

INSTRUCTIONS

— TO —

**Passenger Enginemen, Trainmen,
Car Inspectors and
Repairmen**

RELATIVE TO

THE OPERATION

— OF THE —

**COMMON STANDARD UNIVERSAL
TYPE UC**

Passenger Car Brake Equipment



SUPPLEMENT No. 1

**To the Air Brake and Train Air Signal
INSTRUCTION BOOK No. 99**

— OF THE —

APPROVED CHARTERED HONORARY
TYPE NO.

Memorial Car Park Equipment

FOR THE MEMORIAL NO. 1
LONG 40 mile and 1000 ft. of
CONSTRUCTION ROAD NO. 99

PENNSYLVANIA RAILROAD COMPANY
LINES EAST AND WEST OF PITTSBURGH

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INSTRUCTION BOOK No. 99**

Office General Supt. Motive Power
Altoona, Pa.
1913

GENERAL NOTICE.

The description of this new brake together with the questions and answers have been compiled for the information and guidance of employes in passenger train service, whose duties are in any way connected with the operation or maintenance of the Common Standard Universal Valve Type UC Passenger Car Brake Equipment.

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November 6th, 1913.

Description, Questions and Answers on the Common Standard Universal Valve, Type UC, Brake Equipment

This new brake equipment, now being applied to our steel passenger equipment cars operating in through service, has the following novel features to meet the new conditions of operation:

1. Quick recharge (and Graduated Release if desired). The air supply to assist in recharging and to accomplish the graduations of the release is taken from the emergency reservoir. This not only adds to the flexible control of the brakes, but also insures an additional factor of safety, because the universal valve is constructed so that the brakes must be either set or the system recharged ready for prompt application when desired.

2. THE ELIMINATION OF THE GRADUATED RELEASE FEATURE is especially provided for in the construction of the valve. During the transition period when the graduated release equipment is likely to be handled in the same train with cars not so equipped, especially where long trains are handled and the air supply is likely to be limited in any way for any cause, it is best to cut out the graduated release feature until all cars are furnished with this type of brake.

All that is required to change this equipment from a graduated release to a direct release brake, or vice versa, is the changing of the direct and graduated release cap from one position to another.

3. CERTAINTY AND UNIFORMITY OF SERVICE ACTION combined with protection against undesired operation due to inevitable fluctuations of the brake pipe pressure, or of such small brake pipe reductions being made by the engineer that a release would be difficult. This is secured by insuring that the valve parts move so as to close the feed groove on the slightest brake pipe reduction, the design of the valves being such as to then require the necessary and proper differential to be built up to move the parts to service position as the brake pipe reduction is continued.

4. THE SERVICE AND EMERGENCY FUNCTIONS ARE SEPARATED, which permits obtaining the necessary flexibility for service applications without impairing, in the slightest, the emergency features of the equipment. It also eliminates the possibility of undesired quick action, so far as the service operations are concerned.

5. GREATLY INCREASED SENSITIVENESS TO RELEASE, as demanded by changed conditions which tend to produce a very slow rate of rise of brake pipe pressure when releasing and re-

charging, especially toward the rear of a long train of heavy cars having large reservoirs. It then becomes necessary to provide the maximum sensitiveness to an increase in brake pipe pressure in order to insure all valves in the train responding as intended.

6. **AUTOMATIC EMERGENCY ON DEPLETION OF BRAKE PIPE PRESSURE.** If the brake pipe pressure is reduced below a predetermined minimum (35 lbs.), either by continued "over reduction" or leakage, the parts will move automatically to emergency position and cause both the quick action and emergency features of the brake to operate. This will cause simultaneous quick action throughout the train if the brake is being operated electrically, or serial quick action, if operated pneumatically in either case obtaining emergency brake cylinder pressure.

7. **FULL EMERGENCY BRAKE CYLINDER PRESSURE AT ANY TIME.** As the operation of the emergency and quick action portions just described is dependent only upon the movement of the parts to emergency position, and as this can be caused at any time by moving the brake valve to emergency position, opening of conductor's valve, etc., it follows that full emergency braking power can be obtained at any time, irrespective of service applications previously made.

