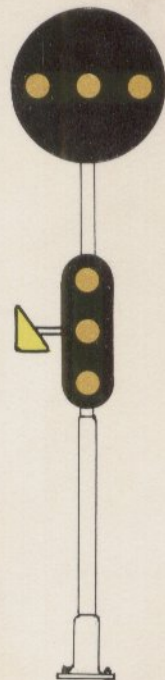


POSITION LIGHT SIGNAL ASPECTS



CONRAIL

CT 7138 REV 1-77 PRINTED IN U.S.A.

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Consolidated Rail Corporation

A PROGRAMMED INSTRUCTION COURSE

Prepared by
Training Section
6 Penn Center Plaza, Room 1244
Philadelphia, PA 19104

INSTRUCTIONS

This training course is written to help you learn the Position Light Signal System used to communicate instructions to the enginemen, trainmen and track car operators as they operate on the railroad.

This training course is designed so you can teach yourself. The instructions are presented in small steps. Each step is called a "frame" and is numbered consecutively.

For each frame you will be asked to write an answer or fill in the blanks. You will find the answer on the next page. Always answer the question or fill in the blanks before reading the correct answer.

Periodically throughout the course you will be required to recall information from previous frames since you will be using what you have learned as the basis for additional learning.

Read each frame thoroughly before you answer the question. Don't hurry -- don't skip. You will not be timed. You will learn the material thoroughly ONLY if you read and study the frame carefully.

Start with frame 1. Read the page and fill in the blanks. Check your answer. Then continue on with the next frame.

1. Ever since our railroad received its second locomotive, it has been necessary to have Rules For Conducting Transportation. Operating many trains without interference became a major problem. The

and the special instructions in the timetable provide for any situation that may arise in operating trains.

1. Rules For Conducting Transportation

Operating Rules For Conducting Transportation. Necessary to have

The many trains without interference because a major problem.

and the special instructions in the timetable provide for any situation

that may arise in operating trains.

2. An important part of the Rules For Conducting Transportation is the section on "Fixed Signals". Instructions are conveyed to the enginemen, trainmen and track car drivers by the _____
_____.

2. Fixed Signals

An important part of the Rules for Conducting in the section on "Fixed Signals". Instructions are conveyed to the

engineer, trainmen and track car drivers by the _____

3. One signal system in use on Conrail is the position of lights.

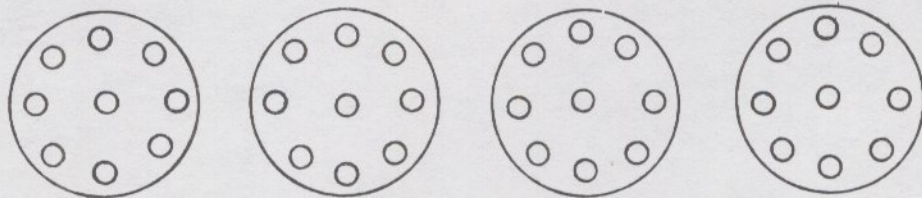
These signals convey instructions to the engineer of the

train by the _____ of the _____

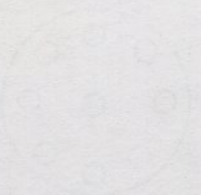
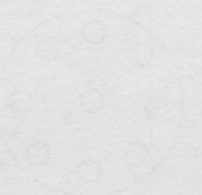
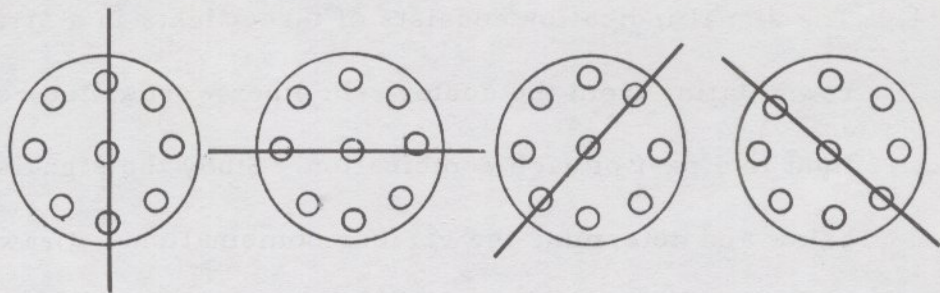
in the signal.

3. POSITION of the LIGHTS

4. The signal indication consists of three lights in a straight row rotating from the center. In other words, the center light is a part of each combination. Study the signals below and determine the various combinations. Draw a straight line through three lights in each signal to show the various combinations.



4.



5. With the help of a few basic rules, you will soon learn the names of the signal indications.

Three lights in a vertical position always means CLEAR.

The name of the following signal indication is therefore

_____.



5.



CLEAR

6. The addition of a single marker light displayed on the mast with a CLEAR signal indication changes the name to CLEAR BLOCK.

Write in the names of the signals shown



Fig. 1 _____



Fig. 2 _____

6.



CLEAR

Fig. 1



CLEAR

BLOCK

Fig. 2

7. Three lights in a horizontal position when used alone means STOP SIGNAL. The names of the following signal indications are: (1) _____ (2) _____ (3) _____



Fig. 1



Fig 2



Fig 3

7.



CLEAR

Fig. 1



CLEAR

BLOCK

Fig. 2



STOP SIGNAL

Fig. 3

8. The word SIGNAL is always used with the word STOP to eliminate any misunderstanding when the signal name is called. The name _____ becomes significant to the signal and is not apt to be understood as casual conversation.

8.

STOP SIGNAL



9. The addition of a single marker light displayed on the mast with STOP SIGNAL indication changes the name to STOP AND PROCEED.

The train must STOP AND then PROCEED at Restricted Speed prepared to stop short of any train, obstruction or switch not properly lined, looking out for broken rail, not exceeding 15 MPH.

Write in the names of the signal indications shown below.

