

## ROLLING PLATFORM LADDER

### KS-21415 L1 AND L2

### OPERATION, ADJUSTMENT, PIECE-PART DATA, AND REPLACEMENT PROCEDURES

#### 1. GENERAL

**1.01** This section covers the operation, adjustment, piece-part data, and replacement procedures for the KS-21415 L1 and L2 rolling platform ladders with associated hardware.

**1.02** Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

**1.03** The KS-21415 L1 and L2 ladders are designed for use in telephone central offices for working on frames less than 8 feet high and in aisles greater than 2 feet wide, such as the Common Systems Main InterConnecting (COSMIC) Electronic Switching System (ESS) modular distributing and protector frames and low-profile conventional distributing frames. They are recommended for use when terminating cross-connections with short wire lengths. The ladder meets and complies with the Federal Registered Occupational Safety and Health Standards (OSHA).

**1.04** The KS-21415 ladder is available in two models. The L1 ladder (Fig. 1) is the basic configuration. The L2 ladder configuration (Fig. 2 and 3) includes the basic ladder with a horizontally mounted wire reel assembly, wire guide, and jumper running tool.

#### **1.05** *Wire Reel and Mounting Assembly*

(a) The wire reel used with the L2 ladder is a **modified** KS-8047 wire reel. The major components of the KS-8047 wire reel are illustrated in Sections 075-147-801 and 074-750-101. Modifications for use with the L2 ladder are as follows:

(1) Deleted the conventional base with attached KS-8047 L101 automatic brake kit from the reel support arm

(2) Mounted the reel support arm in a horizontal position on the sliding shelf

(3) Provided an additional spacer between the reel and support arm.

(b) The mounting assembly includes the sliding shelf on which is mounted a new friction-type, gravity-actuated, automatic brake assembly. The shelf is mounted on extended runners and is equipped with a spring-loaded locking pin.

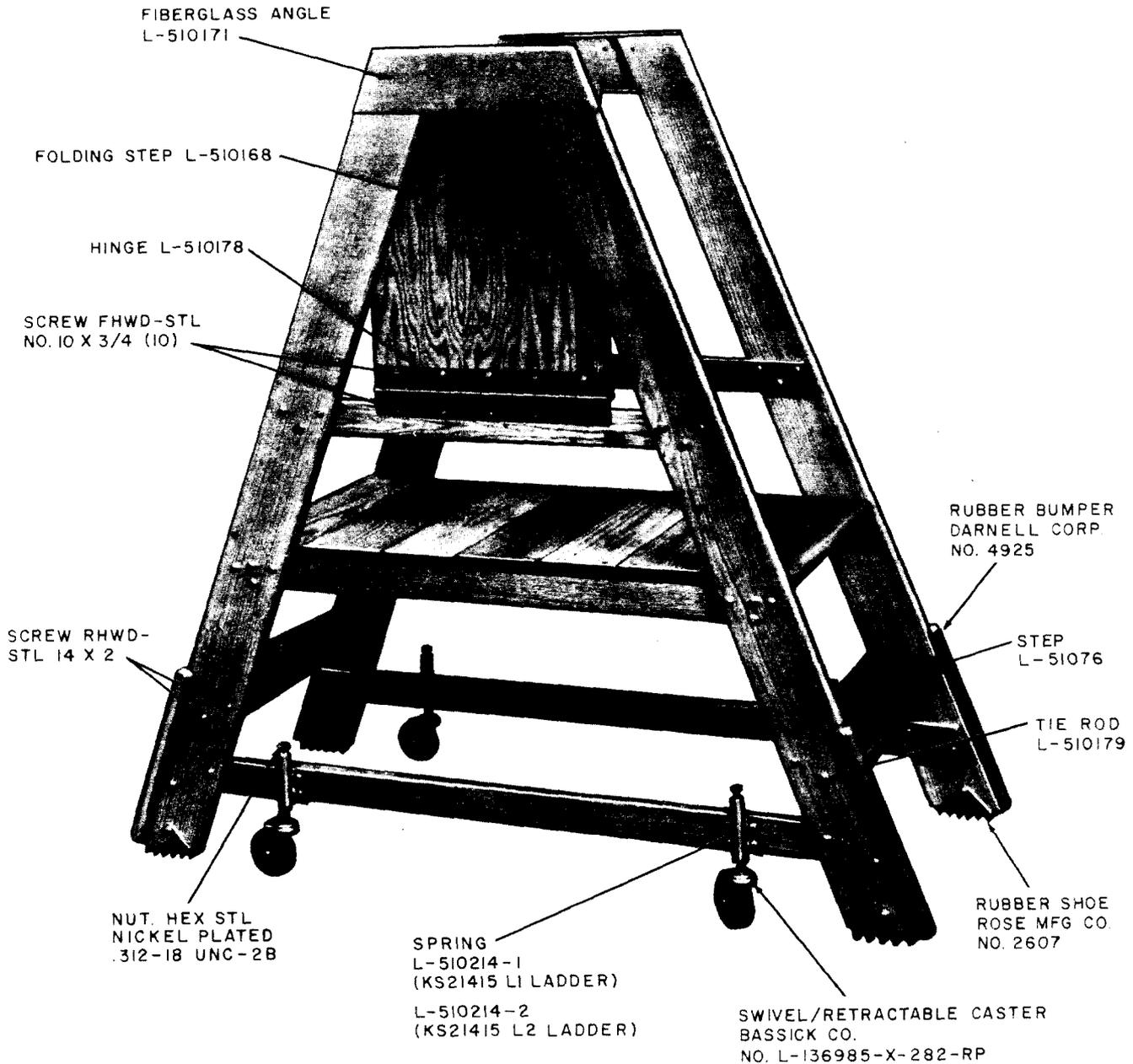
**1.06** *Retractable Casters:* The swivel and spring-loaded retractable casters on the L1 and L2 ladders are designed to allow the unoccupied ladder to be moved in any horizontal direction with or without a fully loaded wire reel.

