must be put into effect.
3. The release time setting shall be specified to the nearest 15 second interval of the calculated time and must be designated on the circuit plans.
4. The time setting must be maintained with $\pm$ 10 per cent of the designated time interval.
5. Required periodic test of time setting and operating condition of time release devices shall be made at intervals specified on Plan S-423, Items 36 and 37.
6. Time release devices on which specified timing cannot be obtained must be removed from service and sent to the signal shop for repair.
7. Method for computing the release time setting where:
   T = Time.
   30 Sec. = Preview time.
   A = Distance between approach signal and point where stop is required and braking distance at maximum authorized speed is provided.
   A^1 = Actual distance between first approach signal and the stop signal.
   A^2 = Actual distance between the first and second approach signal.
   C = Feet per second at train speed not to exceed 30 miles per hour (1.467 x m.p.h.)
   C^1 = Feet per second at train speed not to exceed 15 miles per hour (1.467 x m.p.h.)
   D = Feet per second traveled at maximum speed for which first approach signal provides braking distance.
   L = Actual distance between the electric lock and its protecting signal.
   (Note 2)

Note 1: Where, in addition to the restricted speed aspect, the interlocking dwarf signal displays aspects better than restricted speed, the longer time may be used for the restricted speed aspect.

Note 2: Where train speeds of less than 30 miles per hour or where physical conditions prevent trains from averaging 30 miles per hour, the time setting for train speed C in formula should be based on the distance traveled in feet per second at the average train speed attained.

NEW YORK CENTRAL SYSTEM
SIGNAL DEPARTMENT
TIME RELEASES
INSTRUCTION

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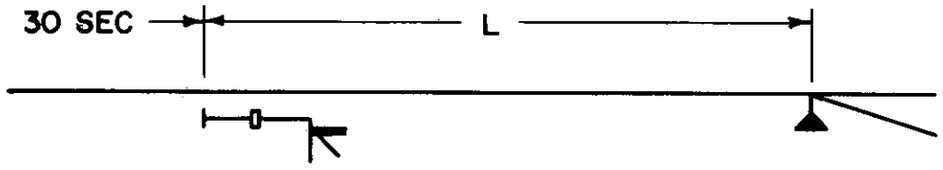
ASSUMPTIONS & EXAMPLES

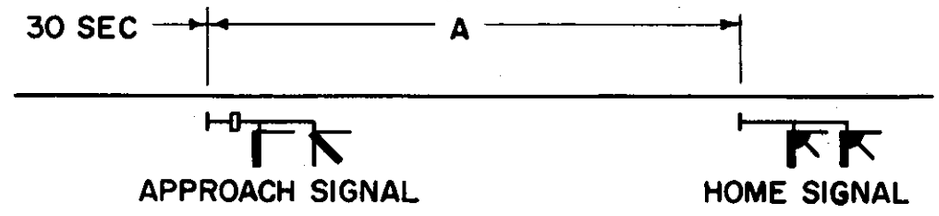
Fig. C



WHERE "L" IS GREATER THAN MAXIMUM SPEED BRAKING DISTANCE.

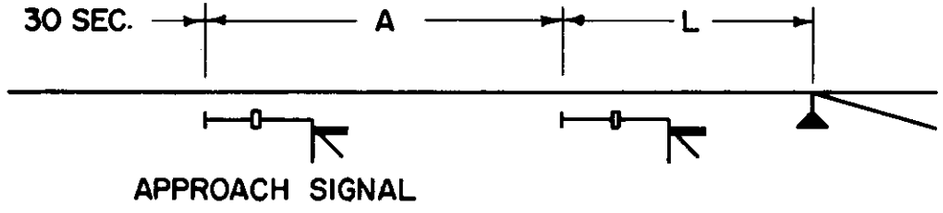
$T = 30\ \text{SEC.} + \frac{L}{C} = 30 + \frac{9900}{22} = 480$ SECONDS (8 MINUTES)

Fig. A



$T = 30\ \text{SEC.} + \frac{A}{C} = 30 + \frac{11880}{44} = 30 + 270 = 300$ SECONDS (5 MINUTES)

Fig. D



(1) WHERE "L" IS LESS THAN MAXIMUM SPEED BRAKING DISTANCE BUT MORE THAN 15 MPH BRAKING DISTANCE (700').

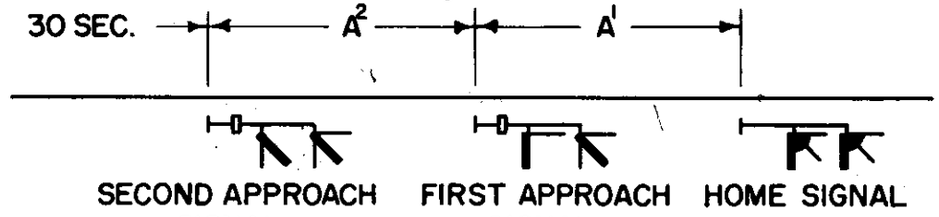
$T = 30\ \text{SEC.} + \frac{A}{C} + \frac{L}{C'} = 30 + \frac{10560}{44} + \frac{6600}{22} = 570$ SECONDS (9 MIN. 30 SEC.)

(2) WHERE "L" IS LESS THAN 15 MPH BRAKING DISTANCE (700').

$T = 30\ \text{SEC.} + \frac{A+L}{C'} = 30 + \frac{9460+440}{22} = 480$ SECONDS (8 MINUTES)

NOTE: WHERE TRACK IS SIGNALED IN BOTH DIRECTIONS, TIME SHALL BE FIGURED FOR EACH DIRECTION AND THE GREATER TIME SHALL BE USED IN SETTING THE TIMING DEVICE.

Fig. B



$T = 30\ \text{SEC.} + \frac{A^1}{C} + \frac{A^2}{D} = 30 + \frac{6650}{44} + \frac{10100}{85} = 30 + 151 + 119 = 300$ SECONDS (5 MINUTES)

NOTE: WHERE MORE THAN TWO APPROACH SIGNALS ARE REQUIRED, THE FORMULA FOR COMPUTING THE RELEASE TIME SETTING SHOULD BE EXPANDED AS REQUIRED.

NEW YORK CENTRAL SYSTEM
SIGNAL DEPARTMENT
TIME RELEASES

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Chief Signal Engineer

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