

## Headlight Information.

Many who have to deal with electric headlights will appreciate the questions and answers which we give herewith, as taken from the catechism of the Electric Headlight, issued by the Pyle National Electric Headlight Company, and loaned to THE FRISCO-MAN by Fred Kersten, headlight inspector.

The questions and answers will be continued through several issues.

Q. What means are employed to prevent the electricity from escaping?

A. The copper wires are covered with various substances, such as rubber, asbestos, etc., to prevent the escape of the electricity.

Q. What is this covering on the wires called?

A. It is called insulation.

Q. What causes the majority of short circuits in the Pyle National Electric Headlight?

A. Distorted insulation of wires, which is caused by chafing.

Q. Can this chafing of the insulation from the wires be avoided?

A. If the wires are carefully and properly protected when an equipment is applied these difficulties will not occur.

Q. Describe the manner in which the wires should be run from the dynamo to the lamp, when the dynamo is applied near the cab of the locomotive.

A. The wires to the arc lamp should be run through a separate pipe, and inside of a molding, when the dynamo is applied near the cab of a locomotive.

Q. Tell why it is impracticable to place these wires inside of the hand-railing.

A. There are several reasons why the wires from the dynamo to the arc lamp should not be placed within the hand-railing. First, frequently the hand-railing must be removed when staybolt work is done and the boiler-makers might be careless in removing same and cause damage to the insulation on the wires, and this might not be noted until a failure has resulted. Second, because of the abrupt angle at which the wires are bent there is much danger of the insulation being chafed off or the wires broken where they enter or leave the hand-railing. Third, should water get inside of the hand-railing and not drain out, in time it would moisten and rot the insulation until the water could soak through, and when the insulation has become moist it has lost its virtue.

Q. Describe the construction of the Pyle compound steam turbine and the passage of steam through same?

A. This turbine engine consists of a main casting having three rows of exhaust or receiving buckets; the turbine wheel, which revolves in this casting, has three rows of bottomless buckets or blades that are solid cast in the wheel, and that fit into a recess in the main casting in such a manner that the steam may pass from the blades of the wheel to the exhaust buckets of the casting and back into the next row of bottomless buckets in the wheel, and so on until it passes into the central exhaust chamber, thence to the atmosphere.

Q. The speed of this device is controlled by some mechanical means. What is it?

A. A governor, which, applied within the casing of the engine, controls the speed of this device.

Q. What is the style of governor used?

A. This governor is of the centrifugal form.

Q. Do we find any other appliance within this turbine engine to prevent the speed from attaining a velocity beyond the point desired?

A. Yes, we will find, in all of the machines that have been applied in the last four years, that the turbine wheel is supplied with a centrifugal brake, and this is set to act at about 150 revolutions higher speed than the point at which the governor is set to act.

Q. Why is it necessary to set this centrifugal brake to act at a higher rate of speed than that of the governor?

A. The centrifugal brake is set to act at a higher rate of speed than the governor for two reasons: First, from the fact that the brake will not act as quickly as the governor weights, it will be seen that were the brake set to act in conjunction with the weights it would seriously interfere with the speed at the critical time. Second, the centrifugal brake was designed and applied to prevent any possibility of the turbine wheel running away and being thrown to pieces

by centrifugal force at times when the governor valves have been neglected, etc.

Q. How often do we find it necessary to examine the governor valves to insure ideal service?

A. A competent inspector should make a thorough examination of the governor valves once each month, and he should be provided with a book in which to keep a record of all such inspections.

Q. How far should the adjusting screws be turned to increase the speed of the dynamo 100 revolutions per minute?

A. All of the adjusting screws, 117, must be moved one-half turn to the right in order to increase the speed of the dynamo 100 revolutions per minute.

Q. And to decrease the speed of the dynamo in the same proportion, how shall we proceed?

A. To decrease the speed of the dynamo 100 revolutions per minute, move all adjusting screws, 117, one-half turn to the left.

Q. What precaution should be taken to prevent the governor valves from sticking?

A. The sticking of the governor valves may be prevented in the following manner: Remove the  $\frac{3}{4}$ -inch plug at the top of the engine casting each trip before starting the equipment, and introduce a small amount of coal oil or black oil at this point. Then, when the steam is turned on to the turbine engine, this oil will be blown through the governor stands and around the governor valves, and will cut away any scale that may have started to form.

Q. Give the number of bearings within this device?

A. This device has two bearings.

Q. Give the location of these two bearings?

A. The shorter bearing is placed in the engine cap casting and supports the weight of the turbine wheel. The longer or main bearing is found in the box yoke and carries the weight of the armature.

Q. In what manner are these bearings lubricated?

A. These bearings are each provided with an oil cellar, into which a small loose ring is suspended around the shaft and a part of the top of each bushing is cut away, thus allowing the oil ring to turn with the shaft. This oil ring is carried around with the shaft as it revolves, and passing through the oil in the oil cellar carries a part of the oil up to the top of the shaft, where it passes through the grooves in the bushings to the bearing proper.

