Installation Engineering Handbook 30
Western Electric
Rolling Meadows

Section 70
3-14-75
Replacing Issue of
11-27-70
and TI Section 70
Dated 3-22-74

PAINTING, RETOUCHING, AND CLEANING OF FINISHES

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This section includes material from BSP 069-305-301, 069-305-301 Addendum,
800-611-152, 800-611-153, and 800-611-153 Addendum
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2. GENERAL

2.1 Scope

2.11 This section covers requirements and installation procedures for painting and retouching central office framework and equipment parts, cleaning of finishes, and removal of gummed paper protection from transparent plastic.

2.2 Precautions Against Personal Injury, Equipment Damage, and Service Interruptions

2.21 The specific precautions to be taken against personal injury, equipment damage and service interruptions are covered in this section. General precautions are covered in Handbook 0 and are to be observed at all times, as they apply to the operations being performed.

2.22 Precautions to be taken in connection with storing and handling paint, shellac varnishes, etc., are covered in Section 52 of Handbook 0.

2.23 Protect adjacent equipment from paint spattering and dirt made during cleaning and reconditioning operations.

2.3 Definition of Terms

2.31 The term "exposed" is considered as applying to such portions of framework or equipment as are normally exposed to view; the term "unexposed" applies to portions not normally exposed to view.

3. INSTALLING EQUIPMENT

3.1 Tools

Number	Description
Kit 33	Vacuum Cleaner
	Brushes
R-1021	1/2" Flat
R-1445	1" Flat
R-1265	2" Flat
R-2919	3/16" Round

NOTE: The Flat brushes are provided for retouching and refinishing angles, channels, auxiliary framing and other rough surfaces. The round brush is provided for retouching scratches and other small marred spots in smooth enamel finsihes.

Obtain Locally:
- Brush, Painter's Soft Duster (Required only when refinishing woodwork) (Table 2)
- Bucket, Paint (Any suitable small bucket with handle) (Par. 7.173)
- Jar, 1/2 Pint Mason, with Cover (Par. 7.6411)

3.2 Supplies

Number	Description
Obtain Locally	Burlap, 10 oz. (Table 2)
R-2799	Cloth, Aluminuous Oxide, No. 320
KS-14666	Cloth, Cleaning
KS-14668	Cloth, Polishing
Obtain Locally	Cloth, Emery, 2-0 (Pars. 7.1311, 7.6621, 7.72)
	Enamel, Aluminum (du Pont Dulux No. 16505642, Pittsburgh Plate Glass Lavax No. UC-31770, or Valentine No. 550222) (Table 1, Note 3)
	Enamel, Black (Pittsburgh Plate Glass Co. UC-10736 Black Lavax, or Dulux 83-005 Black Enamel) (Table 1, 480 Finish)
	Enamel, Brown, Light, (Martin Senour Paint Co., Chicago, IL. No. 10876 Satingloss Enamel) (Table 1, 576 Finish)
	Enamel, Gray (4 hour Valspar) (Table 1, 345 Finish)

3.2 Supplies (Cont'd)

Number	Description
KS-14356	Dry Cleaning Fluid
KS-8662	Enamel, Gray, 1/2 Pt. and 1 Qt. Cans
RM-646317	Enamel, Gray Acid Resistant-1 Pt. Can
R-2974	Enamel, Gray, Federal 1/4 Pt. Can
Obtain Locally	Enamel, Green, Olive (Dulux RP-88033) (Table 1, 450 & 488 Finishes)
RM-643367	Enamel, Mahogany, No. 67 - 1/2 Pt. Can
RM-648414	Finish, Clear Penetrating Wood 1 Pt. Can
RM-645446	Oil, Drying, Black - 1 Pt. Can
	Oil, Linseed, Boiled (Pars. 7.93, 7.6131, 7.341)
	Paper, Garnet Finishing, 5/0 (Table 2)
Obtain Locally	Paper, American Emery No. 1 or Carborundum No. 180-D (Par. 7.321)
	Polish, Cream Wax (Par. 7.97)
	Polish, Scratch Cover (Par. 7.97)
Obtain Locally	Putty, Plastic Wood (Table 2)
R-3006	Rags, White - Pound
Obtain Locally	Sandpaper 1, 1/0, 2/0 (Table 2)
R-3261	Sealer Coater, White - 1 Pt. Can
Obtain Locally	Shellac Sticks (Table 2, Note A)
R-4343	Solvent, Shellac - 3oz Plastic Bottle
R-4342	Spirits, Petroleum, 3 oz. Plastic Bottle
RM-647431	Toner, Mahogany (For mahogany) 1/2 Pt. Can
R-3429	Trichloroethane 3oz. Plastic Bottle
R-4059	Varnish, Clear 3oz. Plastic Bottle
R-3853	Lacquer, Gray Blue 1 Qt. Can
R-3455	Shellac, White 3oz Plastic Bottle

3.21 When special paints not listed are required to retouch specially finished equipment, obtain such paints locally.

4. FINISHING REQUIREMENTS, GENERAL

4.1 Cleaning Surfaces for Original Finish

4.11 Surfaces to be finished shall be thoroughly dry, clean and free from loose material, foreign matter, scratches, abrasions, and other

surface irregularities that might impair the finish. The surfaces of steel parts to be finished shall be free from loose scale and rust.

4.111 Remove rust and loose scales by scraping or wire brushing.

4.112 Remove wax, grease and oil by wiping with a cloth moistened with Petroleum Spirits. Such materials retard drying and prevent good bonding to the surface.