(1) _____ (2) _____

(3) _____ (4) _____



Fig. 1



Fig. 2



Fig. 3



Fig. 4



CLEAR

Fig. 1



CLEAR

BLOCK

Fig. 2



STOP SIGNAL

Fig. 3



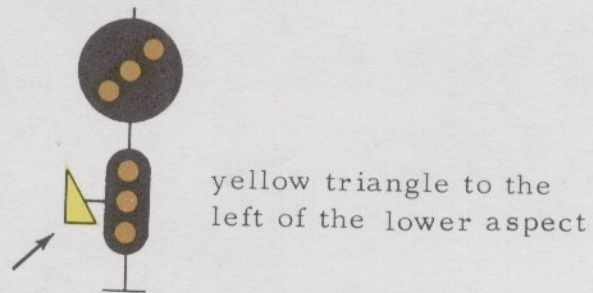
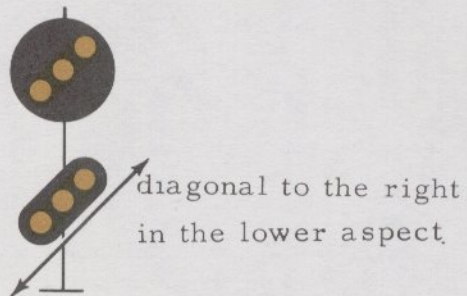
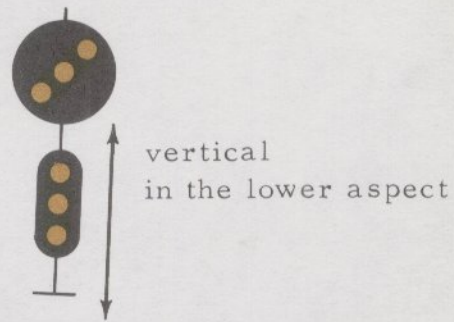
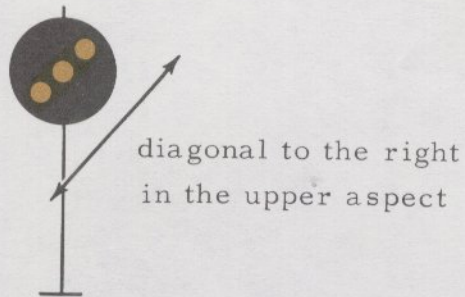
STOP

AND

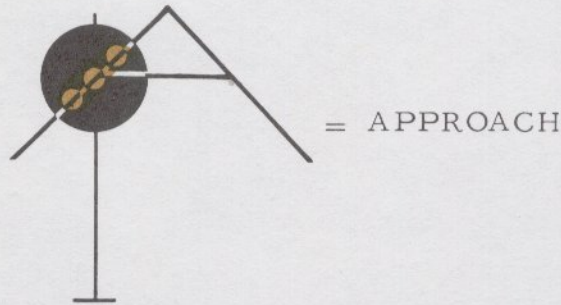
PROCEED

Fig. 4

10. Study the following light positions



11. When you look at the positions shown, make the following association:



Think of the diagonal position as the side of an "A" for

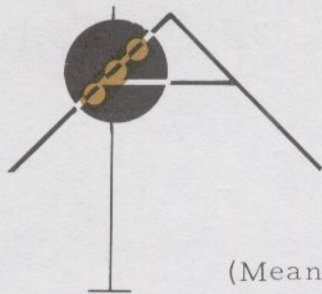
APPROACH

The name APPROACH means to approach the next signal prepared to stop.

12. The name of this signal is _____.



12.



APPROACH

(Meaning to approach the next signal prepared to stop)

13. When you see the positions shown below in the lower aspect make the following association:



Think of the diagonal lights on the mast as a letter "S" for

SLOW. The name of the signal is APPROACH SLOW.

The word SLOW means Slow Speed, not exceeding 15 MPH.

14. Write in the names of the following signals:



Fig. 1 _____



Fig. 2 _____

14.



Fig. 1

APPROACH

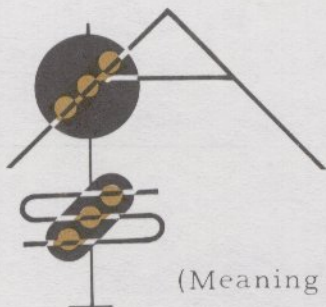


Fig. 2

APPROACH SLOW

(Meaning to approach the next signal at Slow Speed
not exceeding 15 MPH)

15. When you see the positions shown below in the lower aspect make the following association:



Think of the vertical lights in the lower aspect as the side of a letter "M" for MEDIUM. The name of the signal is APPROACH MEDIUM. The word MEDIUM means Medium Speed not exceeding 30 MPH.

16. Fill in the names for the following signals



Fig. 1 _____



Fig. 2 _____



Fig. 3 _____

16.



APPROACH

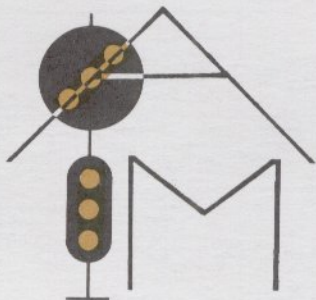
Fig. 1



APPROACH

SLOW

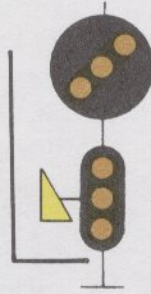
Fig. 2



APPROACH MEDIUM

(Meaning to approach the next signal at Medium Speed
not exceeding 30 MPH)

17. When you see a yellow triangle to the side of the lower aspect, make the following association:



Think of the sides of the 90 degree angle as letter "L" for

LIMITED. The name of the signal is APPROACH LIMITED.

The word LIMITED means Limited Speed not exceeding 45 MPH.

18. Fill in the names for the following signals:



Fig. 1 _____



Fig. 2 _____



Fig. 3 _____



Fig. 4 _____

18.



