REPAIR OF CORK ON FRICTION ROLL DRIVES PANEL OFFICES

1. GENERAL

1.01 This section covers methods for replacing cork sections on friction roll drives and for truing cork sections having excessive eccentricity. These methods are as follows:

(A) Replacement of Defective Cork Section

(B) Truing of Cork Section

1.02 This section is reissued to incorporate material from the addendum in its proper location. In this process marginal arrows have been omitted.

1.03 A cork section should be repaired when the defect affects the operation of a clutch to the extent that Bell System Practices readjust requirements can not be met. A defect requiring repair may be one of two types; eccentricity in excess of workable limitations, or damage or wear to the extent that a new section of cork is required.

1.04 Excessive eccentricity of the cork section, the clutch roller, or both, will impair the proper operation of the clutch. In some cases, therefore, it may be advisable to replace the clutch rather than to attempt to true the cork section.

1.05 If the cork section is badly worn or damaged replace the section as outlined under (A).

1.06 If excessive eccentricity of the cork section is encountered to the extent that the clutch readjust requirements can not be met, the cork section may be trued by grinding as covered under (B).

1.07 Replacement and truing of the cork section should be done during periods of light traffic.

1.08 Cork sections are now available in individually sealed polyethylene bags to overcome shrinking and expansion with changes in the humidity. These containers should not be opened until the section is to be used.

1.09 It is recommended that nonpackaged cork sections be stored under conditions of low humidity; this will keep the inside diameter of the section to a minimum.

2. TOOLS AND MATERIAL

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
38-Y-3840	Portable Cork Roller Grinder Kit
—	Make-Busy Plugs, as required
—	Double Grip Screwdriver
—	4-inch Regular Screwdriver
*—	Knife — 2102 Dow Metal Blade Handle equipped with 080 Flat Black Blade (Hyde Manufacturing Co., South Bridge, Mass.) or equivalent
KS-14410, KS-14377 or equiv.	Vacuum Cleaner
R2969	Typewriter Brush
MATERIAL	
38-Y-3840	Tubular Cork Section
KS-2423	Cloth
—	Waxed Cotton Twine — six-ply
—	No. 1 Garnet Paper
—	Abrasive Paper; 4/0 Garnet Paper or Extra Fine Flint Paper (cut in quarters)
*—	Blue Mason Chalk
—	Goodyear Rubber Company, Pliobond No. 30 (1.75 oz. or 3.25 oz. tube or pint can)

*Obtain Locally

3. METHOD

(A) Replacement of Defective Cork Section

3.01 Make busy, when idle, circuits served by the motor to be shut down. Stop the drive motor serving the side of the frame involved. Retire the major alarm. Remove the clutches directly in front and one clutch on either side of the defective cork section, being careful not to damage the wiring.

3.02 Using the 4-inch regular screwdriver, loosen the screws holding the bar or bars between the rolls and raise or lower the bars to provide clearance for the clamping detail used in Paragraph 3.09, after which tighten the screws to prevent the bars from slipping.

3.03 Separate the defective cork section from the adjacent sections by cutting at both grooves with the knife. The cuttings should be made as closely as possible to the edges of the defective cork section, rotating the drive by hand from the coupling.

3.04 After the defective cork section has been separated, make three approximately equally spaced circumferential cuts through the defective section rotating the drive by hand from the coupling. With the drive stationary make a