**1.07** *Self-Storing Folding Step:* The self-storing folding step on the ladder allows personnel to reach the upper horizontal wiring channels, express troughs, and termination locations. The folding step (Fig. 3) is secured in the stored position by a recessed positive locking system.

**1.08** *Wire Guide:* The flexible spring wire guide located at the top of the side rails conforms to the direction of wire withdrawal. This reduces the force required to dispense wire, thereby allowing the ladder to remain stationary, if required, during a remote jumper running operation.

**1.09** *Jumper Running Tool:* The jumper running tool is grooved at both ends and stored on the ladder with a magnetic latch. This tool facilitates the placement of wire jumpers in frame shelves and express troughs during the wire reel dispensing operation.

**1.10** The ladder can serve one or more aisles with adjacent or parallel frame lineups. Figure 4 illustrates a typical work location. The double



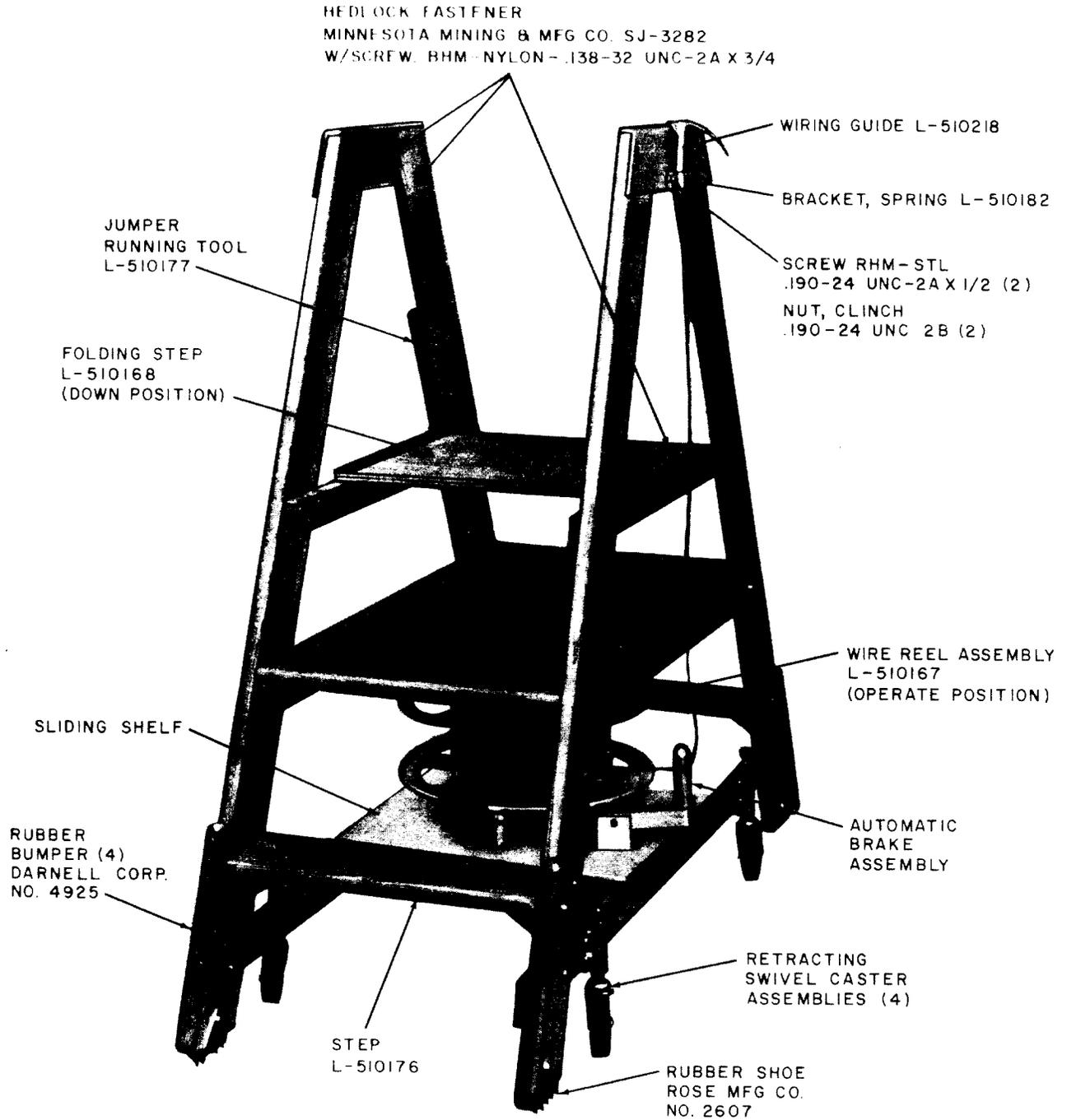
**Fig. 1—KS-21415 L1 Rolling Platform Ladder (Folding Step Stored Position)**

access to the ladder platform permits passage through narrow aisles without removing the ladder.

1.11 The ladder when in use should always be aligned parallel to and with the wire guide adjacent to the frames. This places the wire close to the frame for the craftman's convenience and safety.