8. **MAXIMUM RATE OF RISE OF BRAKE PIPE PRESSURE POSSIBLE** when releasing the brakes

with consequently greater certainty of all brakes releasing when intended. The auxiliary reservoir is charged from the emergency reservoir when the graduated release feature is operative, up to about 5 pounds less than normal brake pipe pressure, so that practically no air is drawn from the brake pipe during that time. This insures a prompt and certain release of the brakes and a rapid recharge and prompt response to successive reductions which may be made, because (1) the air delivered to the brake pipe is all effective in raising its pressure, and (2) the auxiliary reservoir and brake pipe charge at the same rate.

With the graduated release feature inoperative, the emergency reservoir does not recharge the auxiliary reservoir as explained above, but owing to the small volume of the auxiliary reservoir, the release is still much more positive and certain than with the older equipments, and this is especially true in the case of long trains, where with the old equipment there are large volumes to charge, which since their source of supply is the brake pipe, necessitates large feed grooves. This makes the rate of increase of brake pipe pressure on the rear end very slow, since the reservoirs on the head end are taking the air from the brake pipe almost as rapidly as the brake valve can supply it.

PARTS OF THE UNIVERSAL COMMON STANDARD EQUIPMENT.

Shown on pages 36 and 37. Figs. 1 and 2.

THE TYPE U UNIVERSAL VALVE corresponds in a general way to the triple valve of the old style passenger equipment. It operates to control the admission of air to and from the brake cylinders. The device consists of the following portions:

- (a) THREE-FACE ANGLE BRACKET to which is bolted the different portions and which includes two chambers—THE QUICK ACTION CHAMBER, AND THE QUICK ACTION CLOSING CHAMBER, The bracket is bolted to the underframing of the car, all pipe connections being made permanently to this bracket so that they need not be disturbed in the removal or replacement of any one of the operating portions of the universal valve.
- (b) THE EQUALIZING PORTION which is similar, in a general way, to the plain triple valve of the old style brake. It is the portion which is directly affected by variations in brake pipe pressure and it controls (either directly or indirectly, through the medium of the other portions of the

universal valve), the desired charging of the reservoirs, the application of the brake, whether in service or emergency, and the release of the brake.

- (c) THE QUICK ACTION AND HIGH PRESSURE PORTION which includes the various parts controlling the quick action and high pressure functions.
- (d) THE ELECTRIC PORTION which comprises the APPLICATION and RELEASE MAGNETS and the emergency switch. This portion is for the present omitted, and a plain plate bolted to the bracket in its place.

FOUR SUPPLY OR STORAGE RESERVOIRS designated as the AUXILIARY, SERVICE and EMERGENCY reservoirs.

The AUXILIARY and SERVICE RESERVOIRS combined form the reservoir volume for the brake cylinder in service applications and are so connected that when recharging the equipment after a brake application, (graduated release feature cut out) the service reservoir is temporarily cut off from the source of air supply and only the auxiliary reservoir volume is connected to the brake pipe. This reduces to a minimum the amount of air required to release all the brakes in the train. After the brake pipe

and auxiliary reservoir pressure has increased to within five pounds of the pressure in the EMERGENCY RESERVOIRS, the service reservoir is automatically cut in and will then recharge to the same pressure as that to be carried in the brake pipe. The dividing of the compressed air volume, for service applications only, into two volumes (AUXILIARY AND SERVICE RESERVOIRS) permits of a very flexible graduated release with a minimum emergency reservoir volume, as the graduated release feature is controlled by the expansion of emergency reservoir air into the auxiliary reservoir volume; also to have a smaller volume for the emergency reservoir to equalize with in graduated release operation, thereby making this feature more positive. The EMERGENCY RESERVOIRS, besides being used in obtaining the graduated release, provide for high emergency brake cylinder pressure, and recharging of reservoirs as above described.

A BRAKE CYLINDER with piston and rod so connected through the brake levers and rods to the brake shoes that when the piston is forced outward by air pressure, this force is transmitted through the rods and levers to the brake shoes and applies them to the wheels.

The usual angle and CUT OUT COCKS, CENTRIFUGAL DIRT COLLECTOR, HOSE COUPLINGS, ETC., with an additional special cut out cock in the

brake cylinder supply pipe located close to the brake cylinder, complete the equipment.

The following general instructions are for the guidance of all interested:

ENGINEMEN AND FIREMEN.

A—The air brakes on passenger trains containing cars equipped with the Common Standard Universal Brake, are to be tested and operated according to present instructions, covered in book No. 99, The Air Brake and Train Air Signal Instructions, as issued.