Q. Should the same grade of oil be used for both of these bearings?

A. The same grade of oil should not be used for both bearings in all cases, particularly is this a fact in the winter.

Q. What kind of oil is best for use in the small bearing in the engine cap?

A. It is always advisable to use valve or cylinder oil for the bearing in the engine cap.

Q. For what reason is it necessary to use an oil with as heavy body as valve or cylinder oil in this bearing?

A. It would not be practicable to use an oil of a lower flashing point than cylinder oil for this bearing, on account of the heat in the engine cap and the presence of steam.

Q. How often should we oil this small bearing in the engine cap?

A. Always just before starting the equipment, or at the beginning of each trip.

Q. What quality of oil is required to satisfactorily lubricate this bearing?

A. Have only enough oil in the oil cellar that the loose rings may touch—this should not require more than two tablespoonsful of oil.

Q. What should be attended to before the oil is introduced into this oil cellar?

A. Open the drain cock and allow the water of condensation always to be found in this oil cellar to drain off, then you must be sure that the drain plug is tightly closed before the oil is introduced into the oil cellar.

Q. If this drain cock is left open, what would result?

A. The oil, of course, would pass out at once, leaving the bearing dry, with the result that the shaft and bushing would be quickly destroyed.

Q. What kind of grade of oil should we use in the main bearing in the box yoke?

A. We will find that the best results are usually obtained by the use of black or engine oil in the main bearing.

Q. How can best results be obtained from the use of common engine oil in this bearing?

A. For the reason that this bearing is always practically cold, an oil with a heavy body would be unable to pass through the long grooves in the bushing, but would drop back into the oil cellar. This is especially true during the warm weather.

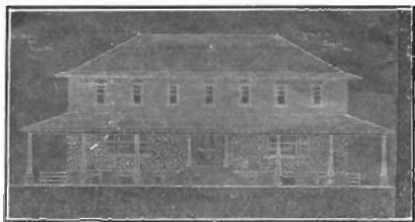
Q. Is it unsafe to use cylinder oil for this bearing?

A. It is not safe to use cylinder oil for this main bearing, except in the summer time or in the extreme south.

## Thayer's Y. M. C. A.

The following is a description of the new railroad Y. M. C. A. at Thayer, Mo., which is now under construction:

The building is 80x40 feet, entirely surrounded by a 12-foot porch, with concrete floors, tile roofing, etc. The basement will extend six feet above the level of the ground, built of concrete made of Webb City chats. This floor will consist of a swimming pool, shower baths, tub baths, barber shop, and last but not least an emergency operating room, to be kept in a strictly modern sanitary condition, and equipped with modern surgical instruments and tables, where surgical operations can be performed with as much safety as in any



of the modern hospitals. Adjoining this room will be a small bed room, where a patient can be kept until such a time as they can be safely removed.

The main floor will be built from native rock put in in the rough from rocks picked up around on the hill sides. The north room will consist of a large gymnasium, well ventilated and equipped. This room will also be used as an assembly room. The lobby will be in the center of the building with one main entrance facing the railroad tracks, and the other Front Street. This lobby will be equipped with chairs and other conveniences usually found in such places. The secretary's office will be so placed that he can look into the only entrance to the gymnasium, to the stairway leading down to the baths, up

to the bed rooms, and to the two large rooms on the south end, one of which will be devoted to games and the other as a reading room. It is our intention to organize a library club, and this club to solicit one or two or more books from members and other parties interested, and we figure that this will give us a nice little start for a library.

The third floor will be the bed room section, reached by main stairway from the lobby, and will be constructed from pressed brick. There will be a spiral stairway in the north end of the building leading down from the bed room section to the baths in the basement, with a door from this stairway opening into the gymnasium. The idea being a man coming in off the road dirty and tired, come in and register, go up to his room, put on a bath robe (or a night shirt), slip down through the spiral stairway, take a bath and after which a man with even a guilty conscience should be able to crawl in a nice clean bed and get a good sleep. The architect, M. J. Morse, who drew the plans for this building is a former employe of the Frisco, having served earlier in life with the bridge and building department. The pen picture that we have attempted to draw of this building does not in any way do it justice. We have a large force working on it now and practically all of the material on hand.

W. D. Judd is appointed general agent of the Frisco, with office at St. Louis, effective June 21. Mr. Judd was for many years connected with the firm of Brinson & Judd, one of the largest grain firms operating in the Southwest, and is well known in the grain trade. He is especially assigned to the solicitation of grain and grain products traffic, and his appointment is made in order to enable the Frisco to keep in touch with the needs and conditions of the grain trade.

## Along the Line

Notes of improvements, personal mention of employes and all items of general interest will be gladly received for this department. You should see that your town is represented every month.

### Springfield.

Work on the new addition to the Frisco office building at Springfield, Mo., is progressing rapidly.

Charles T. Irby, Sr., transfer table operator at the South Side shops, has just returned from a visit with his daughter, Mrs. E. A. Smith, of Garner, Ark. He reports a most enjoyable trip.

A. M. Rice, stenographer in the office of general superintendent of motive power, resigned June 14. Mr. Rice has accepted position in office of division superintendent of the Colorado & Southern, at Trinidad, Colo.

