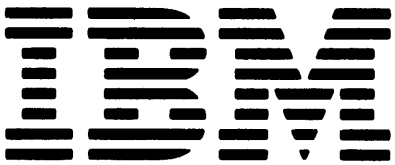

ZY31-9012-1

Serial No _____

Model _____

Install Date _____

IBM System/36
5360 System Unit
I/PAR Code Guide and CE/CSR Log

Second Edition (April 1984)

This major revision makes obsolete ZY31-9012-0. Changes or additions were made to reflect the Stage 2 control storage processor, additional main storage, the expansion power supply, the 1255 MCR attachment, and the 8809 tape adapter.

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This publication is only for the purpose of guiding the customer engineer/customer service representative in coding the Incident/Parts Activity Report (I/PAR).

Information contained in this manual is subject to change from time to time. Any such change will be reported in subsequent revisions.

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INSTRUCTIONS FOR USING THIS GUIDE

Use this guide with the *CE Service Codes and I/PAR Preparation Guide,* ZZ60-0375.

- For problems that need a repair action:
  - Record the major and minor codes. For logic cards/cables, go to the page for the board, read down to the card/cable location, then across to the major and minor codes. Make a selection when there are optional devices.
  - Record the cause code that best describes the action.
  - Record the system reference code in the I/PAR comments section.
  - Record the problem and action taken in the CE/CSR Log at the back of this guide.

- For problems that do not need a repair action:
  - No trouble found (NTF)–Record the major unit that you most suspect to be the problem and a minor unit of 93. If you cannot determine a major unit, use the major unit under which you spent time analyzing the problem. Describe the problem in the I/PAR comments section.
  - Record the system reference code in the I/PAR comments section.
  - Customer responsibility (870)–Use only with service codes 14 and 30.
  - Record the problem and action taken, if any, in the CE/CSR Log at the back of this guide.

Do NOT Use Major Units 000, 960, and 980

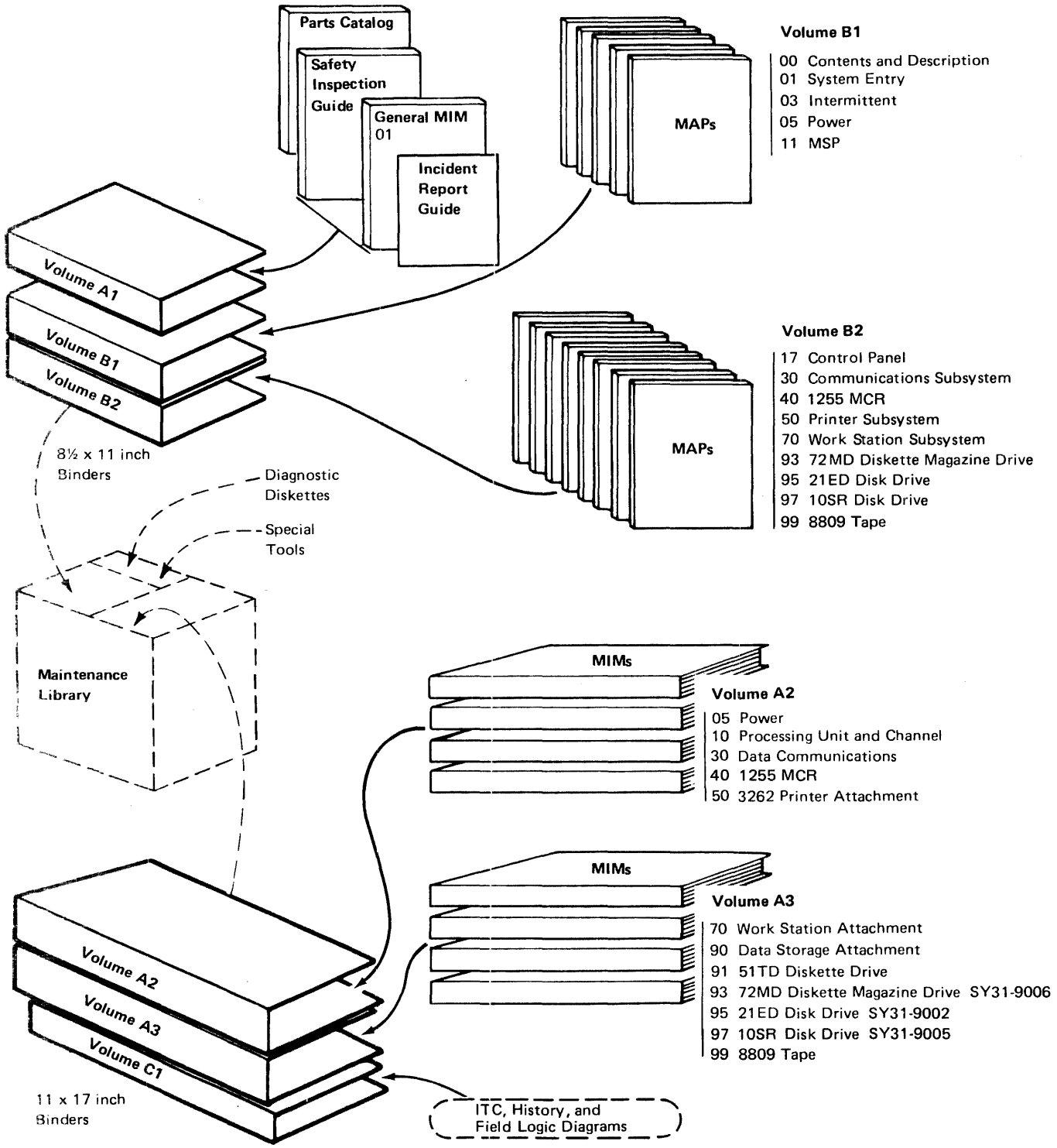
CAUSE CODES

Choose one digit from each column.

Cause

Most Important Action		Failure Mode	MAP/Diagnostic Package/System Reference Code Effectiveness
1	Reseat or reinstall the original part		
2	Swap for diagnostic purposes	Solid	2 Used and effective
3	Exchange		3 Used and not effective
4	Adjust, repair, modify		4 Not used
5	Clean or lubricate	Intermittent	5 Used and effective
6	Other action–describe in the I/PAR comments section		6 Used and not effective
			7 Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.



EC 826380			PN 2597070
27MAY83			

I B M

PUBLICATION DRAWING

PART NUMBER	4177104
DATE	CHANGE NUMBER
26 MARCH 82	838739
22 SEP 82	838798
27 MAY 83	826380
15 FEB 84	826487

BASE FORM NUMBER ZY31-9012

TITLE. IBM SYSTEM/36
5360 SYSTEM UNIT
I/PAR CODE GUIDE AND CE/CSR LOG

NOTE. ALL ITEMS FOLLOWING THE LAST ROW OF ASTERISKS ARE TO BE SHIPPED.

CHANGE NUMBER	FORM / TNL	DESCRIPTION / COMMENTS
**********	**********	**********
838739	ZY31-9012-B	CHECKPOINT 9 DRAFT
**********	**********	**********
838798	ZY31-9012-C	CHECKPOINT 11 DRAFT
**********	**********	**********
826380	ZY31-9012-0	RELEASE 1, FIRST CUSTOMER SHIP
**********	**********	**********
826487	ZY31-9012-1	RELEASE 2, FIRST CUSTOMER SHIP

001 BASE

Note: Minor codes 00 and 93 are not valid with major code 001.

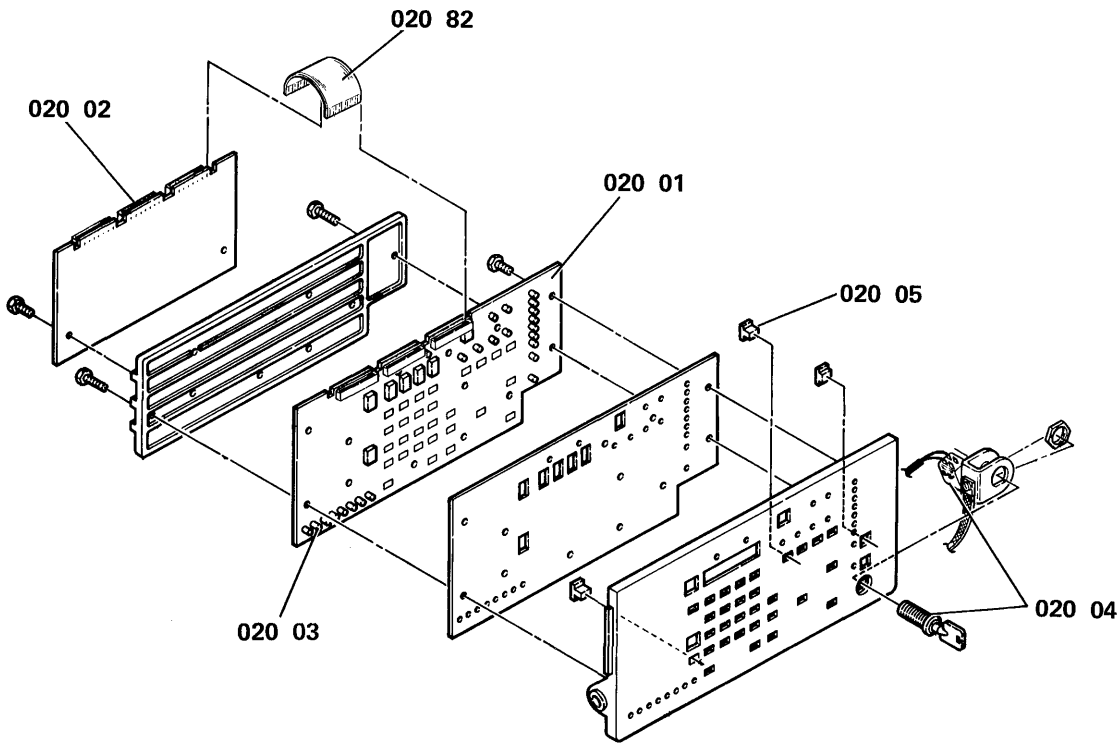
01	Casters
02	Covers
04	Frame
05	Gate hardware
03	Grounding/finger stock strip
06	Latches/hinges
07	Shock mounts, 21ED
08	Switch, 72MD cover interlock

