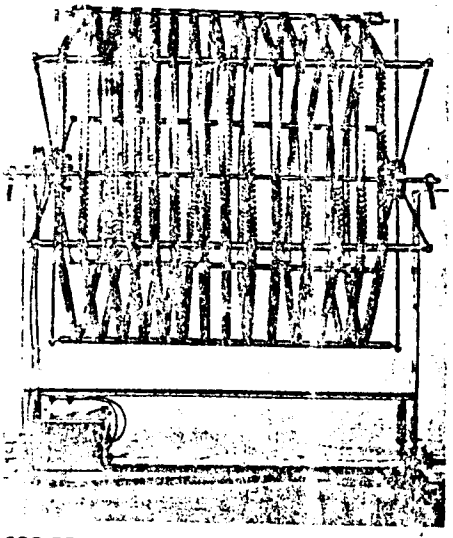
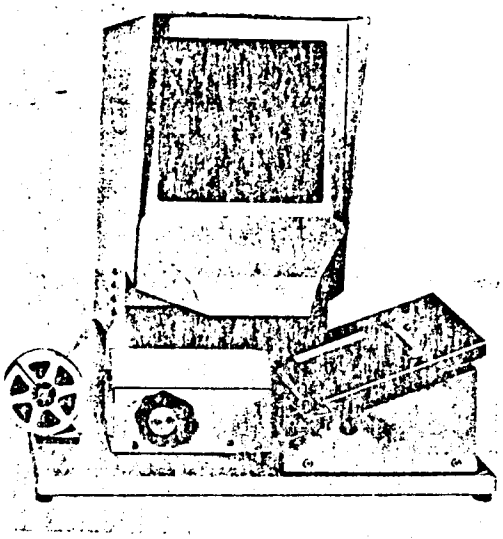
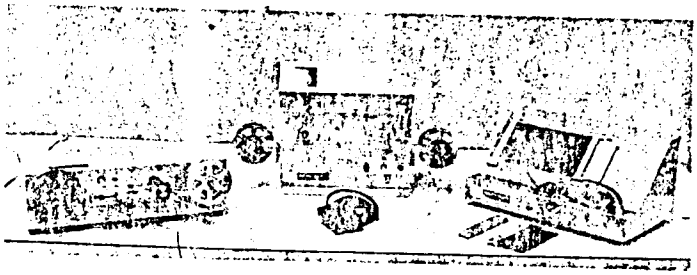


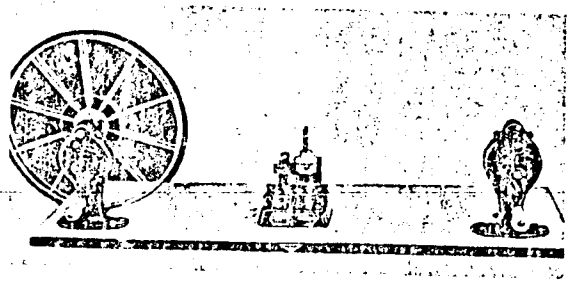
CRO RECORD CORP.
m Dryer,
del DR-20



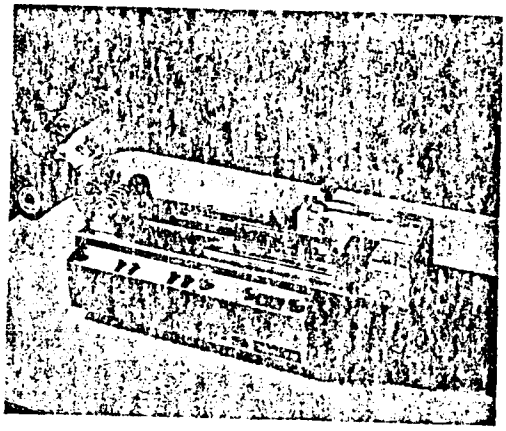
NB JACKETS
Fiche Reader Filler,
Model 1600



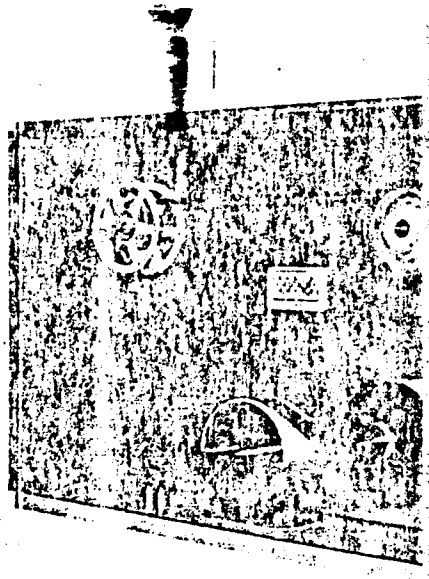
MICROSCAN SYSTEMS
Micropin Microfiche Master System



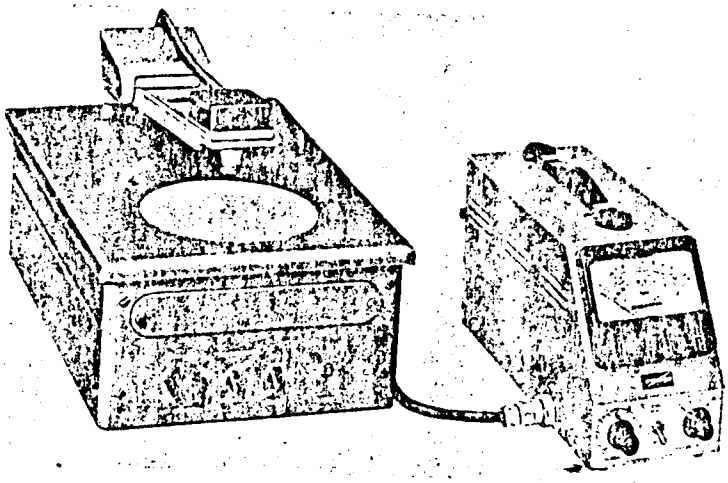
NEUMADE PRODUCTS CORP.
Rewind & Splicing Assembly
No. 4 Board



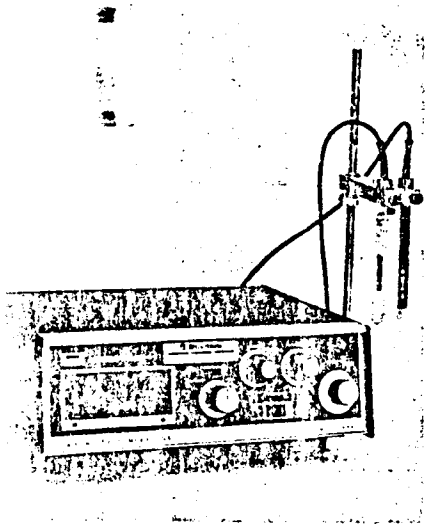
PAKO CORP.
Fiche Cutter,
Extek Model 410



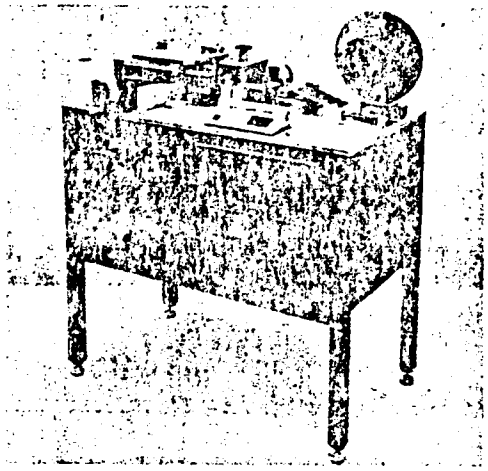
PERMAFILM INTERNATIONAL CORP.
Permafilm Protection Film Treatment
Machine, Table Top Model 3P



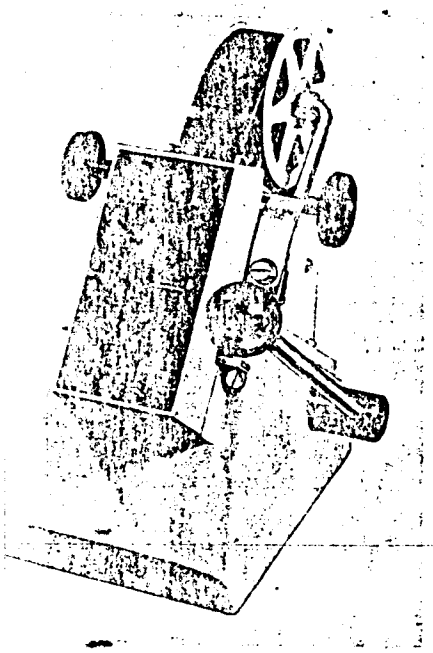
SARGENT WELCH
(Division of Bell & Howell)
Transmission Densitometer,
Model 036533



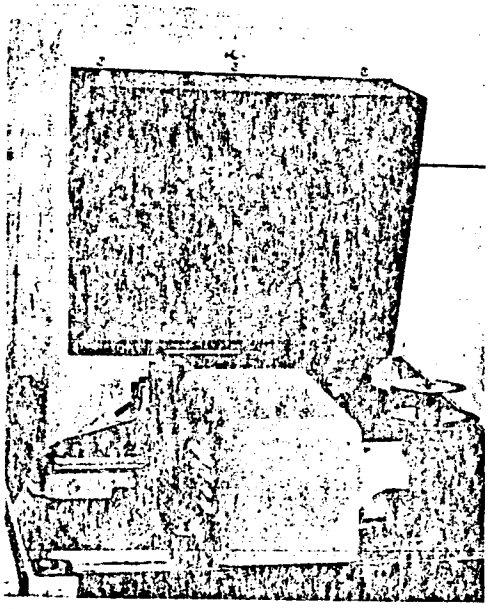
ENT WELCH
ion of Bell & Howell)
leter, Model NX S-29999



TECHNOLOGY INC.
(HF Photo Systems Division)
Double Edge Fiche Cutter,
Model MT-600



Mounter for Aperture
, Model 38 BA



3M
Semi-Automatic Mounter for
Aperture Cards, Model 39 BA

APPENDIX C

LISTINGS OF EQUIPMENT USED IN MICROFILM SYSTEMS

CAMERAS

MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
BELL & HOWELL									
Diplomat Microfiche Camera	105mm Step & Repeat	7' w 7' d 8' 2" h 600 lb.	17" x 22"	10:1 to 26:1	100'	4" x 6" COSATI, NMA, Specials	1/sec.	30 a. 120 vac.	Image field locator, automatic "Selectron Exposure Control", fiche title exposed at 1 to 1 ratio, counter for exposures and complete fiche
Director II Recorder	16mm Rotary	20½" w 23" d 12½" h 98 lb.	12" x any length	24:1 34:1 44:1	200' or 100'	Simplex Duo Duplex	600 or more per min.	115 vac. 230 vac. 50/60 Hz	Item counter, exposure control, automatic feeder, camera indexing, convenience shelf
File Master Planetary Recorder	16mm Planet.	35" w 21" d 44" h 56 lb.	12-5/8" x 17¼"	21:1 25:1 27:1 29:1	100'	Simplex Comic Cine	1/sec.	117 vac.	Extra cameras, carrying case, automatic exposure control, camera automatically focuses at all reduction ratios.
File Master Rotary Recorder	16mm Rotary	400mm w 380mm d 200mm h 44 lb.	12" x any length	22:1	100'	Simplex	Cont.	120 vac.	Feed shelf extension, standard with item counter

MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
BELL & HOWELL (cont'd)									
INTER/COM 522	16mm Rotary	22½" w 24" d 42" h 142 lb.	15" x any length	26:1	100'	Simplex	Cont.	120 vac.	Item counter, index meter, standard with floor stand
Micro-Twin Recorder-Reader, Model 205F	16mm Rotary	37" w 26" d 36" h 125 lb.	11" x any length	24:1 30:1 44:1	100'	Simplex Duo Duplex	400/min.	115 vac.	Endorser, imprinter, built in reader (not in 205G), floor stand, hand feed shelf, work organizer, item counter, camera indexer, exposure control
CANON									
Camera Processor 161G	16mm Planet.	33" w 22" d 25" h 79 lb.	14" x 17"	28:1	100'	Standard	40 Frames/ min.	115 vac.	Foot switch, on-line processing
DIETZGEN CORP.									
Fiche Camera 4330 D 4330 E 4330 F	105mm Step & Repeat	50" w 34" d 68" h 500 lb.	12.5" x 18.5"	20:1 24:1				115 vac.	Foot switch. Cut mark added for high speed cutters

CAMERAS (cont'd.)

MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
EASTMAN KODAK CO.									
Recordak Microfile Machine, Model MRD-2	35mm Planet.	72" w 34" d 102" h 165 lb.	26" x 27" at 21:1	Variable 5:1 to 21:1		Simplex		117 vac.	
Recordak Micro-File Machine, Model MRD -2/30	16mm Planet.	72" w 34" d 102" h 165 lb.	17½" x 30" at 30:1	Variable 8:1 to 30:1		Simplex		117 vac.	
Recordak Micro-File, Machine Model MRG-1	35mm Planet.	116" w 81" d 108" h	45" x 63"	12:1 to 36:1 in 6 steps		Simplex	1.75 sec. each	20 a. 120/208 or 115/ 230 vac.	
Recordak Portable Microfilmer, Model RP-1	16mm Rotary	15½" w 12½" d 6½"d 24 lb.	12" x any length	20:1		Simplex		117 vac.	
Recordak Reliant 400 Microfilmer, Model RO-1	16mm Rotary	25" w 19" d 15" h 75 lb.	9½" x any length	20:1 32:1		Simplex, Duplex, Duo	To 400/ min.	3 a. 117 vac.	
Recordak Reliant 700 Microfilmer	16mm Rotary		12" x any length	24:1 32:1 40:1 50:1		Simplex Duplex Duo	To 600/min.	117 vac.	
Recordak Rotoline Microfilmer, Model RO-3	16mm Rotary	29" w 35" d 57" h 310 lb.	18" x any length	24:1 32:1		Simplex	165 ft./min.	6 a. 120 vac.	
Recordak Starfile Microfilmer Model RV-1	16mm Planet.	16" w 17" d 12" h 22 lb.	4" x 11½"	21:1		Simplex	To 60/min.	1 a. 120 vac.	
Recordak Starfile Microfilmer, Model RV-2	16mm Planet	29" w 20" d 37" h	11½" x 15"	22:1 27:1		Simplex	To 60/min.	120 vac.	

MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
IMAGE SYSTEMS INC.									
Microfiche Camera	105mm step & repeat Roll Microfiche	36" w 30" d 37" h 125 lb.	11" x 14"	20:1 to 30:1 in steps		COSATI, NMA, COM 80, 10 x 10 or 42 x		15 a. 115 vac.	
ITEK BUSINESS PRODUCTS									
Model 1400 (Model 1410)	35mm Planet.	52" w 30" d 52" h 110 lb.	25" x 32"	Variable 12:1 to 20:1	100'	Simplex	To 40/ min.	5 a. 115 vac.	Book holder, 16mm adaptor plates, automatic exposure control, full/half frame selector, removable takeup magazine, built-in film severing device. Model 1410 has dual 35mm camera heads.
Model 3536	35mm Planet.	9'6" w 6'-1" d 9'6" h 1500 lb.	45" x 63"	8:1 16:1 24:1 30:1 36:1 automatic stops	100'	Simplex	From 1/sec.	20 a. 95 - 130 vac.	Automatic exposure control, memory exposure control, detachable supply & take-up magazines, double exposure control, frame counter, variable top & backlight systems

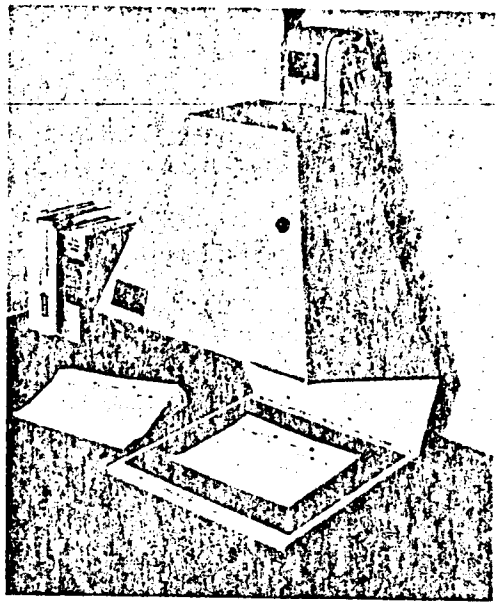
CAMERAS (cont'd.)

MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
KEUFFEL & ESSER									
Micro-Master 105mm Camera/ Projector 52-2001	105mm Planet.	9'-5" w 7'-4" d 11'-2" h 1736 lb.	44" x 66"	4:1 to 11:1	350'	Simplex		20 a. 115 vac.	35mm camera and projection heads available, vacuum hold down, back lighting, manual & automatic exposure controls
Micro-Master 35mm Camera 52-2020	35mm Planet.	1040 lb. 100" w 72" d 116" h 1040 lb.	37" x 52"	12:1 to 30:1	100'	Simplex		20 a. 117 vac.	Projection head, vacuum hold down, back lighting, manual & automatic exposure controls, automatic focusing
MICROGRAPHIC TECHNOLOGY (BRUNING)									
MTC Microfiche Camera – Processor Model 750	105mm Step & Repeat	48" w 35½" d 52" h 500 lb.	14" x 14"	20:1 24:1 42:1 custom		COSATI, NMA, & 42:1 COM formats	1/25 sec.	12 a. 115 vac. 50/60 Hz	Foot exposure switch, book copier, back lighted table, titling set
MILLI FILE INC.									
Milli File Super 8 Microfiche Recorder	8mm Planet.	18" w 18" d	11" x 15"	38:1 42:1	50'	Simplex	720/hr.	110 vac.	Produces 160

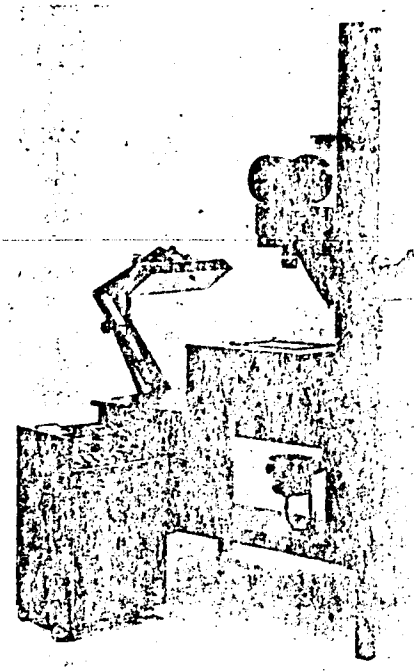
NAME & MODEL		WEIGHT	COPY SIZE	RATIO	CITY	MENT	RATE		FEATURES
REGISCOPE CORP. OF AMERICA									
Model L	16mm Planet.	12" w 12" d 22 h 30 lb.	4½" x 11"	27:1	100'	Simplex	1/sec.	110 vac.	"Household variety" type bulbs, portions of film may be removed at any time without affecting balance, especially adapted to the library book charging.
Model M	16mm Planet.	17" w 19" d 26" h 40 lb.	12" x 12"	30:1	100'	Simplex	1/sec.	110 vac.	Household variety bulbs for light source, 4" field depth, portion of film may be removed without affecting balance
Model S	16mm Planet	12" w 12" d 22" h 25 lb.	4½ x 11"	27:1	100'	Simplex	1/sec.	110 vac.	Dust cover, 3 8-watt green fluorescent bulbs as light source, portion of film may be removed at any time without affecting balance.
Model T	16mm Planet	12" w 12" d 15" h 27 lb.	12" x 12"	27:1	100'	Simplex	1/sec.	110 vac.	Two 15 watt fluorescent bulbs as light source, floor mounted
Model U	16mm Planet. (Wall mount)	12" w 12" d 22" h 30 lb.	24" x 24"	24:1	100'	Simplex	1/sec.	110/120 vac.	Two 150 watt standard photo flood bulbs as light source, depth of field 8".

CAMERAS (cont'd.)

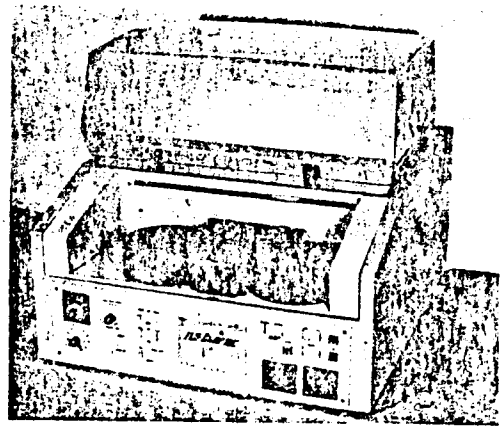
MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
SICKLES INC.									
Circle-S SFS 4100	35mm Planet.	48" w 39" d 7'6" h 550 lb.	27" x 40"	Variable	400'	Single or double frame	30/min.	115 vac.	Color microfilm capability, transparency holders, loop duplicating device.
SPACO INC.									
Flo Graphic Model 1010 Camera/Printer	16/35mm Rotary	27" w 30" d 23" h	18" w any length	9:1 to 25:1	400'	Simplex		900 w. 110 vac.	Dual mode-reversible to print hard copy from micro-film, output up to 55 fpm, magnification 9X to 25X, capacity 400 ft. rolls.
TERMINAL DATA									
Input Image Camera	16mm Rotary	185 lb.	4-¾" x 8-¾"	32:1 45:1 (50:1 option)	1250'	Duo, Duplex, (Duo-Duplex-option)	To 2400/ min.	8 a. 120/208 vac.	Accessories: extra take-up magazine, cassette adapter. Features: high resolution; image count retrieval mark.



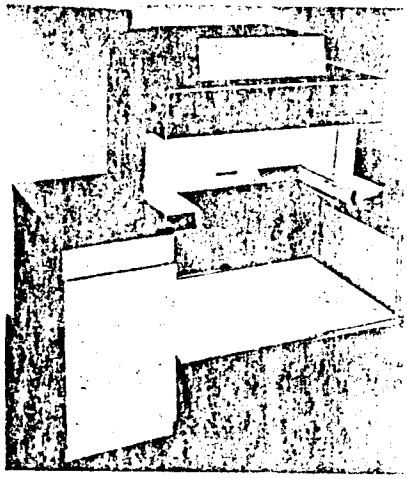
REGISCOPE CORPORATION OF AMERICA
Model M



SICKLES INC.
Circle-S 35mm Planetary Camera,
Model SFS 4100



SPACO INC.
Flo Graphic 16/35mm Rotary
Camera/Printer, Model 1010



3M
"2000" Processor Camera,
Model 78AA

MANUFACTURER NAME & MODEL	TYPE	DIMENSIONS & WEIGHT	MAXIMUM COPY SIZE	REDUCTION RATIO	FILM CAPACITY	IMAGE PLACEMENT	EXPOSURE RATE	POWER	ACCESSORIES & SPECIAL FEATURES
3M									
3M "2000" Processor Camera, Model 78AA [redacted]	35mm aperture card, Planet.	39" w 30" d 30" h 300 lb. With stand module 105 BA or 105 BLD: 75½" w 33½" d 62" h 450 lb.	19.2" x 25.8", with 105 BA: 28.7" x 38:8", with 105 BLD 30" x 40"	16:1 105 BA: 16:1 24:1, 105 BLD: 16:1 26.6:1	500 35mm aperture cards with AHR silver film		40 sec. cycle to photograph, process, deliver imaged MIL-D aperture card	15 a. 100 - 130 vac.	Microfilm camera with self-contained processing. Reduction ratio kits: 14.1:1 and 15:1 with 105 BA reduction ratio kits: 14.5:1 15:1 29:1 30:1
3M "2000 E" Processor Camera Model 78AAE, with stand module Model 105 BAE	35mm aperture card, Planet.	89" w 42" d 76" h 450 lb.	35.9" x 48.5" at 30:1	16:1 24:1 30:1	500 35mm aperture cards with AHR silver film		45 sec. cycle to photograph, process, deliver imaged MIL-D aperture card		Lens turret provides three reduction ratios. A microfilm camera with self-contained processing
3M "3400" Cartridge Camera, Model 119 BA	Rotary	26" w 22" d 12" h 117 lb.	12" x any length	24:1	100'	Cine or Comic Mode	861 in./min.	5 a. 115 vac.	Instant loading and simultaneous indexing. Model 119 BAA incorporates blip encoding.
3M "4000" Microfilm Camera, Model 161 AA	Rotary 65 lb.	17" w 25" d 12" h	14" x any length	24:1	100'		60/min.	15 a. 115 vac.	

PROCESSORS

MANUFACTURER NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
BELL & HOWELL							
FILMOpetite Series Model 036213 (16mm) Model 036216 (35mm)	16mm or 35mm continuous	82" w 26" d 54" h 1000 lb.	16mm: 45 ft./min. 35mm: 20 ft./min.	14 to 35 gal.	Hot & cold water temperature regulator valve, standard type hoses.	40 a. 115/230 vac.	Film magazines, temperature readout, replenisher storage system, chemical mix unit, water mix valve, silver recovery unit
CORDELL ENGINEERING							
Varifilm 240	16mm to 105mm continuous	36" w 16" d 10" h 70 lb.	To 2.5 ft./min.	1.9 liters, 3 tanks	Water inlet and drain	15 a. 110 vac. 8 a. 240 vac.	Water blender, hoses, daylight loaders, same features as on 321
Varifilm 321	16mm to 105mm continuous	1500mm w 450mm d 480mm h 200 lb.	Variable to 900 ft./hr. (16mm)	Dev. & fix, 1 gal. ea.	Can be operated without plumbing; with plumbing requires water inlet & drain	20 a. 110 vac.	Water mixing valve, film daylight loader, hoses, self-threading, random film loading
Varifilm 400	16mm to 105mm continuous	75" w 26" d 45" h 650 lb.	Variable 16mm to 1800 ft./hr., 105mm to 600 ft./hr.	4 tanks, all 2 gal., repl. 5 gal. ea.	Water inlet & drain, thermostatic mixer & filters	30 a. 220 vac. 50/60 Hz	Daylight loaders, can be operated as negative, positive, or halide reversal processor
Varifilm 642	16mm to 105mm continuous	49" w 26" d 45" h 500 lb.	Variable 16mm up to 1800 ft./hr. 105mm	3 tanks, 2 gal. ea. repenisher 5 gal. ea.	Water linet & drain, water blender	30 a. 110 vac. 50/60 Hz 15 a. 220 vac.	Water blender, hoses, daylight loader

MANUFACTURER NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
EASTMAN KODAK CO.							
Kodak Versamat Film Processor, Model 75	16mm to 105mm continuous		Variable to 600 ft./hr.	3½ gal. ea. for dev. & fix or bleach		120/208 vac.	
[redacted]							
Kodak Viscount Processor Model 36	16mm continuous		2160 ft./hr.			30 a. 117 vac.	Viscous process
Recordak Prostar Film Processor Model DVR	16mm and 35mm continuous	25" w 12½" d 28½" h 100 lb.	300 ft./hr. 600 ft./hr. of 16mm with dual strand kit	44 ounces each for dev. & fix		15 a. 117 vac.	
ITEK BUSINESS PRODUCTS							
Transflo Processor 335	105mm continuous	73" w 22½" d 38" h 360 lb.	Variable 2-10 ft./min.	1 gal ea.	1½ gal./min.	30 a. 115 vac.	Water temperature control valve, automatic chemical replenishing system, various adaptor plates, 400' take up device, straight through film path, multiple strand capability, (4-16mm, 3-35mm, 1-70mm, 1-105 mm), premixed chemistry

PROCESSORS (cont'd.)