4.2 Equipment parts furnished by the installer should be finished, where practicable, to match the associated equipment.

4.3 The finish of parts furnished by outside suppliers need not be altered to obtain uniformity.

5. REMOVAL OF IDENTIFICATION SYMBOLS

5.1 Remove identification symbols, such as job specification numbers, drawing numbers (except J, ED and H numbers used as equipment code designations), order numbers, etc., which are conspicuous from the floor, after the equipment is installed, by wiping off with a piece of cloth dampened with Petroleum Spirits or painting.

NOTE: Where there is any doubt as to whether or not a drawing number should be removed, refer to the equipment drawing which will specify that the number shall be stamped on the equipment when required as a code designation.

5.11 Such identification maybe remove before assembly of equipment.

5.2 Date of manufacture and code stamps placed on apparatus and equipment by the shop are not to be removed or obliterated by the installer. If necessary for the job to refinish surfaces having "Date" or "Code" stamps on them either the original stamping shall be retained by carefully painting around it or by placing masking tape over the stamping before repainting, or the date or code stamps shall be restamped on the panel after refinishing.

5.3 Symbols which are not conspicuous from the floor and those in inconspicuous locations such as inside of switchboards and desks need not be removed or painted over unless they are in locations where they can be confused with equipment or apparatus designations.

6. REMOVAL OF GUMMED PAPER PROTECTION FROM TRANSPARENT PLASTIC

6.1 In order to minimize the possibility or the highly polished surfaces of plastic parts covered with paper becoming marred, it is recommended that the paper protection be removed late in the installation period.

6.11 Light or indistinct scratches on the plastic surfaces are not considered objectionable from an appearance standpoint. With respect to No. 5 Crossbar frames, the plastic covers with more severe scratches shall be placed in the less conspicuous locations on frames.

6.2 In removing the gummed paper, it is important that no steel instrument such as a knife or screwdriver be used. A corner of the paper should be lifted with a fingernail and the entire sheet pulled gently off the plastic. This will keep the gum, which might otherwise remain on the plastic, at a minimum.

6.3 Any gum which does not come off the plastic with the paper may be removed with the finger by balling the material or with a cloth dampened with KS-14356 Dry Cleaning Fluid.

CAUTION:	DO NOT ALLOW THE CLEANING FLUID TO REMAIN IN CONTACT WITH THE PLASTIC LONGER THAN NECESSARY.

6.31 After the gum has been removed in the above manner, the plastic should be sponged immediately with a water solution of soap and rinsed with clear water. Then the plastic should be dried with KS-14666 Cleaning Cloth, or a chamois purchased locally, with a minimum of rubbing.

NOTE: Commercial cleaners and window cleaning compounds shall not be used since these cleaners

may contain abrasives or chemicals which might cause discolorations or brittleness of the plastic.

7. CLEANING, RETOUCHING, REFINISHING

7.1 General

7.11 Soiled Finishes

CAUTION: FLAMMABLE FLUIDS, SUCH AS GASOLINE, BENZINE, NAPHTHA, ALCOHOL, OR TURPENTINE SHALL NOT BE USED FOR CLEANING FINISHES IN CENTRAL OFFICES

7.111 Where soiling is not excessive, damp wiping with a water dampened cloth may be sufficient to properly clean the soiled surfaces.

7.1111 Damp wiping operations shall be performed with a KS-14666 Cleaning Cloth wet with clear water and wrung as dry as possible by hand before using. This method may be used on most surfaces but care shall be taken not to use a damp cloth where it can come in contact with current carrying equipment.

7.1112 A sufficient number of damp cloths for a cleaning period shall be prepared and folded individually to retain their mositure until used. Deposit used cloths in a pail to prevent unnecessary spreading of the dust contained in them.

7.12 Masking Tape

7.121 Tape applied to equipment by the shop for temporary purposes such as securing relay can covers, paper used to protect finished surfaces, transparent covers used to protect designations at the base of crossbar frames, etc., shall be removed by the installer before the completion of the job.

7.122 Masking tape left on equipment for long periods may have a tendency to tear when it is removed and the adhesive on the tape may adhere to the equipment. To reduce the tendency for the tape to tear, loosen one end with the fingernail or a suitable tool across the entire width of the tape and, grasping the tape by the entire loosened end, pull it slowly from the equipment.

7.1221 To remove adhesive that remains on the equipment when the tape is removed, rub with a cleaning cloth dampened with R-3429 Trichloroethane. Apply the trichloroethane only to a small section of the cloth. The rubbing should be held to a minimum in order to avoid damage to the finish.

CAUTION: CARE SHOULD BE TAKEN IN USING TRICHLOROETHANE TO INSURE THAT THE LOCATION WHERE IT IS BEING USED IS WELL VENTILATED. THE INSTALLER SHOULD BE CAUTIONED TO AVOID INHALING THE FUMES GIVEN OFF BY THIS MATERIAL WHICH SHALL BE USED IN SMALL QUANTITIES AND ONLY FROM THE THREE OUNCE CONTAINERS FURNISHED BY STOCKKEEPING. HAND CREAM (OBTAIN LOCALLY) SHOULD BE RUBBED ON THE HANDS AFTER USING TRICHLOROETHANE TO PREVENT DRYNESS TO THE SKIN.

7.13 Damaged Finishes

7.131 Finishes that are damaged shall be retouched or refinished to approximate the original condition by the use of approved abrasives and finishing materials as required.

7.1311 The use of abrasives shall be kept to a minimum. They should generally be used only where the condition exists, smooth off with 2-0 emery cloth and exercise extreme care to prevent dirt from getting into the equipment.