Navigation on the Jordan has stopped and the boats of the Woodson Ferry are laid up because of low water in the channel between Springfield and Battlefield, Mo. All traffic now crosses suspension bridge at this place.

The property east of the Frisco passenger station, corner of Main and Mill streets, formerly occupied by the old gas plant, was formally turned over to the Frisco June 13. The Frisco purchased the property from the gas company a short time ago.

### Neodesha.

Boilermaker M. P. Reddick made a business trip to Wichita June 9.

Night Foreman R. H. Collins left June 15 for Springfield, Mo., on a business trip.

Engineer W. Katzer is laying off celebrating the arrival of a little engineer at his home.

The bad order situation, as well as grain and flour cars, have been kept pretty well in hand.

Engineer F. T. Velton and family returned June 15 from a visit with relatives at Okmulgee, Okla.

The wheat crop through here is pretty good, but if we don't have rain soon the corn will be no good.

Machinist T. L. Richardson departed the latter part of June to attend a family reunion at Kansas City.

Miss Gladys Nelson, accompanied by her sister Verna, left June 8 for a visit with friends at Wichita.

Car Foreman William Hutton, of Beaumont Junction, was in Neodesha on June 6 to attend the funeral of Mrs. Scott.

Mrs. J. H. Brown and daughter, wife and daughter of Engineer J. H. Brown, departed June 15 for a visit with friends at Springfield.

Timekeeper Wesley Eaton returned June 20 from a visit with friends and relatives in Colorado and California. He reports an enjoyable trip.

B. W. Wooldridge, assistant superintendent's clerk, accompanied by his wife, departed June 18 for California to visit friends and to view the country.

The following engines were turned out of the shops at Neodesha during June: 580, 344, 2731, 337 and 439, leaving engines 2663, 594, 341, 420, 426 and 348 awaiting shop.

Hestler Helper W. A. Crater, while preparing to take water on engine 3642 at water tank, slipped on a chunk of coal, falling off the tank and injuring his arm and hip so that he had to be taken to the Springfield hospital. He is getting along nicely and it is hoped he will soon be able to return to work.

### Wichita.

Section Foreman A. Kalousek, of Lorraine, Kan., is spending a few days in Kansas City this week and is being relieved by W. E. White, of Burrton.

Ticket Agent H. F. Bascom is again at the window after a three weeks' vacation, which he, in company with his family, spent visiting relatives and friends at Lynn, Ind.

The work of relaying the track between Beaumont and Wichita with 70-pound steel

was begun July 5, and when completed will be a great improvement to the division. The steel gang is in charge of Mr. Christy, who handled the work on Roadmaster Holland's division.

### Sapulpa.

Crude oil is being tried out in stationary boilers and is proving very satisfactory.

A new water line has been run up to the coal chure, which protects the chute in case of fire.

John E. Haskell, traveling air brake inspector, visited this point recently in the interest of his department.

A new air compressor has arrived from Springfield and has been installed in the machine shop. Small air compressor goes to Oklahoma City.

Many new shop tools have been gotten out by shop men in various departments. E. J. Goldsborough has an arrangement for holding spring and gland in place while packing air pump where metallic packing is used.

John N. Hughes has invented a wrench which he claims can be used on any nut or pipe from one-fourth to three inches. Grease Cup Filler Manley has a special wrench for filling grease cups, which enables him to fill the cups in much less time. Nothing speaks better for a shop than for men to try and work out ideas that will enable them to handle work quickly.

Fuel Economy is the slogan at Sapulpa. Master Mechanic A. S. Abbott, Assistant Superintendent Fuel Economy J. D. Heyburn, General Foreman John F. Long, and in fact, every man on the job, is busy on this question. Coal fenders, plugging up holes in deck, loading tanks properly, caring for waste coal,

separating coke and cinders in incoming engines and many other points on fuel are being watched very closely.

Motor on turntable at this point has undergone a complete overhauling, is applied to the turntable and is working O. K. Many improvements were made on the motor, including knuckle put in main shaft to prevent shaft snapping off, as is usual with this air motor, an additional boxing has been applied on main shaft to stiffen shaft, larger studs in all boxing and motor is reversed by air, an eight-inch tank brake cylinder with a wood-lined brake shoe, attached to turntable in line with the circle rail constitutes brake apparatus. An air sander, neat and compact, supplies a long-felt want. In addition to these and other improvements additional braces, etc., hold motor solid on platform. Air is gotten to motor by an overhead line of pipe, which gives a constant supply of air and does away with connecting to an engine when necessary to turn an engine.

### Brownwood.

Round House Foreman L. C. Corder has returned from Marlin much improved in health.

Engineer E. P. Freeman and Conductor G. T. Mess are on the local run between Fort Worth and Brownwood.

### Monett.

Passenger Conductor C. B. Woodruff, together with his wife and son, are enjoying a vacation with relatives in Indiana.

Five sections of the Frisco employes' excursion, Springfield to Joplin and return, were run through Monett, June 17. One conductor

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