B—To avoid causing unnecessary emergency application of the brakes when making up trains, shifting cars out of trains or adding cars to trains, it is important that the brake pipe pressure is not reduced suddenly or sufficiently to cause an emergency application and thus avoid delay due to the time which would be required to restore brake pipe pressure to approximately 90 pounds before the brakes can be released.

TRAINMEN.

A—Should the brake on a car, equipped with the Common Standard Universal Brake, become defective, while in train service, close the cut-out cock in the branch pipe and drain all reservoirs, leaving the drain cock handles in open position, reporting the cause on blank provided for the purpose and handing to Inspector at next

regular point of inspection. In cases where the brake on a car in service does not apply with a service application, but does apply and release properly with an emergency application, the brake should not be cut out, but the condition reported on standard blank above referred to.

B—The opening of angle cocks to apply brakes on cars must be avoided, except in actual emergency cases. In making up trains, shifting cars out of trains or adding cars to the trains, it is important that the brake pipe pressure is not reduced suddenly or sufficiently to cause an emergency application of the brakes, therefore, angle cock handles must be turned slowly in line with the hose after hose couplings are united, as covered by Rule No. 33 of book No. 99, The Air Brake and Train Air Signal Instructions, as issued. Disregard of the above will cause delays due to the time which would be required to restore brake pipe pressure to approximately 90 pounds before the brakes can be released.

CAR INSPECTORS AT ORIGINATING OR THROUGH INSPECTION POINTS.

A—Leaks at joints or connections must receive very careful attention, as slight leaks will seriously affect the operation of this brake.

B—The testing of brakes on passenger cars in trains equipped with the Common Standard Universal Brake, is to be conducted according

to present instructions, covered in book No. 99, The Air Brake and Train Air Signal Instructions, as issued.

C—Should the brake on a car provided with the Common Standard Universal Brake be found defective, while in train service, close the cut-out cock in the branch pipe and drain all reservoirs, except the large emergency reservoir to which the water raising system is connected, leaving the drain cock handles in open position, reporting this condition to the Conductor in charge of the train. When the defect is in the brake rigging and the Universal Valve is in no way defective, the cut-out cock in the brake cylinder pipe may be closed, leaving the cut-out cock in the branch pipe open. Wherever possible, the cutting out of brakes at through inspection points should be avoided by making repairs to defective parts, or the removal of parts requiring attention and replacing with parts in good order. When making repairs to any part of the brake rigging, the brake cylinder cut-out cock must be closed while repairs are being made.

D—Cars or trains placed for service and originating at regular inspection points, must at all times have the brakes operative and in good condition for service.

E—The opening of angle cocks to apply brakes on cars must be avoided except in actual

emergency cases. In making up trains, shifting cars out of trains or adding cars to the trains, it is important that the brake pipe pressure is not reduced suddenly or sufficiently to cause an emergency application of the brakes; therefore, angle cock handles must be turned slowly in line with the hose after hose couplings are united, as covered by Rule No. 33, of Book No. 99, The Air Brake and Train Air Signal Instructions, as issued. Disregard of the above will cause delays, due to the time which would be required to restore brake pipe pressure to approximately 90 pounds before the brakes can be released.

CAR INSPECTORS AT TERMINAL LAY-OVER POINTS.

A—Passenger cars provided with the Common Standard Universal Brake are to be tested by means of Terminal Test Rack in the same manner as now in effect for cars provided with the older type of brake, and repairs to brake apparatus must receive the same careful attention so as to avoid delays and trouble after the cars are placed for service.

B—Terminal lay-over points for passenger equipment cars should have in stock a sufficient number of type UC valves to replace those found defective. The repairing and cleaning of the type UC valve must be performed in the

same manner as required for triple valves, as called for in book No. 99, The Air Brake and Train Air Signal Instructions.

C—In order that UC valves may be properly repaired and tested, all Westinghouse test racks of late design used for testing of triple valves at shops, should be provided with attachments as designed by the Westinghouse Air Brake Company for testing of UC brake details and tests should be carried out in accordance with their standard code of tests.

QUESTIONS AND ANSWERS ON THE UNIVERSAL COMMON STANDARD TYPE UC PASSENGER CAR BRAKE EQUIPMENT.

QUES. 1. Have you noticed there is a new passenger brake equipment in service on a number of the steel passenger equipment cars?

ANS. Yes.

QUES. 2. What is the object of this new air brake equipment?

