

**ROLLING LADDERS**  
**TRACK TYPE**  
**EQUIPMENT DESIGN REQUIREMENTS**  
**COMMON SYSTEMS**

**1. GENERAL**

**Scope**

**1.01** This specification, together with the drawings listed herein, covers the requirements for straight rolling ladders of the track type and the track for these ladders.

**1.02** This specification is reissued to specify the KS-5049-02 ladders in place of the WECO ED drawing ladders and to add ED-99688-70 to provide for ordering brakes, trolleys, and accessories for the KS-5049-02 ladders.

**1.03** The ladders covered by this specification are a rolling type of stepladder with the upper end suspended from a trolley which runs inside of the steel ladder track and with the lower end mounted on rubber-tired floor wheels. The ladders have oak side rails, steps, and handrails and are finished with a penetrating wood finish so as to bring out the natural grain of the wood.

**1.04** Rolling ladders are usually placed between two rows of frames in telephone offices so that the frames on either side of an aisle may be served by one ladder. The lengths of the rolling ladders furnished for any installation depend upon the heights at which the ladder track is mounted and the width of each ladder depends upon the width of the aisle in which it is to be used. The 1-foot 2-inch width is used wherever space permits. The steps of the ladders are level when the ladders are mounted so that they are inclined at 68 degrees with the floor, and since the steps of all ladders are spaced 9-3/4 inches apart when in this position, the heights of the ladders increase in increments of 9-3/4 inches. To permit the ladders to be mounted with the steps level in all cases, five lengths of adjustable hanger rods are available. The proper ones may be selected from the tables

on ED-99688-70 for any height of ladder track from 8 feet 0 inch to 15 feet 0 inch.

**1.05** Ladders with brakes differ from ladders without brakes, as follows. Instead of the 1A trolley a 2A brake is ordered, and the ladders are provided with the proper number of rope guides and release ropes of the required length. The 2A brake is a mechanism with two brake shoes that expand automatically against the inner sides of the ladder track when the ladder is loaded, as by the weight of a man on the steps.

**1.06** The ladder track covered by this specification is formed from strip steel and is designed so that the trolley wheels operate on the inside of the track. This arrangement assures that a ladder will not unintentionally become disengaged from the track even though one or more trolley wheels should break or come loose.

**Sizes of Ladders**

**1.07** Rolling ladders may be obtained to be equipped with or without ladder brakes. They are made in three widths and eight heights as follows.

- (a) 1 foot 2 inches wide in heights of 8 through 15 steps.
- (b) 1 foot 0 inch wide in heights of 8 through 15 steps.
- (c) 10 inches wide in heights of 8 through 15 steps.

Brakes for rolling ladders are ordered as ED-99688-70, Group 1 brakes. When brakes are not provided, the 1A trolley, ordered as ED-99688-70, Group 2 trolley must be provided to suspend the ladder from the track. Associated hanger rods, wheel

guards, and fenders are also ordered as various groups on ED-99688-70.

**1.08** Ladders 1 foot 2 inches and 1 foot 0 inch wide are standard, while 10-inch ladders are considered special. Ladders of more than 15 steps are also considered special but may be obtained where required as covered in Part 6.

#### **Lengths of Track**

**1.09** Runs of rolling ladder track are made up of sections of two lengths; namely, 8 feet 0 inch and 10 feet 0 inch. The required number of splices, hangers, and stops are furnished for each run.

#### **Ladder Brakes**

**1.10** Ladder brakes are not only available with new rolling ladders in accordance with ED-99688-70, where required, but may also be obtained for existing ladders in accordance with ED-91589-70.

**1.11** For use with rolling ladders not equipped with brakes, the rolling ladder block ED-99543-70 is available to be placed under one wheel of the ladder.