APPROACH

Fig. 1



APPROACH

SLOW

Fig. 2



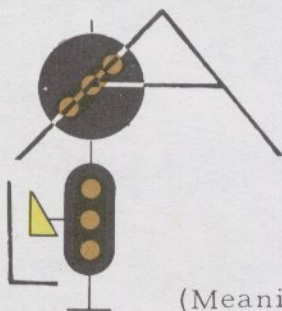
APPROACH

MEDIUM

Fig. 3

(Continued on next page)

18. (Continued from previous page)



APPROACH LIMITED

Fig. 4 (Meaning to approach the next signal at Limited Speed not exceeding 45 MPH)

19. The names of the signals are always read from the top down.

Write in the names of these signals:

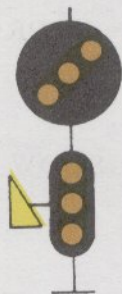


Fig. 1 _____



Fig. 2 _____



Fig. 3 _____



Fig. 4 _____

19.

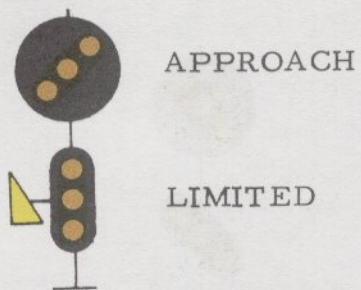


Fig. 1

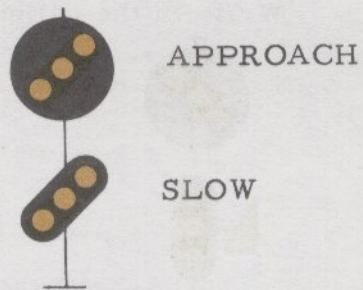


Fig. 2

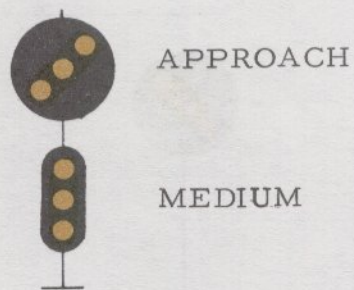


Fig. 3



Fig. 4

You have learned the names of eight signal indications already. Before we learn the next group, turn the page and see how well you can name them.

20. Write in the names of the eight signal indications shown.

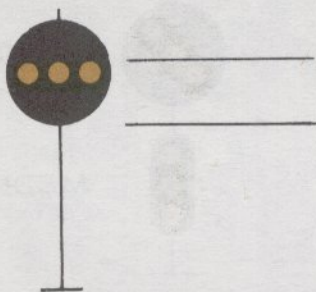


Fig. 1

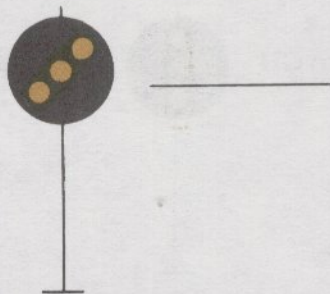


Fig. 2

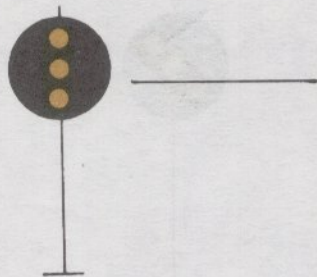


Fig. 3

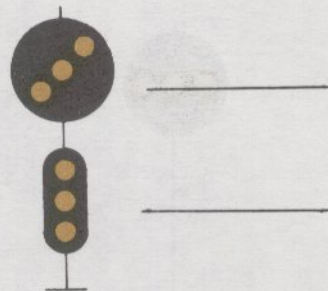


Fig. 4

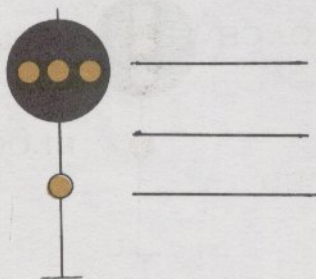


Fig. 5

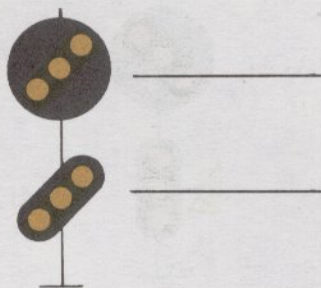


Fig. 6

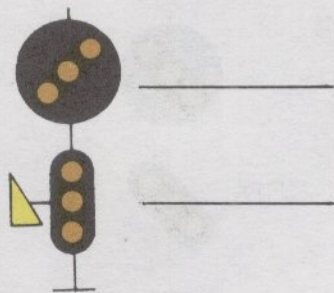


Fig. 7

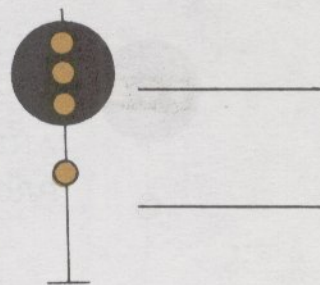
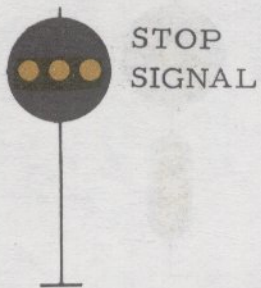


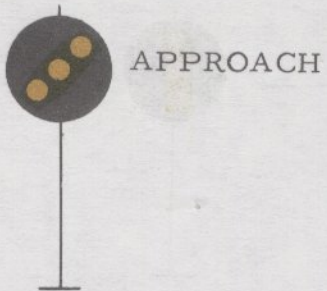
Fig. 8

20.