MANUFACTURER NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
JANPRO							
Ana-Tec Models 401 & 403	16mm or 16/35mm continuous	168" w 30" d 67" h Max. to 2000 lb.	To 100 ft./min.	16 gal. to 45 gal.	7 to 15 gal./ min.	45 a. 110/220 vac.	Stainless steel construction standard accessories available
ANA-TEC Model 402	16mm or 16/35 mm continuous	168" w 30" d 60" h 1500 lb.	3600 ft./hr.	Dev. 25 gal.	10 - 15 gal./min. hot & cold water	45 a. 110/220 vac.	Stainless steel construction standard accessories available
KEUFFEL & ESSER							
Micro-Master Film Processor 52-2049	16mm to 105mm roll film	64" w 21" d 60" h 160 lb.	5'/min.	Dev. 6 gal. others 3 gal.	Tempered water supply 3 ga./min.	1200 w. 115 vac.	Replenisher bottles for developer and fix, daylight loading, hydro lift for tank cover
MICRO RECORD							
Developing Tanks D 16 D 22	16mm to 70mm tank	13½" x 8-5/8" x 10¼" 16 lb.		1 gal.	None	110 vac.	Motor driven
Model D18	8mm to 35mm tank	13½" x 8-5/8" x 9" 15 lb.		8/16mm: 3 pints, 35mm: 5 pints		110 vac.	Daylight, motor driven, portable operation
NB JACKETS CO.							
Models 404A 404C 408A	Diazo Cut sheet processor (anhydrous	15" w 19" d 21" h 75 lb.	2 sec. to 20 sec	2 lb. anhydrous ammonia	None	6 a. 110-115 vac.	No venting required - used with Model 404A Printer for diazo films. External

NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
PAKO CORP.							
Pakorol M-1 Microfilm/Microfiche Processor	16mm to 105mm roller-type continuous	38½" w 20½" d 17" h 100 lb.	6 to 12 ft. per min.	Dev. & fix 1 gal. replenisher tanks 6 qt.	2 gal./min.	10 a. 115 vac.	Accessories: rack tray, automatic replenishment system, rack soaking & cleaning tank. Features: table top operation, roller-type processing with rapid photo chemistry & high temperature, daylight operation, self-threading
Pakorol M-2 Microfilm Processor	16mm & 35mm continuous	26" w 12" d 15" h 40 lb.	Variable 5 to 6 ft./min.	Dev. & fix: 2 qt. wash tank 3 qt.	1 gal. per min.	4 a. 115 vac. 2 a. 220 vac. 50 Hz.	Mixing valve, user parts kit, service tray, water filters, daylight loading, self threading (both 16mm & 35mm), variable speed drive, archival quality, table top operation, accepts short lengths of film
Pakorol – R1 Microfilm/Microfiche Processor	16mm to 105mm halide-reversal continuous processor	52" w 20½" d 17" h 125 lb.	6 ft./min. 1 roll, 12 ft./min. two rolls	1 gal., 1½ gal. replenisher	2 gal./min.	10 a. 115 vac. 5 a. 220 vac.	Accessories: dual roll feed & magazine, water mixing valve, base cabinet, rack tray, rack soaking & cleaning tank, user parts cabinet, flange group, Terminal Data 105mm magazine adapter

PROCESSORS (cont'd.)

MANUFACTURER NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
PHILADELPHIA AIR TRANSPORT CO.							
Micro-Master Film Processor Cat. No. 52-2049, Model UT 105-5M (or 10M)	16mm 35mm 70mm 105mm continuous	60" w 18" d 48" h 125 lb.	5 ft./min. (5M) 10 ft./ min. (10M)	3½ gal. dev. others 1-3/4 gal.	Hot & cold water drain	12 a. 115 vac.	Replenishment available, hydraulic lift for rack assembly
Model UT 35-10U	16mm or 35mm	41" w 12" d 51" h 250 lb.	10 ft./ min.	2 gal. dev., others 2 gal.	Hot & cold water to water tempering device, floor drain, 2 gal./ min	1200 w. 115 vac.	Various types of replenishment available, 1000' daylight load magazines
Model UT 105-10R Full Reversal	To 105mm	96" w 24" d 60" h	10 ft./ min.	Dev.: 3½ gal. each, others: 1-3/4 gal.	Hot & cold water to water tempering device, floor drain, 6 gal./ min.	2500 w. 115 vac.	Various types of replenishment available, hydraulic lift on rack ass'y, standard detachable 1000 ft. magazine, can also adapt various of the existing COM magazines to fit.
UNIPRO Models F202.1 F202.2 F202.3 (Sold by Remington Rand Only)	16mm 35mm 70mm continuous	55" w 14" d 51" h 168 lb.	5.4 ft./ min.	Dev. & fix: 2 gal. ea.	Hot & cold water to water tempering device, floor drain, 8 gal./min.	15 a. 110-120 vac.	Hydraulic lift for rack ass'y, special models available for 105mm film, larger supply & take-up capacities. Can adapt machine

MANUFACTURER NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
TECHNOLOGY INC. (HF Photo Systems Division)							
Advanced Labmaster Model ALM-SM	16mm or 16/35mm continuous	22" w 7' l	To 100 ft./min.	Dev.: 15 gal.	5 ga./min. water & drain	30 a. 115/230 vac.	Replenishment, back scrubber, air blower, full archival quality
[redacted]							
Advanced Labmaster Model ALM - SN/P	16mm or 16/35mm continuous	74" w 22" d	To 100 ft./min.	Dev.: 15 gal.	3 - 5 gal./min., water & drain	25 a. 115/230 vac. MM	Replenish system, air blower, back scrubber, spring center, single shaft demand drive transport system, modular construction, all stainless steel
Advanced Labmaster Model ALM-SR	16mm or 16/35mm continuous	114" w 22" d	To 100 ft./min.	Dev.: 15 gal.	7 gal./min. & drain	115/ 230 vac.	Replenish system, full reversal processing
Advanced Labmaster Model ALM-XM	16mm or 16/35 continuous	104" w 22" d	To 100 ft./min.	Dev.: 30 gal.	10 gal./min. water & drain	115/230 vac.	Back scrubber, replenish system, impingement dryer, archival quality
Advanced Labmaster Model ALM-X N/P	16mm or 16/35mm	94" w 22" d	To 100 ft./min.	Dev.: 30 gal.	7 gal./min. water & drain	115/230 vac.	Back scrubber, replenisher, demand drive transport system, all stainless steel
Advanced Labmaster Model LM 7 - N/P	16mm to 105mm continuous	96" w 22" d	25 ft./min.	Dev.: 15 gal.	5 gal./min. water & drain	115/230 vac.	Replenisher system, all stainless steel construction

PROCESSORS (cont'd.)

MANUFACTURER NAME & MODEL	TYPE, SIZE	DIMENSIONS & WEIGHT	SPEED	TANK CAPACITY	PLUMBING REQUIREMENTS	POWER	ACCESSORIES & SPECIAL FEATURES
TECHNOLOGY INC. (cont'd.)							
Advanced Labmaster Model LM 11-N/P.	16mm to 105mm continuous	116" w 22" d	To 50 ft./min.	Dev: 30 gal.	10 gal./min., water & drain	115/230 vac.	Replenisher system, full archival quality
Advanced Labmaster Model LM 13-FR	16mm to 105mm full reversal	126" w 22" d	To 25 ft./min.	Dev.: 15 gal.	5 gal./min. water & drain	115/230 vac.	Replenisher, impingement dryer, all stainless steel
Microflo Model 411	16mm to 105mm continuous	62" w 17" d 19" h	10 ft./ min.	1 gal.	None	34 a. 115 vac. 17 a. 230 vac.	Various COM magazine adaptors, utility table, table top operation, self-threading

MANUFACTURER NAME & MODEL	TYPE, SIZE	SPEED	DIMENSIONS & WEIGHT	POWER	ACCESSORIES & SPECIAL FEATURES
BELL & HOWELL					
Filmoprinter, Model 6760 AR/AS	Silver, roll-to-roll, 16/35 mm contact printer	Model AR 94 ft/min., Model AS-170 ft./min.	38½" w 64" h 105 lb.	15 a. 120 vac.	Light control board, notch cuer, film reel adapter shafts, prints both 16mm and 35mm, adapter kit included
[redacted]					
BLU-RAY					
Aperture Card Duplicator Model 901	Diazo, aperture card printer & developer	To 480 cards/hr.	55 cm. w 52 cm. d 27 cm. h 72 lb.	9 a. 115 vac.	Venting not required
Microfiche Printer-Processor, A-11	Diazo or vesicular, rotary microfiche printer-developer	Diazo: 5 ft./min. Vesicular 10 ft./min.	27" w 15" d 11" h 120 lb.	120 vac.	
Rotary Microfiche Duplicator, Model 909	Diazo, rotary microfiche printer-developer	To 16 ft./min.	69 cm. w 39 cm. d 28 cm. h 99 lb.	12 a. 115 vac.	220 vac./50 Hz available, on/off developer switch for ammonia conservation, doubles as compact white printer – office copies
CBS LABORATORIES					
Model 303 (Scott Graphics distributor)	Diazo, 16mm, 35mm roll-to-roll duplicator	To 50 ft./min. (Model 303HS to 100 ft./min.)	59" w 28" d 65" h 340 lb.	35-40 a. 220 vac.	Model 10: 100 ft. loop Model 20: 200 ft. loop
Model 400 (Scott Graphics distributor)	Diazo, 16mm, 35mm roll-to-roll duplicator	To 17 ft./min.	28" w 15" d 40" h 190 lb.	20 a 115 vac.	

DUPLICATORS (Cont'd.)

MANUFACTURER NAME & MODEL	TYPE, SIZE	SPEED	DIMENSIONS & WEIGHT	POWER	ACCESSORIES & SPECIAL FEATURES
COLIGHT INC.					
Auto Fiche Duplicator	Diazo or vesicular 105mm micro-fiche	From 600 to 900 fiche/hr.	40" w 27" d 46" h	20 a. 220 vac.	Feeds from 500 ft. roll. Automatically duplicates up to 999 copies of master
Microscan Microfiche Printer MS-10	Diazo or vesicular sheet printer 12" x 18" max.	Variable	24" w 22" d 34" h 150 lb.	15 a. 110 vac.	For use with D-11 diazo developer and D-15 thermal developer, accommodates eight 105mm x 148mm micro-fiche and copy film
Microscan Printer A-9	Diazo or vesicular sheet printer, 9" x 9" max.	Variable	16" w 19" d 28" h 100 lb.	15 a. 110 vac.	For use with D-11 diazo developer or D-15 thermal developer
EXTEK					
Model XD/T Diazo and Thermal Film Duplicator	Diazo and thermal, 16mm to 105mm	15 ft./min. to 150 ft./min.	1200 lb.	35 a. 220 vac.	Accessories: Loop module, electrostatic heads, rewind, mini-loop, automatic counter
Model XT-1 Thermal Roll Film Duplicator	Vesicular roll-to-roll 16mm to 105mm	15 ft./min. to 150 ft./min.	1100 lb.	35 a. 220 vac.	Accessories: Loop module, electrostatic heads, rewind
GAF CORP.					
16/35 Rollfilm Duplicator	Diazo roll-to-roll 16mm or 35mm	To 80 ft./min.	42" w 16" d 58" h 240 lb.	10 a. 115 vac.	Can be programmed for 1 to 100 copies with masters up to 200 feet long. Use open bin loop
IMAGE SYSTEMS INC.					
Model 605-102	Manual	4 up	36" w	15 a.	

MANUFACTURER NAME & MODEL	TYPE, SIZE	SPEED	DIMENSIONS & WEIGHT	POWER	ACCESSORIES & SPECIAL FEATURES
ITEK BUSINESS PRODUCTS					
Itek Contact Film Printer 303	Silver roll-to-roll, 16mm, 35mm, 70mm	Variable to 5400 ft./hr. (undeveloped)	31" w 13½" d 31" h 148 lb.	6 a. 115 vac. 50/60 Hz	Variable printing slit, built in static elimination and dust cleaner, 1000' capacity
[redacted]ilm Printer 303/DL	Silver, roll-to-roll, 16mm, 35mm, 70mm	Variable to 5400 ft./hr. (undeveloped)	31" w 13½" d 31' h 148 lb.	6 a. 115 vac. 50/60	Same as 303 model. Two light sources: incandescent for positive printfilm, quartz-iodine for direct duplicating film
KALVAR CORP.					
Kalvafiche 900 Duplicator	Vesicular, sheet-to-sheet duplicator 105mm	Variable 750-900/hr.	44" w 20" d 25" h 300 lb.	30 a. 115 vac.	
Mikropublisher 500 Duplicator	Vesicular roll-to-roll duplicator	Variable to 500 ft./min.	68" w 32" d 73" h 1300 lb.	40 a. 208 - 220 vac. 3 phase	Employs an electronic system which supplies an independent signal to each drive capstan to insure proper film tracking and tension.
Model 403-A Duplicator	Vesicular, roll-to-roll, duplicator, 16/35mm	Variable, to 200 ft./min.	34" w 23" d 19" h 150 lb.	20 a. 115 vac.	Kalvar Model 921 Loop Accessory. Affords continuous reproduction without rethreading of 16mm master from 12' to 350' in length.
Model 465 Duplicator	Vesicular roll-to-roll duplicator, 105mm	Variable to 60 ft./min.	46" w 27" d 68" h 1100 lb.	30 a. 220 vac. 60 Hz	Kalvar Model 961 Loop attachment affords continuous reproduction without rethreading of any 105mm master from 20 to 350 feet in length.