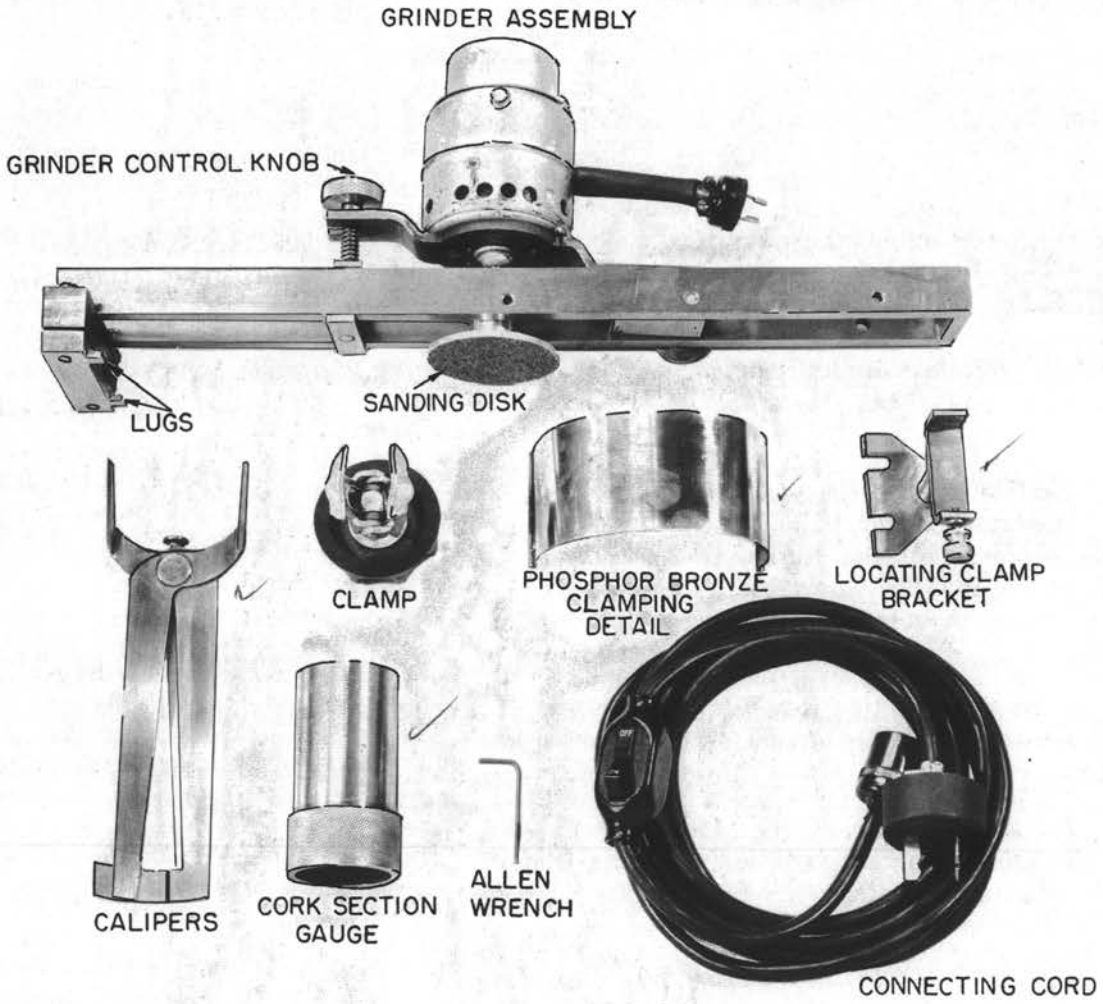

Fig. 1

cut lengthwise through the defective cork section. Remove the old cork using the 4-inch regular screwdriver.

3.05 Using abrasive paper, remove all traces of adhesive and cork from the steel roll and wipe clean using a KS-2423 cloth. Using the R2969 typewriter brush, apply a thin coat of Pliobond No. 30 adhesive to the cleaned section.

3.06 Gauge the inside diameter of the new cork section using the cork section gauge (Fig. 1). With the diagonal cut closed, the new section should fit snugly over the cork section gauge.

> ***Note:*** If several nonpackaged cork sections are available and the section fits loosely on the gauge, it may prove feasible to gauge several sections until one is found which fits snugly. Sections which fit loosely will break free of the roller after a short period of time.

3.06.1 If the cork section does not fit snugly on the gauge, reduce the inside diameter of the cork section.

3.06.2 To reduce the inside diameter of the cork section: Fold a piece of abrasive paper in half with the abrasive surface on the outside. Insert the folded abrasive paper into the slot of the cork section. Hold the paper in place by applying moderate pressure to the outer surface of the cork section with one hand. Hold the cork section over a cloth or suitable receptable to catch the fine cork fragments. Draw the paper back and forth several times being careful to distribute the wear evenly over the entire surface of each side of the slot. Withdraw the paper and clean the cork section with a KS-2423 cloth. If the cork section still fits loosely on the gauge, repeat the abrading procedure until the section fits properly.

3.07 Using the R2969 typewriter brush, apply a thin coat of adhesive to the interior wall and to both surfaces of the cut of the cork section. This coat should be sufficient to insure a good bond with the steel roll. Do not apply the adhesive in excess.