### **2. SUPPLEMENTARY INFORMATION**

800-600-000—List of General Equipment Requirements Sections

801-000-000—Equipment Design and General Equipment Requirements and Engineering Information—Common Systems

J85506—802-015-151—Appliance Outlets—Trolley Type

J90604—801-007-150—Ladders, Benches, and Stools—Application Practices

KS-5094-02—Rolling Step Ladders

010-110-04—Ladders and Ladder Seats—Safety Precautions General

065-105-801—Ladders and Ladder Seats, Piece Part Data, Replacement Procedure, and Minor Repairs

### **3. DRAWINGS**

ED-91589-70—Ladder and Brake Accessories

ED-91592-70—Ladder Track Assembly

ED-99543-70—Ladder Block

ED-99688-70—Ladder Brake, Trolley, Wheel Guards, and Fender for KS-5049-02 Rolling Ladders

### **4. EQUIPMENT**

#### ***KS-5049-02—1-Foot 2-Inch and 1-Foot 0-Inch Ladders Without Brakes***

- List 9*—8-step ladder 1 foot 0 inch wide.
- List 10*—9-step ladder 1 foot 0 inch wide.
- List 11*—10-step ladder 1 foot 0 inch wide.
- List 12*—11-step ladder 1 foot 0 inch wide.
- List 13*—12-step ladder 1 foot 0 inch wide.
- List 14*—13-step ladder 1 foot 0 inch wide.
- List 15*—14-step ladder 1 foot 0 inch wide.
- List 16*—15-step ladder 1 foot 0 inch wide.
- List 17*—8-step ladder 1 foot 2 inches wide.
- List 18*—9-step ladder 1 foot 2 inches wide.
- List 19*—10-step ladder 1 foot 2 inches wide.
- List 20*—11-step ladder 1 foot 2 inches wide.
- List 21*—12-step ladder 1 foot 2 inches wide.
- List 22*—13-step ladder 1 foot 2 inches wide.
- List 23*—14-step ladder 1 foot 2 inches wide.
- List 24*—15-step ladder 1 foot 2 inches wide.

#### ***KS-5049-02—1-Foot 2-Inch and 1-Foot 0-Inch Ladders With Brakes***

- List 33*—8-step ladder 1 foot 0 inch wide.
- List 34*—9-step ladder 1 foot 0 inch wide.
- List 35*—10-step ladder 1 foot 0 inch wide.
- List 36*—11-step ladder 1 foot 0 inch wide.
- List 37*—12-step ladder 1 foot 0 inch wide.
- List 38*—13-step ladder 1 foot 0 inch wide.
- List 39*—14-step ladder 1 foot 0 inch wide.
- List 40*—15-step ladder 1 foot 0 inch wide.
- List 41*—8-step ladder 1 foot 2 inches wide.
- List 42*—9-step ladder 1 foot 2 inches wide.
- List 43*—10-step ladder 1 foot 2 inches wide.
- List 44*—11-step ladder 1 foot 2 inches wide.
- List 45*—12-step ladder 1 foot 2 inches wide.
- List 46*—13-step ladder 1 foot 2 inches wide.
- List 47*—14-step ladder 1 foot 2 inches wide.
- List 48*—15-step ladder 1 foot 2 inches wide.

#### ***KS-5049-02—10-Inch Ladders With and Without Brakes***

- List 1*—8-step ladder without brake.
- List 2*—9-step ladder without brake.
- List 3*—10-step ladder without brake.
- List 4*—11-step ladder without brake.
- List 5*—12-step ladder without brake.

- List 6*—13-step ladder without brake.
- List 7*—14-step ladder without brake.
- List 8*—15-step ladder without brake.
- List 25*—8-step ladder with brake.
- List 26*—9-step ladder with brake.
- List 27*—10-step ladder with brake.
- List 28*—11-step ladder with brake.
- List 29*—12-step ladder with brake.
- List 30*—13-step ladder with brake.
- List 31*—14-step ladder with brake.
- List 32*—15-step ladder with brake.

