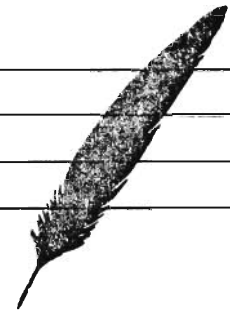


Feather River Rail Society
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OPERATING MANUAL FOR MOVING CARS AT THE MUSEUM

by John J Ryczkowski, Dir. of Cars

Welcome to the operating department this manual is a very brief outline of the information that you need to safely do the job of BRAKEMAN as a part of an operating crew.

The first item is safety, every item in the manual is for your info so that you can do the job safely. Working on or around railroad equipment is fun and enjoyable but all this equipment is inherently dangerous and a moments carelessness can injure or kill yourself or a visitor. We must remember to do everything with safety in mind and all movements will be done safety.

Item 1

HAND SIGNALS

All hand signals must be "understood by all members of the crew" If you send a signal to the engineer and he does not respond properly to your signal, it may be that he does not understand the signal or he may not be able to see you very well. If an engineer receives a poor signal when not moving, he will not start. If he is moving and receives a poor signal, he will stop the movement. You must stay in plain sight when giving signals and always remain, other than throwing a switch, on the engineers side of equipment. Also be careful with your hand movements you may accidentally cause the engineer to think he has received a move signal. Poor or improper hand signals can damage some of the museums collection.

Whistle signals are, (used in answer to your hand signals)

- when standing, brakes applied safe to go between cars, no movement
- - release brake, proceeding forward
- - - backing
- - answer to any signal not otherwise provided for
- - - - crossing

STOP swung horizontally a right angle to the track



A Non-Profit Organization



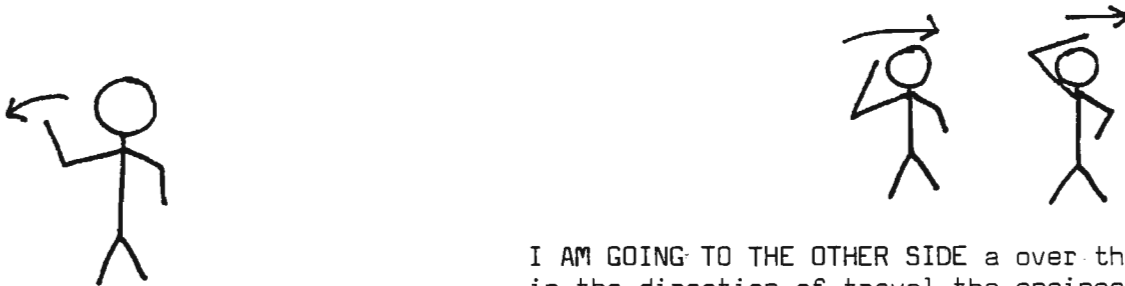
PROCEED raised and lowered vertically

EASY used when you want the engineer to go slower, just before a joint or a stop



COME TO ME to start a movement in your direction

GO AWAY FROM ME another signal used in switching with a hand movement away from the head
come to me is toward the head



I AM GOING TO THE OTHER SIDE a over the head point
in the direction of travel the engineer will hold
until you return or another signal is given to the
fireman

GIVE ME A PIN coupler are tight and you need a little slack to pull the uncoupling pin