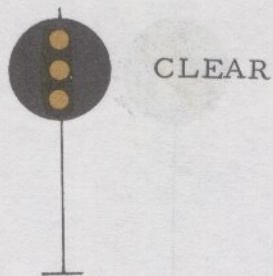
STOP
SIGNAL

Fig. 1



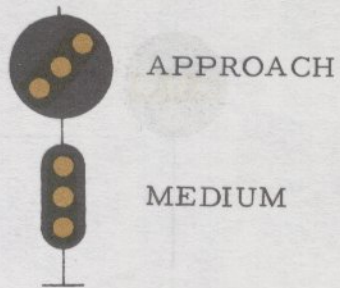
APPROACH

Fig. 2



CLEAR

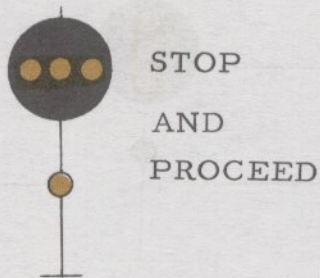
Fig. 3



APPROACH

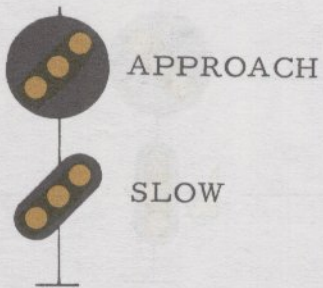
MEDIUM

Fig. 4



STOP
AND
PROCEED

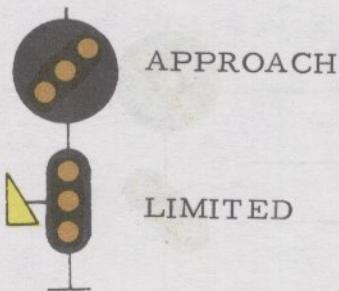
Fig. 5



APPROACH

SLOW

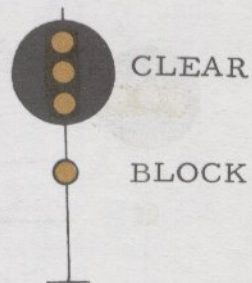
Fig. 6



APPROACH

LIMITED

Fig. 7



CLEAR

BLOCK

Fig. 8

21. Let's review a rule we learned earlier.

1. Three lights in a vertical position in the upper aspect means CLEAR.

Now let's add three more rules.

2. Three lights in a horizontal position in the upper aspect contribute nothing to the name of the signal when used with three other lights in the lower aspect.
3. When the top aspect is not taken into account (contributes nothing to the name of the signal) THEN THE SPEED IN THE NAME COMES FIRST.
4. Three lights in a vertical position in the lower aspect also means CLEAR.

22. Applying the rules in the previous frame, you should be able to figure out the names of these signals. Here is a tip! To name the signal in figure 2 you must use all three new rules in frame 21 PLUS a previous association.



Fig. 1 _____

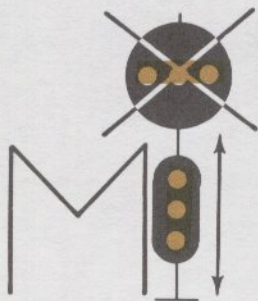


Fig. 2 _____

22. Check your answers



CLEAR



MEDIUM CLEAR

(Meaning to proceed at Medium Speed not exceeding 30 MPH)

23. Using the same rules and logic, what are the names of these signals? Fig. 1 _____ Fig. 2 _____
Fig. 3 _____



Fig. 1



Fig. 2



Fig. 3

23. Your answers should be

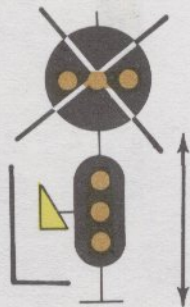


CLEAR



MEDIUM

CLEAR



LIMITED

CLEAR

(Meaning to proceed at Limited
Speed not exceeding 45 MPH)

24. Continuing with the same logic (applying the rules given in frame 21) and recalling two previous associations you learned earlier, let's add one more signal to this group.



The name of this signal is _____.

24.

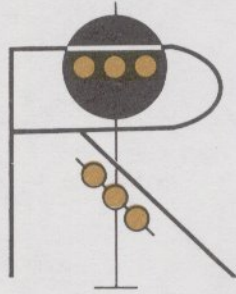


SLOW APPROACH

1. Upper aspect contributes nothing to the name.
2. Speed in the name comes first.
3. Lower aspect shows diagonal to the right - - (remember letter "S")
- - gives you SLOW speed.
4. Lower aspect shows diagonal to the right - - (remember letter "A")
- - gives you APPROACH.

In some locations you may see a signal with two horizontal red lights in the upper aspect. This has the same meaning as three horizontal amber lights in the upper aspect. Either one may be used as interlocking signals.

25. Another important signal indication is RESTRICTING and can also be easily learned by association. Diagonal lights to the left in the lower aspect always means RESTRICTING.



This _____ signal indication means to proceed at Restricted Speed prepared to stop short of train, obstruction or switch not properly lined and looking out for broken rail, not exceeding 15 MPH

25.

RESTRICTING



26. By this time you have learned to read the names of twelve signals. Let's run through them once again and see how well you can name them.