ANS. To provide a brake of greater efficiency in passenger service, and to add certain features not covered by the older type of brake, which are made necessary by heavier cars and longer trains.

QUES. 3. What is the name of this equipment when complete.

ANS. The Westinghouse Universal Common Standard Electro Pneumatic —(Type UC).

QUES. 4. Will this brake operate in harmony with other air brake equipment in the same train?

ANS. Yes, if the brakes are operated according to present instructions.

QUES. 5. What are the essential parts of this equipment?

ANS. Hose and couplings, angle cock, brake pipe, conductor's valve, special branch pipe tee and strainer, branch pipe, cut-out cock, centrifugal dirt collector, Universal Valve, auxiliary, service and emergency reservoirs, cut off valve in emergency reservoir pipe, brake cylinder, cut-out cock in brake cylinder pipe, slack adjuster, brake rigging and the necessary wiring and electrical attachment when the complete electro-pneumatic equipment is installed.

QUES. 6. How many parts compose the Complete Universal Valve?

ANS. Three-faced angle bracket, equalizing portion, quick action portion with high pressure cap and electric portion.

QUES. 7. What part of this equipment is being applied at this time?

ANS. All except the electric portion, which is replaced by a plain flat cap.

QUES. 8. Is the bracket to which the Universal valve is secured used for any other purpose?

ANS. Yes; for all pipe connections and it contains the quick action chamber and

quick action closing chamber as described later.

QUES. 9. What are the duties of the equalizing portion?

ANS. It controls the charging of the reservoirs, the application and release of brakes in service and through the medium of the quick action portion, the application and release of the brakes in emergency.

QUES. 10. What does the equalizing portion consist of?

ANS. Equalizing piston, slide and graduating valve, graduated release piston, reduction limiting valve, release piston and slide valve, service reservoir charging valve, service port check valve, emergency reservoir charging port check valve and graduated release cap.

QUES. 11. What is the duty of the equalizing piston?

ANS. It controls the opening and closing of the auxiliary reservoir feed groove and emergency reservoir charging port and actuates the movement of the equalizing slide valve and graduating valve.

QUES. 12. What is the duty of the equalizing slide valve?

ANS. In release position it separates the service reservoir from the auxiliary reservoir; connects the release end of release piston to atmosphere by way of the graduating valve; blanks the port leading to application end of release piston, and closes the service port.

In application position it connects the service reservoir to the auxiliary reservoir; blanks the port leading to release end of release piston; connects the port leading to application end of release piston to atmosphere, and opens the service port to brake cylinder.

QUES. 13 What is the duty of the graduating valve?

ANS. In release position it closes the service port in the slide valve; connects the release end of the release piston, through the slide valve to the atmosphere, and connects the auxiliary reservoir pressure to the resistance increasing cavities in the slide valve. In application position it opens the service port in

the equalizing slide valve; connects the application end of release piston to the atmosphere; closes the communication from the release end of release piston to the atmosphere, and connects the resistance increasing cavities to the atmosphere.

QUES. 14. What is the duty of the reduction limiting valve?

ANS. Its duty is to limit the brake pipe reduction to that necessary for equalization when operating electrically. As long as electric operation is not used this valve performs no function.

QUES. 15. What is the duty of the release piston and its slide valve?

ANS. The release piston in release position operates the release slide valve. The release slide valve opens the emergency reservoir charging port, service reservoir charging port, graduated release port, high pressure valve port and brake cylinder exhaust port. In application position it closes the emergency reservoir charging port, service reservoir charging port, graduated

release port, brake cylinder exhaust port and connects the high pressure valve port to the port that leads to the emergency slide valve and the port that leads through the equalizing slide valve to the atmosphere.

QUES. 16. What is the duty of the service reservoir charging valve?

ANS. Its duty is to prevent the charging of the service reservoir until the auxiliary reservoir has been charged to within five pounds of the emergency reservoir pressure.

QUES. 17. What is the duty of the service port check valve?

ANS. To permit air to flow from the auxiliary and service reservoirs to the brake cylinder and prevent it from flowing back from the brake cylinder into these reservoirs.

QUES. 18. Why is this check valve necessary?

ANS. In emergency applications the service and auxiliary reservoirs first equalize into the brake cylinder, then the connection between these reservoirs and the brake cylinder is closed, permitting the emergency

reservoir to equalize with the brake cylinder at a higher pressure. The service port check valve prevents the air in the brake cylinder from flowing back into the auxiliary and service reservoirs through the service port.