***ED-91589-70—Ladders Brake and Accessories for Existing Ladders***

- Group 1*—Brake and accessories for 8- or 10-step ladders 1 foot 2 inches wide.
- Group 2*—Brake and accessories for 9- or 11-step ladders 1 foot 2-inches wide.
- Group 3*—Brake and accessories for 12-step ladders 1 foot 2 inches wide.
- Group 4*—Brake and accessories for 13-step ladders 1 foot 2 inches wide.
- Group 5*—Brake and accessories for 14-step ladders 1 foot 2 inches wide.
- Group 6*—Brake and accessories for 15-step ladders 1 foot 2 inches wide.
- Group 7*—Brake and accessories for 8- or 10-step ladder 1 foot 0 inch wide.
- Group 8*—Brake and accessories for 9- or 11-step ladder 1 foot 0 inch wide.
- List 9*—Brake and accessories for 12-step ladder 1 foot 0 inch wide.
- List 10*—Brake and accessories for 13-step ladder 1 foot 0 inch wide.
- Group 11*—Brake and accessories for 14-step ladder 1 foot 0 inch wide.
- Group 12*—Brake and accessories for 15-step ladder 1 foot 0 inch wide.
- Group 13*—Brake and accessories for 8- or 10-step ladder 10 inches wide.
- Group 14*—Brake and accessories for 9- or 11-step ladder 10 inches wide.
- Group 15*—Brake and accessories for 12-step ladder 10 inches wide.
- Group 16*—Brake and accessories for 13-step ladder 10 inches wide.
- Group 17*—Brake and accessories for 14-step ladder 10 inches wide.
- Group 18*—Brake and accessories for 15-step ladder 10 inches wide.
- Group 19*—9-1/2-inch hanger rods.
- Group 20*—1-foot 1-1/2 inch hanger rods.
- Group 21*—1-foot 3-1/2 inch hanger rods.

- Group 22*—Top step for 10-inch ladder.
- Group 23*—Top step for 1-foot 0-inch ladder.
- Group 24*—Top step for 1-foot 2-inch ladder.
- Group 25*—Lower fixtures for one ladder.
- Group 26*—7-1/2 inch hanger rods.
- Group 27*—11-1/2 inch hanger rods.

***ED-99688-70—Ladder Brakes, Trolley, Wheel Guards, and Fenders for KS-5045-02 Rolling Ladders***

- Group 1*—Brake
- Group 2*—Trolley
- Group 3*—7-1/2 Inch Hanger Rods
- Group 4*—9-1/2 Inch Hanger Rods
- Group 5*—11-1/2 Inch Hanger Rods
- Group 6*—1—1-1/2 Inch Hanger Rods
- Group 7*—1—3-1/2 Inch Hanger Rods
- Group 8*—Fender Assembly
- Group 9*—1 Wheel Guard
- Group 10*—2 Wheel Guards

***ED-99543-70—Ladder Block***

**5. METHOD OF ORDERING**

**5.01** The following is a typical order for a rolling ladder equipped with a ladder brake which is to be mounted in a standard width aisle from track that is mounted 11 feet 7-1/2 inches above the floor.

One—KS-5049-02 List 45 Rolling Ladder

One—ED-99688-70 Group 1 Brake

One—ED-99688-70 Group 3 Hanger Rods

**5.02** The following is a typical order for ladder track.

228-foot Rolling Ladder Track per ED-91592-70 consisting of:

Two—Lengths of Track 54 Feet 0 Inch Each

One—Length of Track 32 Feet 0 Inch

Two—Lengths of Track 44 Feet 0 Inch Each

**Note:** Ladder track is furnished complete with the necessary number of splices, mounting brackets, and stop as covered on ED-91592-70, Table A.

**5.03** The following is a typical order for a ladder brake for an old ladder 1 foot 2 inches wide, with unlubricated floor wheels, which has 12 steps in addition to a wood hanger step, and which is suspended from a track that is 12 feet 0 inch above the floor.

One—ED-91589-70, Group 3 Ladder Brake

One—ED-91589-70, Group 20 Hanger Rods

One—ED-91589-70, Group 24 Top Step

One—ED-91589-70, Group 25 Lower Fixtures

**Note:** Ladder brakes to operate properly require floor wheels that operate freely. Therefore, in ordering brakes for old ladders, it is necessary to replace the lower fixtures where the ladders are not equipped with fixtures of the lubricated type having grease cups. For ladders having metal hanger steps that are not offset, to permit brake operation, or for older ladders having a hanger step of wood it is necessary to replace the top step with a new metal top step.