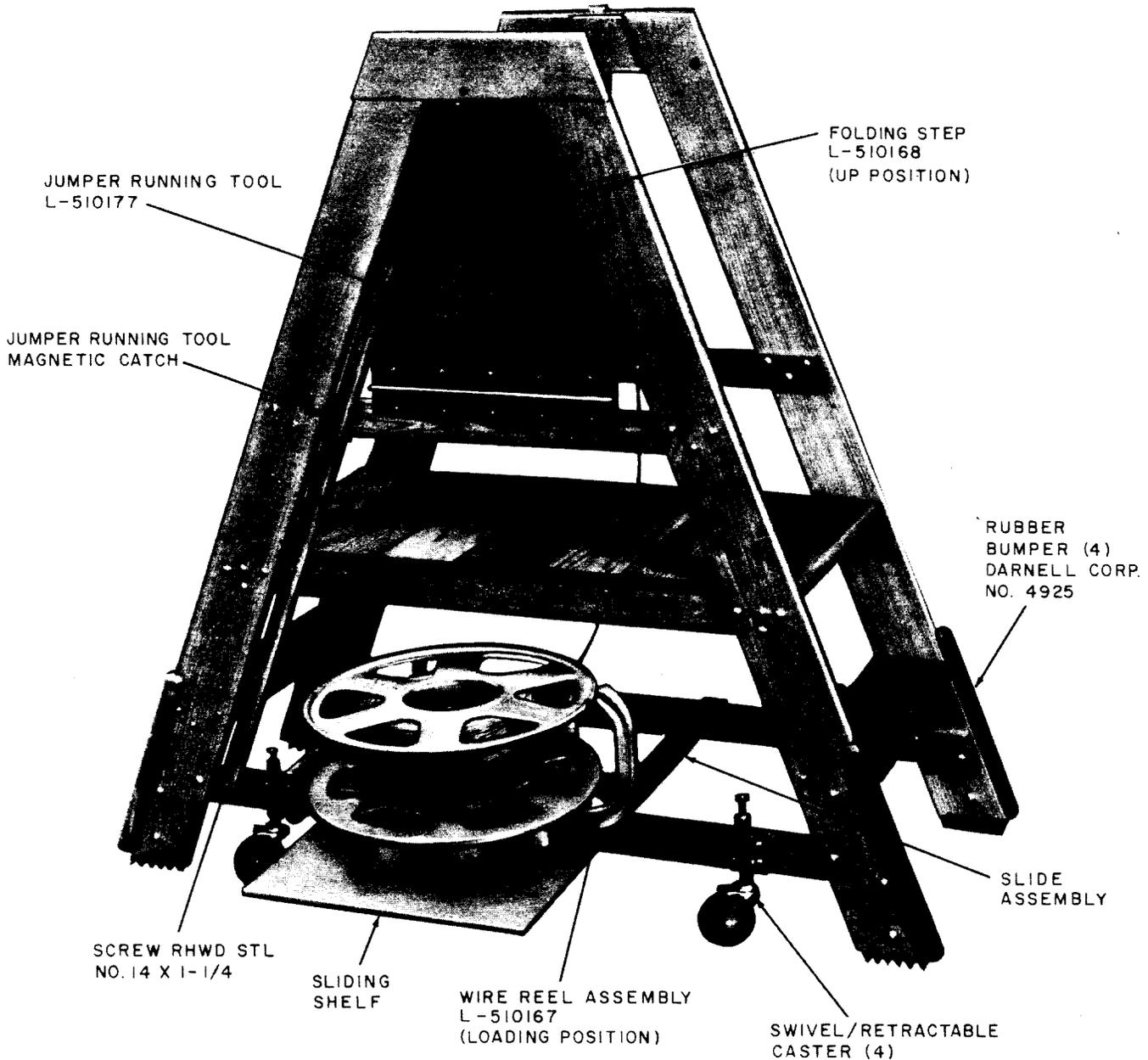
**2. LIST OF TOOLS**

CODE OR SPEC NO.	DESCRIPTION
TOOLS	



**Fig. 2—KS-21415 L2 Rolling Platform Ladder (Wire Reel Operate Position)**

<b>TOOLS</b>		<b>TOOLS</b>	
417A	1/4- and 3/8-inch open double-end flat wrench	KS-8097	7/16- and 5/8-inch double offset box-end wrench
AT-7858	Regional B 5-inch pliers	R-1051	File
AT-8420	B combination pliers	R-1542	Wrench



**Fig. 3—KS-21415 L2 Rolling Platform Ladder (Wire Reel Loading Position)**

**TOOLS**

R-2192

Mallet, rubber

—

3-inch C screwdriver

**3. OPERATING PROCEDURES**

**3.01 Loading the Wire Reel Assembly:** The modified KS-8047 wire reel assembly is bolt mounted horizontally on a sliding shelf assembly which is secured to the lower section on the ladder

(Fig. 2). The sliding shelf is mounted on the extendable runners and secured centrally under the ladder platform with a spring-loaded locking pin. The shelf extends out for the convenience in replacing the coil of wire. To load the wire reel assembly, proceed as follows.

- (1) Disengage the spring-loaded locking pin and pull the shelf with reel out to the full extension of the glide runners (Fig. 3).