7.14 Marred Finishes Not Damaged Beyond Repair

7.141 Finishes that are marred but not damaged beyond repair, shall be retouched.

7.1411 Retouched spots may vary somewhat from the color of the original finish due to unavoidable variations in the colors of different lots of enamels. If the retouching is neatly done, however, slight color variations will not be objectional and they will become less prominent with age.

7.1412 When a surface is excessively marred, the entire surface containing the marred spots should generally be refinished. This will prevent the mottled or "polka dot" appearance which results when a large number of spots in a comparatively small area are retouched. If the surface involved is rather large, as on a cabinet type end guard, consider refinishing only a portion of the surface which may be outlined by natural boundaries, such as lines through the bottom or top of switch covers.

7.15 Marred Finishes Damaged Beyond Repair

7.151 Finishes that are damaged and are beyond economical repair by retouching shall be refinished.

7.1511 When refinishing is required only the surface (such as the front surface of a casing or relay cover) containing the damaged finish need generally be refinished.

7.16 Finishes for Retouching and Refinishing Operations

7.161 Finishes to be used for retouching and refinishing operations are listed in the last column of Table 1. Some of these finishes are not in sufficient demand to justify stocking and should be obtained locally or through FIELD SERVICE as indicated in the table, when required.

7.1611 One coat of these finishes is generally sufficient for retouching or refinishing operations.

7.17 Application of Paints and Enamels

7.171 Paints and enamels as furnished are generally of the proper consistency for application and are to be mixed and applied in accordance with any directions on the labels. Mix paints at the paint locker or outside of the building. Subsequent stirring to keep the paint properly mixed may be done where the paint is being used.

7.1711 A convenient paint stirring tool may be made from a strip of 1/16" metal approximately 1" wide and 3" longer than the depth of the can. Bend one end back on itself for approximately 2". Spreading the doubled back portion so as to slip over the side of the can will hold the tool out of the way when not in use.

7.172 STIR PAINT OR ENAMEL THROUGHLY BEFORE USING TO INSURE THAT NONE OF THE PIGMENT REMAINS IN THE BOTTOM OF THE CAN AND REPEAT STIRRING AS OFTEN AS NECESSARY DURING THE PAINTING OPERATION TO KEEP IT WELL MIXED.

NOTE: PAINTS AND ENAMELS IN WHICH THE PIGMENT IS NOT COMPLETELY MIXED WITH THE SOLVENT WILL VARY FROM THE PROPER SHADE.

7.1721 Remove any film which has formed on the top of the paint in the can before stirring the paint or enamel, as it would prevent obtaining a smooth finish if stirred into the paint. Before attempting to remove the film, loosen it from the inside surface of the can with a screwdriver or other suitable instrument. In this way the film can usually be removed without breaking up.

7.173 Paint may be handled with less chance of spilling, when painting from ladders, if a small paint bucket is used as a container.

7.174 Enamel should be applied by the "Flow-On" method. Do not brush it out to a thin coat. On flat smooth work this is best accomplished by flowing on a coat in one direction (left to right on vertical surfaces) so as to cover not more than a 4" to 6" square and then leveling the enamel by a minimum amount of brushing in the crosswise direction (up on vertical surfaces). If the brushing is prolonged the coating is spread out, resulting in a thin, incomplete hiding finish which will also be excessively brush marked. Avoid heavy coats which will run and cause a wavy appearance when dry.

7.175 "Spattering" can be kept to a minimum, particularly when painting overhead, by dipping the brush into the paint or enamel for only a short distance and wiping off the excess by drawing the brush over the edge of the container. Use slow, even strokes rather than jerky or dauby strokes. Care must be exercised when drawing the brush over the edge of the can to prevent "spattering" when the brush leaves the can.

TABLE 1

FINISHES FOR RETOUCHING AND REFINISHING OPERATIONS (PAR. 7.161)

ORIGINAL FINISH (NOTE 1)			FINISHES FOR RETOUCHING AND REFINISHING OPERATIONS	
CODE NO.	DESCRIPTION	ORDERING INF.	REPRESENTATIVE USE	DESCRIPTION
	Aluminum			(Notes 2 and 3)
3	Electroplated Zinc (Not passivated)	(Note 5)	Zinc plated parts	KS-8662 Gray Enamel
67	Mahogany Enamel	RM-643367	Mahogany finished curtain cases	67 Mahogany Enamel
104AY	Flat Lacquered Birch-Walnut	See Table 2	Walnut finished switchboards. Matches 105AA Finish	See Par. 7.98
140BC	Flat Lacquered Birch-Mahogany	See Table 2	Mahogany finished terminal room desks. Matches 105AB Finish	See Par. 7.98
105AA	Flat Lacquered Mahogany-Walnut	See Table 2	Mahogany finished boards	See Par. 7.98
105AB	Flat Lacquered Mahogany	See Table 2	15D switchboards	See Par. 7.98
112A	Dull Black Rubber - Oiled		Hard rubber key tops	See Par. 7.341
116E	Dull Black Phenol Fiber		Fiber faced panels	See Par. 7.321
118AS	Acid-Resistant Light Gray Enamel	RM-646317	Miscellaneous details in battery room	Gray Acid Resistant Enamel
122Y	Gray Green Lacquer	Obtain Through Field Service	6A Switchboard Wooden Surfaces	122Y. Semigloss Gray-Green Lacquer
241	Sherardized Zinc	(Note 5)	Small Steel parts	Gray Enamel KS-8662
275	Black Lacquer	Obtain Locally	Black Finished metal parts and screws	Pittsburgh Plate Glass Co. No. UC-10736 Black Lavax, or Dulux No. 83-005 Black Enamel.
345	Bower-Barff - Light Deposit	Obtain Locally	Stile Casings	"Valspar" Gray 4 Hour Enamel
395	Gray Enamel	(Note 5)	Auxiliary framing, cable rack, frames, etc.	KS-8662 Gray Enamel
404	Black Wrinkle Enamel, Baked	Obtain Locally	Radio & Test Equipment	Pittsburgh Plate Glass Co. No. UC-10736 Black Lavax or Dulux No. 83-005 Black Enamel