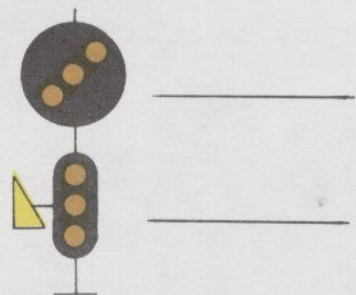


Fig. 1

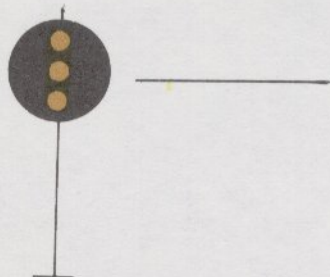


Fig. 2

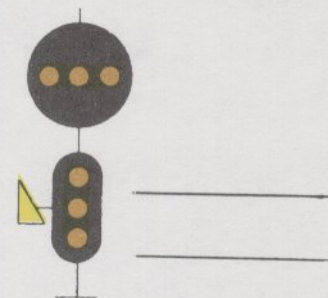


Fig. 3

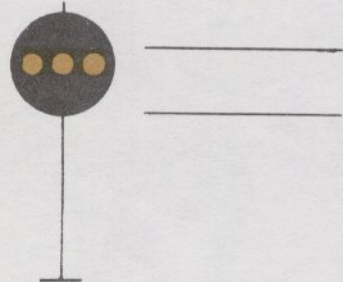


Fig. 4

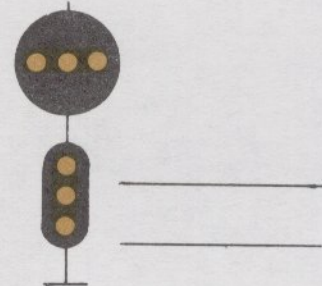


Fig. 5

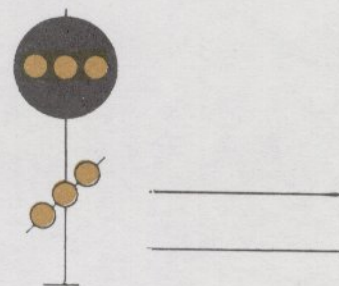


Fig. 6

(Continued on next page)

26. (Continued from previous page)

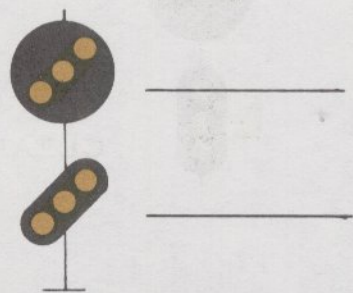


Fig. 7

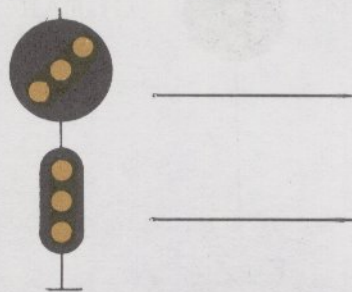


Fig. 8

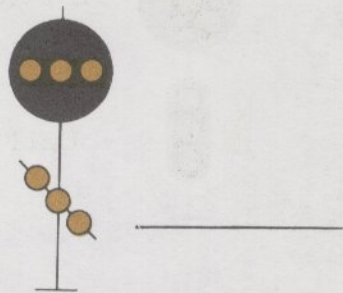


Fig. 9

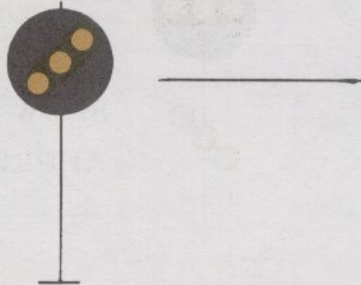


Fig. 10

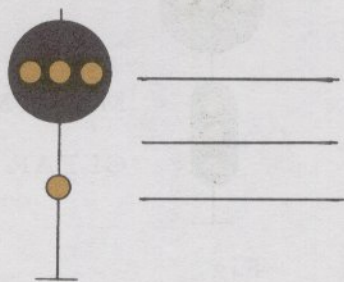


Fig. 11

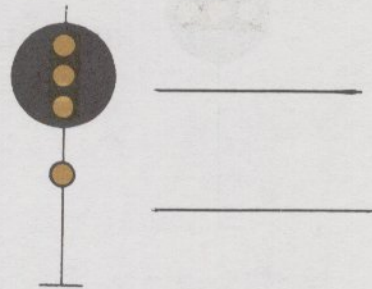


Fig. 12

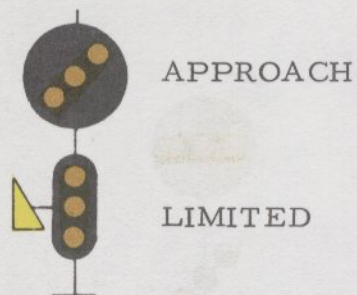


Fig. 1

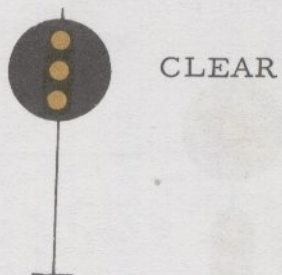


Fig. 2

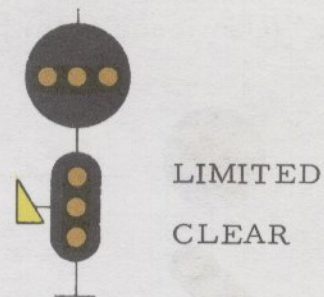


Fig. 3

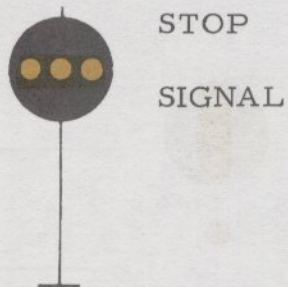


Fig. 4

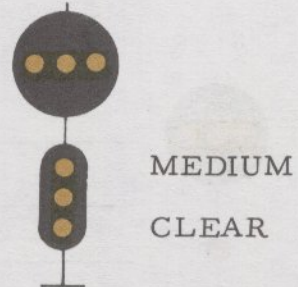


Fig. 5

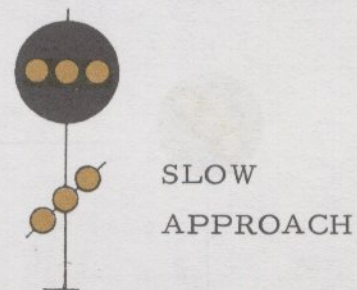


Fig. 6

(Continued on next page)

26. (Continued from previous page)