020 CONTROL PANEL

01	Board, display (B-A2)
02	Board, driver (B-A1)
82	Cables/connectors
05	Key button
04	Keylock assembly
03	LED
93	No trouble found–record the details in the I/PAR comments section
00	Other–explain fully in the I/PAR comments section

080 COOLING

82	Cables/connectors
01	Fan, disk area
07	Fan, expansion power
02	Fan, logic gate
03	Fan, power
04	Fan, 72MD
05	Thermal switch, logic gate
06	Thermal switch, power
93	No trouble found–record the details in the I/PAR comments section
00	Other–explain fully in the I/PAR comments section



A-A1 Logic

Card/Cable Locations	Major Codes	Minor Codes	Description
A-A1A2	305	82	21ED disk A cable
A3	306	82	21ED disk B cable
A4	101	82	Communications line cable
A5	303	82	Control panel cable
B2	114	01	Internal clock
B3	300	82	Channel terminator (not Stage 2)
B4	303	01	Control panel (not Stage 2)
B5	300	82	Channel terminator (Stage 2)
C2	305	01	21ED disk A adapter
D2	306	01	21ED disk B adapter
E2	304	01	Data storage adapter 1
F2			
With 51TD	302	01	51TD adapter
With 72MD	312	01	72MD adapter
G2			Communications line adapter
EIA	106	01	
1200 integrated modem	107	01	
DDSA	108	01	
G4			
With 51TD	302	02	51TD VFO
With 72MD	312	02	72MD VFO
H2	316	01	Work station controller
J2	317	01	Work station adapter
K2	101	02	Communications adapter (SLCA)
L2	311	01	CSP channel (not Stage 2)
M2			
Stage 2	303	02	Control panel
Not Stage 2	311	02	CSP data flow
N2			
Stage 2	311	03	CSP
Not Stage 2	321	01	Control storage
P2	310	01	MSP control
Q2	310	02	MSP data flow
R2	320	04	Main storage
S2	320	03	Main storage
T2	320	02	Main storage
U2	320	01	Main storage
V3	020	82	Control panel cable
V4	317	82	Work station cable
V5			
With 51TD	302	82	51TD cable
With 72MD	312	82	72MD cable
Z1/Z2/Z3	300	82	Channel cables
A-A1 board	300	01	Discrete wire
A-A1 board	300	02	Land pattern
A-A1 board	300	03	Pin

Other minor codes that you may use with a logic major code:

50	Card jumpers
60	Top card connectors
93	No trouble found–record the details in the I/PAR comments section
00	Other–explain fully in the I/PAR comments section

Cause

Most Important Action		Failure Mode	MAP/Diagnostic Package/System Reference Code Effectiveness
1	Reseat or reinstall the original part		
2	Swap for diagnostic purposes	Solid	2 Used and effective
3	Exchange		3 Used and not effective
4	Adjust, repair, modify		4 Not used
5	Clean or lubricate	Intermittent	5 Used and effective
6	Other action–describe in the I/PAR comments section		6 Used and not effective
			7 Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

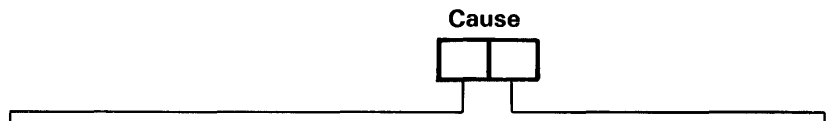
A-A2 Logic

Card/Cable Locations	Major Codes	Minor Codes	Description
A-A2A2			
With 10SR	307	82	10SR disk A cable
With 21ED	305	82	21ED disk A cable
A3			
With 10SR	308	82	10SR disk B cable
With 21ED	306	82	21ED disk B cable
A4	313	82	10SR disk C cable
A5	314	82	10SR disk D cable
B2	307	82	10SR disk A cable
B3	308	82	10SR disk B cable
B4	313	82	10SR disk C cable
B5	314	82	10SR disk D cable
C2			
With 10SR	307	01	10SR disk A adapter
With 21ED	305	01	21ED disk A adapter
C4	313	01	10SR disk C adapter
D2			
With 10SR	308	01	10SR disk B adapter
With 21ED	306	01	21ED disk B adapter
D4	314	01	10SR disk D adapter
E2	304	01	Data storage adapter 1
F2			
With 51TD	302	01	51TD adapter
With 72MD	312	01	72MD adapter
G4			
With 51TD	302	02	51TD VFO
With 72MD	312	02	72MD VFO
J2			
With 8809	319	01	Data storage controller
No 8809	318	01	Disk feed-through
K2	323	01	Data storage adapter 2
L2	323	02	8809 adapter
L4	324	01	1255 storage 1
M4	325	01	1255 storage 2
N2	324	02	1255 adapter
P2	324	03	1255 controller
Q2	324	04	1255 driver/receiver
R2	315	01	3262 controller
S2	315	02	3262 adapter
T2	315	03	3262 state sequencer
U2	324	82	1255 cable
U3	301	82	Channel terminator
V2/V3/V4	315	82	3262 cables
V5			
With 51TD	302	82	51TD cable
With 72MD	312	82	72MD cable
Y1/Y2/Y3	301	82	Channel cables
Y5/Y6	324	82	1255 cables
Z4/Z5/Z6	301	82	Channel cables
A-A2 board	300	01	Discrete wire
A-A2 board	300	02	Land pattern
A-A2 board	300	03	Pin

Other minor codes that you may use with a logic major code:

50	Card jumpers
60	Top card connectors
93	No trouble found–record the details in the I/PAR comments section
00	Other–explain fully in the I/PAR comments section

Cause



Most Important Action		Failure Mode	MAP/Diagnostic Package/System Reference Code Effectiveness	
1	Reseat or reinstall the original part		2	Used and effective
2	Swap for diagnostic purposes	Solid	3	Used and not effective
3	Exchange		4	Not used
4	Adjust, repair, modify		5	Used and effective
5	Clean or lubricate	Intermittent	6	Used and not effective
6	Other action–describe in the I/PAR comments section		7	Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

A-A3 Logic

Card/Cable Locations	Major Codes	Minor Codes	Description
A-A3A2/A3/A4/A5	101	82	Communications line cables
G2/G4	105	01	Preloads
L2/L4/M2/M4			Communications line adapters
EIA	106	01	
1200 integrated modem	107	01	
DDSA	108	01	
Autocall	109	01	
X.21	110	01	
V.35 (wideband)	111	01	
N2/P2/Q2/R2	101	01	Communications adapters
S2	112	01	MLCA controller
U2	114	01	Internal clock
U3	100	82	Channel terminator
V5	020	82	Control panel cable
Y4/Y5/Y6	100	82	Channel cables
A-A3 board	100	01	Discrete wire
A-A3 board	100	02	Land pattern
A-A3 board	100	03	Pin
Modem cables	106	82	External EIA modem cables

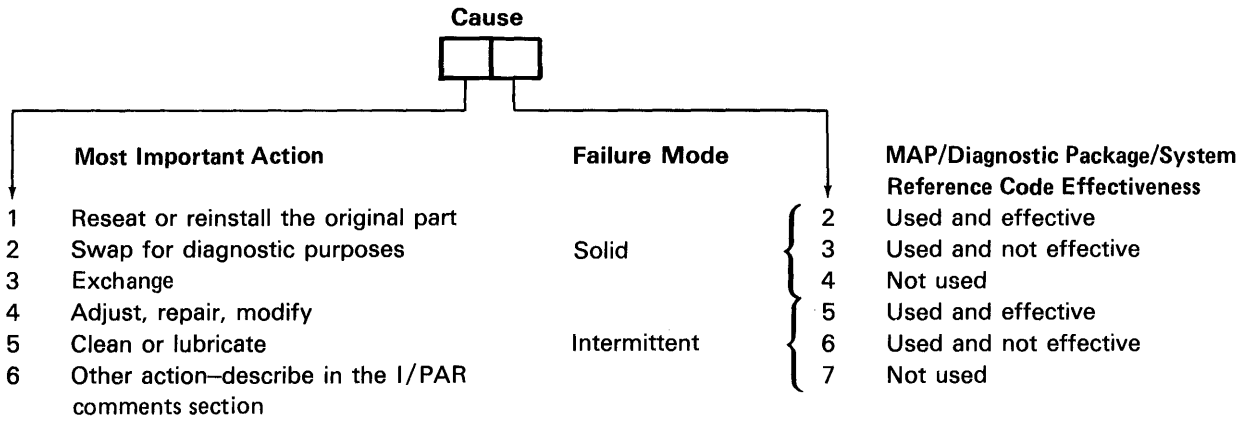
Other minor codes that you may use with a logic major code:

50 Card jumpers
60 Top card connectors

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section

No Trouble Found: When you suspect a *communications* problem to be *outside* System/36, record the major unit that you most suspect to be the problem and a minor unit of 93 (see table at right). If you cannot determine a major unit, use the major unit under which you spent time analyzing the problem. Record system reference code(s), if available, and other details in the I/PAR comments section.