TABLE 1 (Cont'd)

ORIGINAL FINISH (NOTE 1)		FINISHES FOR RETOUCHING AND REFINISHING OPERATIONS		
CODE NO.	DESCRIPTION	ORDERING INF.	REPRESENTATIVE USE	DESCRIPTION
405	Bray Enamel, Baked, 1 Coat	(Note 5)	General use	KS-8662 Gray Enamel
450	Olive Green Lacquer	Obtain Locally	PBX Casings	"Dulux" Olive Green Enamel RP-88033
470	Gray Insulating Lacquer	(Note 5)	Fuse bay uprights (interior surface and bulb face)	KS-8662 Gray Enamel
472	Gray Lacquer, 1 Coat	(note 5)	General use	KS-8662 Gray Enamel
473	Gray Lacquer, 2 Coats	(Note 5)	General use	KS-8662 Gray Enamel
474	Gray Insulating Enamel	(Note 5)	Battery mounting details	KS-8662 Gray Enamel
480 481	Black Enamel, Baked, 1 Coat Black Enamel, Baked, 2 Coats	Obtain Locally	Black finished drive gear cases, condensers, retardation coils, etc.	Pittsburgh Plate Glass Co. No. UC-10736 Black Lavax, or Dulux No. 83-005 Black Enamel
483	Insulating Gray Enamel, Baked	(Note 5)	Cable brackets, fanning rings, etc.	KS-8662 Gray Enamel
484	Acid Resistant Gray Enamel	RM-646317	Metal battery stands, etc.	Enamel, Gray Acid Resistant
488	Olive Green Enamel, Baked	Obtain Locally	Steel casings for 740 & 755 PBX	"Dulux" Olive Green Enamel RP-88033
525	Gray Enamel, Baked, 2 Coats	(Note 5)	Baked gray enamel finish on casings, relay covers, etc.	KS-8662 Gray Enamel
533	Gray Wrinkle Enamel	(Note 5)	Outside of covers for portable test sets	KS-8662 Gray Enamel
576	Light Brown Wrinkle Enamel	Obtain Locally	Teletypewriter Equipment	Martin Senour Paint Co., Chicago, IL. No. 18076 satingloss enamel (Note 4)
584	Electroplated Zinc (Not Passivated)	(Note 5)	General use	KS-8662 Gray Enamel
586	Federal Gray Enamel	R-2974	Radio equipment. 23 Type Desks	Enamel, Gray, Federal

TABLE 1 (Cont'd)

ORIGINAL FINISH (NOTE 1)		FINISHES FOR RETOUCHING AND REFINISHING OPERATIONS		
CODE NO.	DESCRIPTION	ORDERING INF.	REPRESENTATIVE USE	DESCRIPTION
671A	Gray-Green Lacquer	Obtain Through	6A Switchboard Metallic Surfaces	VL-15052A. Gray-Green Vinyl Lacquer
699A	Light beige baked Textured Vinyl Finish	R-4490	Touch-up Console of the Number 16 Local Test Desk	Light Beigh Touch-up Lacquer
700A	Dark Cover and Gray Baked Textured Vinyl Finish	R-4491	Touch-up Console of the Number 16 Local Test Desk	Dark Covert Gray Touch-up Lacquer
728	Gray-Blue Lacquer	R-3853	ESS Cable Rack Covers Frame Base Covers, end guard doors	Gray-Blue Textured Vinyl Lacquer
729A	Pale Green Baked Textured Vinyl Finish	R-4492	Touch-up Console of the Number 16 Local Test Desk	Pale Green Touch-up Lacquer
784A	Stone Gray Baked Textured Vinyl Finish	R-4493	Touch-up Console of the Number 16 Local Test Desk	Stone Gray Touch-up Lacquer
785A	Sky Blue Baked Textured Vinyl Finish	R-4494	Touch-up Console of the Number 16 Local Test Desk	Sky Blue Touch-up Lacquer

NOTE 1: Code numbers for metal finishes specified on drawings have a letter suffix to indicate the surface preparation of the metal as shown below. The retouch finishes listed in the preceding table apply to the indicated finish codes for all of these letter suffices that apply.

A - Clean - unprepared
B - Scratch Brushed
C - Sandpapered
D - Sand or Steel blasted
E - Polished and sand or steel blasted
F - Phospahted - On Steel - Usually scratch brushed before finishing
G - Sheradized (Heavy)
H - Zinc plated (Heavy)
J - Zinc plated (Light)
K - Polished - highly buffed
L - Bright acid dipped
M - Polished or glazed
N - Grained
P - Buffed
R - Phosphated - On zinc or cadmimum before painting
S - Sherardized (Light)
T - Burnished

NOTE 2: Following is a list of the code numbers of the aluminum finishes that were applied to equipment and apparatus parts before the adoption of the present gray enamel finishes and the code numbers of the corresponding gray enamel finishes.