QUES. 19. What is the duty of the emergency charging port check valve?

ANS. To prevent emergency reservoir pressure from passing back to equalizing piston chamber and brake pipe.

QUES. 20. What is the duty of the graduated release piston?

ANS. To stop the equalizing piston and slide valve in graduated release position when operating with graduated release cut in.

QUES. 21. What is the purpose of the graduated release cap?

ANS. To change the valve from direct to graduated release or vice versa.

QUES. 22. Of what does the quick action portion and high pressure cap consist?

ANS. Emergency piston, graduating valve, slide valve, protection valve, high pressure valve, intercepting valve, cut out valve, safety valve, quick

action piston and valve, quick action chamber and quick action closing chamber.

QUES. 23. What is the duty of the emergency piston and its slide valve?

ANS. The emergency piston opens and closes the quick action chamber feed groove, and operates the graduating valve and slide valve. The duties of the slide valve in release position are to open the quick action closing chamber port and connect the face of the high pressure valve and cut out valve to the atmosphere. In application position it first connects the quick action chamber to the quick action piston and emergency switch piston then closes these ports and opens a connection from the quick action closing chamber to the quick action piston and emergency switch piston; closes the the quick action closing chamber port, connects the back of the high pressure valve to the atmosphere through the cavity in the release slide valve, and connects the quick action chamber to the brake cylinder.

QUES. 24. What is the duty of the emergency graduating valve?

ANS. To open and close the communication between the quick action chamber and the quick action piston and emergency switch piston.

QUES. 25. What is the duty of the protection valve?

ANS. To cause automatic emergency application of the brakes when the brake pipe pressure is from any cause reduced below a predetermined point, namely, 35 lbs.

QUES. 26. What is the duty of the high pressure valve?

ANS. The high pressure valve acts as a pilot valve to control the operation of the intercepting valve—and it opens and closes the large port to the brake cylinder in emergency applications.

QUES. 27. What is the duty of the intercepting valve?

ANS. To allow the auxiliary and service reservoirs to equalize into the brake cylinder quickly in advance of the emergency reservoir, and then cut off the auxiliary and ser-

vice reservoirs and allow the emergency reservoir to equalize with the brake cylinder, thereby giving a high emergency brake cylinder pressure.

QUES. 28. What is the duty of the safety valve cut out valve?

ANS. The duty of this cut out valve in service applications is to allow brake cylinder pressure to pass to the safety valve. In emergency applications it admits auxiliary, service and emergency reservoir pressure to the brake cylinder and cuts out and unseats the safety valve.

QUES. 29. What is the duty of the safety valve?

ANS. To prevent high brake cylinder pressure in service application.

QUES. 30. To what pressure is the safety valve adjusted?

ANS. Adjusted to 60 lbs.

QUES. 31. Name the air storage reservoirs that are used with this equipment on each car.

ANS. Auxiliary, service and emergency reservoirs.

QUES. 32. What is the object of using a service

reservoir in addition to the auxiliary reservoirs?

Ans. The auxiliary and service reservoirs combined form the reservoir volume for the brake cylinder in service applications and are so connected that when recharging the equipment (graduated release feature cut out) after a brake application, the service reservoir is temporarily cut off from the source of air supply and only a small auxiliary reservoir volume is connected to the brake pipe. This reduces to a minimum the amount of air required to release all brakes on the train. With graduated release cut in the dividing of the compressed air volume for service application only, into two volumes, (auxiliary and service reservoirs) permits of a very flexible graduated release with a minimum emergency reservoir volume.

QUES. 33. What is the object of the emergency reservoirs?

Ans. To operate the graduated release pneumatically and to assist in recharging the service reservoir when

the service reservoir charging valve opens and to give a high brake cylinder pressure in emergency application.

QUES. 34. What is the reason for having two emergency reservoirs with cut off valve in the pipe to the large emergency reservoir?

ANS. To furnish the large volume of air necessary for the quick recharge of the service reservoir and the graduated release feature (when used), but at the same time, by the operation of the cut off valve to cut off the large emergency reservoir when an emergency application is made so that the small emergency reservoir only is then used, thus limiting the brake cylinder pressure to that desirable during the transition period.

QUES. 35. How many cut out cocks are there to this equipment and where located?