No Trouble Found	Codes	
	Major	Minor
Common carrier facilities	150	93
Customer application (programming)	151	93
Customer procedures	152	93
Environment	153	93
External non-IBM local DCE (modem)	154	93
External non-IBM remote DCE (modem)	155	93
Remote DTE (work station)	156	93



Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

600 AC POWER

82 Cables/connectors
01 Circuit breaker 1
02 Line cord
03 Line filter assembly

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section

601 CONTROL POWER

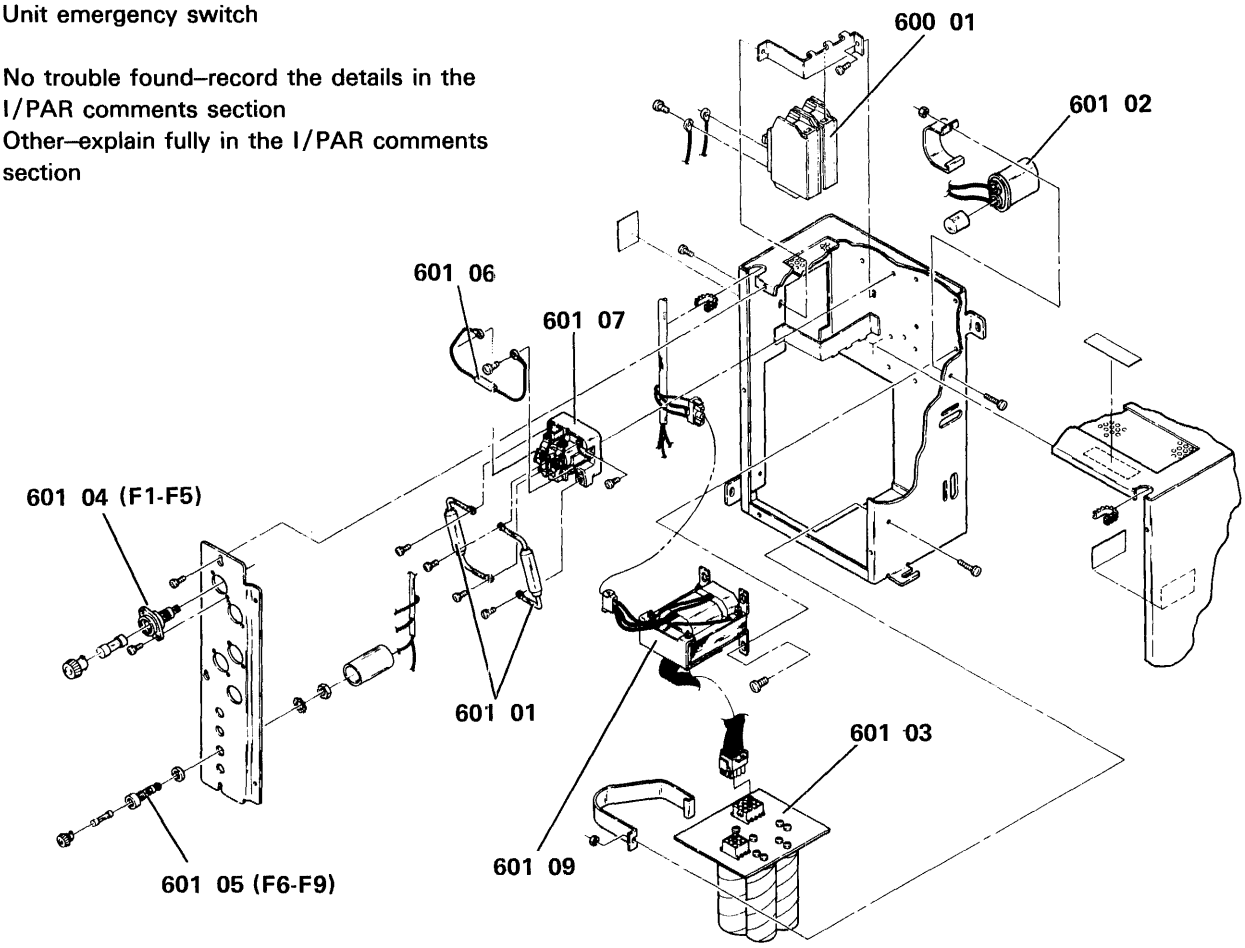
01 Arc suppressor assembly
82 Cables/connectors
02 Capacitor, control AC
03 Control power assembly
06 Diode assembly
04 Fuse, F1-F5
05 Fuse, F6-F9
08 Protect card
07 Relay K1
09 Transformer, control
10 Unit emergency switch

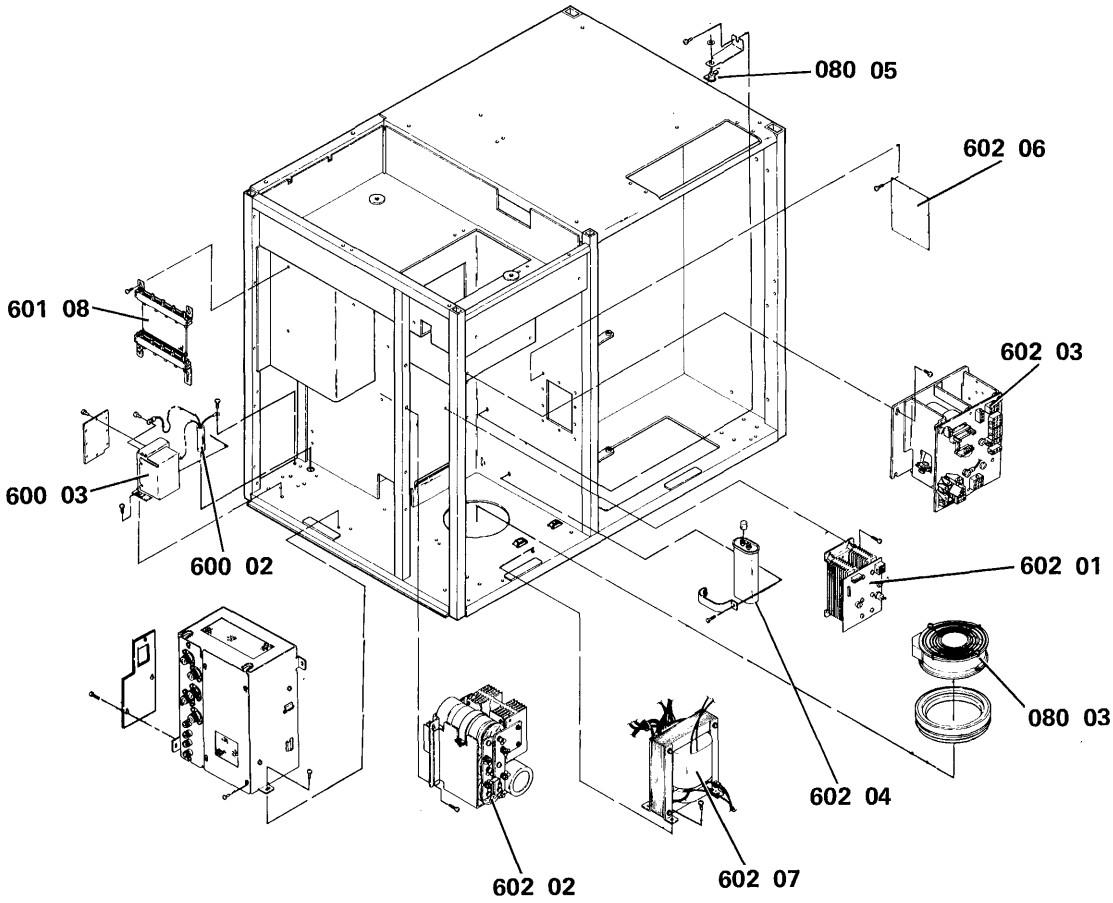
93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section

602 BASE POWER

01 Base 1.7 V regulator
02 Base 5 V assembly
03 Base power assembly
82 Cables/connectors
04 Capacitor, base AC
06 DC ground board assembly
07 Transformer, base