ALUMINUM FINISH		GRAY ENAMEL FINISH	
Code No.	Description	Code No.	Description
55	Aluminum Enamel	395	Gray Enamel
401	Aluminum Enamel, Baked, One Coat	405	Gray Enamel, Baked, One Coat
402	Aluminum Enamel, Baked, Two Coats	525	Gray Enamel, Baked, Two Coats

NOTE 3: Where aluminum or aluminum finishes require retouching or refinishing, du Pont Dulux aluminum enamel, No. 165-5642, Pittsburgh Plate Glass Lavax aluminum, No. UC-31770, and Valentine aluminum enamel, No. 550222, may be used but are not recommended for retouching parts where insulating bushings, insulators, terminals or wiring are likely to be coated by the retouching finish. Such parts should be retouched with KS-8662 Gray Enamel.

NOTE 4: The finishes for retouching the wrinkle finishes 404,553, and 576 are suitable only for repairing small scratches and small marred spots.

NOTE 5: KS-8662 Gray Enamel - order 1/2 pint cans and/or 1 quart cans.

NOTE 6: Use only on cut ends of parts having the 289 or 560 finish or as a touchup where the finish has been marred or damaged so as to expose the bare metal on parts having the above finishes.

7.176 The consistency of KS-8662 Gray Enamel used for retouching differs markedly from that of trade sales enamels in that it is designed primarily as a retouching enamel for small areas. Use a small amount of enamel on brush for touching up small spots. Use care and do not rush the job. Apply enamel, flowing on with strokes in one direction and finish with strokes in the opposite direction. Completely refinish small areas as work proceeds. This applies to touching up of spots or refinishing of whole areas or parts of areas.

7.177 If brushes are to be stored overnight and reused the next day they may be wrapped tightly in Saran Wrap or a plastic bag. These items may be purchased locally or found on job, respectively.

7.1771 When using this method, which is intended for brushes that are to be reused in the same color paint, it is unnecessary to remove the Paint Pigment before wrapping. The brush may be reused without cleaning.

7.1772 A rubber band or twine should be placed around the bag and brush to secure it tightly to prevent air leads.

7.1773 Store brushes in the paint storage locker.

7.2 Cement Grouting and Caulking Compound

7.21 Cement grouting shall have a priming coat of R-3261 Sealer Coater and a finishing coat of KS-8662 Gray Enamel. Caulking compound shall be given a coat of KS-8662 Gray Enamel only if requested by the Operating Company.

7.211 R-3261 Sealer Coater may be thinned, when necessary, by adding a small quantity of water. Brushes used with the sealer may be cleaned by washing with water. The enamel finish coat may be applied when the sealer is dry to the touch, usually within two hours.

NOTE: Since the R-3261 Sealer Coater is a water emulsion, it may not wet some surfaces well unless they are washed with a detergent just prior to applying the sealer.

7.212 Caulking compound can be painted as soon as it will withstand brushing. A drying period of several days may be required.

7.213 If base angles or base of frames require refinishing, it will generally be convenient to paint these at the same time as the cement grouting or the caulking compound, where used.

7.3 Fiber and Hard Rubber

7.31 Fiber-faced Panels or Woodwork

7.311 Unexposed surfaces of fiber used for facing woodwork need not be finished, unless otherwise specified.

7.312 Exposed edges and ends on fiber or rubber faced woodwork and exposed walls of holes in such woodwork shall be finished to match the finish on the face of the fiber or rubber.

7.3121 For exposed holes in black faced woodwork a coat of RM-645446 Black Drying Oil will produce a satisfactory finish.

7.313 Unexposed edges and ends of black fiber or black rubber faced woodwork shall be given a coat of RM-645446 Black Drying Oil.

7.3131 Unexposed walls of holes in such woodwork need not be finished.

7.3132 Edges and ends of keyshelves and relay rack mounted panels are regarded as not exposed to view.

7.32 Dull Black Phenol Fiber

7.321 The 116E Finish on black phenol fiber can be produced as follows: Rub the surface with #1 American Emery Paper or #180-D Carborundum Paper, stretched tightly over a suitable block, until a uniformly smooth surface is obtained. Then dust off and apply a coat of RM-645446 Black Drying Oil with a brush. Dry for at least 36 hours before handling.

7.33 Fiber Faced Jack Spaces

7.331 Fiber faced jack spaces having a dark gray finish can be refinished to match spaces having a black finish by applying a coat of RM-645446 Black Drying Oil. Dry for at least 36 hours before handling.

7.34 Dull Black Hard Rubber

7.341 Faded black hard rubber finishes may be restored by running with a cloth moistened with a mixture consisting of one part by volume of boiled linseed oil and 8 parts of Petroleum Spirits.

7.4 Floors Under Switchboards, Desks and Cabinets

7.41 Where this equipment is placed directly on a cement floor, the floor under the enclosed portion of the switchboard, desk or cabinet shall have a priming coat of R-3261 Sealer Coater and two finishing coats of KS-8662 Gray Enamel.

7.42 Where this equipment is placed on an unfinished wooden floor, the floor under the enclosed portion of the switchboard, desk or cabinet shall be given two coats of R-3455 White Shellac.

7.43 Carpeted or raised floors require no finish.

7.5 Metalwork

7.51 Metal Finishes

7.511 Metal finishes which cannot be cleaned by the damp wiping method per Paragraph 7.11 shall be cleaned by rubbing with a cleaning cloth dampened with Petroleum Spirits or with a mild soap, such as Castile, and water (see Paragraph 7.5131 for aluminum finishes). Soiled areas which cannot be satisfactorily cleaned by these methods shall be retouched or finished. Cleaning shall be resorted to wherever practicable, however, in order to keep retouching to a minimum. When soap is used all traces of the soap must be removed immediately after cleaning.