**5.04** The following is a typical order for tires for replacement purposes for the ladders covered by this specification.

Eight—B-651617 Rolling Ladder Tires for Rolling Ladders—KS-5049-02

## 6. GENERAL NOTES

**6.01** The construction of the equipment covered by this specification shall conform with that called for in specification KS-5049-02.

**6.02 Limits:** Where maximum or minimum dimensions are shown or indicated by "+" or "-" variations, the dimensions of the ladder or parts shall be within the limits specified. Where dimensions are not limited, dimensions of the equipment shall correspond reasonably with the dimensions shown. Where no dimensions are shown, the design of the ladder or parts shall correspond reasonably with the design illustrated.

**6.03 Safety:** As shown on the drawings, all ladder parts held together by means of machine screws, bolts, or nuts shall be held from coming apart by some means of locking which is

visible, such as cotter pins, riveting, staking, the use of an additional nut as a locknut, or by means of a tang of a splined washer bent up around a nut. All burrs which might tend to injure a man's hands or damage clothing shall be removed.

**6.04 Woodwork:** The quality of the wood furnished shall conform with the requirements specified in KS-5049-02.

**6.05 Finish:** The ladders shall have a penetrating wood finish as specified in KS-5049-02.

**6.06 Lubrication:** The floor and trolley wheels shall be lubricated before shipment with Veedol cup grease or its equivalent as covered on the drawings for these parts.

**6.07 Marking:** Every ladder shall be marked with the Western Electric name, Made in U.S.A., and KS specification and list number as covered in the specification.

**6.08 Track:** The ladder track shall conform with the notes on ED-91592-70.

**6.09 Fenders:** The fenders covered by ED-99688-70, Group 8 are required only for ladders serving frames having guardrails mounted higher than the standard of 6 inches.

**6.10 Ladders of more than 15 steps** are considered special. When such a ladder is required, it may be made by splicing the side rails as follows.

- (a) The splice shall be near the bottom end of the ladder and shall be made so that it will run diagonally across the side rails for a distance somewhat greater than that between two steps, and so placed as to come opposite two steps. The splice shall be held together by means of glue and two dowel pins and also by the screws which fasten the side rails to the end of the steps. In order to reinforce this splice a steel plate 1/8 by 4 by 40 inches shall be placed over the splice on the outside of each side rail and secured by at least ten 1/4- by 1-3/16 inch flathead bolts. The holes in the steel plates shall be counter-sunk to fit the flat head of the bolts and the ends of the bolts shall be staked. All sharp edges and burrs on the steel plates shall be removed.

List of A&M Only and Mfr Disc. Equipment

EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT	EQUIPMENT	RATING	DETAILS LAST SHOWN IN ISSUE	REPLACING EQUIPMENT	
ED-91562-70, G21	Mfr Disc.	1	ED-91562-70, G20	G17-20	Mfr Disc.	2	ED-99688-70	
ED-91563-70, G21	Mfr Disc.	1	ED-91563-70, G20	G22-24			G3-10	
ED-91564-70, G21	Mfr Disc.	1	ED-91564-70, G20	ED-91564-70 G1-8			KS-55049-02	
ED-91562-70 G1	Mfr Disc.	2	KS-5049-02	G9-16			List 1-8	
G9-16			List 17-24	ED-91589-70	A&M Only	3	List 25-32	
G17-20			List 9-16				G17-20	and
G22-24			and				21-22	ED-99688-70
ED-91563-70	Mfr Disc.	2	ED-99688-70					G1 and 2
G1-8			G2		ED-99688-70			
G9-16			ED-99688-70, G3-10		G3-10			
			KS-5049-02		—			
			List 41-48					
			List 33-40					
			and					
			ED-99688-70					
			G1					

The above equipment has been replaced as indicated. Where A&M Only items appear, the issue numbers shown are those of the issue in which the rating was first applied.

Bell Telephone Laboratories, Incorporated

Dept 5644