AT-8413 CABLE REEL BRAKE

DESCRIPTION AND OPERATION

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1. GENERAL

1.01 The AT-8413 Cable Reel Brake consists of a hydraulically operated, disc-type brake and associated hydraulic systems designed for use with the TRUCO and the McCABE-POWERS hydraulic loading cable reel trailers. The brake may be used with other single or multi-spindle trailers if slight modifications of the mounting hardware are made.

1.02 The cable reel brake mounts on the spindle bar of the cable reel trailer to provide control of a cable reel during aerial or underground cable placing operations. The brake is capable of continuous operation and will safely brake reels feeding maximum size cable into deep drop manholes up to 100 feet in depth.

1.03 The applicable sections in the Bell System Practices pertaining to hydraulic loading cable reel trailers shall be supplementary to this section.

2. DESCRIPTION

2.01 The AT-8413 Cable Reel Brake consists of the AT-8413 L1A Cable Reel Brake, the AT-8413 L2A Hydraulic System which is mounted on the trailer, and the AT-8413 L3A Hydraulic System which is mounted in the cab of the towing vehicle.

2.02 The AT-8413 L1A Cable Reel Brake basically consists of a hydraulically operated disc brake and a mounting assembly that is equipped with a movable spacer, which permits the brake to be used on either the TRUCO or McCABE-POWERS cable reel trailers. Fittings, which are part of the L2A hydraulic system, are provided on both sides of the trailer so the brake may be placed on either side of the cable reel. The brake is compatible with all steel reels and may be operated from the trailer or from the cab of the towing vehicle. The AT-8413 L1A Cable Reel Brake is illustrated in Fig. 1.

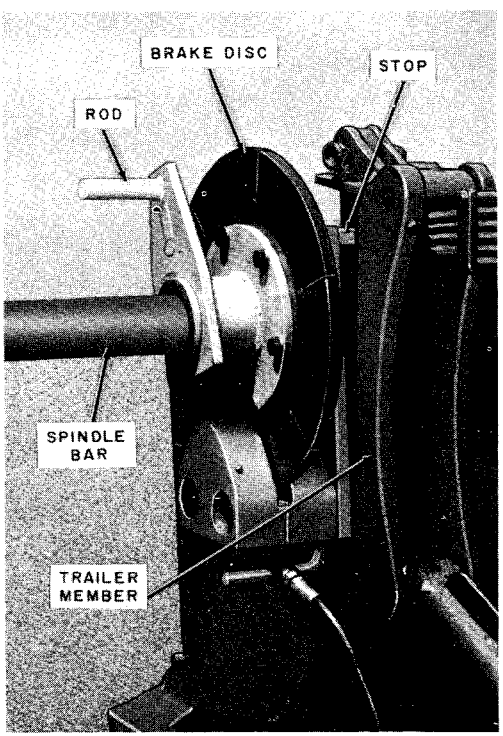

Fig. 1—AT-8413 L1A Cable Reel Brake

2.03 The AT-8413 L2A Hydraulic System is mounted on the cable reel trailer and used to control the cable reel brake. The L2A system consists of tubing, fittings, a gauge for indicating cable tension, a connector hose for connecting the hydraulic system to the brake, an air or nitrogen charged accumulator, a selector valve used to transfer control of the brake to either the towing vehicle cab or the trailer, and a manually operated pump. The major components of the L2A system are shown in Fig. 2.