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section





Cause

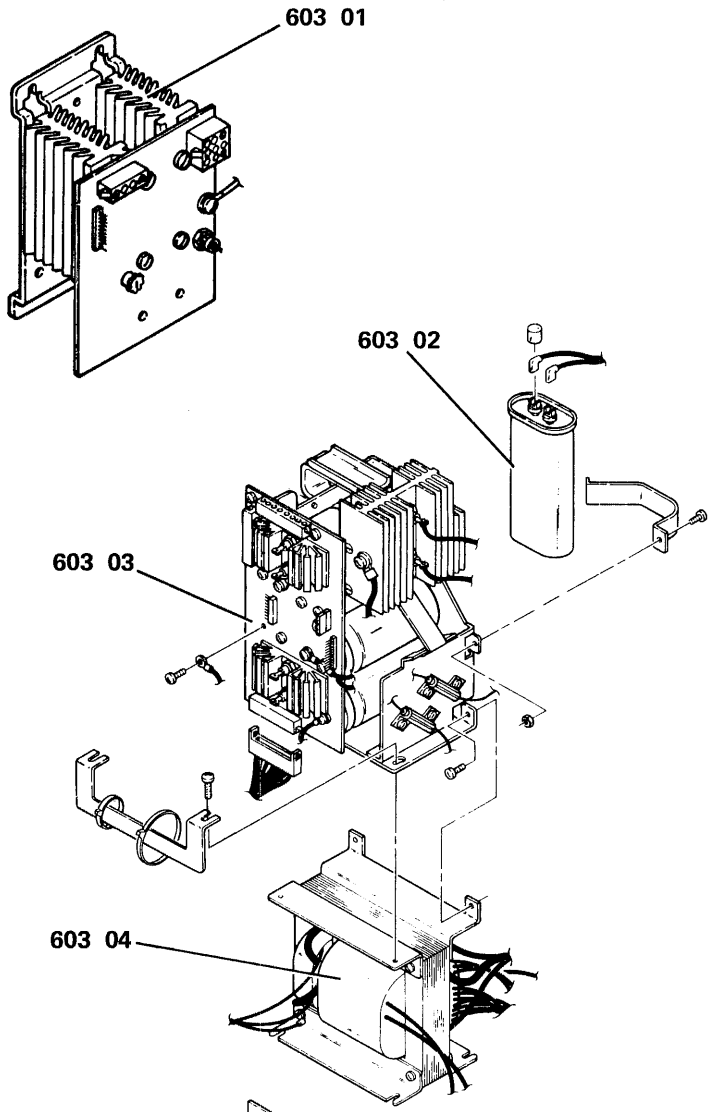
	Most Important Action	Failure Mode		MAP/Diagnostic Package/System Reference Code Effectiveness
1	Reseat or reinstall the original part		2	Used and effective
2	Swap for diagnostic purposes	Solid	3	Used and not effective
3	Exchange		4	Not used
4	Adjust, repair, modify		5	Used and effective
5	Clean or lubricate	Intermittent	6	Used and not effective
6	Other action–describe in the I/PAR comments section		7	Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

603 A-A2 BOARD POWER

01 A2 1.7 V regulator
02 A2 AC capacitor
03 A2 power assembly
04 A2 transformer
82 Cables/connectors

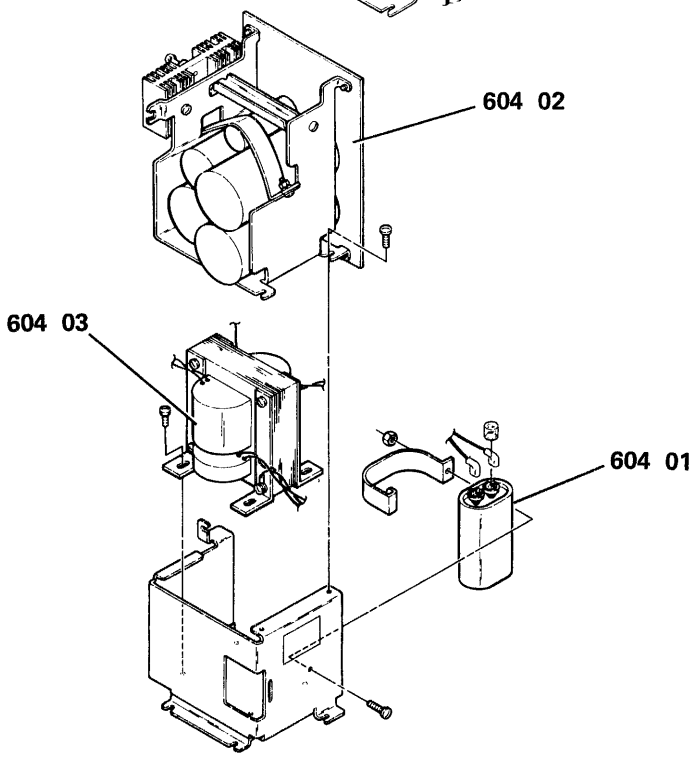
93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



604 A-A3 BOARD POWER

01 A3 AC capacitor
02 A3 power assembly
03 A3 transformer
82 Cables/connectors

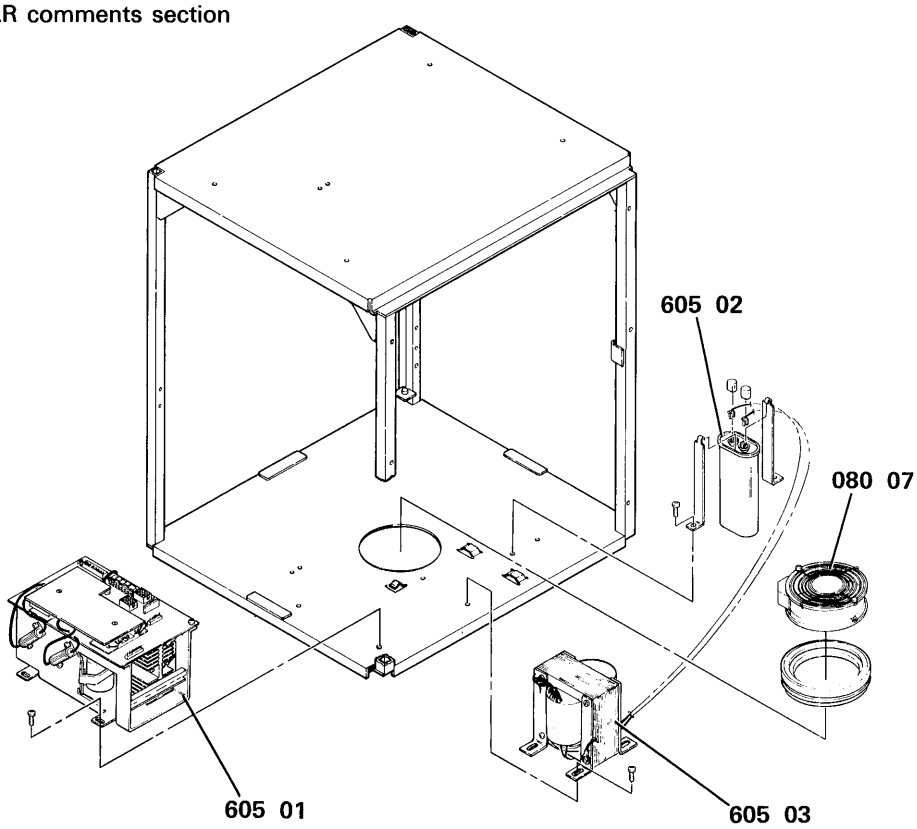
93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



