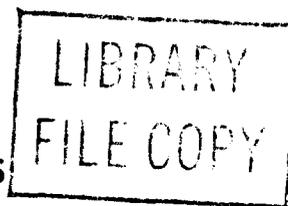


DESK TOP READERS
KS-16835 L1 AND DUKANE MODEL 576-70
MAINTENANCE AND REPLACEMENT OF PARTS
MICROFILM SYSTEMS



1. GENERAL

1.01 This section covers information for replacement of parts and for cleaning the KS-16835 L1 Readers, having serial numbers starting at 1001, and Dukane Corporation model 576-70 Readers, which are used for reading 35mm microfilm mounted in aperture cards. This section also lists most parts which may require replacement. Instructions are furnished for replacing only those parts which can conveniently be replaced by the user.

1.02 This section is reissued:

- (a) To add the Dukane Model 576-70 reader.
- (b) To add information on optical system cleaning (1.04, 2.02, 2.03).
- (c) To add piece-part data on the screen.
- (d) To add parts data and procedures for lamp voltage modification.

1.03 The Dukane Corporation model 576-70 reader is a commercial version of the KS-16835 L1 reader. The same card holders, parts, and accessories are interchangeable between the two readers.

1.04 **Optical System Cleanliness:** An accumulation of dust, dirt, or filmy residue on optical surfaces over a period of time will have a detrimental effect on the sharpness and clarity of reader images. Screen illumination can be used to gauge the cleanliness of the optical system. With no microfilm in the card holder, the screen illumination, as measured with a General Electric Company Type 213 light meter or equivalent held against the center of the screen, should read 12 foot-candles or more. A lower reading indicates the need for cleaning of all optical component surfaces. Routine cleaning of all optical surfaces at 6-month intervals should insure optimum reader performance. However, in some

areas where dust, dirt, and airborne contamination are more prevalent, shorter cleaning intervals may be necessary. The cleaning procedures for optical component surfaces are covered in the following paragraphs.

Note: In cleaning the reader, the sequence of surfaces cleaned should begin with the uppermost one and proceed toward the lowest, to avoid dust cleaned from one surface settling on another cleaned earlier. If the components are cleaned in the following sequence, the transfer of dust to previously cleaned surfaces will be minimized.

- (1) Screen — 2.03(1), (2) and (3)
- (2) Mirrors — 2.03(5)
- (3) Projection lens (upper surface) — 2.03(5)
- (4) Projection lens (lower surface) — 2.02(3)
- (5) Condenser lenses — 2.02(3)
- (6) Lamp — 2.02(4)

Note: A blackened or clouded lamp bulb indicates that the lamp should be replaced.

- (7) Reflector — 2.02(3)
- (8) Card holder — 2.01

2. MAINTENANCE AND REPLACEMENT OF PARTS

2.01 **Card-Holder:** Remove the card-holder by pulling it toward the front. Separate the two card carriers that comprise the card-holder. Clean the glass flats by wiping with any soft tissue. If this does not remove all foreign material, wipe with tissue which has been moistened with a small amount of mild soap solution. Replace the card-holder by pushing it toward the rear and left until it engages the holding clamps.

Note: If the glass is chipped or scratched in such a way that it may scratch the microfilm, or be unsatisfactory otherwise, a new card carrier should be obtained. See 3.01.

2.02 Lamp and Condenser Lenses

Caution: Do not make any lamp change until the lamp has been allowed to cool.

(1) Remove the plug of the power cord from the receptacle. Remove the card-holder from the reader. Turn the reader onto its left side. Loosen the two screws indicated by arrows. Grasp the lamp and lens assembly mounting plate while removing the screws. Move the assembly to the front sufficiently for the condenser lenses to clear as the assembly is removed from the chassis.

(2) To remove the lamp, push the lamp in firmly and rotate it counterclockwise until it stops. Pull lamp from socket and discard.

(3) Clean the reflector, both condenser lenses, and the lower surface of the projection lens (in reader housing) with a lens cleaning brush about 1 inch wide and 4 inches long. Care should be exercised to avoid scratching the optical surfaces of these components. Moisten a soft optical lens tissue with Kodak Lens Cleaner, or equivalent, and gently clean the optical surfaces of the reflector, condenser lenses, and projection lens.

Note: Reflectors found with a black spot approximately 7/16 inch in diameter in the center are early type reflectors and should be replaced. New lamp reflectors have the optical surface silvered throughout and increase screen illumination.

(4) Insert a new lamp and position it so that the notch in the edge of the flange (or the word TOP) is toward the flat surface of the condenser lens. Push the lamp in and rotate clockwise until it stops. Wipe the lamp with any soft tissue to remove finger prints.