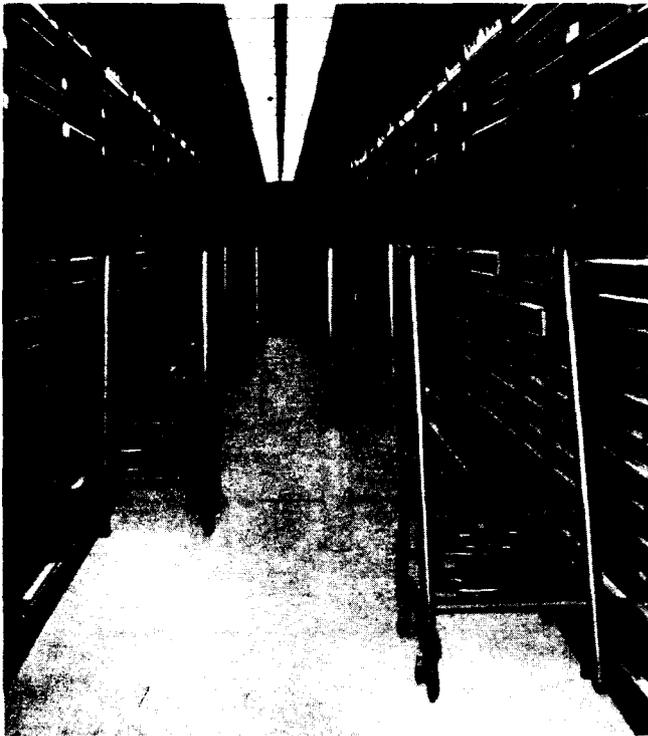


Fig. 4—Cosmic Frame Dual Lineup

- (2) Remove the wing retaining nut from the reel hub and remove the outer flange from the reel assembly.
- (3) Position the new coil of wire on the exposed reel hub. (The wire coil is tapered and will only fit the reel hub in one direction.)
- (4) Replace the outer reel flange and replace and tighten the wing nut.
- (5) Return the shelf and reel to the operating position under the ladder and verify that the shelf is received by the engaged locking pin.
- (6) Check the installation by slowly pulling on the exposed wire end. Verify that the reel turns counterclockwise.

### 3.02 Automatic Brake Assembly Adjustment:

The automatic brake (Fig. 5) is a friction-type brake which prevents the wire reel from overrunning when the wire is dispensed from the reel. Applying tension to the wire through the wire guide releases the brake allowing the reel to rotate freely. When tension on the wire is relaxed,

braking action is applied to the lower flange of the reel. The brake has a vertical and a horizontal adjustment (Fig. 6). When brake adjustments are necessary, proceed as follows.

(a) **Horizontal Adjustment:** The horizontal angular adjustment uses two hole positions in the sliding shelf. The 90-degree angular position of the yoke with respect to the reel flange decreases braking action. The 70-degree angular position of the yoke to the reel flange increases braking action.

- (1) Remove the pivot pin holding the brake arm in the yoke.
- (2) Remove the brake arm assembly (brake shoe, post, and brake arm) from yoke.
- (3) Using the 7/16-inch box-end wrench, loosen the locknut on the adjustment bolt holding the yoke to the sliding shelf.
- (4) Remove the rivet retaining pin from the base of the yoke. (The yoke will now pivot right or left around the adjustment bolt.)
- (5) Position the yoke (90 degrees to decrease, 70 degrees to increase).
- (6) Insert the rivet pin in the hole of the yoke and sliding shelf.
- (7) Tighten the locknut on the adjustment bolt. (Do not tighten the locknut if the vertical adjustment is required at this time.)
- (8) Replace the brake arm and insert the pivot pin.

(b) **Vertical Adjustment:** The variable vertical adjustment to the brake arm sets the clearance between the brake shoe and the lower reel flange when the brake is released. It also prevents the brake arm post from touching the upper reel flange when brake is released.

- (1) Loosen the locknut on the adjustment bolt.
- (2) Using the 7/16-inch box-end wrench, turn the adjustment bolt head located under the sliding shelf up or down for vertical adjustment. (Proper adjustment requires

approximately 1/8-inch clearance as gauged by eye between the brake shoe and lower reel flange when the brake is released.)

(4) Tighten the locknut.

(c) **Operational Check**

(1) Insert the wire through the hole in the brake arm post and up through the flexible wire guide mounted at the top of the ladder.

(2) Apply tension to dispense the wire and verify that the brake releases with approximately 1/8-inch clearance between the brake shoe and lower flange of the reel. Also verify that the reel turns counterclockwise when dispensing wire.

(3) Rewind any excessive wire dispensed during checking.