7.512 Scratches not through to the bare metal should be cleaned but need not be refinished unless so many scratches are present as to make the area unsightly.

7.513 Aluminum (bare metal) and aluminum finishes need not be finished, or refinished to match the gray enamel finish.

7.5131 Aluminum finishes should be cleaned with a cleaner consisting of one part by volume of boiled linseed oil and 8 parts of Petroleum Spirits. A cleaning cloth well saturated with the cleaner shall be thoroughly rubbed over the whole surface containing the soiled finish. Excess cleaner should be absorbed with the saturated cloth but no attempt should be made to wipe the surface dry.

7.5132 When painting of aluminum parts not previously finished is desirable in the field, the parts must be throughly washed with Petroleum Spirits (whether soiled or not) in order to make the finish adhere properly.

7.514 Electroplated Zinc Finished Parts

7.5141 Electroplated zinc finished parts have a passivating treatment to improve their corrosion resistant characteristics. This treatment imparts a yellow or light brown iridescent finish to zinc plated parts. Parts given this finish may have a varicolored streaky appearance but need not be refinished because of this condition.

7.515 Cleaning of Metal Finishes to be Retouched or Refinished

7.5151 Clean spots or surfaces to be retouched or refinished with a cleaning cloth dampened with Petroleum Spirits and allow the cleaned area to dry thoroughly before applying the finish.

7.52 Conduit, Rigid or Flexible, and Armored Cable

7.521 Conduit and armored cable have a galvanized or electroplated zinc finish and need not be refinished unless specifically authorized by the Telephone Company.

7.5211 The 1" junctioning galvanized pipe, used as a ground and as a support between duct-type frames, need not be refinished unless specifically requested by the Telephone Company. However, the exposed ends, which do not have the galvanized finish, should be retouched with KS-8662 Gray Enamel.

7.5212 If retouching or refinishing is required, KS-8662 Gray Enamel shall be used.

7.53 Retouching Gray Enamel Finishes on Ironwork Such as Frames, Auxiliary Framing, Cable Racks, Etc.

7.531 Piecemeal retouching should be avoided. Auxiliary framing, racks, etc., can be retouched most economically and with less chance of spattering wiring and apparatus by retouching the job as a whole as soon as erecting operations are completed. Finishes marred during subsequent installing operations can be retouched as a group prior to the testing period. Use KS-8662 Gray Enamel.

7.5311 When steel auxiliary framing bars or channels, cable rack, etc., are cut, the exposed surfaces shall be finished with KS-8662 Gray Enamel before assembly where the cut surfaces will not be exposed for finishing after assembly.

7.54 Retouching Smooth Enamel Finishes Such as the 525 Gray Enamel Finish on Relay Can Covers

7.541 Surface scratches and small marred spots in smooth finishes which cannot be cleaned satisfactorily and all scratches and small marred spots which penetrate through the base metal, if not so closely bunches as to justify refinishing, shall be retouched with the R-2919 3/16" Round Brush. The finish shall be confined to the scratches and marred areas as much as possible. Avoid getting too much enamel on the brush and brushing the enamel excessively after it has been applied. Too much brushing will cause the enamel to dry with a rough surface.

7.5411 In order to keep the 3/16" round brush in good condition it will be necessary to have a small quantity of Petroleum Spirits available during retouching operations. A 1/2 pint mason jar with cover, not more than 1/4 full of spirits, may be used. The brush should be cleaned in the spirits and wiped off on a clean rag as frequently as necessary.

7.55 Rust and Corrosion

7.551 When a condition of rust or corrosion is general on one or more types of equipment it shall be reported on a Job Information Memorandum. The J.I.M. shall include any information available on the job with respect to the following factors for guidance in determining the action to be taken.

(1) Extent of areas affected.

(2) Location with reference to moving parts.

(3) Location as affecting appearance.

(4) Likelihood of further development.

(5) Estimate cost of repair or replacement.

7.5511 Corrective action in connection with the conditions covered by Paragraph 7.551 shall be delayed until an answer to the J.I.M. is received, except where enameled steel parts, such as cable racks, auxiliary framing, casing doors, etc., are involved. In the latter cases, corrective action in accordance with Paragraph 7.5521 may be taken prior to the receipt of the answer to the J.I.M.

7.552 Where rust or corrosion involves only a few parts and is not of a general nature a J.I.M. need not be issued. Corrective action shall be taken in accordance with the following paragraphs.

7.5521 Rust on enameled steel parts where the finish has been damaged so as to expose the base metal is generally of a non-scaly nature which does not require the use of an abrasive for its removal. Cleaning with petroleum spirits, before the retouching or refinishing operation, is sufficient for this type of rust on enameled steel parts. Scaly rust shall be

removed with 2-0 emery cloth. Clean and retouch or refinish in accordance with Paragraph 7.14 or 7.15.

7.5522 Rust or corrosion on plain electroplated zinc finished parts shall be corrected as follows:

(a) Remove rusted areas on parts other than those covered in (b), with R-2799, No. 320 Aluminous Oxide Cloth. Only scaly or loose rust need be removed. Clean, and retouch or refinish in accordance with Paragraphs 7.14 or 7.15.

(b) Replace rusted small parts such as bank rods, armatures, collars, mounting screws, nuts, etc. Where this is not practicable replace the entire apparatus.

NOTE: Zinc plated parts are now given a passivating treatment to improve their corrosion resistive characteristics. This treatment is expected to prevent rusting and corrosion of zinc plated parts. Where rust or corrosion does appear on passivated parts, however, the treatment shall be similar to that used for plain electroplated zinc finished parts except for the different retouch finish required.