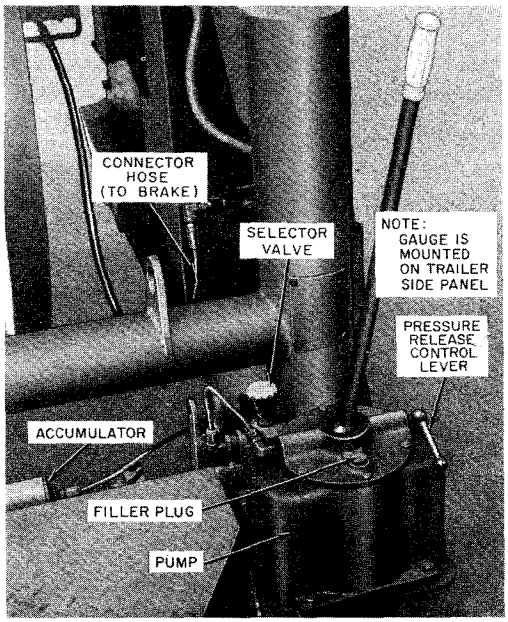

Fig. 2—Major Components of AT-8413 L2A Hydraulic System

2.04 The AT-8413 L3A Hydraulic System is mounted in the cab of the towing vehicle and is used in conjunction with the L2A system to control the cable reel brake. The L3A system basically consists of tubing, fittings, a gauge for indicating cable tension, a hose for connecting to the trailer system, a reservoir for hydraulic fluid, and a manually operated pump. The pump in the L3A system is provided with a pressure relief valve to limit the cable tension at the start of a pull with a full reel of cable to 600 pounds. The pressure relief valve is incorporated into the design to protect aerial lifts from overloads when placing cable from a moving reel. The major components of the L3A system are shown in Fig. 3.

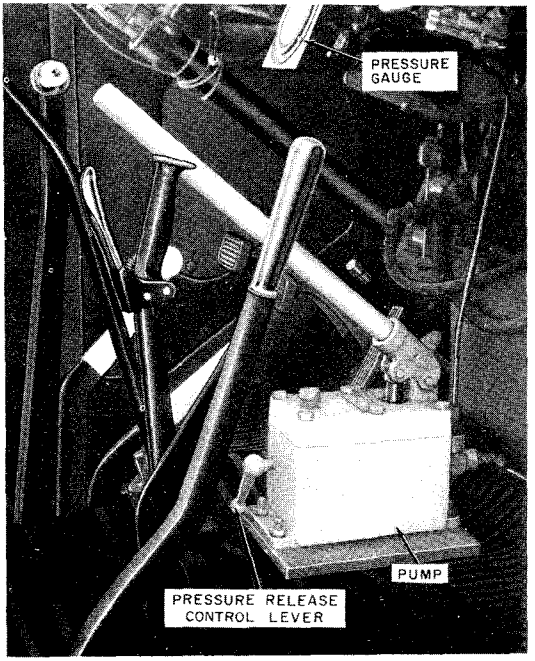

Fig. 3—Major Components of AT-8413 L3A Hydraulic System

3. PRECAUTIONS

3.01 Use care when handling and storing the brake to avoid damaging the hydraulic coupling or causing nicks or burrs on the disc surface. Keep the brake clean. The brake disc should be kept free of oil or grease film, dirt, and grit.

3.02 When the brake is not in use, the dust plugs and dust caps provided should be used to protect the hydraulic couplings. Before attaching the flexible connector hoses, be sure the couplings are clean.

3.03 Before using the brake, check all hoses, lines, and fittings for signs of leaks or damage. Bent or otherwise damaged lines or hoses should be replaced.

3.04 When loading a reel, position the brake on the spindle so the brake will not be damaged by striking the trailer.

4. OPERATION

4.01 The cable reel brake should be mounted on the spindle bar of the cable reel trailer during the process of loading the cable reel on the trailer. After the spindle bar has been fitted into the center holes of the reel spokes, place the cable reel brake on the desired end of the spindle bar as shown in Fig. 4. If the brake is to be used with a TRUCO trailer, mount the spacer on the end of the stop. When using the brake on the McCABE-POWERS trailer place the spacer on the side of the stop to increase its effective width. When preparing to pay out cable, no centering cone or clamp is required on the spindle bar between the reel and brake or between the brake and trailer. However, when transporting the reel on the trailer it is desirable to have the reel centered and secured. Position the brake and spindle so the brake will not obstruct the normal reel-loading procedure.

4.02 After the trailer has been positioned at the job site, slide the cable reel brake to the side of the trailer to engage the stop on the brake with the trailer member. (See Fig. 1.) Remove the dust plugs and couple the flexible hose to the brake and the trailer hydraulic system. Slide the cable reel against the brake. The rod on the brake must protrude toward the center of the reel beyond the cable reel spoke so that when the reel turns on the spindle, the rod will contact the leading edge of the reel spoke. Secure the reel on the spindle so the reel cannot creep away from the brake.

4.03 To set up for control of the brake from the trailer, set the selector valve to the up position, set the control lever on the pump to the engage position and manually operate the pump handle. Check the pressure gauge to be sure the system is functioning, and attempt to turn the reel manually to determine that the brake is operating. To release the hydraulic pressure operate the control lever to the release position.