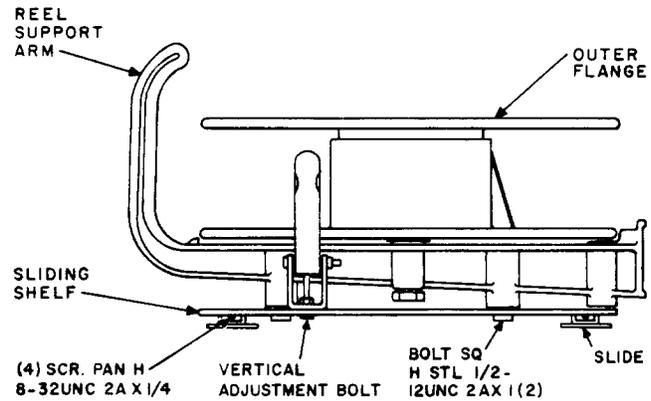
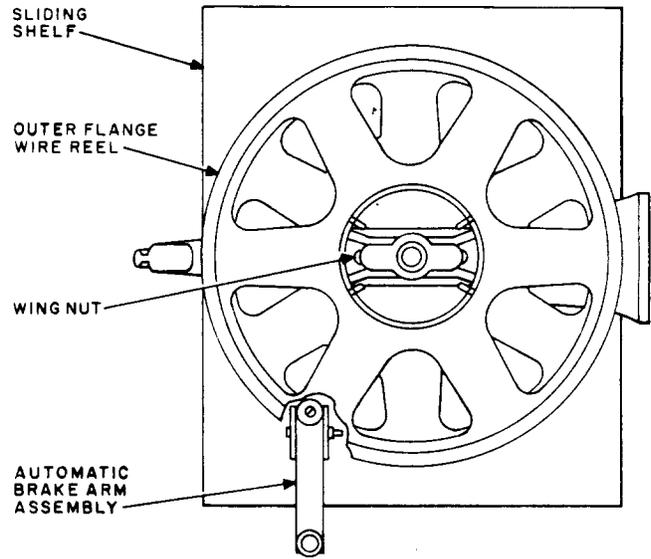
**Note:** A slight tension on the wire is required to release the brake during the rewind operation.

**3.03 Using the Ladder, Wire Reel, and Jumper**

**Running Tool:** The jumper running tool is designed for use with the L2 ladder in the jumper running and terminating operations at the upper express trough level. The following operational procedure is recommended for using the jumper running tool and the L2 ladder in making long jumper runs.

- (1) Make the first termination.
- (2) With wire cradled in the groove of the jumper tool, hold the jumper tool in one hand.
- (3) Insert the jumper wire in the upper horizontal wiring channels while moving the ladder in front of you with the other hand, thus dispensing the wire from the wire reel.

**Note:** This procedure will make the ladder immediately available at the next terminating location if required. This procedure is especially convenient when the second termination is located at the upper level. For more details on methods of making connections, refer to Section 201-222-301.



**Fig. 5—Wire Reel Assembly**

**3.04 Storage and Maintenance**

- (a) When not in use, the ladder should be stored in an area protected from the elements and not in the immediate area of heating radiation stoves or steam pipes which cause excessive heat or dampness.
- (b) The piece-part data and repair procedures for the ladder are in Part 4 of this section.

**4. PIECE-PART DATA AND REPLACEMENT PROCEDURES**

**4.01** The KS-21415 L1 (Fig. 1) is the basic ladder without accessories but with the following replaceable parts: Rubber shoes, rubber bumpers, casters, caster springs, steps, tie rods, and folding