(c) The presence of a loose white powder on zinc plated parts is an indication that these parts have been exposed to humid atmospheric conditions. This may occur when equipment is stored in warehouses prior to installation, or when equipment is installed in new telephone buildings where the plaster and cement work have not completely dried out. These powder deposits indicate that the zinc chromate finish is protecting the metal underneath, and where the metal has not started to rust, it is considered harmless. Any zinc plated parts having loose powder deposits should be cleaned as outlined in (d) below. Where the humidity is controlled satisfactorily, there is no danger that this condition will become progressive.

(d) Wipe off loose white powder deposits with a damp KS-2423 Twill Jean or KS-14666 Wiping Cloth and remove any remaining loose powder with a vacuum cleaner, using either the KS-14410-L18 Crevice Nozzle or the R-1085 Rubber Tube. Deposits in accessible locations such as on upper and lower surfaces of closely adjacent crossbar switches, step-by-step clamping plates, etc., and white powder deposits so adherent that they are unaffected by this cleaning method, need not be removed. The parts from which loose white powder deposits have been removed will not, in general, require retouching or refinishing.

7.5523 Rusted chrome nickeled finished parts, such as armatures of "U" type relays, shall be replaced when they can be readily removed. If this is not practicable replace the entire apparatus.

7.6 Screws, Bolts, Nuts, Washers, Etc.

7.61 Screws, bolts, threaded rods, nuts, washers, etc., normally have a plated finish and do not require any further protection.

7.611 Cut-off ends of threaded rods, screws, bolts, etc. having the pasivated zinc finish shall be painted with KS-8662 Gray Enamel.

7.62 Lock washers having a blue finish need not be refinished to match the finish on adjacent surrounding surface.

7.7 Woodwork

7.71 Exposed surfaces on the fronts, sides and tops of switchboards, desks and similar equipment shall be finished as specified. Exposed surfaces on the rear, or on other portions which are made of a different kind of wood from that used for the front, shall be finished to match, as nearly as practicable, the finish of the woodwork on the front.

7.72 Unexposed surfaces of switchboards, desks and cabinets and the wooden parts inside of them, including the cable shoes, cleats and cord shelves and parts associated with wiring, such as connecting racks, distributing frame fanning strips, and apparatus mounting panels shall be finished with two coats of shellac or varnish, unless otherwise specified.

NOTE: In general, it may be assumed that unexposed surfaces in switchboards, cabinets, etc. have been treated with a finish by the shop. The above paragraph, therefore, applies where a part has become marred or damaged during installing operations or in shipment.

7.73 Fitted end surfaces, such as the ends of keyshelves and similarly exposed end surfaces of switchboard, desk, and cabinet woodwork, shall be finished with one coat of boiled linseed oil stained just sufficiently to somewhat resemble the adjacent finishes. A heavy film-forming material such as shellac varnish should not be used as this would interfere with the proper fit of the surfaces. Where such woodwork is fiber-faced, the end surfaces should be finished in accordance with requirements for finishing fiber-faced panels.

7.74 Wooden parts associated with metal framework, other than inside of switchboards, desks and cabinets, such as wood blocks used as spacers or shims, distributing frame designation boards, cable shoes and wood spacers on cable racks, shall be finished with one coat of KS-8662 Gray Enamel to match the associated framework.

7.75 Use KS-14668 Polishing Cloths for the removal of dust and line from wood surfaces.

7.76 Where wood finishes present a dull appearance or are grimy looking, they may be cleaned with a mild soap, such as castile and water as follows:

7.761 Use a KS-14666 Cleaning Cloth or a cellulose sponge, obtained locally, for cleaning the soiled woodwork.

7.762 Immerse the cloth or sponge in a solution of the soap and water. Wring sufficient solution from the cloth or sponge by hand to prevent dripping while cleaning.

7.763 Hold the cloth or sponge in the palm of the hand and with light scrubbing strokes over the surfaces being cleaned, remove the embedded dirt.

7.764 After cleaning the surface thoroughly, wipe it off with a cloth or sponge moistened with clean water until all traces of the soap solution are removed.

NOTE: Do not permit the soap solution to dry before rinsing.

7.765 The dried surface may be brightened by buffing with a dry KS-14666 Cleaning Cloth if the application of furniture polish is not required.

7.77 Mahogany or walnut finishes on wood surfaces that are soiled or that have slight scratches may be cleaned and polished with Scratch Cover Polish if preferable to the method covered in Paragraph 7.76. Cream Wax Polish may be used on the light finishes on wood surfaces, such as the oak finishes. Apply the polish as follows:

7.771 Use a slightly water dampened KS-14666 Cleaning Cloth for the application of the polish to the wood surface.

7.772 Apply the polish sparingly, working with the grain of the wood or in straight strokes rather than circular ones.

7.773 Allow the polish to dry (usually 15 or 20 minutes) and then polish with a clean KS-14666 Cloth, using light straight strokes at the beginning and increasing the pressure for the final finish, if necessary. Use another clean cloth for the final polishing, as the first one will accumulate some of the wax and become unfit for producing the final lustrous finish.

NOTE: Do not attempt to polish applications of wax polish until it is dry, otherwise the polish will simply be wiped from the surface.

7.78 The standard wood finishes shown below shall be produced in the field, where necessary, by applying the operations specified in Table 2 that apply as indicated by the x marks. When repairing damaged finishes, apply only the operations required to match the original finish.