(5) Replace the assembly, taking care that the flexible wires are not twisted or kinked, and that the *locating pins are in positioning holes*. Replace the screws and tighten them.

Note: If spare lamps are not stocked, order a replacement.

2.03 Screen, Bezel, Mirrors, and Projection

Lens: Readers are delivered by the supplier with the noncoated (smooth) surface of the screen on the front. However, in order to reduce

reflections or glare, the screen may be reversed by the user so that coated (rough) surface is on the front, see (4) below for method of reversing screen.

(1) Clean the noncoated (smooth) surface of the screen with any soft tissue. If desired, a small amount of mild soap solution may be used.

(2) Clean the coated (rough) surface of the screen with a lens cleaning brush. If necessary, this surface can be cleaned by wiping gently with a soft optical lens tissue moistened with Kodak Lens Cleaner, or equivalent.

Caution: Avoid scratching the coated (rough) surface or touching it with the fingers.

(3) In order to clean the back surface of the screen, proceed as follows.

(a) Remove the plug of the power cord from the receptacle. Remove the card-holder from the reader. Unscrew and remove the two screws which pass through the housing into the bottom of the bezel. Pull the bottom edge of the bezel forward to clear the housing, lift the bezel slightly, and pull it forward from the housing.

(b) Replace the bezel and screen.

(4) If it becomes necessary to reverse or replace the screen, it may be removed from the bezel by springing the sides of the bezel slightly and pushing the screen out of the grooves.

Caution: Avoid scratching or touching the coated (rough) surface of the screen. The mirrors have the reflecting material on the front of the mirror and this material is easily damaged. Avoid touching the surface with the fingers or with anything which may scratch it. The four screws which pass through the back of the housing serve to mount and adjust the large mirror. This adjustment should only be made by qualified personnel.

(5) In order to clean mirrors and projection lens, remove the bezel and screen as covered in (3).

Caution: Extreme care should be exercised to avoid scratching optical surfaces of the

mirrors and projection lenses. Even minute scratches may be detrimental to reader performance.

(a) Clean the surfaces of the large and small mirror, in that order, with the lens cleaning brush. Apply Kodak Lens Cleaner to the mirror surfaces with optical cotton or optical lens tissue and very gently wipe dry with a clean optical lens tissue.

(b) Clean the surface of the projection lens with the brush, being careful not to touch the surface of the small mirror. Moisten a soft optical lens tissue with Kodak Lens Cleaner and gently clean the lens surface, wiping it dry gently with a clean lens tissue.

(c) Replace the bezel and screen.

2.04 Removing Chassis: In general, removal of the chassis should not be done by the user, or at the area of use. However, if removal of the chassis should become necessary, it should be done by qualified personnel in accordance with the instructions below.

(1) Remove the plug of the power cord from the receptacle. Remove the card-holder from the reader. Loosen the setscrews in the SCAN and FOCUS knobs and remove the knobs. Push the SCAN shaft all the way in. Unscrew and remove the knurled nut from the ON-OFF switch. Push switch into chassis. Turn the reader onto its left side with the bottom toward the front. Using a B screwdriver (4 inch), remove the two screws on the bottom near the back corners. Unscrew the front feet by hand. Pull the rear of the chassis out of the housing. Move the chassis to the right sufficiently to clear the ends of the SCAN and FOCUS shafts, then remove the chassis from the housing.

(2) In replacing the chassis, reverse the operations in (1). Push the SCAN shaft all the way in, bring the chassis near its location in the housing and push the ON-OFF switch through the proper hole in the panel. Next, start the two shafts through their holes in the panel. In replacing the knobs, line up the flat on the shaft with the end of the setscrew, push the knob on leaving a slight clearance between the panel. Set the screws tight.

2.05 Scan Friction Spring: To install or replace the scan friction spring, remove the chassis per 2.04(1). Remove nut and lockwasher from the left rear mounting screw of the scan stage (see Fig. 1). Position scan friction spring, **do not bend spring**. Proper tension on scan shaft will be obtained by tightening nut and screw holding spring (see Fig. 1). Replace lockwasher and nut. Reassemble per 2.04(2).

2.06 Lubrication: The reader does not require routine lubrication. If objectionable binding should develop, a minute quantity of lubricant may be applied to the affected parts. A general purpose lubricating grease such as KS-7471 or a general purpose lubricating oil such as KS-16326 may be used. Avoid applying excess lubricant and do not allow any to get on the lenses, mirrors, screen, or card-holder.