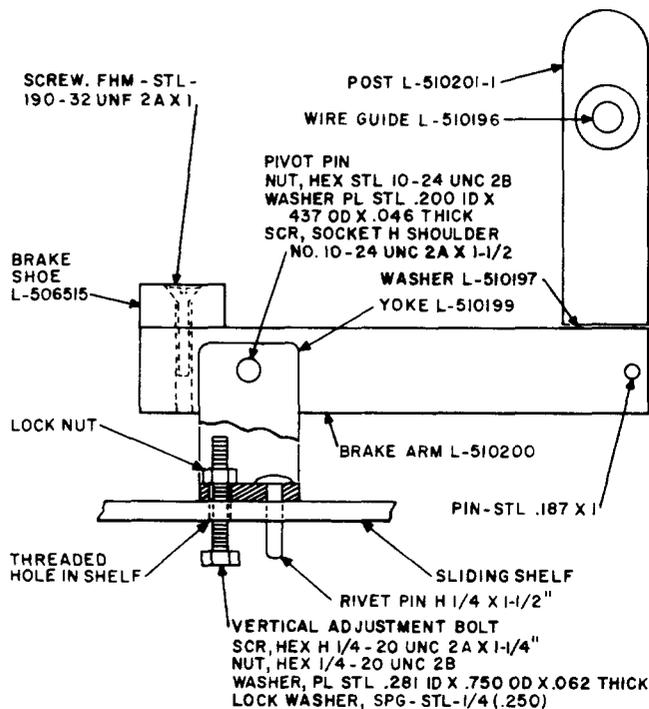


Fig. 6—Automatic Brake Assembly

step fasteners. Replacement of these parts with the exception of steps, tie rods, and caster springs is limited to a simple operation and needs no explanation.

#### 4.02 Steps

- (a) To replace a step, remove the two screws from each side rail and loosen the adjacent tie rod sufficiently to release the step. Using the R-2192 rubber mallet, tap alternately at the end and the center of the step until it is driven free. Insert the new step evenly and with the rubber mallet drive it into place.
- (b) If the new step should prove to be too thick for the side rail grooves, the ends of the step may be tapered slightly with the sanding block. Taper the step primarily on the top edge of the ends so the load-bearing side remains squared. Exercise care that the edges are not rounded in the sanding process.
- (c) Should the screw lead holes of the new step fail to center with those in the side rail, fill the lead holes with plastic wood and allow to dry thoroughly before new holes are drilled. Insert the new step and drill the new holes 1

3/4 inches deep with the 7/32-inch twist drill bit. Tighten the four screws firmly, and remove burrs and sharp edges with the R-1051 file. Retighten all tie rods that may have been loosened.

**4.03 Tie Rods:** All tie rods that require retightening should also be riveted so they will be free from burrs.

**4.04 Retractable Caster Spring:** Fatigued caster springs or conversion to heavy-duty springs, such as those used on the KS-21415 L2 platform ladder, L-510214-2, are replaced as follows.

- (1) Grip the shaft beneath the caster housing with a pair of AT-8420 B combination pliers to prevent rotation.
- (2) Unscrew the 9/16-inch captive locknut with an R-1542 wrench.
- (3) Tilt the ladder sideways on the opposite legs, and remove the caster.
- (4) Replace the spring and assemble.

**4.05** The KS-21415 L2 rolling platform ladder (Fig. 2) consists of a basic L1 ladder plus a wire reel assembly (Fig. 5), a wire guide, and a jumper running tool with fastening hardware (Fig. 2 and 3).

**4.06 Automatic Brake Shoe:** The rubber shoe on the automatic brake is replaced by removing the pivot pin on the yoke and withdrawing the brake arm assembly (Fig. 6). This exposes the brake shoe for removal of the captive screw. Apply locktite, or equivalent, to the threads in the brake arm prior to assembly. The screw should be recessed 1/16 inch below the brake shoe surface.