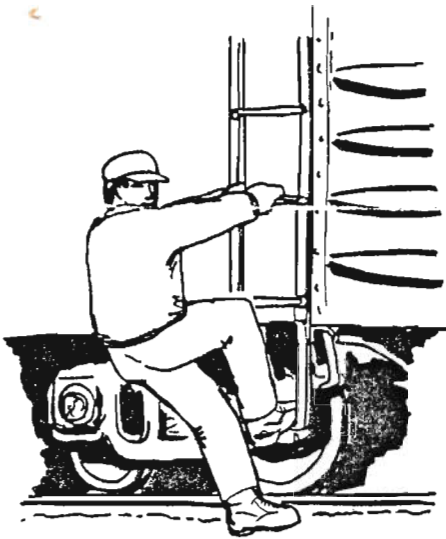


CONNECTING AIR HOSES OR GOING BETWEEN CARS
ENGINEER WILL HOLD UNTIL GIVEN NEW SIGNAL

GETTING ON AND OFF EQUIPMENT

As with all actions in your job you must think first and look for any other movement that may take place in your area. Then look to see where you will be stepping as you approach the equipment you wish to get on. When you are sure of safe footing you will look to see where to place your hands on the car as well as where you will place your feet. Take hold of the grab irons or ladder rungs then place one foot in the stirrup and pull yourself aboard. Getting off standing equipment you must go through the same process except that you step down placing both feet on the ground before releasing your hand hold. Face the equipment, when getting off or on, having hands on grab irons in case of slips

A great deal of brakeman's work involves getting off and on moving equipment. You must check the footing for obstructions or openings in the ground in the direction of the movement as it is usually necessary to take one or two steps when getting on or off moving equipment. Look for close clearances or obstructions along the track and be certain that the speed is not too great for safe boarding. About six miles per hour is a safe speed for boarding or getting off. If you feel the movement is too fast, don't get on until the movement is slowed down by giving the signals to do so. Also don't get off if it is moving too fast.

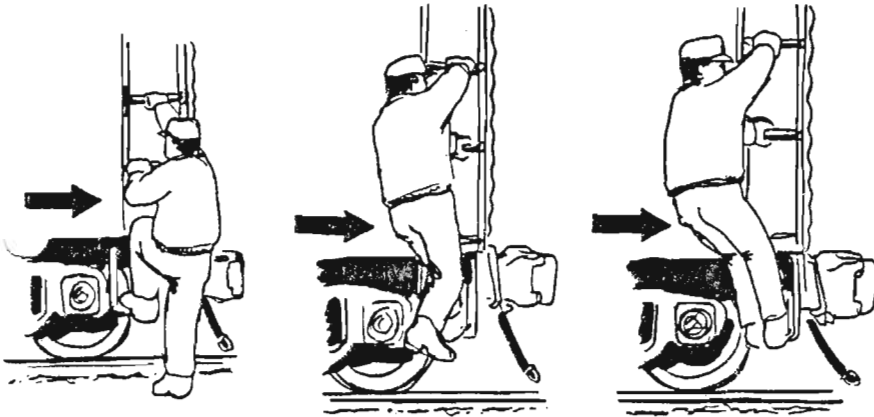


Do no ride or climb on end ladders if cars are in motion to prevent you falling between cars

When you get off moving equipment the trailing foot steps down first, turning your body away from the car. You do not release your hand hold until you have firm footing, always look in the direction of movement.

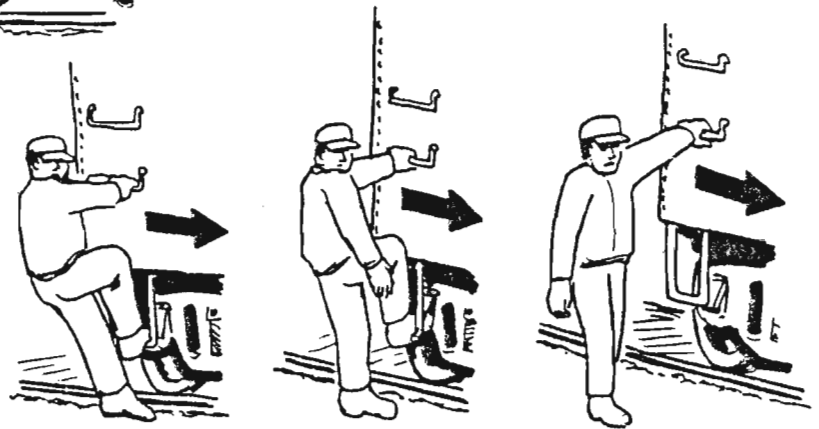
When boarding a moving car, secure a firm hand hold and place the trailing foot in the direction of movement in the stirrup, then bring up the other foot for a solid stance. If you are boarding a car with two hand holds place one hand on one rung, and one on another. This will give you lifting leverage as you board as well as a more secure hold.