DUPLICATORS (Cont.d)

MANUFACTURER NAME & MODEL	TYPE, SIZE	SPEED	DIMENSIONS & WEIGHT	POWER	ACCESSORIES & SPECIAL FEATURES
KEUFFEL & ESSER					
Micro-Master Diazo Copier No. 52-9954	Diazo aperture card-to-card, or roll-to-card, 16mm or 35mm	To 8 copies/ min.	30" w 15" d 35" h 86 lb.	5 a. 115 vac.	Semi-automatic
Micro-Master Diazo Copier No. 52-9965	Diazo, aperture card-to-card, or roll-to-card 16mm or 35mm	8 copies/min.	30" w 18" d 48" h 110 lb.	5 a. 115 vac. 60 Hz	Semi-automatic operation, 12X viewing
MICROSCAN SYSTEMS					
MS 2 Microfiche Duplicator	Diazo and vesicular microfiche	Vesicular film – 7 sec., Diazo film 19 sec.		110 vac. 60 Hz 220/240 vac. 50 Hz	Accessories: D-11 Diazo Developing D-15 Thermal film developing
MICROSEAL CORP.					
Card-to-card Duplicator Model 3516	Diazo, aperture card-to-card	480 cards/hr.	21½ x 17½ x 10½ 65 lb.	110 vac. or 220 vac. 50/60 Hz	Copying area is larger than most card to card duplicators, range is from normal "MIL D" position (1-3/8 x 2) to 2¼ x 3 in order to be compatible with the Microseal Tabjac aperture cards.
NB JACKETS CO.					
Printer 404A	Cut sheet rotary printer for diazo or vesicular fi	400 to 500/hr.	21" w 23" d 16" h	6 a. 110-115 vac.	Variable speed rotary cylinder. Designed for "on demand"

MANUFACTURER NAME & MODEL	TYPE, SIZE	SPEED	DIMENSIONS & WEIGHT	POWER	ACCESSORIES & SPECIAL FEATURES
SCOTT GRAPHICS					
Hi-R	Diazo fiche-to-fiche roll-to-roll, loop-to-loop 70mm, 105mm, 241 mm	To 20 ft./min.	50" w 60" d 72" h 3300 lb.	60 a. 220 vac. 60 Hz	Dual card feeder, roll-to-roll feeder, 3600 watt UV lamp radiating through precision collimating system
Scott 700 Microcopier	Diazo 16mm/ 35mm roll-to-roll	To 150 ft./min.	62½" w 28½" d 75" h	30 a. 220 vac.	Auto tension control, auto stops, air filtration. Accessories: 200 ft. loop standard for 16mm and 100 ft. loop for 35mm available
Scott 705 Microcopier	Diazo roll-to-roll, loop-to-roll 16mm, 35mm, 105mm x 305m	To 150 ft./min.	62½" w 28½" d 75" h 1000 lb.	30 a. 220 vac.	Auto tension control, autostop, air filtration
Scott 715 Microcopier	Diazo fiche-to-loop printer	2 fiche/min.	34" w 16" d 12½" h	10 a. 108 - 129 vac.	Cut mark generated during exposure cycle
Scott 716 Microprinter	Diazo & vesicular fiche and jacket masters accepted. 105mm x 148.75mm	6 to 8 fiche/min.	16" w 16" d 12½" h 75 lb.	10 a. 108 - 129 vac.	Both diazo and vesicular developers available

DUPLICATORS (Cont'd.)

MANUFACTURER NAME & MODEL	TYPE,SIZE	SPEED	DIMENSIONS & WEIGHT	POWER	ACCESSORIES & SPECIAL FEATURES
TECHNOLOGY INC. (HF Photo Systems Division)					
Card-to-Roll Contact Printer Model MT-580	Silver card-to-roll contact printer, 105mm	20 duplicates/min.	16" w 36" L	15 a. 110 vac.	Pin-up printing attachment, prints black and white or color
Roll to Roll Silver Contact Printer Model MT-520	Silver roll-to-roll printer 105mm & 5"	Variable to 100 ft./min.	36" w 34" d 32" h 200 lb.	15 a. 110 vac.	Loop printing attachment, utility table
3M CO.					
Dupli-Printer Card Copier, Model 420 AA	Diazo aperture card	6 sec. per card	30" w 15" d 38" h 82 lb.	5 a. 115 vac.	

MANUFACTURER NAME & MODEL	NAME/TYPE	USED FOR	DESCRIPTION	DIMENSIONS & WEIGHT	SPECIAL FEATURES
FOTOMATIC CO.					
Fotomatic Exposure Control	Automatic exposure control	Automatic exposure control for rotary microfilm cameras	Automatically adjusts the intensity of the camera lights to give correct exposure & density control	Small assembled components comprise the kit. 4 lb.	
[redacted]					
PLANATROL Automatic Exposure Control Model FC-4	Exposure control	Automatic exposure control for planetary microfilm cameras	Automatically measures & adjusts the light intensity to control negative density	Photohead: 3" x 3" x 7" Control Unit 9" x 11" x 4"	
Model MR-2	Densitometer and light meter	Precision measurement of transmitted, reflected, and incident light	Consists of a meter-power supply housing & transmission attachment.	12 lb.	Voltage stabilized. separate attachments.
Romelco Densitometer	Densitometer	Measuring film densities	Very small, battery operated, used for measuring densities from 0.6 to 1.4	2" x 3" x 4" 10 ounces	

ACCESSORIES (Cont'd.)

MANUFACTURER NAME & MODEL	NAME TYPE	USED FOR	DESCRIPTION	DIMENSIONS & WEIGHT	SPECIAL FEATURES
MACBETH DIVISION OF KOLLMORGEN CORP.					
TD-205	Transmission densitometer	Measuring density in diazo and silver films for quality control.	Ultra-violet & black & white transmission densitometer	10½" w 16¼" d 12" h 34"	Meter readout, 0.0 to 3.0 density range, three filters, accuracy ± 0.02, repeatability ± 0.01, 1mm aperture. 115 or 230 vac
TD-205DR	Transmission densitometer	Quality control (processing & printing) of silver & diazo film. Measurement of film density.	Digital readout ultra-violet & black & white transmission densitometer	10½" w 16¼" d 11" h 34 lb.	Digital readout, 0.0 to 3.0 density range, three filters, accuracy ± 0.02, repeatability ± 0.01, 1mm aperture
TD-500	Transmission densitometer	Measurement of transmission density in silver halide film for quality control	Black & white 0.0 to 3.0 transmission densitometer	26 cm. w 43 cm d 27 cm. h 28 lb.	Solid state, long life tungsten halogen lamp, two operating ranges, accuracy ±.0.02, repeatability ± 0.01, 2mm & 1mm apertures
TD-504	Transmission densitometer	Silver & color film processing quality control	0.0 to 4.0 digital readout, black & white & color transmission densitometer	26 cm. w 44 cm. d 26 cm. h 21 lb.	Push button operation, instant zeroing, nulling capability, digital display, solid state, plug in circuit boards, long life tungsten halogen lamp, no voltage regulation required

NAME & MODEL	NAME/TYPE	USED FOR	DESCRIPTION	DIMENSIONS WEIGHT	SPECIAL FEATURES
MICRO RECORD CORP.					
Model DR-15 DR-20	Film dryer	Drying film	Motor driven squirrel cage with strip heater		MR-15 will dry up to 200 ft of 16mm film. MR-20 will dry up to 100 ft of 70mm film.
KALVAR CORP.					
Kalvar Model 161 Ultrasonic Film Splicer	16mm film splicer	Splicing polyester base film	Self-contained ultrasonic butt weld for film splicing.	6" w 9" d 6" h 10 lb.	Produces strong, flexible, uniform splices in polyester base film without the use of tape or cement. Approximate time per splice is three seconds.
Kalvar Model 921 Loop Duplicator	16mm master film loop duplicator accessory	Duplication of 16mm masters Recycling master film for duplication	Provides continuous recycling of a 16mm master when attached to most table top or console 16mm printer-processors	34" w 7" d 37" h 50 lb.	
MICROSCAN SYSTEMS					
Micropin Microfiche Master System	Microfiche strip-up	Creating standard & non-standard microfiche masters from planetary, rotary, or COM output	Consists of programmer, formulator and film trimmer		3 table-top units, 117 vac.

ACCESSORIES (Cont'd.)

MANUFACTURER NAME & MODEL	NAME TYPE	USED FOR	DESCRIPTION	DIMENSIONS & WEIGHT	SPECIAL FEATURES
MICROSEAL CORP.					
16 Jr. Inserter	Hand held microfilm inserter	Cutting & inserting 16mm microfilm into aperture cards & jackets	Small hand held unit, can be carried in a pocket – ideal for updating & low volume inserting	12 oz.	Has a 10X magnification lens for verification
Viewer Inserters, Models VM 16 VM 35 VM 16/35	Microfilm inserter	Cutting and inserting film into jackets and aperture cards	Table top unit with 12 x 12" screen. VM 16 handles 16mm film for aperture cards & jackets. VM 35 handles 35mm film. VM 16/35 handles both sizes.	16" w 13" d 25" h 30-35 lb.	Tungsten-halogen lamp. Interchangeable lens (15x, 20x, and 24x). 24x not available on VM 16/35
NB JACKETS					
Fiche Reader-Filler, Model 1600	Fiche reader-filler	Insertion of 16mm film into jackets	Semi-automated jacket filler with viewing screen	70 lb.	90° rotation rear projection screen
NEUMADE PRODUCTS					
#4 Board	Rewind & splicing assembly	Rewinding, splicing, and editing microfilm	2 geared end RW-1 MF 16/35mm rewinds Griswold duplek, 16/35 splicer, film cement, and 42" x 12" formica panel	42" w 12" d 9" h 35 lb.	

MANUFACTURER NAME & MODEL	NAME/TYPE	USED FOR	DESCRIPTION	DIMENSIONS & WEIGHT	SPECIAL FEATURES
Griswold R – 3NP (16mm) R – 2NP (35mm) Duplex (16/35mm)	Splicers	Splicing non-perforated film	Cement type overlap splicer	7" w 4" d 3" h 8 lb.	
Hm[illegible] & M-37-SNP (35mm)	Measuring machine	Measuring actual footage of non-perforated microfilm.	4 digit footage counter & special sprocketless hub for accurate measuring of film footage	6" w 5" d 4" h 10 lb.	
RW-1-MF	Rewinds	Rewinding and editing either 16mm or 35mm microfilm	Cast iron housing, counter balanced crank arm, 4 to 1 gear ratio, adjustment drag on dummy end.	5" w 2" d 9" h 12 lb.	Rewinds have square-round shafts with ball detent & locking finger for use with either 16mm or 35mm spools
PAKO CORP.					
Extek Model 410	Fiche cutter	Manual and automatic cutting of individual fiche from rolls	Accommodates roll widths of 2½ to 5", lengths up to 500 ft. Adjustable cut mark sensor.	12" x 35½ x 13" 70 lb.	Pushbutton controls on convenient, accessible control panel, solid state, table top operation.
PERMAFILM INTERNATIONAL					
Permafilm Protection Film Treatment Machine, Table Top Model 3P		Application of PERMA FILM (FSN 6750-926-5152) Anti-Static film stabilizer, cleaner & lubricant	Will treat 16mm or 35mm microfilm interchangeably. Reel capacity: 400 ft. Applicating Speed, 25 ft./min.	21" w 11" d 16" h 40 lb.	Chemical application lengthens the usable life of microfilm by retarding scratches, abrasions, and fungus – non-toxic & non-flammable.

ACCESSORIES (Cont'd.)

MANUFACTURER NAME & MODEL	NAME/TYPE	USED FOR	DESCRIPTION	DIMENSIONS & WEIGHT	SPECIAL FEATURES
SARGENT WELCH (Div. of Bell & Howell)					
Model 036533	Transmission densitometer	Measuring micro-film density	Densitometer for silver & diazo microfilm	12" w 19" d 15" h 45 lb.	Output jacks for external recorder meter
NXS-29999	pH meter	pH measurement, millivolt titration	Solid state, digital readout	12" w 11" d 5" h 6 lb.	Digital readout, extreme stabi'ity
TECHNOLOGY INC.					
(HF Photo Systems Division) Microfilm Double-Edge Cutter	Fiche cutter	Cutting microfiche from rolls	Automatically cuts film from 650 ft. rolls to final size for mass production	20" w 36" l	Speeds up to 60 per minute
3M Co.					
Hand Mounter, Model 38 BA	Aperture card hand mounter	Convert imaged 35mm roll micro-film to aperture card format	Hand operated, table top viewer, cutter and mounter for MIL "D" aperture	7" w 9" d 6½" h 16 lb.	400-600 frames may be mounted per hour
Semi-Automatic Mounter, Model 39 BA	Semi-Automatic aperture card mounter	Convert imaged 35mm roll micro-film to aperture card format	Automatic operation on accompaning stand with film viewer, cutters and mounters for MIL "D" aperture	61" w 20" d 50" h 253 lb.	May use 100 or 1000 foot rolls of micro-film

APPENDIX D

ARMY REGULATION NO. 340-22—THE ARMY MICROFORMS PROGRAM

Effective 15 December 1973

s regulation establishes The Army Microforms Program and is a complete revision of AR -22. Local limited supplementation is permitted only upon approval of The Adjutant General)DA DAAG-AMS) WASH DC 20314).

his regulation supersedes AR 340-22, 19 July 1968, including all changes.

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CHAPTER 1

PROGRAM CONCEPTS AND POLICIES

-1. **Purpose.** This regulation establishes The .rmy Microforms Program and prescribes pol- ies, procedures, and responsibilities for mi- oforms management and for document and formation miniaturization.

-2. **Applicability.** This regulation applies to all ements of the Army.

3. **Explanation of terms.** *a. Document and formation miniaturization.* The faithful re- oduction of documents and information in compressed form as microimages, such as on crofilm or video tape, which can be read only th special display equipment. It consists of:

(1) Miniaturization of documents. Any pa- or other medium on which information in dable form has been recorded. This includes ks, drawings, photographs, and any other itten or printed material.