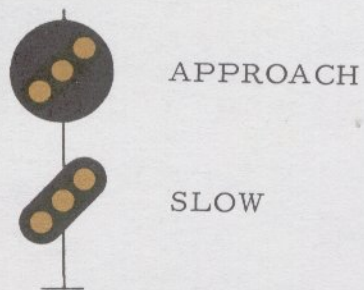


Fig. 7

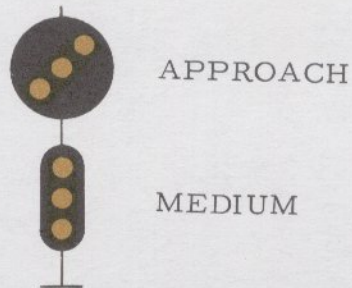


Fig. 8

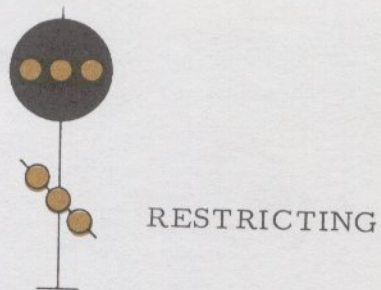


Fig. 9

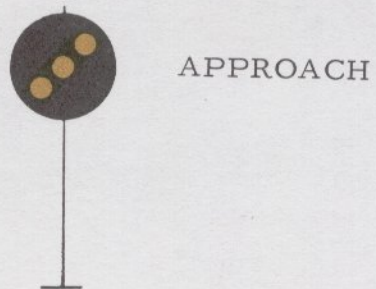


Fig. 10

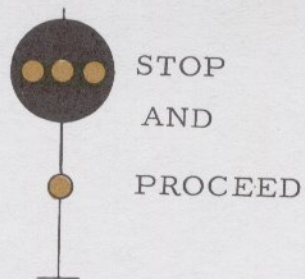


Fig. 11

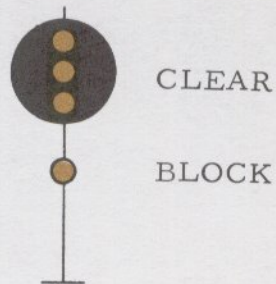
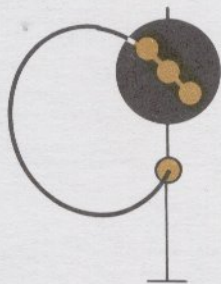


Fig. 12

27. Another signal indication which can also be learned by association is CAUTION.

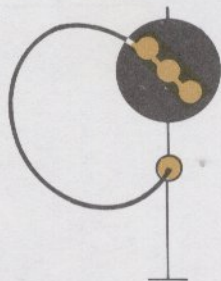


Think of the left diagonal lights as the start of a letter "C" for CAUTION and the single light on the mast as the concluding point of the letter "C".

28. Write the name of the signal shown. _____



28.



CAUTION

Trains exceeding Medium Speed must at once reduce to that speed.

Where a facing switch is connected with the signal, approach that switch prepared to stop.

Approach the next signal prepared to stop.

29. When the single light on the mast is not shown, the name of the signal indication changes from CAUTION to PERMISSIVE BLOCK.



CAUTION



PERMISSIVE BLOCK

Think of the three left diagonal lights as the top side of a letter "P" for PERMISSIVE BLOCK.



These are the only two signal indications that use the diagonal lights to the left in the upper aspect.

30. What are the names of these two signals? Fig. 1 _____

Fig. 2 _____



Fig. 1



Fig. 2



CAUTION

Fig. 1

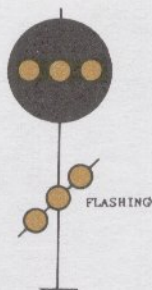


PERMISSIVE BLOCK

Meaning the block is occupied.
Passenger trains must stop.
Other trains may proceed
prepared to stop short of a
train or obstruction, but not
exceeding 15 MPH.

Fig. 2

31. There is one more signal whose name you will have to memorize.

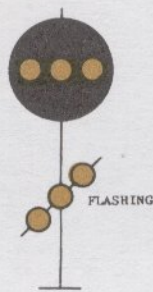


MEDIUM APPROACH

Its indication is similar to that of SLOW APPROACH but the speed is upgraded to MEDIUM by flashing the lights in the lower aspect.



SLOW
APPROACH



MEDIUM
APPROACH

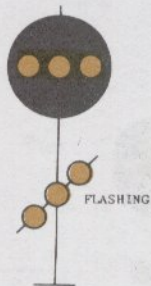
32.



CAUTION



PERMISSIVE BLOCK



MEDIUM APPROACH

1. Upper aspect contributes nothing to the name.
2. Speed in the name comes first.
3. Speed upgraded from Slow to MEDIUM by flashing the lights.
4. Lower aspect shows diagonal to the right -- (remember letter "A") -- gives you APPROACH.

32. What are the names of the signal indications shown?

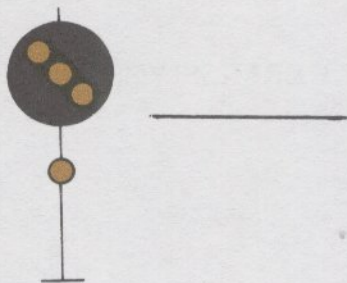


Fig. 1

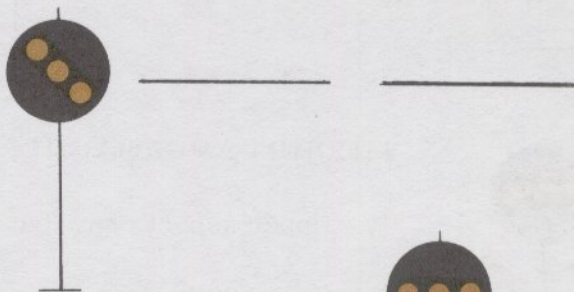


Fig. 2

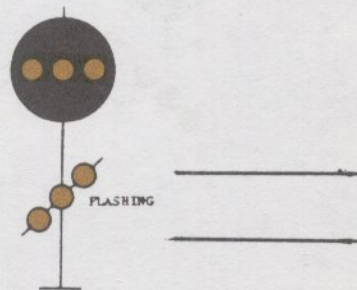


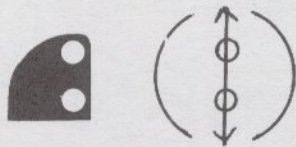
Fig. 3

33. In some areas you may see a small, low signal referred to as a DWARF SIGNAL. The names of the signal indications shown on a _____ can be read by applying the same rules you have just learned for the regular Position Light Signals.