CHECK FOR SAFE FOOTING



ACTIONS IN BOARDING

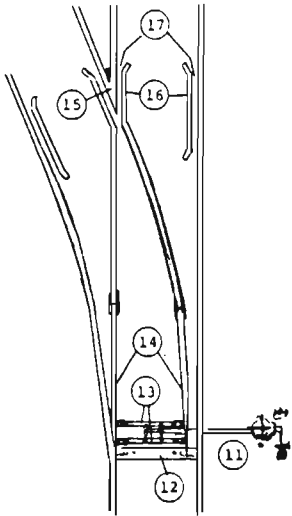
ACTION IN GETTING OFF.....



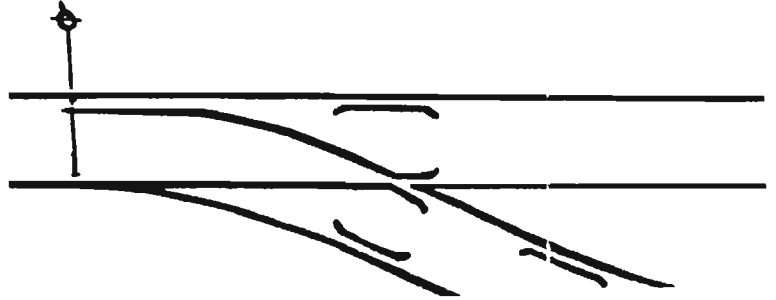
NOTES...

SWITCHES

Make sure a switch is in the correct position for the move and that the proper switch is lined. Do not attempt to operate the switch until the entire movement is clear of the switch.

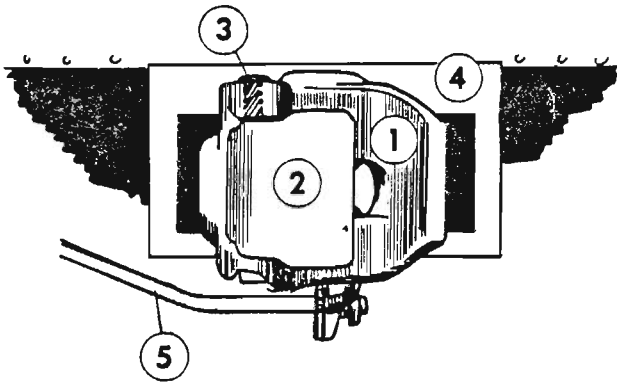


1. Housing
2. Signal Shaft
3. Banner
4. Arm (Lever)
5. Ball
6. Latches
7. Pawl
8. Hasp
9. Lock Hole
10. Release Lever
11. Throw Rod
12. Gauge Plate
13. Tie Bars
14. Points
15. Frog
16. Guard Rails
17. Flangeway

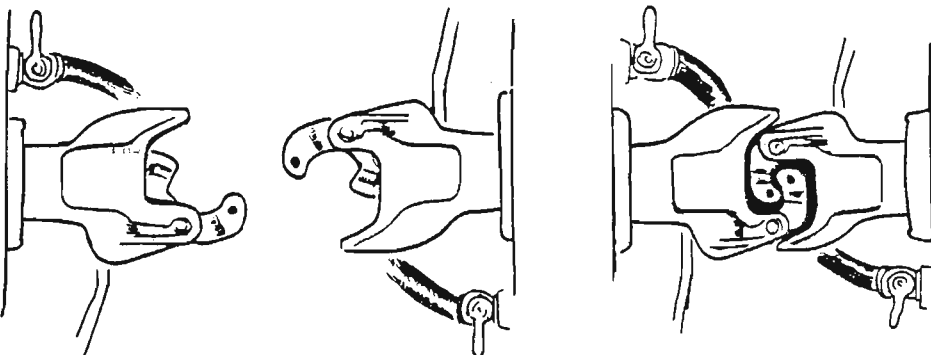


COUPLING AND UNCOUPLING

All cars can be uncoupled by the use of the lift lever and when coupling one coupler needs to be in the open position. If you need to adjust a coupler make sure that there will be no movement when you step in front of the car.