(2) Miniaturization of information. Any ts, data, or other knowledge which is mini- rized directly without use of an interven- document. This includes recording informa- directly on a microform, such as direct puter output on microfilm (COM), or the rding on microform of any other informa- not contained on documents.

Microform. A generic term used for any n containing images too small to be read the naked eye. The term microform in- es any format of miniaturized image(s), ther it uses microfilm, video tape, or other a, on which images of documents or in- ation have been recorded, either reduced ze (such as on microfilm) or compressed her means (such as on video tape).

Display equipment. Any device used to pro- readable images of miniaturized informa- tion or documents, such as cathode ray tube (CRT) displays, microform readers, or reader-printers.

d. Microform document or information system (MICRODIS). MICRODIS is used to designate any established operation, and its associated equipment, which involves all or some of the elements listed below. Thus, a system may have only those elements leading to microform production and distribution (such as in micropublishing), or it may only use microforms from an outside source (as in a library). The full range of a MICRODIS can encompass—

(1) Preparation of documents or information for conversion to microform.

(2) The miniaturization process, including microfilming and COM.

(3) Indexing of microforms and of information contained on them.

(4) Production, reproduction, and duplication of microforms.

(5) Dissemination and transmission of microforms to users and/or receipt of microforms from outside sources.

(6) Filing and storage of microforms.

(7) Selection, retrieval, and referencing of microforms.

(8) Display and viewing of microforms, including their conversion to a paper form.

1–4. Scope. The Army Microforms Program includes all applications and uses of document and information miniaturization.

a. Use of any microform medium to accomplish an administrative or operational process, or for any other purpose, whether by computer output microfilm (COM), video tape, any type

of microfilm, or other form of image miniaturization, lies within the scope of this program. Some typical applications are listed in appendix K.

b. ADPE (as defined in AR 18–1) used in a MICRODIS is governed by AR 18–1 and the AR 18 series. In COM applications, the microfilming and subsequent use of microforms, thus produced, are within the purview of this regulation.

1–5. Objectives. The objectives of The Army Microforms Program are to:

a. Insure that the Army benefits from microform technology.

b. Develop better, less costly alternatives to systems of recording and communicating information by paper.

c. Capitalize on experience gained from existing and planned systems.

d. Develop user-oriented microform systems.

e. Promote compatibility, standardization, and uniformity of microform systems.

1–6. Policies. *a.* Development and use of MICRODIS, modification of MICRODIS, and acquisition of microform equipment will be guided by the objectives outlined in paragraph 1–5.

b. Miniaturization of documents and information will be used when it is found that it will be beneficial, will improve on an existing system, and can overcome limitations inherent in miniaturization. (See app K.)

c. MICRODIS must show cost and personnel savings, except when overriding intangible or other benefits clearly outweigh the absence of such savings.

d. MICRODIS should provide for:

(1) Reduction in the volume of paper documents.

(2) Disposal of paper documents converted to microform.

(3) Controls over reproduction of microforms to paper copies.

(4) Early destruction of paper copie duced.

(5) Limiting duplication of microfo validated requirements.

(6) Maximum use and sharing of form production and display equipment.

e. MICRODIS planning will be bas currently available "on the shelf" equi although anticipated technological advanc be given consideration.

f. Policies contained in this regulatio supplemented by TB 340–1. Developmen selection of MICRODIS will be guided b concepts provided in that publication.

g. The provisions of other directives erning particular categories of docum information remain in force and will be a even though documents or information been converted to microform. Microform plications which involve micropublishing subject to the policies governing printing management of publications.

h. Instructions or directives relating t croforms and document/information mini zation to be issued by HQDA will be coordi with The Adjutant General (TAG).

1–7. Responsibilities. *a.* TAG is the pro manager for Army document and info tion miniaturization. He will plan, ma direct, and control The Army Microforms gram. He formulates policy and is the pr pal HQDA staff officer for microforms man ment and for document and information aturization. He will—

(1) Review, analyze, coordinate, and prove proposed MICRODIS submitted HQDA, including expansion or modificatio current systems and associated equipr acquisition.

(2) Maintain liaison with industry other Government agencies involved in d ment/information miniaturization.

(3) Insure that Army is represented appropriate, on DOD and other interdep mental groups concerned with microforms document/information miniaturization.

(4) Inform the Chief of Research

lopment of document/information miniaation research and development requirets.

The Director, Management Information ems, Office of the Assistant Vice Chief of , will review and approve ADPE used in ort of, or which forms part of, a RODIS.

The Chief of Research and Development assist TAG in obtaining information on arch and development efforts in document information miniaturization from existing arch and development (R&D) information ems. R&D efforts will support the microns program objectives and R&D requirets as developed by TAG, subject to priori and availability of funds.

. CG, US Army Materiel Command will exte microform equipment and reduction ratio ndardization (AR 700–47). He will coordie actions relating to miniaturization and roform standardization with TAG.

. Heads of HQDA Staff agenices will—

(1) Manage document and information niaturization in their agencies and subordin elements in accordance with this regulan.

(2) Review and approve, or submit to G, proposed MICRODIS in accordance with s regulation.

f. Commanders and heads of organizations olved in document and information miniaization will—

(1) Conduct appropriate planning, studies, ts, and analyses to develop or change miform systems.

(2) Prepare and submit proposals for MIODIS in accordance with this regulation.

(3) Establish controls over proliferation d reproduction of microforms in their MIODIS.

(4) Manage their MICRODIS in acdance with this regulation.

g. Adjutants general, adjutants, or administrative officers in organizations not authorized adjutants, and officials responsible for records management, will normally have principal staff interest for microforms management and will provide evaluation, advice, assistance, and recommendations.

1–8. Legal status. Legal status of miniaturized documents and information is contained in 28 U.S.C. 1732 and 44 U.S.C. 2112. (Also see TB 340–1.)

a. Federal statutes provide for the legality and admissibility as evidence of records made by "any photographic, photostatic, microfilm, microcard, miniature photographic, or other process which accurately reproduces or forms a durable medium for so reproducing the original."

b. To be legally acceptable, such microforms must be produced in the regular course of business and be satisfactorily identified. This identification can be accomplished by use of DA Form 1504 (Camera operator's report and authentication) for roll microfilm, as described in TM 12–257, or alternate certification means for other microforms.

c. Forgeries generally cannot be proven from microforms. Legal advice will be obtained prior to disposal of documents having legal significance, the authenticity of which is likely to be questioned.

1–9. Archival status. Under General Services Administration (GSA) regulations, only silver halide microfilm is of sufficient archival quality to be substituted for documents requiring permanent retention or for producing microforms of permanent retention value using information miniaturization. The archival status of other microforms, as well as other types of film, has not been established.

1–10. Resolution of problems. All questions on, or exceptions to, the requirements of this regulation which cannot be resolved locally or in command channels will be referred to HQDA (DAAG–AMS) WASH DC 20314.

CHAPTER 2

PROCEDURES

2–1. Review and approval. MICRODIS (para 1–3*d*) must be reviewed and approved as described in this chapter. Systems to be restarted after being terminated, as described in paragraph 2–8, will be updated and resubmitted. In addition to proposed new MICRODIS, approval is also required when agencies propose to undertake projects which can lead to the establishment of new MICRODIS or changes to existing MICRODIS, or which involve equipment acquistions. Examples of such projects are—

a. The planning, design, development, selection, implementation, or modification of a MICRODIS.

b. Feasibility studies, cost/benefit studies, tests of components, or pilot tests and prototype systems.

c. Equipment acquisitions and vendor proposals or negotiations.

2–2. Former Class A and Class B projects. *a.* Ongoing MICRODIS which were approved by TAG or did not require TAG approval (formerly called class A or B projects) before establishment of The Army Microforms Program need not be reapproved under this regulation. Proposals for subsequent modifications, equipment acquisition, system implementation, or other microform projects require approval as described below.

b. Former class A projects which had authority from HQDA to dispose of permanent records after conversion to microform are not required to rephotograph existing microforms to comply with paragraph 2–9.

c. Former class A or B projects are subject to all other provisions of this regulation.

2–3. Approval authority. *a.* Microform systems and projects listed in paragraph 2–4 require TAG approval. Such approval is not the authority to expend funds. Budgeting and programing for funds will be in accordance with AR 37-series and local directives.

b. Approval authority for all other microform projects is delegated to heads of [illegible] Staff agencies, major Army commanders, and heads of organizations reporting directly to HQDA.

c. Approval by the Director, Management Information Systems, HQDA, is required for microform systems and projects containing ADPE.

2–4. Microform systems and projects requiring TAG approval. *a.* All proposed new MICRO[illegible]

b. All proposed *major* changes, modifications or extensions of existing systems and applications, regardless of cost. These include—

(1) Major changes in the type of documentation or information being [illegible]

(2) Major changes in the type of microform or equipment.

(3) Change from in-house operation to contractor service or vice versa.

c. Proposed pilot or prototype MICR[illegible] or tests of nonmanual storage retrieval equipment. (Tests of less than 3 months' [illegible] involving other individual components [illegible] approved as indicated in para 2-3*b*.)

d. All proposed acquisition of [illegible] (except for that approved as part of [illegible] above) which:

(1) Will cost more than $10,0[illegible]

(2) Can produce paper copies of microforms, regardless of cost.

(3) Involves nonmanual storage/retrieval, regardless of cost.

2-5. Documentation requirements. Appendix A provides guidance on preparation of proposals for microform systems and projects. Appendixes B through G outline the documentation required to support a proposed microform system or project. The documentation requirements are designed to—

a. Insure a proper analysis and evaluation of the present system and the proposed and alternate courses of action.

b. Permit submission of only minimum documentation when the proposed system is small and requires few resources.

c. Provide detailed documentation to support large microform systems involving extensive costs.

d. Provide the basis for a decision to approve or disapprove the proposed system.

e. Furnish HQDA with current information on all microform systems, projects, and equipment for use in management of The Army Microform Program.

2-6. Submission procedures. *a.* Requests for approval of a microform system or project will be submitted on DA Form 1500-R (MICRODIS Summary) (app B). DA Form 1500-R will be reproduced locally on 8- by 10 1/2-inch paper.

b. DA Form 1500-R and related documentation will be forwarded through normal command channels to the approving authority.

c. Requests which require approval by HQDA will—

(1) Arrive at DA in two copies.

(2) Be addressed to HQDA (DAAG-AMS) WASH DC 20314.

(3) Have documentation required by AR 18-1, if the MICRODIS or project contains ADPE.

d. Approving commanders and heads of agencies will forward one copy of DA Form 1500-R (without the attached documentation) to HQDA (DAAG-ASR) for those requests which do not require TAG approval. The DA Form 1500-R will show the action taken on the request and will fulfill the requirements of paragraph 2-5*e*.

e. DA will assign control numbers to MICRODIS. Microfilm project numbers previously assigned by HQDA to former class A projects will be prefixed by the letter "A" and will be the DA MICRODIS number.

2-7. Systems monitorship. Ongoing MICRODIS and projects will be reviewed on a periodic basis to insure that continuance is justified, procedures and equipment are improved in keeping with technological advances, and MICRODIS remain consistent with objectives established by this regulation. To achieve this—

a. Organizations which have established MICRODIS will maintain adequate system documentation on a continuing basis, including statistical data.

b. HQDA and other approval authorities will conduct periodic on-site visits to review microform systems and projects and provide assistance and advice. Such visits can be part of records management surveys, visits, and inspections.

c. Facilities to produce and store microforms which must meet archival standards (see para 2-9 and 2-10) are subject to initial and subsequent inspection by the National Archives and Records Service (NARS) of GSA, as well as HQDA.

2-8. Termination of microform systems or projects. HQDA or other commands or agencies which approved a microform system or project will be promptly notified when such system or project is completed, is delayed 6 months or longer, or is proposed to be otherwise terminated. An information copy of such notice will be furnished to HQDA for those microform projects approved by other than HQDA

(DAAG-AMS). The following information will be submitted:

a. Identification of system or project, including DA MICRODIS number, if assigned.

b. Reason for termination or delay.

c. Date of completion or termination.

d. Disposition to be made of microform equipment and of microform.

2-9. Miniaturization of documents/information requiring permanent retention. This paragraph applies only if documents/information, which must be kept permanently, are to be disposed of after they are converted to microform. The specific requirements are established by NARS, GSA. These requirements and procedures, modified to meet DA needs, are detailed in appendix H. When a MICRODIS proposes to use microforms and procedures which do not meet the provisions of this paragraph and of appendix H, the request of approval must contain documentation establishing that the microform stock and procedures will result in archival quality microforms.

a. Microforms to be retained as permanent records will be produced using silver halide microfilm (para H-4).

b. Copies of microforms will be prepared for NARS and for the organization producing the microforms (para H-5).

c. Upon approval of a MICRODIS, HQDA will establish the frequency of tests for residual hypo (para H-7).

d. Resoulution and photographic densities will meet NARS requirements (para H-8).

e. Requirements for contents and indexing of miniaturized documents/information will be met to insure that the microforms become adequate substitutes (para H-3).

f. NARS-established standards for storing microfilm copies of permanent records will be followed (para H-9).

g. Microforms will be inspected at least every 2 years for evidence of deterioration or other defects (para H-10).

2-10. Miniaturization of documents/information *not* requiring permanent retention. This paragraph applies only if documents/information *not* requiring permanent retention are to be disposed of after conversion to microform. The primary consideration is to insure the microforms are of sufficient archival quality that the information they contain remains available for the required retention period.

a. For documents/information which must be kept in microform for 30 years or more after conversion, all provisions of paragraph 2-9 and appendix H apply, except that the two additional copies required for NARS (para H-5*b*) need not be produced.

b. For documents/information which must be kept in microform for less than 30 years but at least 10 years after conversion, those provisions of paragraph 2-9 and appendix H will be used which will insure that the miniaturized documents/information remain available for the required period (additional copies for NARS are not required). When these provisions are not followed, documentation submitted with the proposed MICRODIS will show how the proposed microforms and procedures are adequate for the required retention period.

c. For documents/information which must be kept in microform for less than 10 years after conversion, documentation of the proposed MICRODIS will indicate that microforms and procedures are sufficient for the required retention period.