605 EXPANSION POWER

82 Cables/connectors
02 Capacitor, expansion AC
01 Power assembly, expansion
03 Transformer, expansion

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



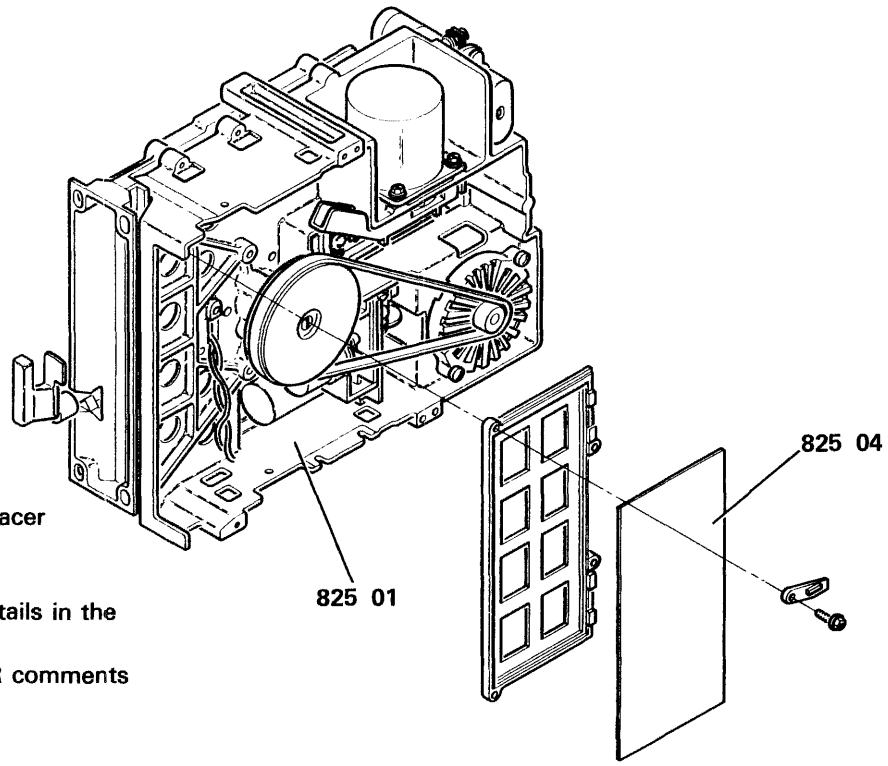
Cause

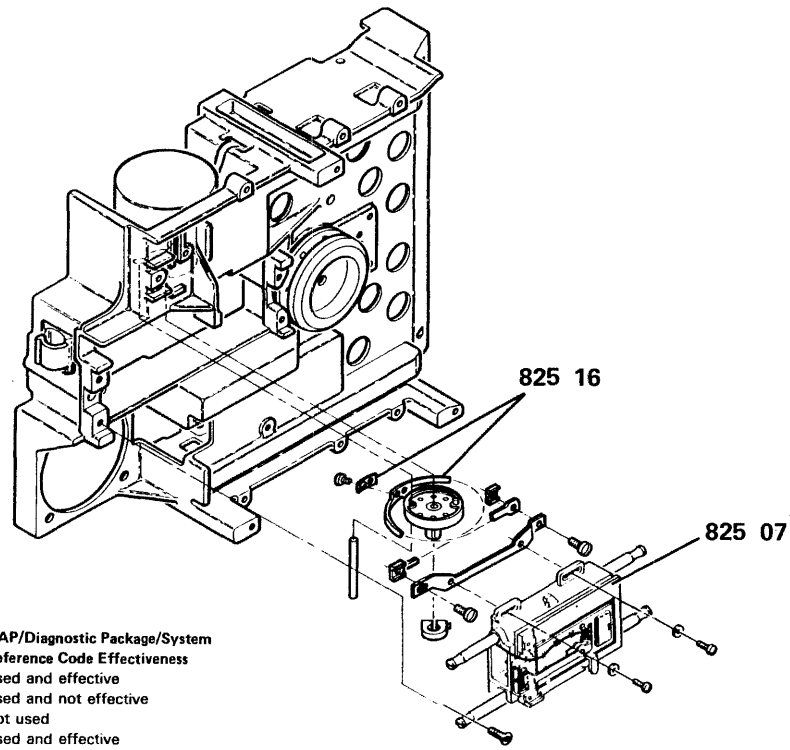
	Most Important Action	Failure Mode		MAP/Diagnostic Package/System Reference Code Effectiveness
1	Reseat or reinstall the original part		2	Used and effective
2	Swap for diagnostic purposes	Solid	3	Used and not effective
3	Exchange		4	Not used
4	Adjust, repair, modify		5	Used and effective
5	Clean or lubricate	Intermittent	6	Used and not effective
6	Other action–describe in the I/PAR comments section		7	Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

825 51TD DISKETTE DRIVE

17	Band idler asm
01	Base/frame/mounting HW
82	Cables/connectors
16	Carriage drive band/clamp asm
05	Collet asm
06	Cover and latch
04	Diskette control card
02	Drive belt
07	Head/carriage asm
08	Head load actuator asm
09	Head load solenoid
10	LED/photo transistor
11	Motor–drive/pulley
12	Motor–stepper
13	Shaft–diskette drive/pulleys/spacer
99	Unit replace
93	No trouble found–record the details in the I/PAR comments section
00	Other–explain fully in the I/PAR comments section



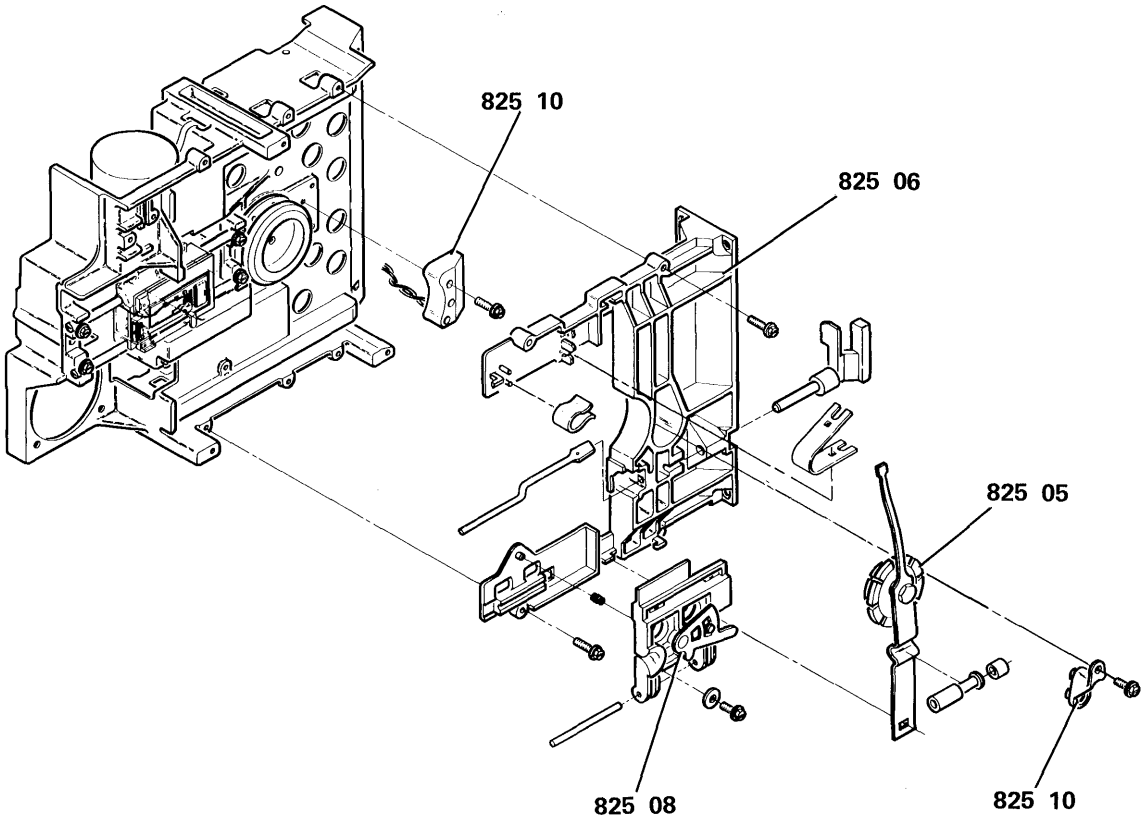


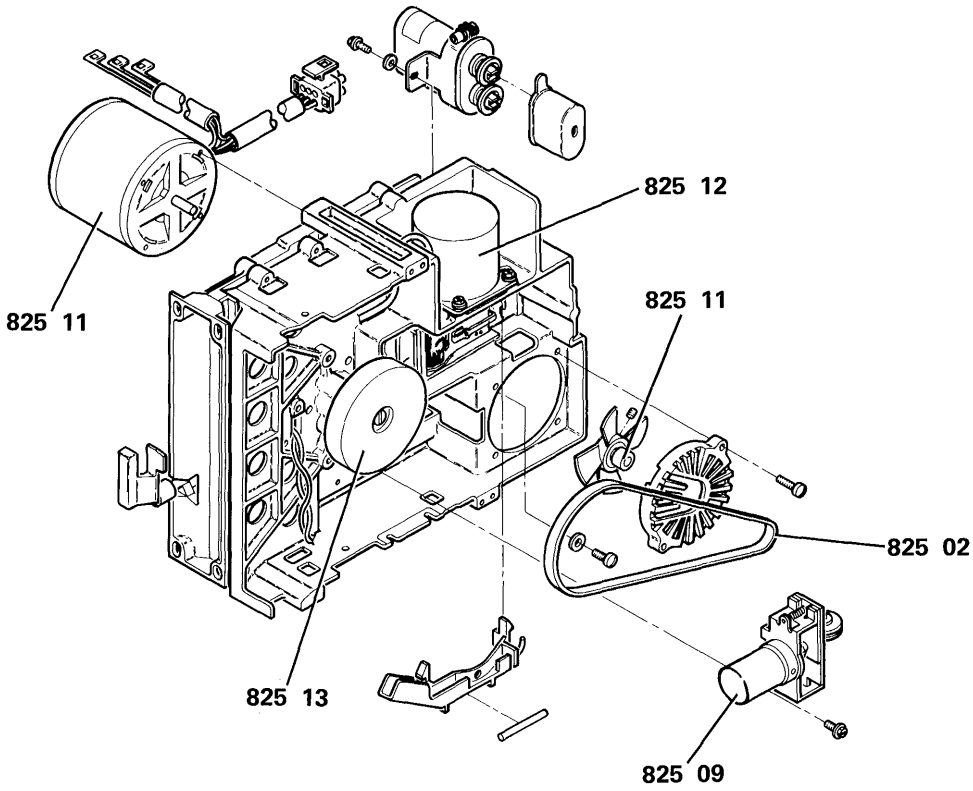
Cause

	Most Important Action	Failure Mode
1	Reseat or reinstall the original part	
2	Swap for diagnostic purposes	Solid
3	Exchange	
4	Adjust, repair, modify	
5	Clean or lubricate	Intermittent
6	Other action–describe in the I/PAR comments section	

	MAP/Diagnostic Package/System Reference Code Effectiveness
2	Used and effective
3	Used and not effective
4	Not used
5	Used and effective
6	Used and not effective
7	Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