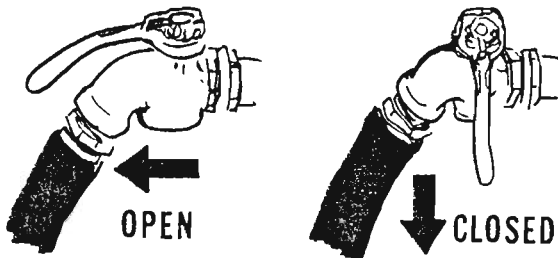
- | | |
|---------------|-------------------|
| ① COUPLER | ④ COUPLER HOUSING |
| ② KNUCKLE | ⑤ LIFT LEVER ROD |
| ③ KNUCKLE PIN | |



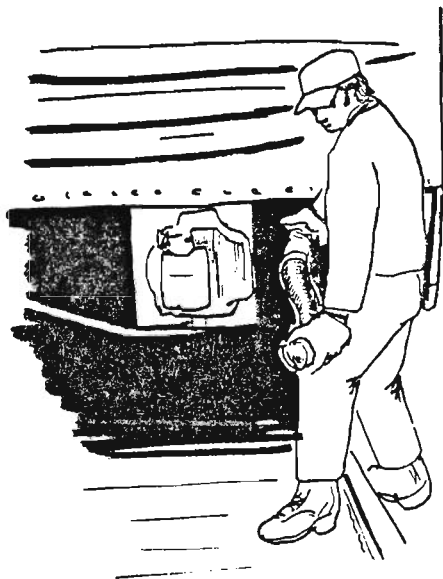
AIR HOSES

The first thing to think about is to be sure all movement has stopped. Then be sure the angle cock is closed as if it is open and the air turned on by someone else the air can come rushing through the air hose can fly up and strike you.

You must learn to have a great deal of respect for an air hose and remember to protect yourself when working near them. Either have the air shut off or have a firm grip on the hose.

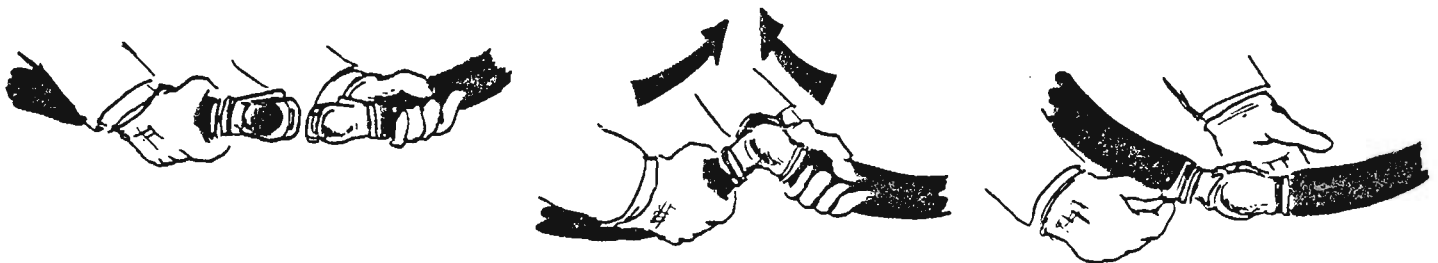


When working between cars be on the safe side. Place one foot between the rails, keeping one foot outside the rails will allow you to move back quickly if need be.



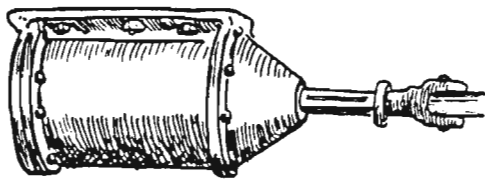
To couple the hoses take the hose on your right, bend it back toward your right shoulder and hold it with your right hand near the glad hand. Then reach under the coupler with your left hand and raise the hose from the other car so the glad hands come together. As you lower the touching hoses, the coupling will be made.

Open the angle cocks slowly to prevent a large drop in pressure that will make the train brakes go into an emergency application.