ANS. Two; one located in the branch pipe, and one in the brake cylinder pipe.

QUES. 36. Is each reservoir equipped with a drain cock?

ANS. Yes.

QUES. 37. Should the air brake become defective on the car and it is necessary to cut it out of service, what must be done?

ANS. If the defect is in the brake rigging, the cut-out cock should be closed in the brake cylinder pipe. If the defect is in the valve itself, the cut-out cock in the branch pipe should be closed and all reservoirs drained, except the large emergency reservoir to which the water raising system is connected. The three reservoirs which were drained should have the handles left in the open position.

QUES. 38. If the reservoirs are fully charged and the air brake fails to apply in service, where would you look for the trouble?

ANS. In the equalizing portion.

QUES. 39. With all reservoirs fully charged and the air brake fails to apply in quick action when making an emergency application, where would you look for the trouble?

ANS. In the quick action portion.

QUES. 40. When making a service application

and the brake applies in quick action, where would you look for the trouble?

ANS. In the quick action portion.

QUES. 41. When making a service or an emergency application and the brake fails to release, where would you look for the trouble?

ANS. In the quick action port on.

QUES. 42. If undesired quick action occurs on a car equipped with either the old or new brake equipment, will it cause the other brakes to go into quick action?

ANS. Yes.

QUES. 43. Will any defect in the equalizing portion cause undesired quick action?

ANS. No; because the quick action functions of the universal valve are entirely separate from the service functions of the valve.

QUES. 44. If the brake pipe pressure is reduced to 35 pounds in making service application and the brakes set in quick action, is the equipment defective?

ANS. No. The brake is designed to go to

emergency when the brake pipe pressure is reduced to this point.

QUES. 45. What brake pipe pressure is necessary to release the brake after an emergency application?

ANS. Approximately 90 lbs.

QUES. 46. Why is it important in making up trains or shifting cars that the brake pipe pressure should not be reduced sufficiently to cause the protection valve to apply the brakes in the emergency?

ANS. To avoid causing an emergency application of the brakes which would cause a delay due to the time which would be required to restore brake pipe pressure to 90 pounds before the brakes can be released.

QUES. 47. Will less than a 5-pound service reduction apply this brake?

ANS. No. On account of the resistance increasing cavities being open to the atmosphere requiring this differential to move the slide valve.

QUES. 48. What is the proper position for the pointer of the graduated release cap?

ANS. Direct release position.

QUES. 49. Why should it not be placed in graduated release position?

ANS. Because it is not intended that the graduated release feature should be used until a sufficient number of cars are equipped to warrant its use.

QUES. 50. What may cause a blow at the equalizing slide valve exhaust in release position?

ANS. A leaky equalizing slide valve or graduating valve or the seal at the release end of the release piston.

QUES. 51. What may cause a blow at the equalizing slide valve exhaust in the application position?

ANS. A leaky slide valve or graduating valve or the seal at the application end of the release piston.

QUES. 52. What may cause a blow at the release slide valve exhaust in release position?

ANS. A leaky release slide valve.

QUES. 53. What may cause a blow at release slide valve exhaust in application position?

Ans. It may be caused by leaky release slide valve, or equalizing slide valve.

QUES. 54. What may cause a blow at the emergency slide valve exhaust in release position?

Ans. A leaky emergency slide valve or high pressure valve.

QUES. 55. What may cause a blow at emergency slide valve exhaust in emergency position?

Ans. A leaky emergency slide valve, leaky release slide valve, or leaky outside seal of the high pressure valve.

QUES. 56. What may cause a blow at the quick action exhaust when the valve is in release position?

Ans. A leaky quick action valve or emergency graduating or slide valve.

QUES. 57. What may cause a blow at the protection valve exhaust with the brake released?

Ans. Leaky atmospheric seal.

QUES. 58. What may cause a blow at the protection valve exhaust when the brake is applied in emergency?

Ans. A leaky emergency piston gasket

combined with a leaky emergency piston ring.

QUES. 59. What may cause a blow at the brake cylinder exhaust in release position?

ANS. A leaky release slide valve.

QUES. 60. What may cause a blow at the brake cylinder exhaust in application position?

ANS. A leaky release slide valve or equalizing slide valve.

QUES. 61. Why is it important to examine the gaskets when changing any of the portions?

ANS. To see that all ports are open, that the gasket is in good condition and properly applied.

QUES. 62. Is it the intention to use the electric features of this brake at some future time?