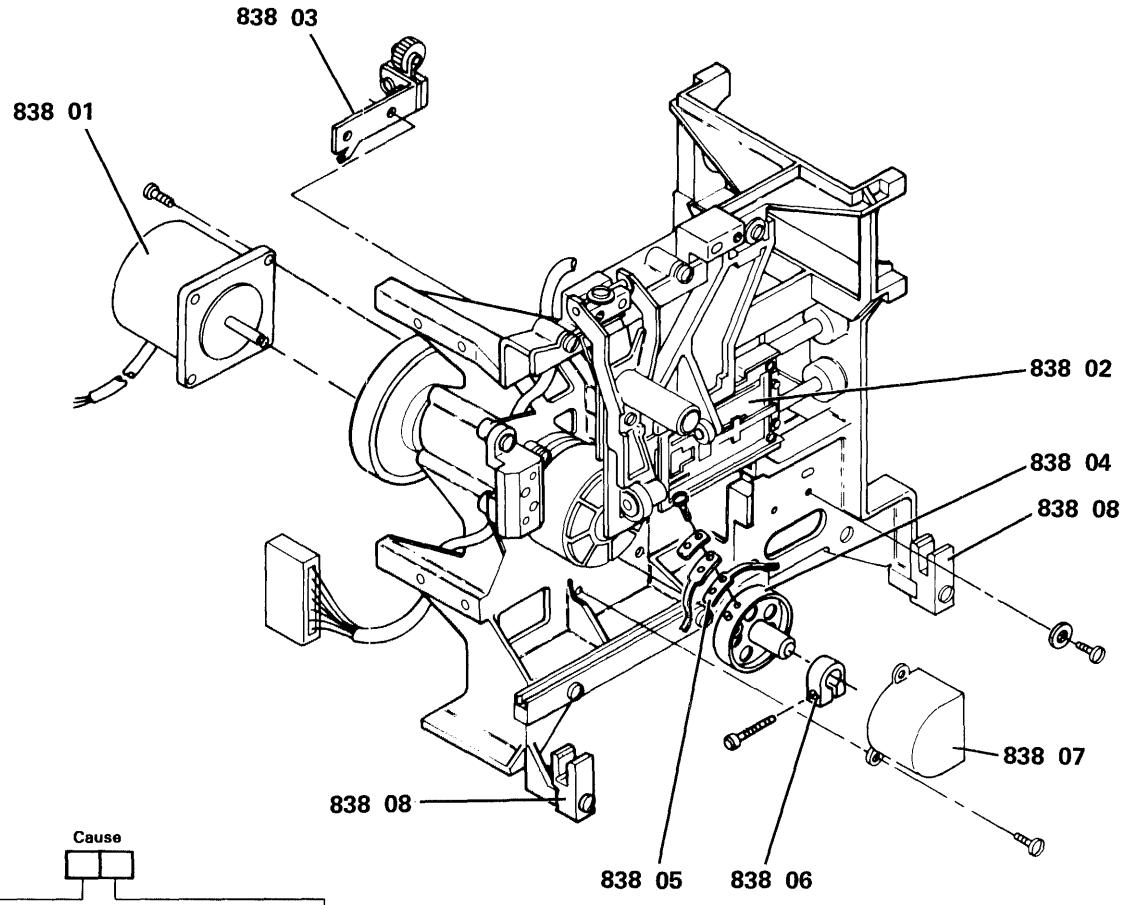

825 10
825 06
825 05
825 08
825 10


825 12
825 11
825 11
825 02
825 13
825 09

838 72MD ACCESS

05 Band
08 Bracket
82 Cables/connectors (not shown)
06 Clamp/band pulley
04 Drive pulley/band
99 Drive unit replacement
02 Head/carriage assembly
03 Idler/band
01 Motor–stepping
07 Wiper/assembly

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



Cause

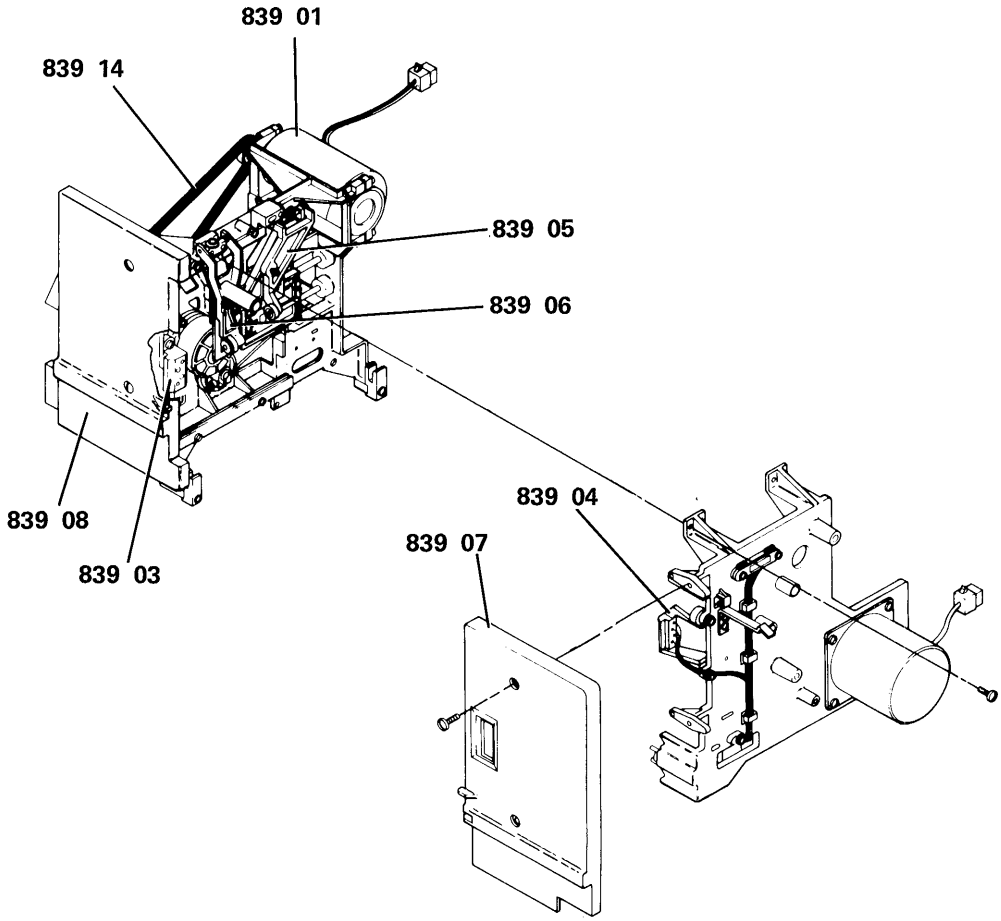
Most Important Action		Failure Mode	MAP/Diagnostic Package/System Reference Code Effectiveness	
1	Reseat or reinstall the original part		2	Used and effective
2	Swap for diagnostic purposes	Solid	3	Used and not effective
3	Exchange		4	Not used
4	Adjust, repair, modify		5	Used and effective
5	Clean or lubricate	Intermittent	6	Used and not effective
6	Other action–describe in the I/PAR comments section		7	Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

839 72MD DRIVE

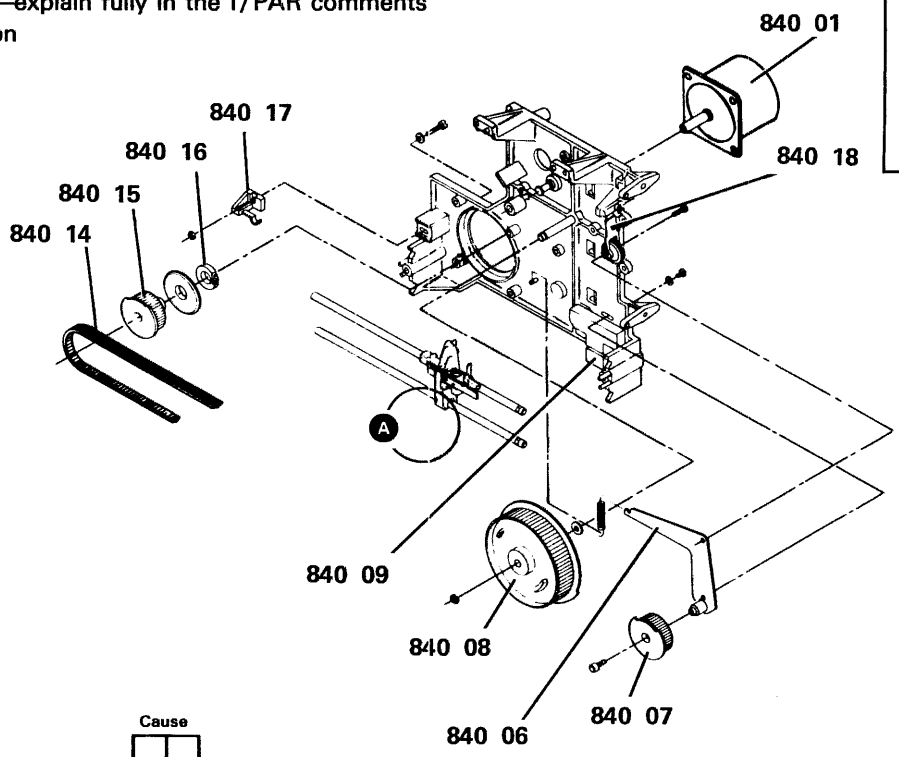
05 Bail assembly–head load
14 Belt
08 Bezel left
07 Bezel right
82 Cables/connectors (not shown)
06 Collet assembly
04 LED
01 Motor–AC drive
03 Sensor photo transistor
99 Unit replacement

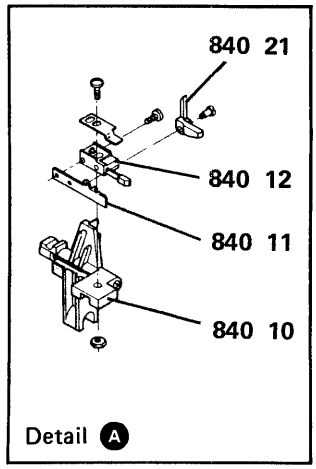
93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