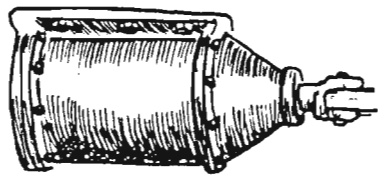


CAR BRAKES AND HAND BRAKES

Many times cars will be moved with the brakes set but you need to know how to check if they are applied or a hand brake is set or unset. Look at the brake cylinder piston travel for applied or released and the position of the brake shoes. Hand brakes can be checked by looking at the vertical bar or chain, tight on loose off.



EXTENDED-BRAKES APPLIED



SLACK-BRAKES RELEASED

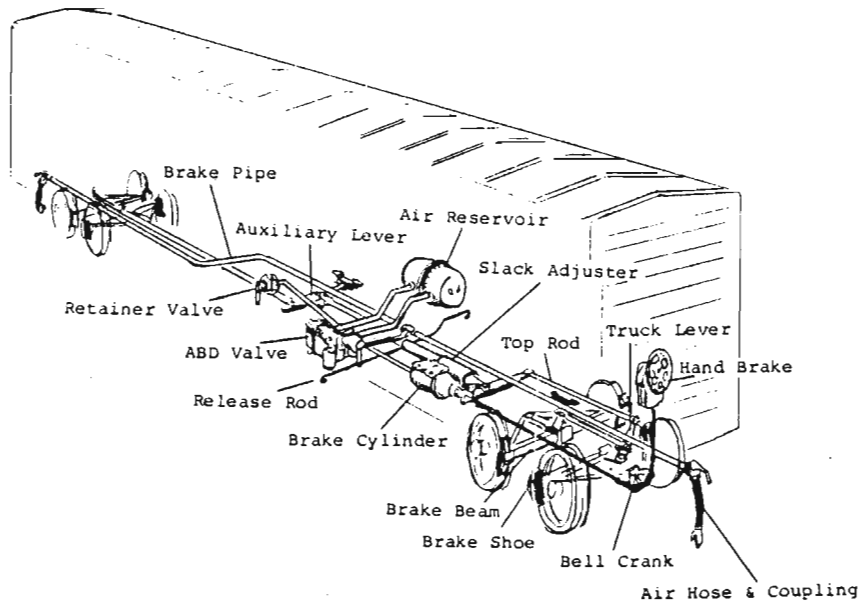
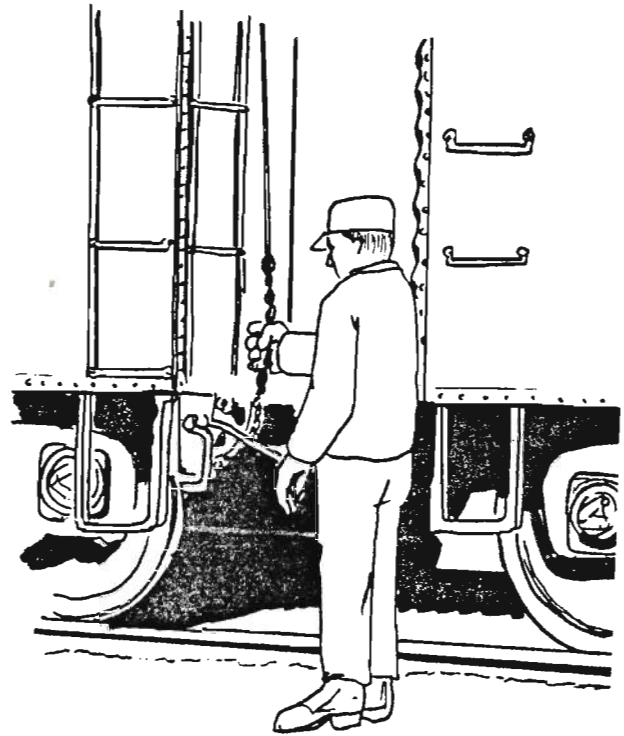
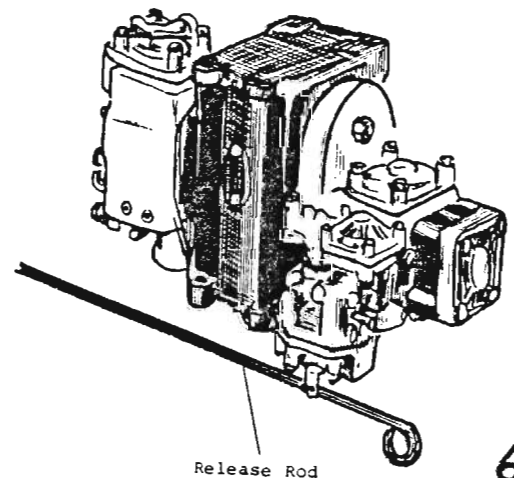