Code No. of Finish	Applied on	Description of Finish
105-AB	Mahogany	Flat lacquered mahogany
105-AA	Mahogany	Flat lacquered walnut
104-BC	Birch	Flat lacquered mahogany
104-AY	Birch	Flat lacquered walnut

TABLE 2 (Par. 7.78)

OPERATIONS FOR REFINISHING WOODWORK

Lacquered Finishes (Note C)				Operation
105-AA	104-AY	104-BC	105-AB	
X	X	X	X	Remove the old finish with Nos. 1 and 1/0 sandpaper and sandpaper the surface of the woodwork smooth, finishing with 2/0.
x	x	x	x	Fill nicks and abrasions with plastic wood putty. Clean and roughen surfaces to be filled. Press the wood putty into position with fingers or putty knife. Apply a slight excess to allow for shrinkage. Allow to dry thoroughly. Smooth with sandpaper (Note A).
X	X	X	X	Dust off with painter's duster.
X			X	Apply Mahogany filler, RM-641717 (Note B).
X				Apply Walnut Stain, RM-645806
X			X	As soon as the solvent has evaporated, the filler or filler stain shall be padded into the pores at right angles to the grain of the wood with a Burlap pad. Remove the excess filler or filler stain with rags in a cross grain motion. Clean with rags, first wiping across the grain, and then wiping with the grain. Take care not to wipe the filler or filler stain out of the pores.
		X		Apply Mahogany Stain, RM-641716 (Note B).
	X			Apply Walnut Stain, RM-645806.
	X	X		As soon as the solvent has evaporated, the excess stain shall be removed. Clean with rags.
X	X	X	X	Dry for at least 18 hours
X	X	X	X	Dust off with painter's duster.
		X		Apply Mahogany Toner, RM-647430, wherever necessary
			X	Apply Mahogany Toner, RM-647431, wherever necessary.
X	X	X	X	Dry for at least one hour
X	X	X	X	Dust off with painter's duster.
X	X	X	X	Apply a coat of Varnish, RM-647677.
X	X	X	X	Dry for at least 20 hours.
X	X	X	X	Sandpaper with No. 5/0 garnet finishing paper. Take care not to cut through the varnish coat.
X	X	X	X	Dust off with painter's duster.
X	X	X	X	Apply second coat of Varnish, RM-647677.
X	X	X	X	Dry for at least 40 hours.

NOTE A: Shellac sticks (also known as shellac cement) can be used for filling holes or deep scratches. These sticks are available in various colors and in transparent form. They should be obtained locally to match the finish of the surface requiring repairs. Fill deep holes with wood plugs to within about 1/4" of the surface before applying the cement. Melt a small amount of the cement on a putty knife (heated on a soldering copper) and force into the indentation. Repeat until the indentation is filled a little overflush. Allow cement to set about one hour and shave excess cement off flush with the surface of the wood with a sharp wood chisel. Smooth with 2/0 sandpaper, if necessary.

NOTE B: Before using Mahogany Filler, RM-641717, or Stain, RM-641716, thin by adding Petroleum Spirits, a little at a time, using approximately 3 parts of petroleum spirits to 4 parts of paste. Stir until a uniform mixture is obtained.

NOTE C: The cleaning, repairing and refinishing methods given in this section for the lacquered finishes, 104-AY, 104-BC, 105-AA and 105-AB are also suitable for the superseded varnished finishes, 104-AP, 104-AS, 105-V and 105-W, respectively.

7.781 The Nos. 104-BC and 104-AY Finishes match the 105-AB and 105-AA Finishes, respectively.

8. TEMPORARY MECHANICAL PROTECTION OF EQUIPMENT

8.1 A fire retardant paint is to be applied to rigid material such as lumber, plywood, and hardboard used for temporary mechanical protection of equipment per Handbook 0 Section 20.

8.2 Obtain locally roller and pan or 4" brush for application. PAINT SHALL NOT BE SPRAY PAINTED.

8.3 Apply one coat of R-4425 Fire Retardent Paint to both sides and all edges of material.

NOTE: If used to paint overhead, personnel must wear safety chemical goggles.

8.4 Since this is a latex base paint, tools, hands, and spillage etc. can be cleaned up by using water.

9. VERIFICATION

9.1 Items for the verification of the operations covered in this section are listed below. The list may also be used as a self-check guide when performing the operations. The numbers in parentheses refer to the associated paragraphs in this section.

9.101 Equipment parts furnished by installer finished to match associated equipment (4.2).

9.102 Equipment free from rust and other corrosion (7.551, 7.552).

9.103 Painting of grouting and caulking under frames (7.21).

9.104 Floors under switchboards finished where necessary (7.4).

9.105 Cut-off ends of threaded rods, steel screws, etc. finished, (7.611, 7.62).

9.106 Woodwork

9.1061 Exposed surfaces finished as specified (7.71).

9.1062 Unexposed wooden parts of switchboards, desks and cabinets and the wooden parts inside of them given a transparent protective finish (7.72).

9.1063 Fitted end surfaces of wooden parts not finished with heavy film-forming material (7.73).

9.1064 Exposed edges and walls of holes in fiber or rubber faced woodwork finished to match face (7.312).

9.1065 Unexposed edges of black fiber or black rubber faced woodwork finished black (7.313).

9.107 Wooden parts associated with metalwork painted gray (7.74).

9.108 Soiled or marred finishes cleaned, retouched or refinished (7.11, 7.131).

No arrowed lines shown due to major revision

[Vertical lines at sides of paragraphs indicate requirements.

Reason for Reissue:
1) Complete revision of section regarding painting and retouching.
2) Addition of information on application of fire retardant paint to temporary mechanical protection.

Engineering Planning Manager
Common Installation Engineering