840 72MD AUTOLOADER

14	Belt
82	Cables/connectors (not shown)
08	Cam
16	Clamp
17	Detent
06	Idler assembly
18	Jam wheel
01	Motor–stepping
12	Picker arm, spring
11	Picker arm, stationary
10	Picker assembly
07	Pulley
15	Pulley
09	Sensor assembly/picker
21	Stripper
99	Unit replacement
93	No trouble found–record the details in the I/PAR comments section
00	Other–explain fully in the I/PAR comments section





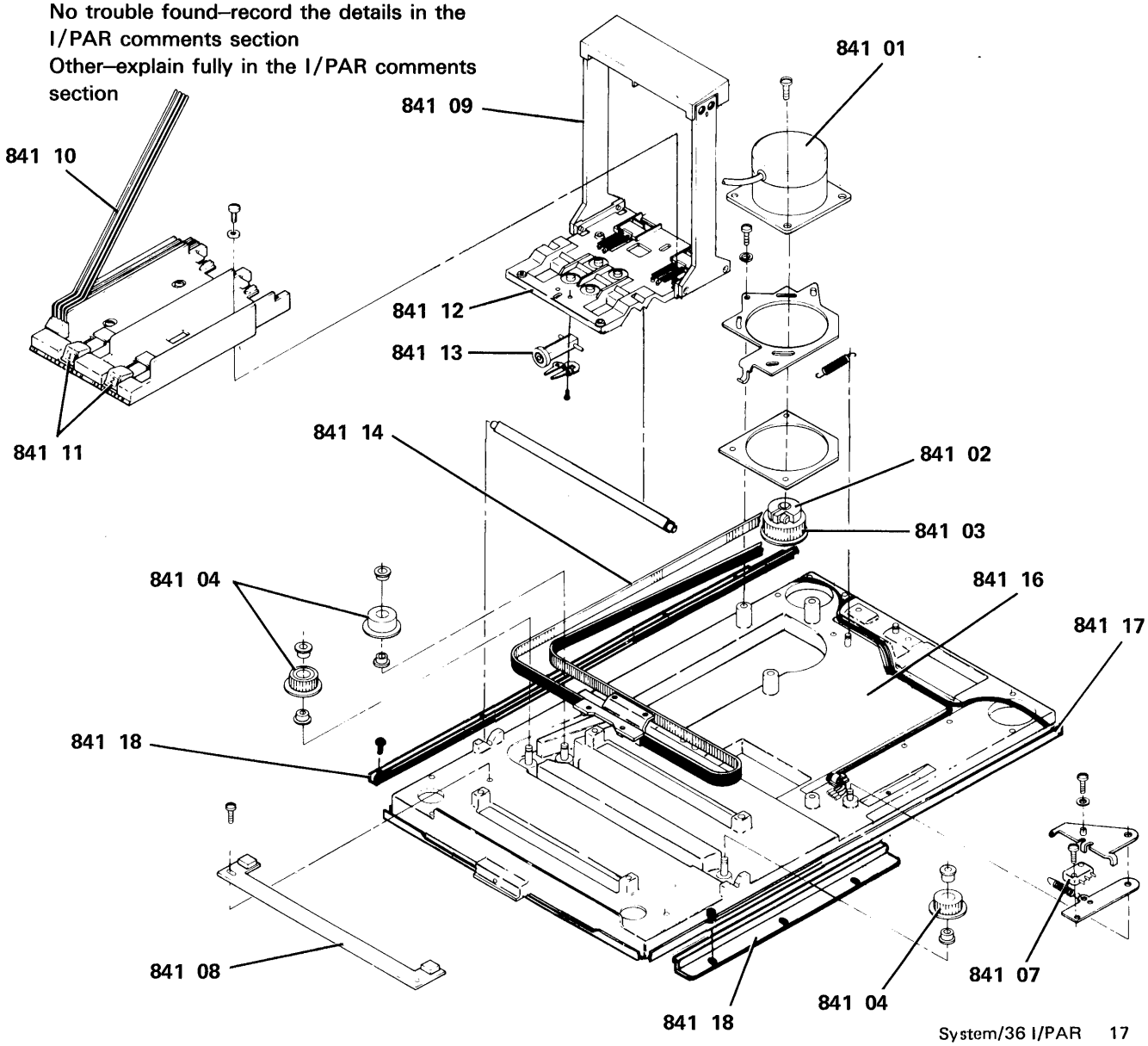
Cause	Most Important Action	Failure Mode	MAP/Diagnostic Package/System Reference Code Effectiveness
1	Reseat or reinstall the original part		
2	Swap for diagnostic purposes	Solid	2 Used and effective
3	Exchange		3 Used and not effective
4	Adjust, repair, modify		4 Not used
5	Clean or lubricate	Intermittent	5 Used and effective
6	Other action–describe in the I/PAR comments section		6 Used and not effective
			7 Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

841 72MD CARRIAGE

13 Arm assembly
16 Base
14 Belt/drive
82 Cables/connectors (not shown)
12 Carriage assembly
02 Clamp
10 Diskette guide assembly
01 Motor–stepping
17 Pan
04 Pulley assembly
03 Pulley/drive
18 Rack slide assembly
11 Retainer/magazine
08 Stop assembly
07 Switch/orient
09 Tray assembly
99 Unit replacement

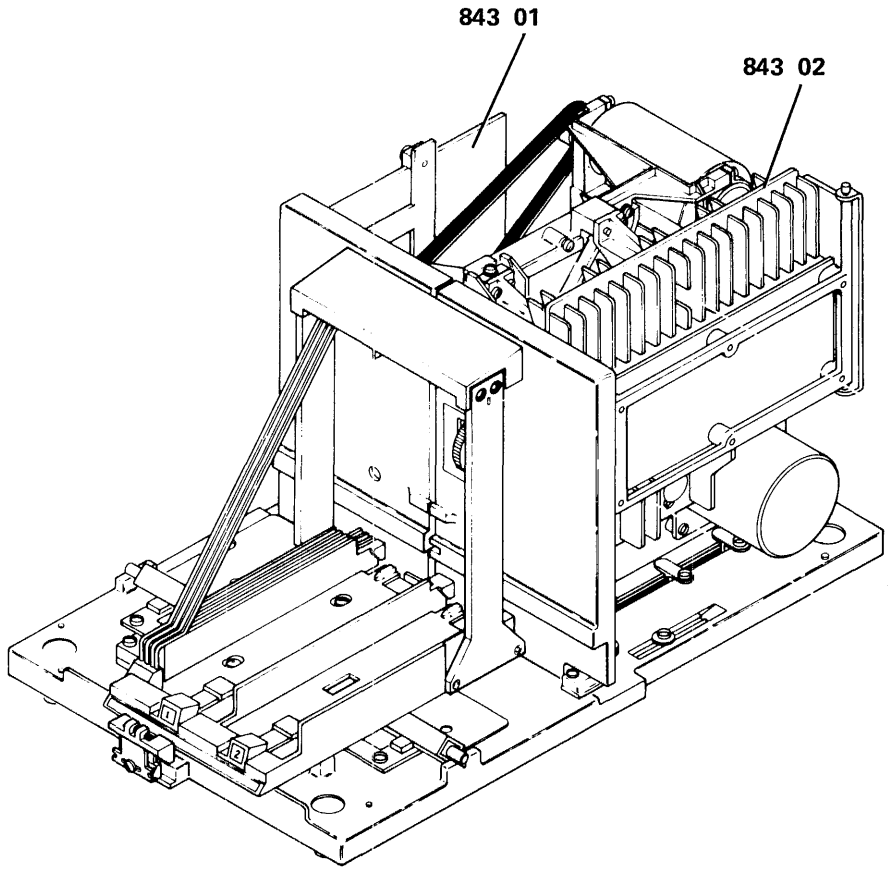
93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