Diagram of the brake equipment under most cars

In order to move a car that has its air brakes applied you need to bleed off the air. This is done by pulling the release rod out about one inch and holding it out until you no longer hear air escaping. Check the piston travel for a complete release

Also note the complete car brake equipment diagram at the back of this manual and a car parts drawing.

ABD VALVE

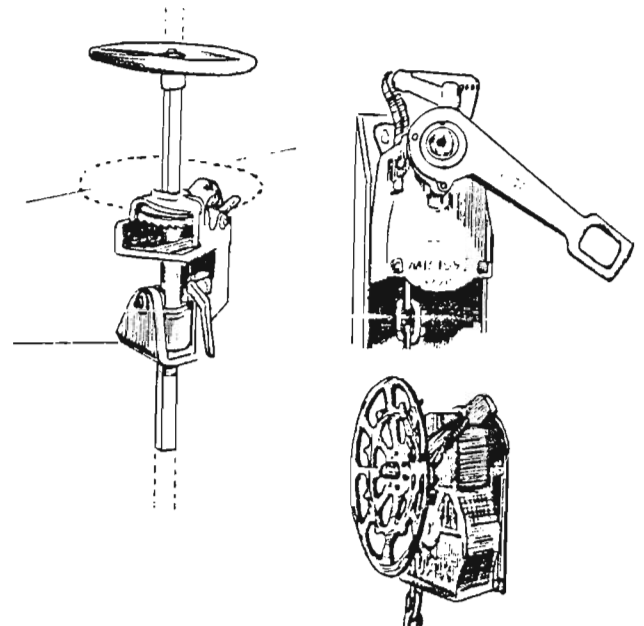
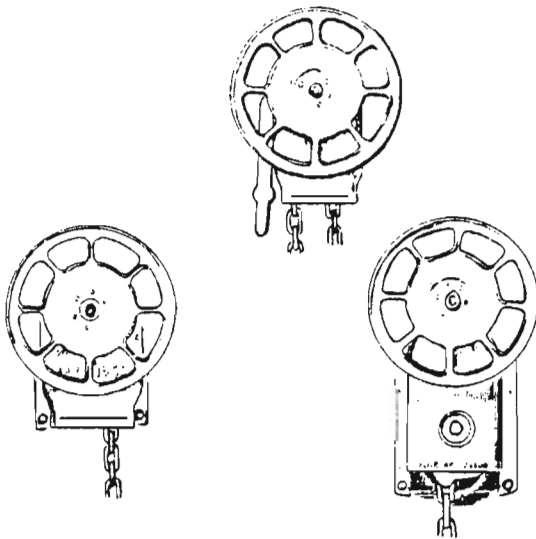


The hand brake operates the car brakes in the same manner as they are engaged by air pressure, only you supply the force needed. Hand brakes are at one end of the car and on most of our box cars at the top of the end ladder.