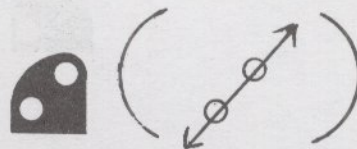
33.

DWARF SIGNALS

34. The speed associated with Dwarf Signals is SLOW Speed and is part of the name of the CLEAR and APPROACH indications. Fill out the names of these two signals.



SLOW _____



SLOW _____

34.

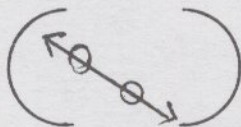
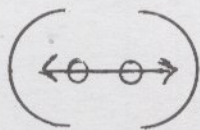


SLOW CLEAR



SLOW APPROACH

35. Can you name the other two?



35.



STOP SIGNAL



RESTRICTING

Let's mix them up and see how well you can name
the four Dwarf Signals.

36. Now write in their names.



Fig. 1

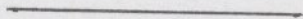


Fig. 2



Fig. 3

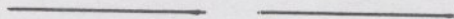


Fig. 4





RESTRICTING

Fig. 1



SLOW APPROACH

Fig. 2



STOP SIGNAL

Fig. 3



SLOW CLEAR

Fig. 4

37. You have now learned nineteen different position light signals. Here they are, all mixed up. Let's see how well you have learned them.

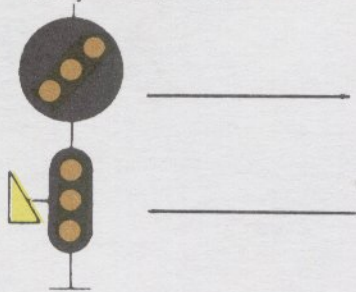


Fig. 1

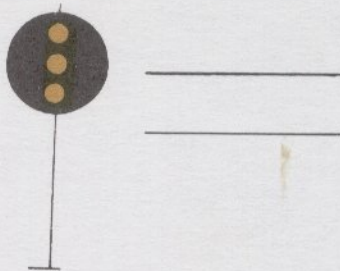


Fig. 2

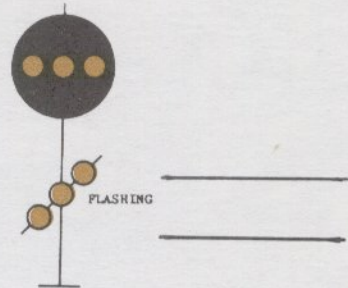


Fig. 3

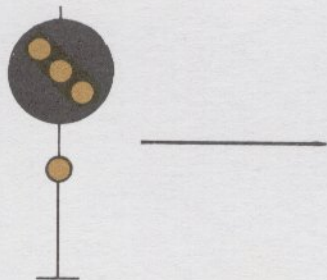


Fig. 4

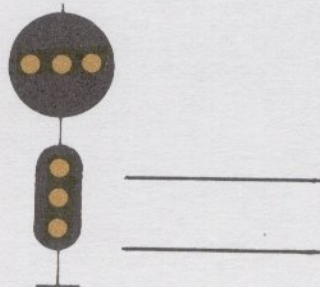


Fig. 5

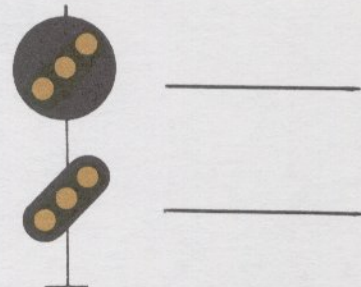


Fig. 6

(Continued on next page)

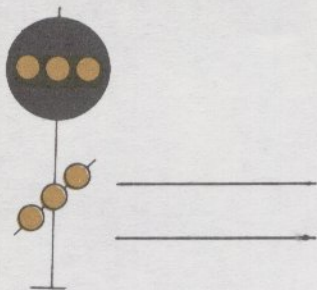


Fig. 7

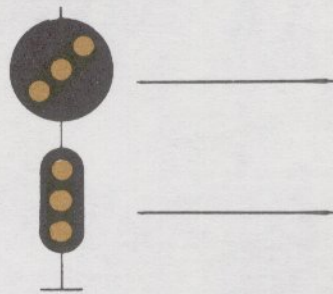


Fig. 8

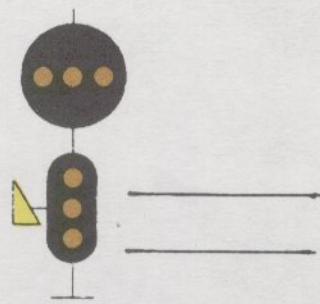


Fig. 9

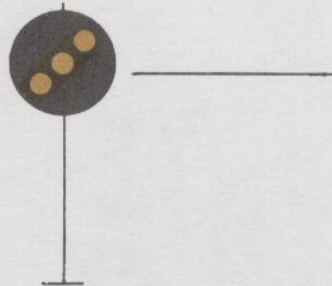


Fig. 10

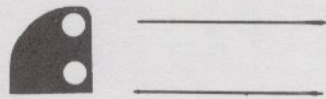


Fig. 11

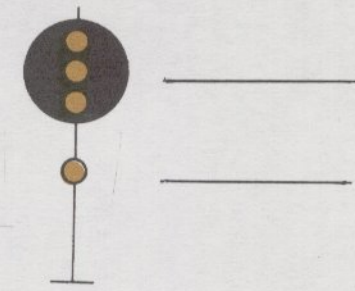


Fig. 12

(Continued on next page)

37. (Continued from previous page)



Fig. 13

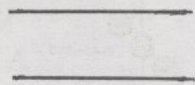


Fig. 14



Fig. 15



Fig. 16

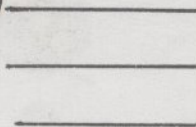


Fig. 17



Fig. 18

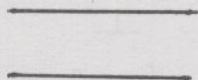
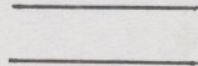