2-11. Disposition of documents. After documents have been converted to microform, their disposition will be as described below. Approval of the Administrator, GSA is required before documents converted to microform can be destroyed. When microform systems are submitted to HQDA for approval in accordance with paragraphs 2-4 and 2-6, proposed destruction of documents, HQDA will obtain GSA approval.

a. Documents governed by the Army Functional Files System (TAFFS) (AR 340-1, AR 340-6, and AR 340-18 series), which are scheduled to be kept for less than 10 years will be destroyed. Alternate means of disposition must be

justified and approved by HQDA (DAAG–AMS).

b. Documents governed by TAFFS with a retention period of 10 years or more, not requiring permanent retention, will be destroyed after approval by HQDA (DAAG–AMS). Alternate means of disposition must be justified and approved by HQDA (DAAG–AMS). Destruction will be authorized by HQDA when:

(1) Microforms meet archival quality for the required retention period.

(2) Results of testing required by paragraph H–7 are favorable.

c. Documents other than those governed by TAFFS will be disposed of as determined by HQDA. Agencies proposing MICRODIS involving conversion of such documents to microform will recommend, and provide supporting rationale for, the proposed disposition.

d. Documents identified for permanent retention may be destroyed after approval by HQDA. Such destruction will be authorized when all requirements of paragraph 2–9 and appendix H have been met.

2–12. Disposition of microforms. Microforms will be disposed of in the same manner and under the same regulations as those governing disposition of documents or information contained on the microform.

2–13. Disposition of equipment. Army-owned microform equipment and expendable supplies found to be excess, or otherwise no longer required, will be reported in accordance with the AR 755 series applicable to disposal of supplies and equipment. An information copy will be furnished to the headquarters which approved original equipment acquisition for consideration of alternate uses.

2–14. Services provided by GSA and commercial organizations. *a.* GSA provides many microfilming services (see para 5–10 and table 5–2, TB 340–1). Activities desiring GSA services will contact the appropriate regional director (app J).

b. Preliminary discussions with GSA, commercial consultants, or manufacturers concerning cost estimates, equipment, or services, are authorized. Unsolicited manufacturers' proposals (at no cost to the Government) may be accepted. However, commitment to purchase or lease equipment, contracting for any other services (chap. 5, TB 340–1), or actual miniaturization (including microfilming) operations will not be made until the MICRODIS has been approved in accordance with this regulation.

APPENDIX A

PREPARATION OF PROPOSALS FOR MICRODIS OR PROJECTS

A-1. Supporting documentation. The proposal for a MICRODIS or to conduct any microform project will be submitted on DA Form 1500-R (app. B) with attached documentation and justification (app. C through G).

A-2. Use of DA Form 1500-R. DA Form 1500-R will be initiated by the organization which proposes to establish the MICRODIS or to undertake the microform project. The purposes of DA Form 1500-R is to—

a. Serve as a transmittal document.

b. Provide a brief summary of the proposed MICRODIS or project.

c. Serve as an information document for HQDA concerning projects for which approval has been delegated.

A-3. Guidelines for preparation of supporting documentation. The information requirements in appendixes C through G must be tailored to each MICRODIS or project proposal. Only a proposal to implement a most extensive, sophisticated, and costly MICRODIS requires completion of all parts of appendixes C through G. Otherwise prepare only those portions and appendixes which apply.

a. Information required under appendixes C, D, and E is of a descriptive nature. It will document the existing system, describe the proposed MICRODIS or project, and outline the manner of implementation.

b. Appendix F serves as a summary of proposed equipment to be acquired and associated costs.

c. Appendix G provides justification and a comparative analysis with alternate systems.

A-4. Basis for data used in documentation. The descriptive documentation in appendixes C through E will indicate how data and information were obtained. Where physical counting and review of every document, operation, and piece of equipment is not feasible due to volume or other considerations, describe techniques used to obtain or estimate the information submitted. Indicate extent of sampling and describe how samples were derived to be representative. This information is required to support:

a. Physical characteristics of current documents.

b. Volume of current documents.

c. Amount of storage required for current documents.

d. Operations in terms of frequencies, time, and personnel involved in indexing, retrieval, update/infiling, reproduction, transmission, or preparation of documents/information for conversion to microform.

e. Amount of supplies.

f. Number of users.

g. Usage factors.

h. User needs.

A-5. ADPE requirements. In those cases where ADP equipment (ADPE) to support a MICRODIS or microform project has been specifically identified, documentation in the format shown in appendix I, AR 18-1, must be attached to the DA Form 1500-R. Where ADPE has not been specified in terms of make and model, documentation attached to the DA Form

1500-R must include sufficient data for ADPE requirements, to enable initiation of ADPE selection/procurement processes.

A-6. **Format of submission.** Information required by appendixes C through G will be listed and attached as tabbed inclosures to DA Form 1500-R. Paragraph numbers and headings of appendixes C through G will be used. When information has been previously submitted or is not applicable for the particular MICRODIS or project, so indicate. When the contents of an entire appendix do not apply or the information has been previously submitted, so indicate on DA Form 1500-R and omit the appendix. If information or documentation must be provided which is not covered by appendixes C through G, use an additional tabbed inclosure to DA Form 1500-R.

APPENDIX B
MICRODIS SUMMARY

MICRODIS SUMMARY
For use of this form, see AR 340-22, the proponent agency is The US Army Adjutant General Center.

MICRODIS NO. *(If assigned)* *(Read para 2-6e, AR 340-22)*

THRU:	TO:	FROM: *(Include ZIP Code)*

CONTACT OFFICER *(In organization submitting form)*	PHONE

SECTION A - PROPOSED MICRODIS OR PROJECT

1. REQUEST APPROVAL FOR *(Check applicable item(s)):*
   - ☐ a. A NEW MICRODIS *(Also complete Section C)*
   - ☐ b. A MICROFORM PROJECT *(Also complete Sections B, C, and D)*
   - ☐ c. EQUIPMENT ACQUISITION *(Also complete Section D)*
2. THE MICRODIS OR PROJECT WILL BE DONE *(Check one or both)*
   - ☐ a. IN-HOUSE ☐ b. BY CONTRACT WITH

3. THE MICRODIS OR PROJECT REQUIRES	a. WEEKS TO COMPLETE	b. MAN-MONTHS	c. COST
			$

SECTION B - PROJECT DESCRIPTION
(Read para 2-1, AR 340-22. Check items which apply. Briefly describe in Item 5 and Section C.)

4. TYPE OF PROJECT
   - ☐ a. FEASIBILITY, COST/BENEFIT, OR OTHER STUDY
   - ☐ b. DESIGN OR DEVELOPMENT
   - ☐ c. CONDUCTING AN OPERATIONAL, PILOT TEST, OR PROTOTYPE SYSTEM
   - ☐ d. IMPLEMENTATION OR INSTALLATION
   - ☐ e. MODIFICATION OF EXISTING MICRODIS
   - ☐ f. OTHER *(Specify)*
5. DESCRIPTION

SECTION C - SYSTEM DESCRIPTION
(Describe system to be studied, tested, developed, implemented, changed, etc., or for which equipment is to be acquired. Completion of this section is not required if a MICRODIS No. has been assigned.)

6. SYSTEM CONSISTS OF *(Read para 1-3d, AR 340-22, then check applicable item(s))*
   - ☐ a. PREPARATION OF DOCUMENTS/INFO FOR CONVERSION
   - ☐ b. CONVERSION TO MICROFORM *(Including microfilming)*
   - ☐ c. RECEIPT OF MICROFORMS FROM OUTSIDE THIS ORG
   - ☐ d. STORAGE OR FILING OF MICROFORMS
   - ☐ e. RETRIEVAL OF MICROFORMS
   - ☐ f. DISPLAY/VIEWING OF MICROFORMS
   - ☐ g. UPDATE
   - ☐ h. DUPLICATION/REPRODUCTION
   - ☐ i. DISTRIBUTION/TRANSMISSION OF MICROFORMS TO USERS
   - ☐ j. OTHER *(Specify)*
7. TYPE OF APPLICATION *(Read para K-2, App K, AR 340-22, then check applicable item(s))*
   - ☐ a. MICROPUBLISHING
   - ☐ b. INDEXING/LOCATOR
   - ☐ c. LIBRARY/REFERENCE
   - ☐ d. INVENTORY/LISTINGS
   - ☐ e. PICTORIAL/GRAPHIC
   - ☐ f. CASE *(Unitized)*
   - ☐ g. OFFICE/ADMIN FILING
   - ☐ h. OTHER *(Specify)*
8. PURPOSE OF SYSTEM *(Read para K-3, App K, AR 340-22, then check applicable item(s))*
   - ☐ a. FASTER ACCESS
   - ☐ b. SIMULTANEOUS ACCESS
   - ☐ c. FILE INTEGRITY
   - ☐ d. FILE SECURITY
   - ☐ e. IMPROVED TRANSMISSION
   - ☐ f. SPACE SAVINGS
   - ☐ g. WORK FACILITATION
   - ☐ h. PERSONNEL SAVINGS
   - ☐ i. COST SAVINGS
   - ☐ j. OTHER *(Specify)*
9. DESCRIBE DOCUMENTS/INFO MINIATURIZED *(Microfilmed or otherwise converted to microform.)*
   - a. SUBJECT MATTER/CONTENTS
   - b. PHYSICAL TYPE *(e.g. books, cards, correspondence, pictures, etc.)*

c. NO. OF YEARS MUST BE RETAINED	d. PERIOD COVERED FROM *(Year)* ____ TO *(Year)* ____	e. FILE NO. *(Under AR 34 series)*

f. ADDITIONAL DESCRIPTION *(If needed)*

DA Form 1900-R, 1 Nov 73 REPLACES DA FORM 1900, 1 JUL 55, WHICH IS OBSOLETE. *(Image size, 7 4/10 x 9 5 inches; paper size, 8 x 10 1/2 inches.)*

10. PROPOSED DISPOSITION OF DOCUMENTS/INFORMATION AFTER THEY ARE CONVERTED TO MICROFORM

☐ a. RETAINED FOR ____ YEARS. ☐ b. DESTROYED. ☐ c. OTHER (Specify)

11. MICROFORMS USED (Describe)

a. FORMAT (Read para 2-4, TB 340-1.) (Roll, cartridge, fiche, video tape, aperture card, etc.)	b. SIZE (16 mm, 4 x 6, tab, 105mm, etc.)	c. TYPE (Read para 2-3, TB 340-1.) (Silver halide, diazo, etc.)	d. REDUCTION RATIO (20x, 24x, 48x, etc.)	e. COM (Check if produced as COM.)

12. USE OF ADPE (If used, in what way?)

SECTION D - EQUIPMENT (Do not complete if 1a is checked)

13. EQUIPMENT TO BE ACQUIRED IS (Check purpose below. List in Remarks Section: type, manufacturer, model, quantity, and how to be acquired, e.g., leased, purchased.)

☐ a. PART OF PROPOSED PROJECT
☐ b. TO BE USED FOR TESTING/EVALUATION
☐ c. REPLACEMENT FOR EXISTING EQUIPMENT
☐ d. DUE TO ADDITIONAL REQUIREMENTS
☐ e. OTHER (Specify)

14. REMARKS

15. ____ INCLOSURES (Identify)

16. NAME, GRADE AND TITLE (Typed)	17. SIGNATURE	DATE

(Image size, 7 4 10 x 9 5/8 inches; paper size, 8 x 10 1/2 inches)

APPENDIX C

DESCRIPTION OF CURRENT SYSTEM

Use this format when proposing a new MICRODIS, a pilot test, or a prototype of a new system. When proposing a study, design, development, or similar project where the information required for the various headings, below, is not yet available, explain how the required information will be obtained or developed. Keep information under each heading brief and concise. Prepare lists of data, detailed explanations, or similar material in the form of tabs to this format.

C–1. Information/document description. *a. Type.* (General type of information or document such as books, catalogues, computer data on punched cards, engineering drawings, locator cards, individual records, photographs, office files, or other descriptive category.)

b. Subject matter. (Describe the general category of the information such as medical data, building plans, news articles, bibliographical information, personnel data, or other appropriate identification. Indicate file number(s) for documents governed by TAFFS (AR 340–2, AR 340–6, and AR 340–18 series). State how long the information/documents must be retained and what disposition is made of them subsequently. Indicate security classification and any other pertinent information.)

c. Physical characteristics. (Size, color, condition of document, whether information is on one side or both, original, or copy. Where physical characteristics are not uniform for all documents, give breakout by volume. Submit samples of typical documents when feasible.)

d. Volume. (Indicate total number of documents/volume of information, number and type of document units (e.g., books, binders, files), number of documents per unit and total volume expressed in linear feet.)

C–2. Storage and retrieval. *a. Storage.* (Type and number of containers, shelves, files, or other storage equipment in which current documents and files are stored. Include physical description, size, and characteristics.)

b. Indexing. (Manner in which current documents are indexed in the storage area to permit their retrieval. Indicate any equipment used for indexing purposes and the time and personnel required to index a given amount of documents/information.)

c. Retrieval. (Method used to search for and retrieve documents/information. Indicate number of documents per month and man-hours per month required to retrieve them. Procedures for returning documents to storage area after use and man-hours per month required.)

C–3. Distribution/transmission. (Manner of getting documents/information to users, such as courier, mail, or other means; distances involved; transmission time; frequency and amount of documents/information transmitted per month; and man-hours expended.)

C–4. Update/infiling. (Indicate whether documents/information constitute a closed system or whether changes, additions, or deletions occur, and man-hours per month required for such operations.)

C–5. Use. *a. Users.* (Number of users, their relative locations and distances from the documents/information.)

b. Usage. (Indicate frequency demand by different users of document/information, expe-

ially in terms of heavy volume or concentrated usage requirements. Specify if portions or sections of documents are required by different users. Differentiate between high and low usage document/information.)

c. User considerations. (User needs in terms of timeliness of information (need for update), access speed required, length of time documents are required to be out of storage, or other special considerations.)