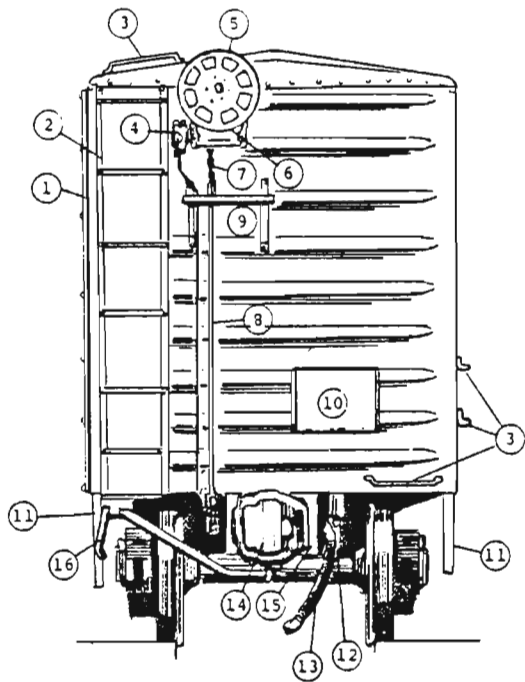
Always climb the side ladder to a height even with the brake platform before you move around to the end ladder. Once you've reached the brake platform position yourself to apply the brake by placing your right foot on the platform and left foot on the end ladder. Hold on with one hand and apply the brake with the other. Most hand brakes have a dog that must be moved to the left to engage the brake ratchet. Do not reach through the brake wheel to move this lever. The wheel will spin when released and can injure you. With few exceptions you should be able to apply a hand brake with one hand. The wheel is turned clockwise to apply. Some newer types do not have a dog and just tighten when on and just turn off. You will only need two or three hard pulls to secure a good brake.



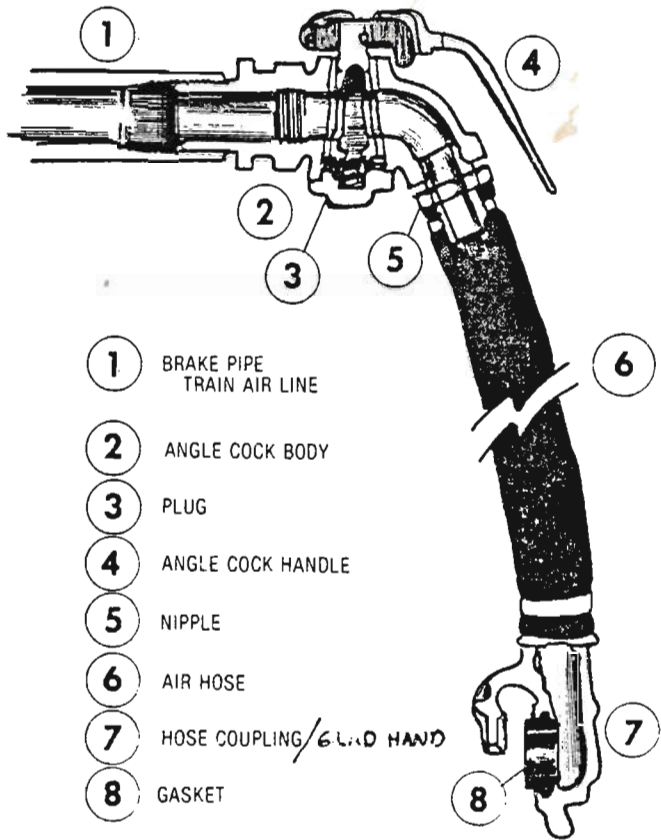
In releasing hand brakes you move the dog to the tight and sometimes may have to press down on it a little bit to achieve release. Keep out of the way of the spinning wheel. Not all brakes will spin when released but be ready for it.