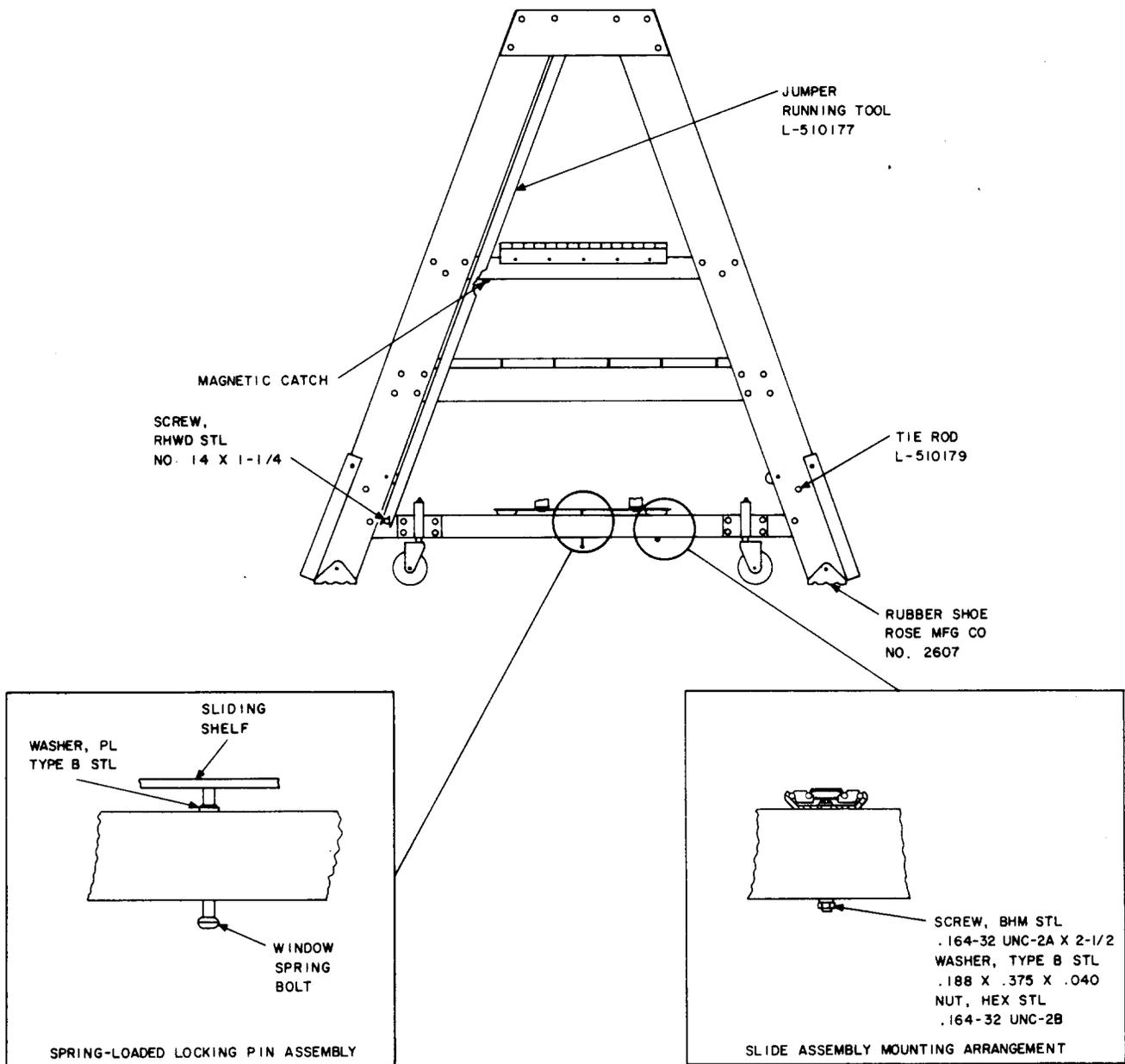
**4.07 Sliding Shelf:** Disassembly of the sliding shelf requires removal of the brake arm assembly described in 4.06 and the pivot pin positioning the brake yoke described in 3.02. Disengage the spring-loaded locking pin (window spring bolt) and pull the shelf out to the full extension of the slide assembly and align the slots in the slide assemblies with the fastening screws (Fig. 7). Using a 3-inch C screwdriver to hold the screwhead, remove the nut with a 417A tool, 1/4- and 3/8-inch open double-end flat wrench.

Reposition the shelf under the ladder but not far enough to engage the spring-loaded locking pin. This will expose the fastening screws on the wire withdrawal side of the ladder. After the screws have been removed, slide the reel assembly over the wood support on the wire withdrawal side of the ladder.

**Caution:** *The wire reel assembly exceeds 25 pounds without wire. An attempt should not be made to lift the reel*

**assembly until it is clear from under the ladder. Procedure for reel assembly replacement consists of reversing the disassembly procedure.**

**4.08** The wire reel used with the KS-21415 L2 rolling platform ladder is a **modified** KS-8047. The modifications are described in 1.04. The major components of the KS-8047 wire reel are illustrated in Sections 074-750-101 and 075-147-801. For replacement parts, refer to Section 075-147-801.



**Fig. 7—KS-21415 L2 Rolling Platform Ladder (Magnetic Catch, Sliding Shelf Locking and Mounting Arrangements)**