ANS. Yes, as soon as a sufficient number of cars have been equipped with this type of apparatus to warrant using the electric features.

QUES. 63. Why was a cut-out cock located in the brake cylinder pipe?

ANS. To eliminate the time required to

drain and recharge these reservoirs as well as eliminating the waste of air when it is necessary for inspectors to make repairs to any part of the brake rigging.

QUES. 64. When making repairs to any part of the brake rigging, in what position should this cut-out cock be placed.

ANS. In the closed position, to close communication between the brake cylinder and Universal Valve so that no pressure can be admitted to the brake cylinder in case a brake pipe reduction should be made from any cause. This cut-out cock is of special design so as to vent brake cylinder pressure to the atmosphere in the closed position and cut off communication between the brake cylinder and the Universal Valve.

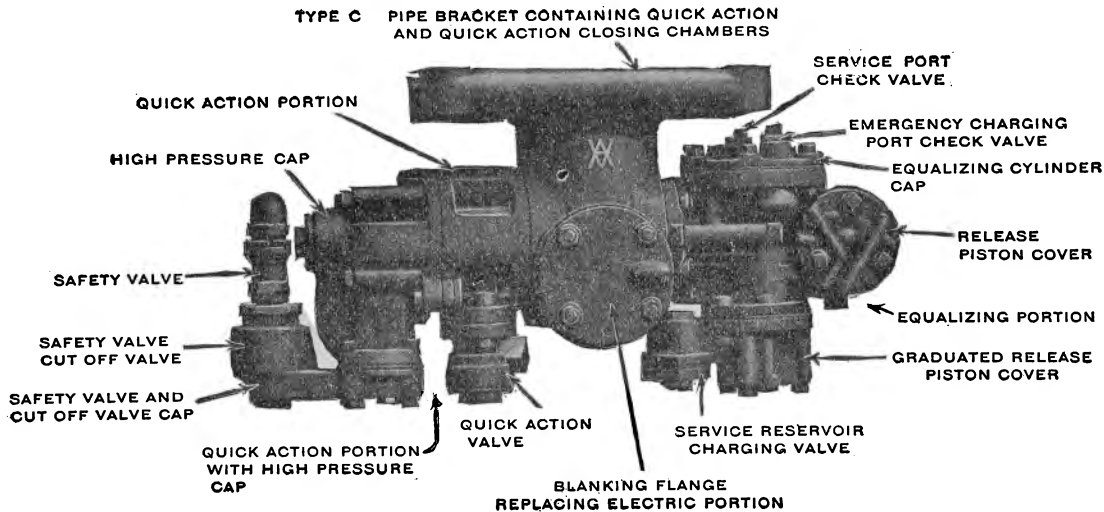


Fig. 1. Type U Common Standard Universal Valve

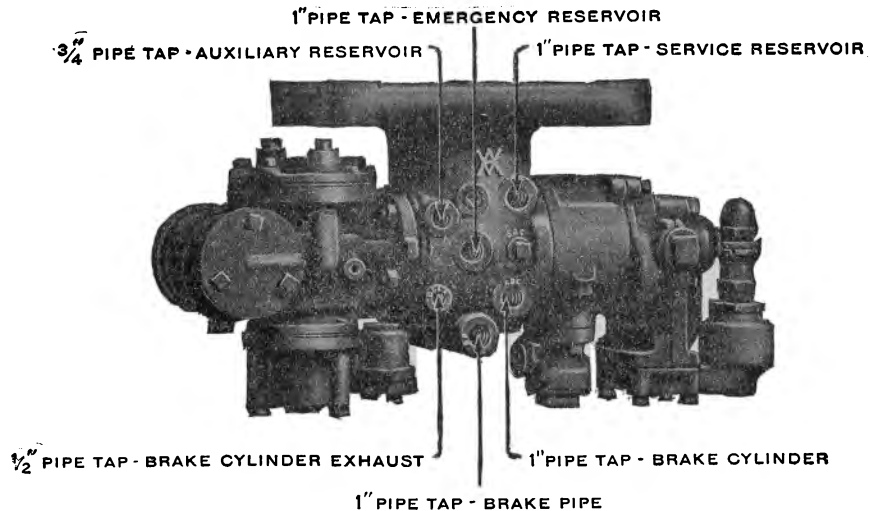


Fig. 2. Type U Common Standard Universal Valve