NOTES

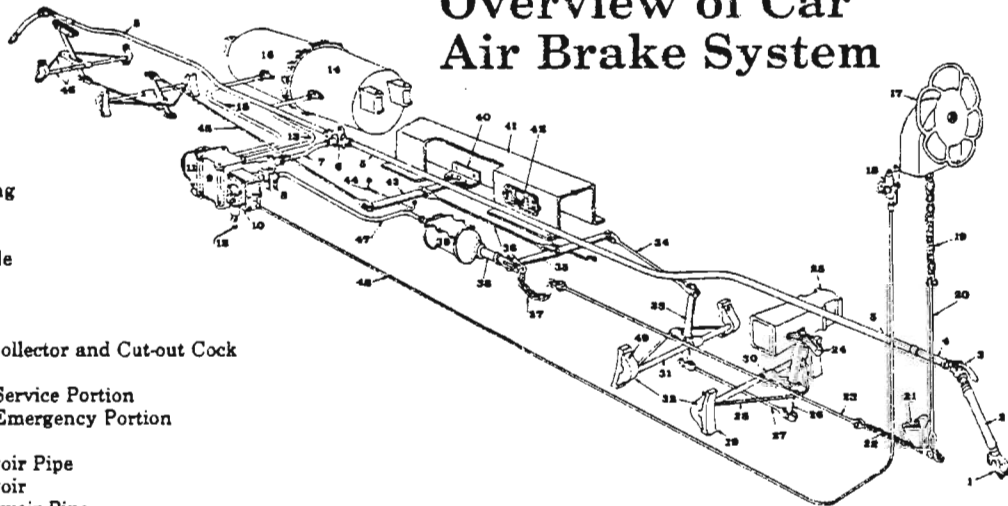


- | | |
|-------------------|---------------------|
| 1. Side Ladder | 9. Brake Platform |
| 2. End Ladder | 10. Placard Board |
| 3. Grab Irons | 11. Stirrups |
| 4. Retainer Valve | 12. Angle Cock |
| 5. Brake Wheel | 13. Air Hose |
| 6. Brake Housing | 14. Coupler |
| 7. Brake Chain | 15. Coupler Housing |
| 8. Brake Rod | 16. Lift lever |



- | | | |
|---|---|------------------------------|
| 1 | 1 | BRAKE PIPE
TRAIN AIR LINE |
| 2 | 2 | ANGLE COCK BODY |
| 3 | 3 | PLUG |
| 4 | 4 | ANGLE COCK HANDLE |
| 5 | 5 | NIPPLE |
| 6 | 6 | AIR HOSE |
| 7 | 7 | HOSE COUPLING/
GLAND HAND |
| 8 | 8 | GASKET |

Overview of Car Air Brake System



- | |
|---|
| 1. Air Hose Coupling |
| 2. Air Brake Hose |
| 3. Angle Cock |
| 4. Brake Pipe Nipple |
| 5. Brake Pipe |
| 6. Branch Pipe Tee |
| 7. Branch Pipe |
| 8. Combined Dirt Collector and Cut-out Cock |
| 9. Pipe Bracket |
| 10. Control Valve—Service Portion |
| 11. Control Valve—Emergency Portion |
| 12. Release Rod |
| 13. Auxiliary Reservoir Pipe |
| 14. Auxiliary Reservoir |
| 15. Emergency Reservoir Pipe |
| 16. Emergency Reservoir |
| 17. Hand Brake |
| 18. Retainer Valve |
| 19. Hand Brake Winding Chain |
| 20. Hand Brake Vertical Rod |
| 21. Hand Brake Bell Crank |
| 22. Bell Crank Brake Chain |
| 23. Hand Brake Connecting Rod |
| 24. Dead Lever Guide |
| 25. Truck Bolster |
| 26. Truck Dead Lever |
| 27. Bottom Rod |
| 28. Brake Beam Tension Member |
| 29. Brake Shoe |
| 30. Brake Beam Truss |
| 31. Brake Beam Compression Member |
| 32. Brake Head |
| 33. Truck Live Lever |
| 34. Cylinder and Truck Lever Connecting Rod |

- | |
|---|
| 35. Cylinder Lever |
| 36. Cylinder and Floating Lever Connecting Rod |
| 37. Hand Brake Connecting Chain |
| 38. Piston Hollow Rod |
| 39. Brake Cylinder |
| 40. Floating Lever Fulcrum |
| 41. Center Sill |
| 42. Brake Badge Plate |
| 43. Floating Lever |
| 44. Floating Lever Guide |
| 45. Floating and Truck Level Connecting Rod (top rod) |
| 46. Brake Beam |
| 47. Brake Cylinder Pipe |
| 48. Retainer Pipe |
| 49. Brake Shoe Key |