3.08 Spread the opening in the new cork section being careful not to crack the cork and slip it into position over the steel roll. Rotate the cylinder on the roll to even out the adhesive.

3.09 Place the cylindrical phosphor bronze clamping detail around the new section by feeding one end through between the cork roll and the associated bar (roll guard). With a maximum length of the cut in the cork section showing in the open portion of the clamping detail, apply the jaws of the associated clamp behind the rounded ends of the clamping detail and tighten slightly (Fig. 2).

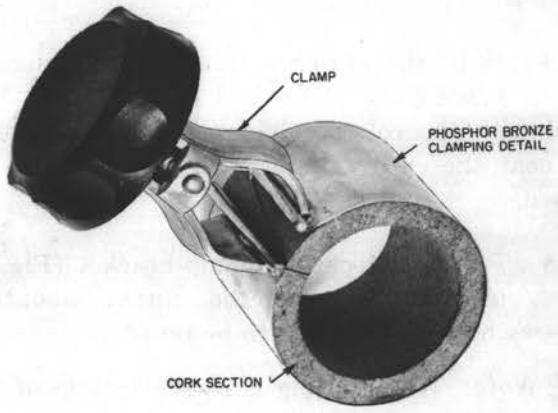

Fig. 2

3.10 Position the new cork section lengthwise so that its edges are approximately in line with the edges of the cork section on the upper or lower roll. Tighten the clamp securely and leave in this position for a minimum of one hour. After sufficient time has elapsed, loosen the clamp and remove the clamping detail. Wind six-ply waxed cord tightly around the section to insure tension over the entire surface area during the setting of the adhesive (see 3.12).

3.11 Relocate the bar or bars between the rolls to their original position. Start the motor, silence the alarm, and release for service those circuits previously made busy, except those which have the clutches removed.

3.12 Allow the adhesive to set for a period of at least eight hours before attempting to true the replaced section. When ready to grind the new section of cork make the circuits busy, when idle, that are served by the motor to be shut down. Stop the frame motor and retire the alarm. Remove the waxed cord, and proceed with truing the new section to size as covered under (B). Any adhesive that may have worked to the surface at the cut will be removed by the grinding operation.

(B) Truing of Cork Section

3.13 New sections of cork or sections which have excessive eccentricity may be trued in the manner outlined in the following paragraphs.

3.14 With the clutches removed and circuits made busy as covered in Paragraph 3.01 and with the roll revolving use the blue chalk to coat the entire surface of the section to be trued.

3.15 Place the locating clamp bracket (Fig. 1) in position using the clutch mounting screws below the section to be trued.

Note: When wiring is at the bottom of the clutches, the wiring form detail must be unbolted at the end nearest to the cork section being worked on, and the wiring form carefully pulled outward to permit the grinder assembly to be placed in position without damage to the wiring.

3.16 Locate the grinder in position on the grinder assembly to correspond with the roll to be worked on. Place the grinder assembly (Figs. 1 and 3) in position allowing the lugs at the top to enter the slots in the clutch locating plate and press down firmly until the lugs are engaged. Press the lower portion of the grinder assembly into position with the locating clamp bracket and secure, using the knurled screw on the bracket.

3.17 Start the vacuum cleaner motor and place the suction hose in a position to collect the grinding residue. Start the motor of the grinder and slowly adjust the grinder control knob until the abrasive disk comes into contact with the cork.