2.07 Lamp Voltage Modification: Early model readers sometimes experience short lamp life and excessive lamp burn-outs due to high lamp voltages. Such readers can be identified by the absence of a Western Electric inspection number stamped on the bottom of the reader, or the presence of an inspection number different from the following: 25783, 25788, 25790, 25792, 25794, 25780, 47676, 47678, 47682, 47687, 47694, 67505. To remedy this problem, a circuit modifi-

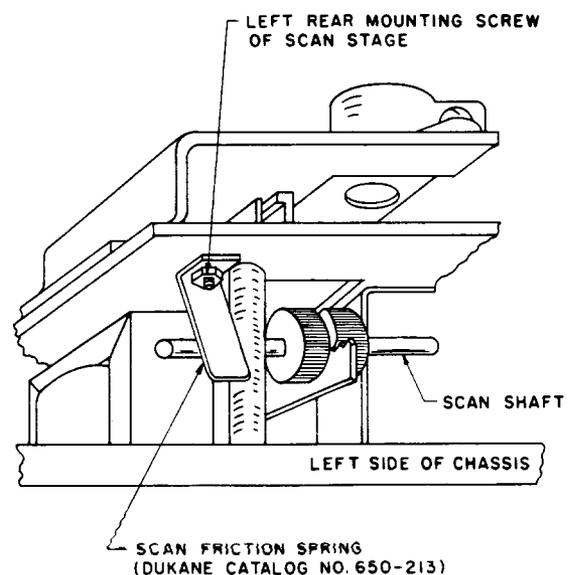


Fig. 1 – Installation of Scan Friction Spring

Γ cation to reduce lamp voltage employing parts listed in 3.01, should be installed as follows.

- (1) Remove the chassis as covered in 2.04(1).
- (2) Remove the screw from the cable clamp that holds the clinch nut connecting the black lamp socket lead to the green transformer lead. Discard the screw, saving the nut and washer.
- (3) Using wire cutters, remove and discard the clinch nut.
- (4) Referring to Fig. 2, assemble modification parts, with nut and washer from (2), to the chassis but do not tighten.
- (5) Fasten and solder ends of green and black wires to the resistor leads, obtaining needed slack by drawing wires through bottom clamp. Tape all exposed wiring.
- (6) Fasten parts down securely taking care not to damage the resistor.
- (7) After cleaning all optical components, re-assemble chassis in reader as covered in 2.04(2).

MANUFACTURER'S PART NUMBER	NAME OF PART
440-144	Knob (SCAN) With Setscrew
440-145	Knob (FOCUS) With Setscrew
→463-89	Screen (Gray)*
→463-52	Screen (Green)
115-1994	Card Carrier (Top) With Glass Plate
115-1995	Card Carrier (Bottom) With Glass Plate
115-1975	Mirror (Large) With Mounting Plates
115-1976	Mirror (Small) With Mounting Plates
494-79	Motor (Fan)
286-9	Fan Blade
710-5007-03	Power Transformer Assembly
115-2012-01	Reflector and Holder
463-55	Condenser Lens (Double Convex)
463-54	Condenser Lens (Plano Convex)
680-192	Switch
200-204	Power Cord
290-29	Rubber Feet (Front)
290-28	Rubber Feet (Back)
211-613	Dust Cover
185-144	Bezel
650-213	Scan Friction Spring

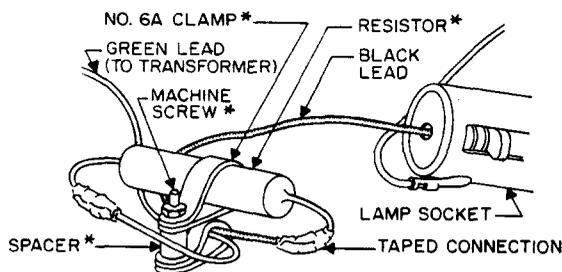


Fig. 2 - Lamp Voltage Modification. Items Marked With an Asterisk (*) are New Parts. For List of Parts, see 3.01.

Γ *The gray screen is currently standard equipment on Dukane readers. This screen has advantages over the green screen particularly in areas of high ambient lighting.

3. LIST OF REPLACEMENT PARTS

3.01 The following is a list of parts which may require replacement.

MANUFACTURER'S PART NUMBER	NAME OF PART
456-59	Lamp (Chicago Miniature #1503 Automotive, Prefocused)

Lamp Voltage Modification Parts:

- Resistor, 0.1 Ohm, 8 Watt, Tru-Ohm RW58G, or equivalent.
- Clamp, Tinnerman No. 6A, or equivalent.
- Machine Screw, Round Head, No. 6-32, 1/2-Inch Long
- Spacer, 5/32-Inch Inside Diameter, 1/8-Inch Long.

3.02 Ordering Information: Except for lamp-voltage modification parts, orders should be placed with the Western Electric Company, Incorporated, and should state the quantity, the part number, the part name, for KS-16835 L1

Reader, the name of the manufacturer (of the reader), and the serial number, or for the Dukane Model 576-70 Reader, as applicable. Lamp voltage modification parts should be obtained locally.