C-6. Duplicate files. (Indicate whether documents/information are located in one area or whether a duplicate set of all or portions of them are in other files/locations, and if so, where and why.)

C-7. Reproduction. (Number of copies made, reason, and man-hours required. Indicate whether entire document is reproduced or only portions.)

C-8. Personnel. (Number of personnel used in current systems, grades, and job titles. Distinguish between those involved directly with operations such as storage, retrieval, reproduction, transmission, and those forming headquarters/overhead elements of this organization. Indicate which personnel are part-time workers.)

C-9. Organization. (Indicate organizational structure and where the activity and users fit into a parent organization.)

C-10. Floor space. (Total number of square feet required.)

a. Storage of current documents/information.

b. Personnel.

c. Other integral equipment. (E.g., equipment used for reproduction, indexing, or sorting.)

C-11. Supplies. (List supply requirements directly associated with the current system. Indicate amounts used per month and purpose served. Exclude normal office supply requirements.)

APPENDIX D

PROPOSED SYSTEM

Use this format when proposing a new system, a pilot test, or a prototype of a new system. When proposing a study, design, development, or similar project in which the information required in the various headings, below, is not yet available, explain planned approach for obtaining the required information. When proposing a modification, change, or extension of an existing system, or when proposing the acquisition of additional equipment, complete only those paragraphs which are affected by the change or new/additional equipment. When paragraphs do not apply, so indicate under the heading (e.g., for a system which receives its microforms from an outside source, those questions dealing with microform production, reproduction, updating, and similar actions may not apply). Keep information under each paragraph heading brief and concise. Prepare lists of data, detailed explanations, or similar material in the form of tabs to this format.

D–1. Microform. *a. Type.* (General type of final form to be used, such as microfiche, roll or cartridge microfilm, video tape, or other microform.)

b. Physical characteristics. (Detailed description of microform, including size, reduction ratio, format, film type(s), and other characteristics. Include documentation to indicate that microforms are of sufficient archival quality for the required retention period. When archival quality microforms are to be produced under provisions of para 2–9 and 2–10, include whether microforms conform to requirements of appendix H or show otherwise that microform stock will produce archival quality microforms. Also indicate when the first inspection (required by paragraph 2–9*g*) is to be made.)

c. Volume. (Total number of images of documents/information to be placed on microform; number of microforms to be used per document unit (such as file, book, drawing, etc.); total number of microforms required.)

D–2. Storage and retrieval. *a. Storage.* (Type and number of containers, files, or other storage equipment needed to house microforms. Include physical description, size, and characteristics. When archival quality microforms are to be produced under provisions of para 2–9 and 2–10, include whether storage requirements meet the standards of appendix H or provide documentation to support adequacy of alternate storage procedures.)

b. Indexing. (Manner in which microforms are to be indexed to permit retrieval and or display. Specify equipment to be used, man-hours and personnel needed for operation.)

c. Retrieval. (Method proposed to retrieve microforms for display and updating, if required. Estimated retrievals per month, man-hours per month required to perform retrieval, and man-hours per month and procedures needed to return microform to storage area after use.)

D–3. Distribution/transmission. (How transmission of microforms is to be handled. Indicate changes from current procedures.)

D–4. Updating/interfiling. (If changes, additions, or deletions are to be made, or additional microforms are to be produced subsequent to initial conversion to microform, describe method, equipment to be used, time and man-hours required for operations, quality control procedures, and frequency of update operations. When archival quality microforms

are to be produced under provisions of paras 2–9 and 2–10, indicate whether procedures meet requirements of appendix H, or provide documentation to support adequacy of alternate procedures.)

D–5. Use. *a. Users.* (Change of users from present system, if any.)

b. Usage. (Change in usages from present system; e.g., due to format of microform or other reasons.)

c. User considerations. (Evaluate user ability to work with microforms and basis for evaluation. Indicate user acceptance objections raised. If microforms are to be provided to users who will not be furnished display equipment as part of this proposed system, indicate what other provisions have been made. Include consideration of the ultimate users, such as those to whom the microforms may be eventually retired or transferred.)

D–6. Duplicate files. (Number of duplicate, or partially duplicated, microform files to be established. Indicate whether a security file will be established and whether separate master and working files will be maintained. Indicate whether any users will be provided with a duplicate file set. Indicate duplicate copies to be prepared to meet requirements of para 2–9*b*.)

D–7. Reproduction. (Indicate how many individual microform duplicates will be made. Describe the process, equipment, personnel, and time and man-hours required for reproduction. State reason for duplicates being produced. If paper copies are to be prepared, so indicate and support fully in appendix G. When producing copies to meet requirement of para 2–9*b*, state whether copies and procedures conform to the requirements of appendix H or provide documentation to support adequacy of alternate procedures.)

D–8. Personnel. (Number of personnel to be used in proposed system, and their grades and job titles. Distinguish between operators and overhead. Describe additional training and skills needed to qualify present personnel to operate proposed system. Indicate which personnel are part-time workers.)

D–9. Organization. (Describe proposed organization and indicate changes from present organizational structure.)

D–10. Floor space. (Total number of square feet required.)

a. Storage of microforms. (Including retrieval equipment.)

b. Personnel.

c. Other integral equipment. (Equipment for duplication, production of microforms, display, or other function.)

d. Storage of existing documents/information. (If not disposed of after conversion to microform.)

D–11. Supplies. (List supply requirements directly associated with proposed system. Indicate amounts to be used per month and purpose served. Exclude normal office supply requirements.)

APPENDIX E

IMPLEMENTATION

Use this format to describe how the proposed MICRODIS will be put into effect. When proposing a study, design, development, or similar project, use this format to indicate the resource requirements and time schedule needed for the study, design, development, or similar project.

E–1. Documentation/information preparation. (Describe requirements for preparing documents or information for conversion to microform. List amount of destapling, purging of duplicate copies, eliminating of unessential material, repair of damaged documents, rearranging of data on magnetic tapes, reprograming or similar requirements. Indicate if documents/information will need rearrangement prior to miniaturization and, if so, describe method and time involved.)

E–2. Conversion. (Describe method, equipment to be used, time and man-hours required for operations, quality control procedures, and any other related operations. When archival quality microforms are to be produced under provisions of para 2–9 and 2–10, indicate whether procedures meet requirement of appendix H or provide documentation to support adequacy of alternate procedures.)

E–3. One-time requirements. Specify additional space, personnel, or other requirements for the implementation period. Indicate special procedures, controls, and equipment to be used during implementation, which will be discarded when the system becomes fully operational.)

E–4. Time phasing. (Describe the plan for phased implementation. Indicate when training of personnel will start, when equipment is to arrive, when conversion will begin, and other operations associated with implementing the microform system or project. Indicate duration of each activity and when the system will be fully operational in microform.)

APPENDIX F

EQUIPMENT

Use this format for a summary of the proposed equipment and associated costs. Indicate both lease and purchase cost regardless of how equipment will be acquired. List separately, under an appropriate subheading, equipment needed only for initial conversion or system implementation.

Type	*Manufacturer Model*	*Reduction Ratio*	*Unit Cost*		*Annual Maintenance Cost*	*Number Required*	*Total Cost*	
			Annual Lease	*Purchase*			*Lease*	*Purchase*
(Such as reader, reader-printer, camera, duplicator, storage/ retrieval, etc.)						(Along with number show L or P to indicate whether it is proposed to Lease or Purchase).		

APPENDIX G

JUSTIFICATION

Use applicable portions of this format to justify the proposed MICRODIS or project. Provide an analysis and comparison between proposed system and alternate means. Keep information under each paragraph brief and concise. Prepare lists of data, detailed explanations, or analyses in the form of tabs to this format.

G–1. Costs. (When the sole or primary justification for conversion to microform is economic (i.e., tangible monetary benefits), an economic analysis will be conducted in accordance with AR 37–13, and formats A and B of that regulation prepared and attached *if:*

—ADP equipment is involved; or

—Estimated cost of project or system exceeds $200,000.

Whether the provisions of AR 37–13 apply or not, this costs paragraph will reflect a complete summary and comparison of the costs of the current system, proposed system, and alternate methods considered. As a minimum, a summary of the following costs will be attached.)

a. One-time costs. (List all one-time costs, such as site preparation, modification of existing structures, transportation, training, and conversion costs.)

b. Personnel costs. (Include a comparison of personnel costs.)

c. Equipment. (Costs, comparisons between purchased and leased equipment, cost saving from disposal of present equipment.)

d. Supplies. (Cost of supplies.)

e. Space. (Cost comparisons of space requirements.)

f. Transmission/Distribution. (List and compare cost, including mailing cost.)

G–2. Equipment analysis. (Explain how equipment was evaluated and why it was determined to be the best, or only, equipment to do the job. Show clearly what alternatives were considered. Include comparative cost analysis of alternate equipment in cost justification, para G–1*c*.)

G–3. Contractor services. (If any portion of the MICRODIS or project is to be performed under contract, provide complete justification, including cost comparison with an in-house operation. Attach copy of proposed contract.)

G–4. Benefits and disadvantages. (List and compare benefits and disadvantages of present, proposed, and alternate systems.)

G–5. Use of existing services. (Indicate what consideration had been given to use of microform services of GSA or other activities and why it is not feasible to use them.)

G–6. Printer. (Provide specific justification for any equipment capable of producing paper copies from microforms.)

a. Reasons. (Why paper copies are needed and why microforms and other display equipment cannot adequately serve user needs.)

b. Number. (Number of paper copies to be produced.)

c. Controls. (Procedures established to insure that paper copies are produced only to support validated requirements and that su[illegible] copies are destroyed at the earliest possi[illegible] date.)

G–7. **Disposition of documents.** (Indicate proposed disposition of current documents. If documents are to be retained along with microforms, provide specific justification.)

G–8. **Archival considerations.** (When documents/information are to be disposed of after conversion to microform, indicate in this paragraph that microforms and procedures used are adequate to insure that information they contain remains available for the required retention period. Also state whether provisions of para 2–9, 2–10*a*, *b*, or *c*, and appendix H (as applicable) have been met. If not, insure that alternate microforms and/or methods have been adequately documented to justify their use and so indicate herein.)

G–9. **Observations and recommendations.** (If possible, provide comments, based on experience gained in document/information miniaturization, which could prove of value to The Army Microforms Program. Observations in the areas listed below are solicited.)

a. Technology. (Expected technological advances and their possible integration into proposed system.)

b. Other systems. (Relation of the proposed system to other Army microform system encountered, especially observations concerning compatibility, uniformity, and standardization.)

c. Other applications. (The possibility of adopting the proposed system to other or similar applications in the Army.)

APPENDIX H

ARCHIVAL CONSIDERATIONS

H-1. Authority. Chapter 101 (Federal Property Management Regulations) to Title 41 of the Code of Federal Regulations establishes requirements for microfilming of certain records. The parts of chapter 101 applying to The Army Microforms Program, which are referenced in this regulation, are included below. The number in parenthesis after the title of the paragraph refers to the particular subpart of chapter 101.

H-2. Definitions which apply to this appendix (101-11.502). *a. Original microfilm.* Original microfilm is camera microfilm whether produced by customary or Computer Output Microfilm (COM) methods and regardless of emulsion or base.

b. Silver original microfilm. Silver original microfilm is camera microfilm meeting the requirements of Federal Standard No. 125*b*; Film Photographic and Film, Photographic, Processed (for permanent record use).

c. Silver duplicate negative. A silver duplicate negative is a second generation negative microfilm meeting the requirements of Federal Standard No. 125*b* whether produced from an original negative or from an original positive.

d. Silver master positive. A silver master positive is a second generation positive microfilm meeting the requirements of Federal Standard No. 125*b* produced from either an original negative or from an original positive.

H-3. General considerations (101-11.504-1). The following measures will be observed in conversion of documents/information to microform:

a. Microform copies will contain all significant record detail shown on the originals.

b. Microform copies of the records will be so arranged, identified, and indexed that any individual document or component of the records can be located with reasonable facility.

c. Military specifications and standards for microfilming and photographing engineering drawings and similar related documents will be followed when applicable.

d. When using roll microfilm, the photographic images at the beginning of each roll of microfilm will include information identifying the agency and organization whose records it covers; the title of the records; the microfilm roll number; the security classification, if any (this is in addition to security markings required for containers and individual images); and, if possible, the inclusive dates, names, or other data identifying the first and last records on the roll. Any indexes, registers, or other finding aids shall be microfilmed at the beginning of the records to which they relate.

e. When using other microforms, systems will be so designed and supervised that the resulting microform file is an accurate representation of the original records. Any indexes, registers, or other finding aids will be maintained and located in a readily identifiable place within the collection of microform records.

f. Other systems (e.g., COM) producing original permanent records on microfilm with no paper original will be designed so that they produce microfilm which meets the requirements stated in this appendix.

H-4. Microfilm stock (101-11.504-2). The film stock used to make photographic or photographic copies of permanent records

will be safety-base permanent record film as specified in American National Standards Institute (ANSI) PH1.25, Specifications for Safety Photographic Film; PH1.28, Specifications for Photographic Films for Permanent Records; PH1.29, Methods for Determining the Curl of Photographic Film; and PH1.31, Method of Determining the Brittleness of Photographic Film, and shall comply with Federal Standard No. 125*b*. In order to afford adequate protection for permanent records, agencies using microfilm systems which do not produce an original microfilm meeting these standards for permanent records will immediately make a silver duplicate negative or silver master positive which does meet the standards.