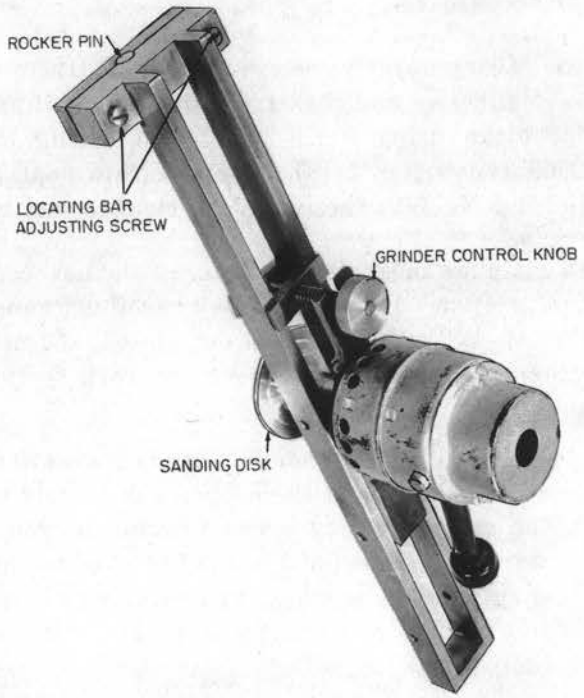

Fig. 3

3.18 The first cut upon the chalked surface will indicate whether or not the sanding disk is parallel to the cork section. Usually the sanding disk will be parallel with the cork section and require no adjustment. Should a visual inspection or a measurement indicate a taper in any cut, the angle of contact should be regulated by means of the two adjusting screws on the locating bar (Fig. 3). In making this adjustment, the rocker pin serves as a pivot. Loosen the screw on the side to be moved away from the cork section and tighten the screw on the opposite side until parallelism is obtained.

3.19 The finished diameter of the new section of cork should measure 2.250 to 2.258 inches. This requirement will be met when the indicator rests within the mark on the calipers.

Note: Measurements of existing cork roll sections that have not been replaced but have been trued, may in some cases be outside the above limitations. These sections will be deemed satisfactory if Bell System Practices readjust requirements for the clutches can be met. However, where cork sections are replaced, the new section should always be ground to the requirement shown above.

Measurements should always be made by means of the calipers (Fig. 4). To make caliper measurements it is necessary to remove the grinder from the frame as covered in Paragraph 3.20. Make frequent measurements of the diameter of the cork section for size and evidence of taper. Should there be an indication of taper, recoat the surface of the section with blue chalk and proceed as outlined in Paragraph 3.18.

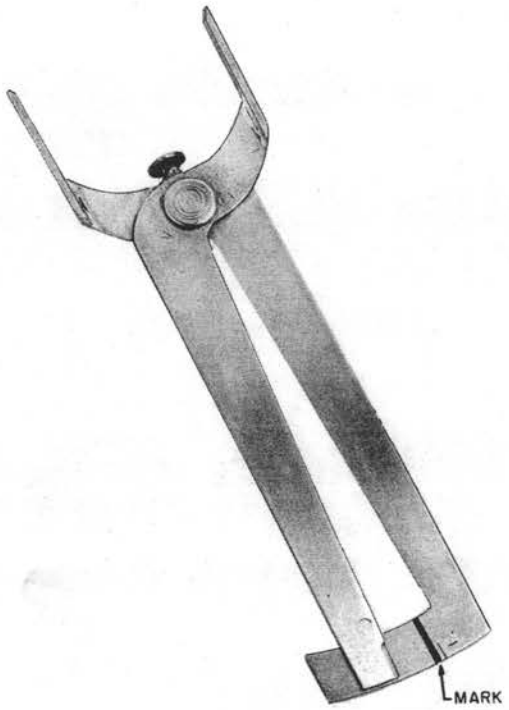

Fig. 4

3.20 To remove the grinder assembly from the frame, back off the grinder control knob, stop the grinder motor, loosen the knurled screw on the locating clamp bracket, and lift up the grinder assembly to disengage the lugs from the clutch locating plate.

3.21 After the grinding operation has been completed, remove the grinder from the frame. Vacuum clean the area in which the work was performed. Remove the locating clamp bracket and relocate the wiring form detail, if moved. Replace and check the adjustment of the clutches that were removed.

Replacement of Garnet Paper on Sanding Disk

3.22 When necessary to replace the garnet paper on the grinding disk, turn the grinder control knob in a counterclockwise direction until access is obtained to the set screw holding the disk to the motor shaft. Loosen the set screw with the Allen wrench and remove the disk.

3.23 Remove the worn abrasive paper and clean the surface of the disk with abrasive paper. Place the disk over the new garnet paper and with the knife score the paper until a paper disk is cut out.

3.24 Apply a thin coating of Pliobond adhesive to the surface of the disk and the smooth surface of the paper. Press firmly in place and allow to set until proper adhesion has been obtained.

Caution: Care should be exercised to prevent the rough edges of the newly applied abrasive paper from cutting the hands. This roughness can be removed by holding another piece of abrasive paper against the edge of the disk while the grinder is running.