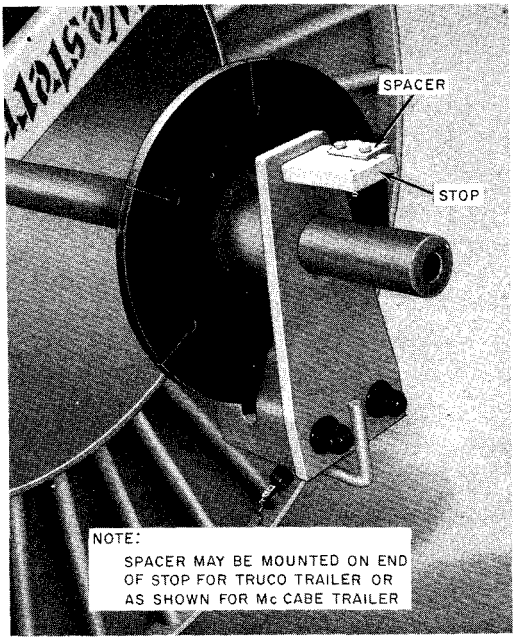

Fig. 4—Positioning Cable Reel Brake on Spindle

4.04 To set up for control of the brake from the truck cab, operate the selector valve on the trailer to the down position to transfer control to the truck cab. Connect the trailer system to the towing vehicle system using the flexible coupling hose. Set the control lever on the pump in the truck cab to engage the pump, and manually operate the pump handle. Check the pressure gauge in the truck cab to be sure the system is functioning, and attempt to turn the reel manually to determine that the brake is operating.

4.05 The gauges furnished as a part of the L2A and L3A Hydraulic Systems are calibrated to convert hydraulic pressure to cable tension in pounds. The numbers on the dial (Fig. 5) are arranged around the dial in columns. The numbers at the outer edge of the dial in each column indicate cable tension when braking a full reel of cable. The numbers nearest the center of the dial in each column indicate cable tension when braking a 1/4 full reel of cable. This provides a means for quickly estimating the cable tension as the cable is payed out. By utilizing the dial, the operator can gradually

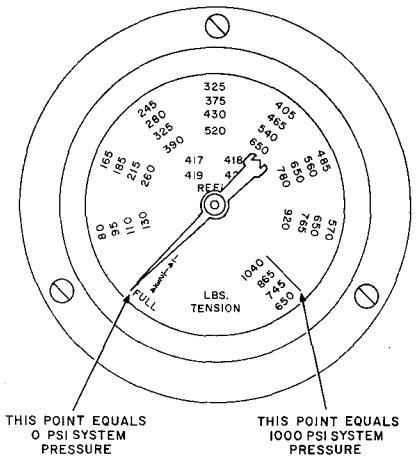

Fig. 5—Cable Tension Gauge Dial

decrease the hydraulic pressure as the reel empties to maintain a relatively constant tension on the cable during the placing operation. For example, assume that a pull is to be started with a full reel, the desired cable tension is to be 650 pounds, and the brake will be controlled from the cable reel trailer. Set up for the pull, and operate the hydraulic pump on the trailer until the dial indicator moves clockwise to the last column of numbers on the dial (1000 psi system pressure). With cable reel full, the cable tension as the pull is started is indicated by the number nearest the outer edge of the dial. In this case it is 650 pounds. Continue the pull, and as the cable is payed out, gradually release the hydraulic pressure so that when the reel is 3/4 full, the indicator will be at the next column of numbers. The cable tension will be indicated by the number (650) that is second from the outside. Continue the pull while releasing hydraulic pressure. When the reel is 1/2 full, the indicator should be at the next column of numbers. The cable tension will be indicated by the number (650) that is third from the outside. When the reel is 1/4 full, the indicator should be at the next column with the tension indicated by the inner number (650) in the column.

5. MAINTENANCE

5.01 With each use lubricate the spindle in the area of contact with the brake hub assembly to minimize wear.

5.02 Periodically check the hydraulic oil level and add oil as required. When filling the hydraulic reservoir, be sure that dirt and water are not allowed to enter the system. Fill the truck cab pump reservoir and the trailer pump reservoir with a good grade of hydraulic oil of 100—150 S.S.U. viscosity at 100°F. ***Do not*** use hydraulic brake fluid.

5.03 The brake disc and brake linings should be checked each time the brake is used. If there are signs of excessive wear, replace the disc or linings as required.

5.04 Periodically check the gas pressure in the hydraulic accumulator. Pressure should be approximately 200 psi. When necessary recharge the accumulator through the air valve with either compressed air or nitrogen.