H-5. Copies of microforms (101-11.504-1 and 101-11.505). When miniaturizing documents/information of *permanent* retention value, the following requirements will be met:

a. The original microfilm produced will *not* be used for reference purposes. Instead, copies of the original microfilm will be made and used for reference.

b. Two copies will be offered to NARS. This offer will be made by HQDA, concurrently with action to obtain approval for destruction of permanent records (see para 2-11). HQDA will notify the organization proposing the MICRODIS whether copies will be transferred as indicated in paragraph H-6, or at a different time. These two copies will be:

(1) One copy of either the silver original, silver duplicate negative, or silver master positive microfilm.

(2) One copy of positive microfilm.

c. Organizations proposing to retain the silver original microfilm copy of permanent records must include as part of their documentation:

(1) Statement that standards of appendix H, AR 340-22 will be used to store silver original microfilm. This statement will be included under paragraph D-2*a*.

(2) When the first inspection of microfilm required by paragraph 2-9*g* will be conducted. This statement will be included under paragraph D-1*b*.

H-6. Deposit of copies (101-11.503.2). *a.* The copies of microforms required to be forwarded to NARS will be verified for completeness and accuracy before transfer. Copies will be transferred as soon as conversion to microform is completed or, in the case of large continuing systems, when a substantial and readily identifiable portion is completed.

b. The microform copies will be accompanied by adequate descriptive material to enable NARS or agency file personnel to service the records with reasonable facility, and by a certification by an agency official that microforms were produced in the normal course of agency operations and that care has been taken to insure that the microforms are a complete and accurate copy of the original records.

H-7. Testing (101-11.504-3). *a.* The film used to make photographic or microphotographic copies of permanent records will be so processed that the residual thiosulfate concentration shall be greater than zero but shall not exceed 1 microgram per square centimeter. An optimum concentration of 0.7 micrograms per square centimeter in a clear area is recommended. This may be determined by performing the test specified in ANSI PH4.8, or by the Methylene Blue Method for Measuring Thiosulfate and the Silver Densitometric Method for Measuring Chemicals in Films, Plates, and Papers.

b. Samples of properly identified, clear film, without images, measuring at least 2 square inches, will be forwarded HQDA (DAAG-AMS) for testing. Organizations having access to test facilities may forward results of test in lieu of film samples.

H-8. Resolution and densities (101-11.504-1).

a. A minimum resolution of 90 lines per mm. will be obtained.

b. No photographic densities on negative copies higher than are required for the intended purposes will be used. When possible, densities on negative copies will be between

1.0 and 1.2 On positive copies the background will be kept as clear as practicable.

H-9. Standards for storing (101-11.506). These standards apply to storing of silver original, silver duplicate negative, or silver master positive copies.

a. Reels and cores. Microfilm stored in roll form will be wound on cores or on reels of the type specified in ANSI PH5.6. Standard Dimensions for 100-foot Reels for Processed 16-mm. and 35-mm. Microfilm. The materials used for the cores and reels will be noncorroding such as plastic compounds or nonferrous metals. The use of steel for reels will be permitted provided the reels are well protected by lacquer, enamel, tinning, or other corrosion-resistant finish. Plastics and lacquers that might give off reactive fumes or exudations during storage will not be used. The plastic materials must be free of peroxides. Paper strips or rubber bands will not be used for confining film on reels or cores. The materials used will not ignite, decompose, or develop reactive fumes and vapors.

b. Storage containers. The microfilm will be stored in a closed container made of such inert material as metal or plastic of proven quality. The container will be sealed where needed to maintain prescribed humidity limits or to protect the film against gaseous impurities. If proper temperature and humidity controls are maintained as prescribed in *d*, below, and if there is good ventilation and clean air in the storage area, the containers need not be sealed. Open containers such as folding cartons may be used only if it has been established that the container material will have no adverse effect on the film over long periods of time.

c. Storage rooms. Agencies retaining original microfilm copies of permanent records will provide a fire-resistive vault or room. The storage area shall not be used as an office or working area. No flammable material shall be stored in the storage area. For full protection against exposure to fire and associated hazards, fire-resistive safes or insulated containers will be placed within fire-resistive vaults or rooms constructed in accordance with recommendations of the National Fire Protection Association in their publication NFPA 232, Protection of Records, 1970. Particular care will be taken to insure that the provisions of this paragraph are applied effectively when original negative microfilm is stored in such places as underground installations and insulated file cabinets where a high humidity is probable.

d. Environmental conditions. The relative humidity of the storage vault or room will not exceed 40 percent. Temperatures will not exceed 70° F. Rapid and wide-range cycling of humidity or temperature will be avoided and will in no instance exceed ±5 percent relative humidity or ±5° F. in a 24-hour period. Where inactivity of the film permits, protection may be increased by conditioning and sealing the film at a lower humidity and/or storing the film at a lower temperature. Film stored at a lower relative humidity than 30 percent or a temperature lower than 60° F. will be sufficiently warmed and reconditioned before use to avoid any possible damage in handling. If possible, approximately 0.05 inches of water pressure above atmospheric pressure will be maintained within the room or vault and in the film inspection area by means of an independent air-conditioning system.

e. Control of air conditioning. Air conditioning will be kept under sufficient control to meet the standards for temperature and humidity as specified in *d*, above. Dehumidifiers using desiccants will not be used since, with circulating air in the storage area, there is a danger of abrasive or reactive dust particles settling on the film. Humidification before storage is not necessary unless the prevailing relative humidity in storage areas is less than 15 percent for long periods of time. Water trays or saturated chemical solutions will not be used due to the serious danger of overhumidification.

f. Protection against air-entrained impurities. Solid particles that abrade the film or react on the image will be cleaned from the air supplied to microfilm storage and associated rooms by the use of the dry media mechanical filters or electrostatic precipitators. These filters will have an arrestance or cleaning efficiency of at least 80 percent when tested with

atmospheric air using ANSI PH5.4; Standard Practice for Storage of Processed Silver Gelatin Microfilm; which cites the report to the National Board of Fire Underwriters for the installation of air conditioning, warm air heating, air cooling, and ventilating systems. Filtering media, casings, and castings, if used, will be of the noncombustible type.

g. Gaseous impurities. Such gaseous impurities as sulfur dioxide, hydrogen sulfide, and others that may cause deterioration of the microfilm will be removed from the air. Silver-gelatin microfilm will not be stored with other types of film in the same room or in rooms connected by ventilating ducts because gases given off by the non-silver-gelatin microfilm may damage or destroy the safety-film base.

H–10. Inspection (101–11.506–8). *a.* At approximately 2-year intervals, a 1 percent sample of randomly selected rolls of microfilm will be inspected. For each biennial inspection, a different lot sample will be chosen, allowing some overlapping of inspection to note any changes in previously inspected samples. The guidelines in the National Bureau of Standards Handbook 96, Inspection of Processed Photographic Record Films for Aging Blemishes, will be followed.

b. A copy of the inspection report will be retained, in accordance with paragraph 2–7, by the organization operating the MICRODIS. The report will include at least the quantity of microfilm of permanent records on hand (i.e., number of rolls, microfiche, jackets, etc); quantity of microfilm inspected; condition of the microfilm; and corrective action required, if necessary.

c. When it is discovered that existing microforms are deteriorating, or in danger of deterioration, new microforms will be produced. The production of such new microforms must meet the requirements of this appendix.

APPENDIX I

FED. STD. No. 125B
March 21, 1972
SUPERSEDING
Fed. Std. No. 125A
April 24, 1958

FEDERAL STANDARD

FILM, PHOTOGRAPHIC AND FILM, PHOTOGRAPHIC, PROCESSED; (FOR PERMANENT RECORD USE)

This standard was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal Agencies.

AUTHORITY. This standard is issued pursuant to the Federal Property and Administrative Services Act of 1949, as amended, and its application to the purchase of commodities referred to herein is mandatory on all Federal agencies.

S1. *Purpose and scope.* The purpose of this standard is the adoption of uniform and effective criteria for the evaluation of film for use in making permanent records and for testing the processed film to insure the adequacy of processing method and its application. The scope of this standard is concerned with both raw stock for permanent-record films and with the processed films ready for storage. The standard is not restricted to microfilm but applies equally well to motion picture films, roll films, and sheet films.

S2. *Application.* This standard shall be used whenever applicable in the testing of films submitted by manufacturer as suitable for permanent record use pursuant to assigning the right to use the solid triangle established by the National Bureau of Standards as the distinguishing marking for film so approved by the Government. It shall also be used, where applicable, in the testing of samples of exposed and processed film from permanent record activities as may be requested by Federal agencies.

S3. *Reference publications.* The following documents form a part of this standard. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American National Standards Institute, Inc. Standards (ANSI):
PH1.28—Specifications for Photographic Film for Archival Records, Silver-Gelatin Type, on Cellulose Ester Base.

PH1.41—Specifications for Photographic Film for Archival Records, Silver-Gelatin Type, on Polyester Base.

(Application for copies should be addressed to the American National Standards Institute, Inc., 1430 Broadway, New York, New York 10018.)

S4. *Changes.* When a Federal agency considers that this standard does not provide for its essential needs, written request for changing or adding to the standard supported by adequate justification, shall be submitted to the Administration. This justification will explain wherein the standard does not provide for essential needs. The request should be sent in duplicate to the General Services Administration, Federal Supply Service, Standardization Division, Washington, D.C. 20406. The Administration will determine the appropriate action to be taken and will notify the agency.

APPENDIX J

GSA REGIONAL OFFICES, ADDRESSES, AND AREAS SERVED

Region No.	*Address*	*Area Served*
1	Post Office and Courthouse Boston, MA 02109	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
2	30 Church Street New York, NY 10007	Delaware, New Jersey, New York, Pennsylvania, Puerto Rico, Virgin Islands
3	Center Manager, WNRC, GSA Washington DC 20409	District of Columbia, Maryland, Virginia, West Virginia
4	1776 Peachtree Street, NW Atlanta, GA 30309	Alabama, Florida, Georgia, Mississippi, North Carolina, South Carolina, Tennessee
5	219 Dearborn Street Chicago, IL 60604	Illinois, Indiana, Kentucky, Michigan, Ohio Wisconsin
6	1500 East Bannister Road Kansas City, MO 64131	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
7	819 Taylor Street Fort Worth, TX 76102	Arkansas, Louisiana, Oklahoma, Texas
8	Building 41 Denver Federal Center Denver, CO 80225	Arizona, Colorado, New Mexico, Utah, Wyoming
9	49 Fourth Street San Francisco, CA 94103	California, Hawaii, Nevada, Philippines
10	6125 Sand Point Way Seattle, WA 98115	Alaska, Idaho, Montana, Oregon, Washington

APPENDIX K

MINIATURIZATION GUIDELINES

K–1. Sources of information. This appendix provides general information on the range of applications, values, and limitations inherent in miniaturization. TB 340–1 and the sources identified in paragraph 5–5 and appendix B of that publication will be consulted for technical, more detailed, or varied aspects of miniaturization.

K–2. Miniaturization applications. Typical applications include:

a. Micropublishing. Publication of catalogs, books, regulations, directives, and other administrative, technical, supply, training, doctrinal, or organizational material.

b. Indexing. As indexes to other information or as locator files.

c. Computer output microfilm. As an output medium for computer generated information.

d. Reference. In libraries or other areas where large volumes of reference material are maintained.

e. Inventories. As stock records or other listings and compilations of information.

f. Graphic material. For storage and use of photographs, illustrations, plans, blueprints, engineering drawings, maps, and similar material.

g. Case (unitized) filing. For use in individual records such as health, personnel, transportation, or finance, or for other records which require related material to be maintained as a set.

h. General (office/adminisrtative) filing. For normal records keeping operations.

K–3. Values of miniaturization. Use of microforms may result in cost reduction and can benefit both the user and the records manager.

a. Faster access. Microform files can reduce the time needed to get information since file space can be compressed, automated retrieval systems can be used, uniformity and better indexing can be achieved, and rapid display of information is possible.

b. Simultaneous access. Duplicate files and both on and off line viewing can permit more than one user access to a given unit of information at the same time.

c. File integrity. Information can be obtained from files while the microform file remains in custody of the records custodian, thus precluding loss of, or tampering with, file contents.

d. File security. Duplicate security files can be readily established and provisions for access to given limited portions of a file are possible.

e. Improved transmittal. Reduced size provides for less costly and more rapid transmittal of documents.

f. Space savings. Since large volumes of paper documents can be compressed into microform, a fraction of the storage space is required.

g. Work facilitation. Microforms can serve as a tool in work facilitation. Many operations requiring repetitive or duplicative processes, such as logging, filing, and inventory preparation, can be performed easier and faster using microforms.

h. Preservation. When important documents are found to be deteriorating, fading, or be-

coming brittle from age, use, or for other reasons, microforms can be used to good advantage.

i. Personnel savings. Reduction in the number of personnel needed may be achieved through more efficient operation of MICRODIS.

K–4. Miniaturization limitations. Although benefits can be realized through microform systems and applications, there are also potential problem areas.

a. Conversion. Initial conversion of documents or information to microform may require considerable review of present documents and may present difficulties in preparation of papers for actual conversion and in the miniaturization process, such as filming.

b. File discipline. Maintenance of microforms often requires more rigorous file discipline in arrangement of documents, in control of input, and similar areas.

c. Quality control. In order to realize a benefit from the elimination of paper documents, strict quality control and certification procedures must exist to insure that the information is faithfully captured in microform.

d. Update and interfiling. Some microforms (e.g., roll microfilm) limit updating information already recorded or the interfiling of new documents among those already in microform.

e. Retraining of personnel. Personnel must be trained to utilize the equipment used in production, storage, retrieval, and display of microforms. The skills required may exceed those of personnel operating a paper system.

f. User adjustment. Opposition to change and reluctance or inability of users to use display equipment may present obstacles.

g. Equipment costs. Equipment used in microform systems varies in sophistication and cost. Conversion to a MICRODIS may not always be cost effective.

The proponent agency of this regulation is the US Army Adjutant General Center. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications) direct to HQDA (DAAG–AMS) WASH DC 20314.

By Order of the Secretary of the Army:

Official:

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Major General, United States Army
The Adjutant General

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

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