843 72MD LOGIC

82 Cables/connectors (not shown)
02 Driver circuit board
01 File control card

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



Cause

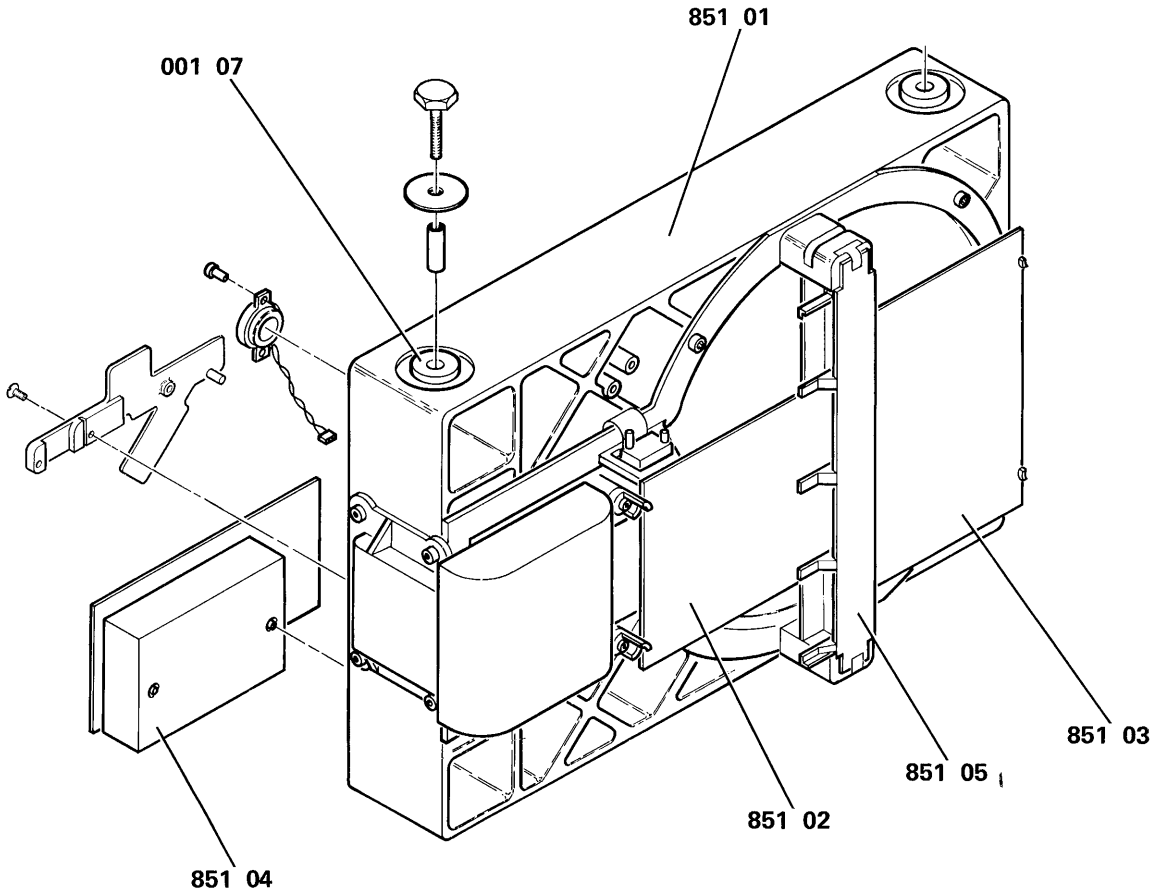
	Most Important Action	Failure Mode		MAP/Diagnostic Package/System Reference Code Effectiveness
1	Reseat or reinstall the original part		2	Used and effective
2	Swap for diagnostic purposes	Solid	3	Used and not effective
3	Exchange		4	Not used
4	Adjust, repair, modify		5	Used and effective
5	Clean or lubricate	Intermittent	6	Used and not effective
6	Other action–describe in the I/PAR comments section		7	Not used

Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

851 21ED DISK DRIVE

01 Disk enclosure
02 Logic card, analog, B1A3
03 Logic card, digital, A1A2
04 Logic card, driver, C1A1
05 Maple block

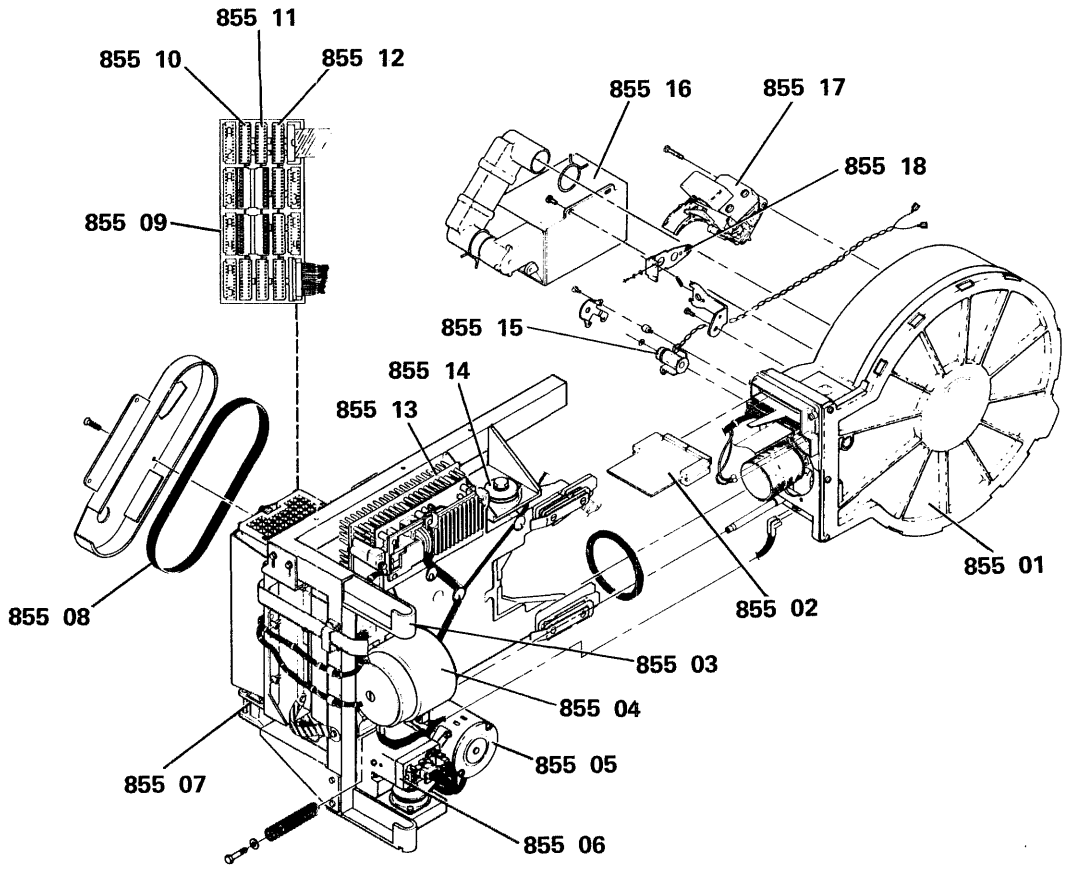
93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



855 10SR DISK DRIVE

18 Anti-static brush
03 Base/frame
08 Belt
17 Brake
82 Cables/connectors
15 Carriage latch magnet
07 Fan
16 Filter
01 Head/disk assembly
09 Logic board
10 Logic card B2 (access)
11 Logic card C2 (data converter)
12 Logic card D2 (servo)
02 Logic card W1B1 (data channel)
05 Motor assembly
06 Power control assembly
14 Shock mounts
13 Voice coil driver
04 Voice coil magnet

93 No trouble found–record the details in the I/PAR comments section
00 Other–explain fully in the I/PAR comments section



Notes:

– 82 Cables/connectors (major 855-82=disk cables only, not interface or disk-to-disk cables)
– 03 Base/frame (include all hardware not associated with an assembly)

870 CUSTOMER RESPONSIBILITY

Note: Use only with service codes 14 and 30.

Minor Codes

Tens

7 Customer problem determination–not used/not provided

8 Customer problem determination–used and effective

9 Customer problem determination–used and not effective

Units

1 Electrical/mechanical noise/ESD

2 Environment–temperature/humidity

3 Hardware compatibility

4 Procedural error

5 Programming error

6 Power failure/incorrect voltage (external)/power line disturbance

7 Wiring error

8 Customer-owned cables

9 Media

0 Other

900 FUNCTIONAL MICROCODE

Note: Include APAR/MTR or patch number if applicable.

72 Failure identified incidents

Cause codes

20 Error in IBM functional microcode

21 Permanent restriction

22 Error in IBM documentation

23 Error in EC/APAR

24 Wrong EC level

75 Problem determination

Cause codes

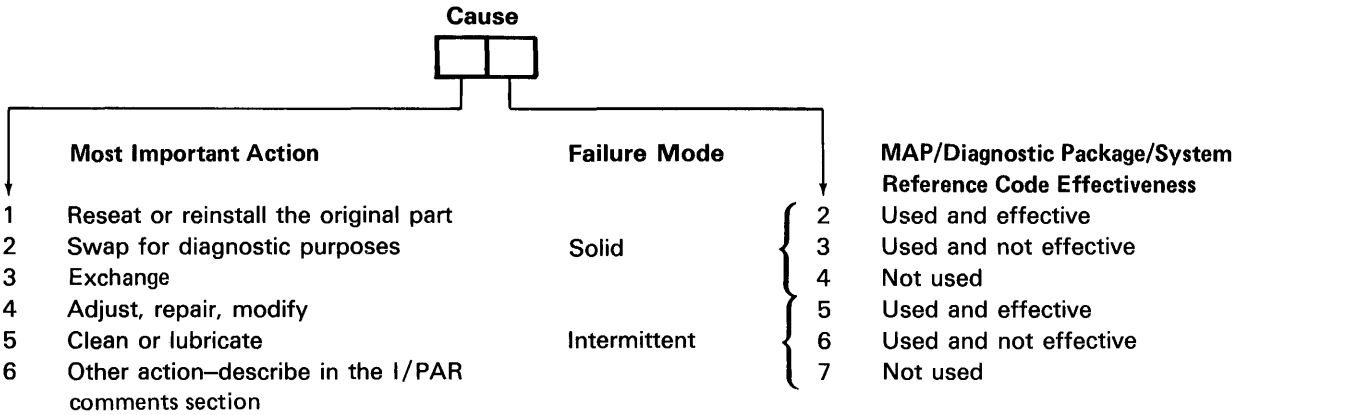
50 User cancelled/NTF

51 Operator/user error

53 Non-IBM software/customer program

54 Non-IBM hardware

55 IBM hardware



Note: The MAPs/diagnostics/system reference codes are effective if they identify the failing part or send you to the correct repair action.

CE/CSR LOG

MACHINE TYPE AND SERIAL

DATE	DESCRIPTION OF PROBLEM/ACTION TAKEN (Do not record hours or part number.)	CE/CSR NAME

DATE	DESCRIPTION OF PROBLEM/ACTION TAKEN (Do not record hours or part number.)	CE/CSR NAME

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International Business Machines Corporation

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