Fig. 19



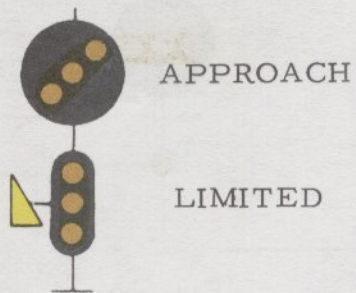


Fig. 1

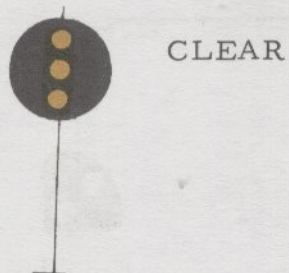


Fig. 2

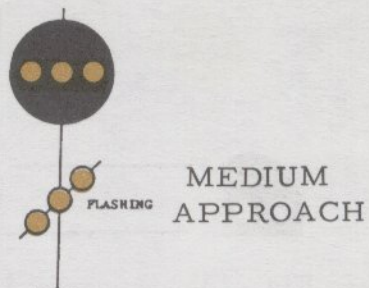


Fig. 3



Fig. 4

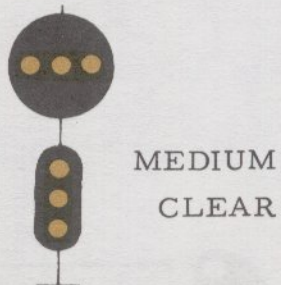


Fig. 5

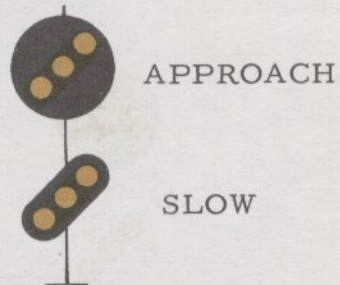


Fig. 6

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37. (Continued from previous page)

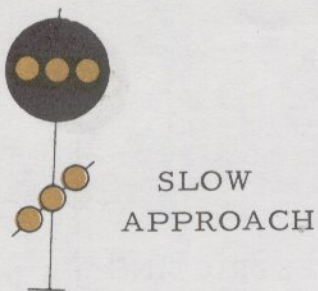


Fig. 7

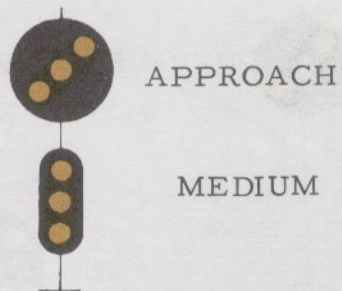


Fig. 8



Fig. 9



Fig. 10

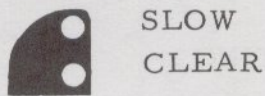


Fig. 11

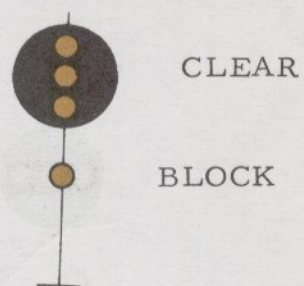


Fig. 12

(Continued on next page)

37. (Continued from previous page)



Fig. 13

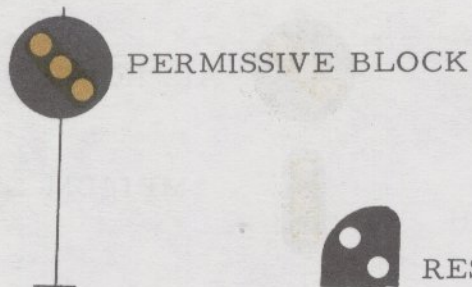


Fig. 14

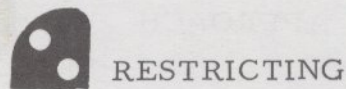


Fig. 15

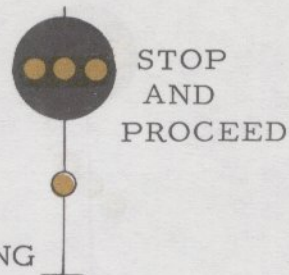


Fig. 16

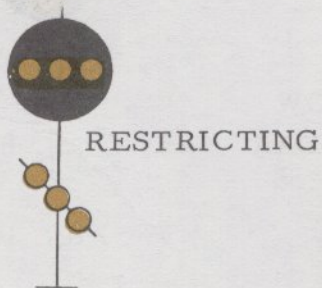


Fig. 17

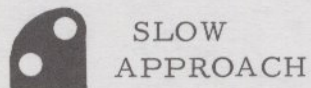


Fig. 18

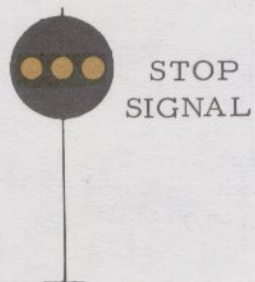
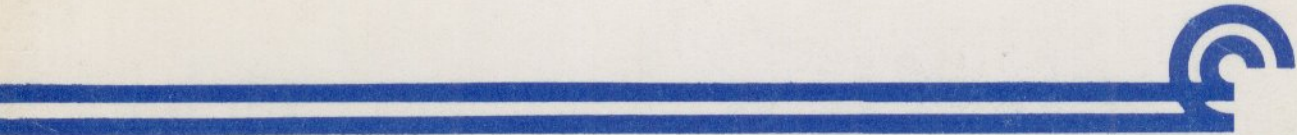


Fig. 19

38. If you memorize the rules and associations we have taught you in this brief course, you will soon master the names of the Position Light Signals.

If you work in territory using the Color Light Signals, ask for the book "Color Light Signal Aspects".

After you have learned the names of the signals, you will need to learn the indications. The book "Learning the Signal Indications" will help you with this problem.



CONRAIL