SPEA 4080 Maintenance Log & Inspection Record

Standard Operating Procedure Maintenance Plans, Safety Device Checks & Safety Label Audits

Maintenance Cycle 1

Status: Complete

MACHINE MODEL	MAINTENANCE DATE	CYCLE TYPE
SPEA 4080	March 24, 2025	Standard Periodic PM

1. Maintenance Plan Execution

CARD ID	OPERATION	INTERVAL	TIME REQUIRED	STATUS / RESULT
FP-1A	Start of work meeting	Beginning	5 min	Done
FP-2A	Preliminary checks	Beginning	5 min	NPF (No Problem Found)
FP-3A	PC hard disk drive diagnostics	Monthly	20 min	No Errors
FP-4A	Virus check	Monthly	20 min	N/A
FP-5A	Hard disk space check	Monthly	5 min	~54% Free
FP-6A	Micro filter efficiency check	Monthly	15 min	Dry / OK
FP-7A	Safety device check	Monthly	40 min	Good - NPF
FP-8A	Light check	3 Months	1 min	Completed
FP-9A	Fan efficiency check	6 Months	15 min	Completed
FP-10A	X, Y axis guides lubrication	6 Months	1 hour	Completed
FP-11A	Machine cleaning	6 Months	30 min	Completed
FP-12A	Z-axis screw tightening check	1 Year	5 min	Completed
FP-13A	Warning and safety label check	1 Year	20 min	Completed
FP-14A	PC hard disk backup procedure	1 Year	30 min	Completed
FP-15A	Multi Probe Head replacement	500k/1M Cycles	1 hour	Completed
FP-16A	Check machine against reference sample	End Cycle	30 min	Completed
FP-17A	Monitor the machine during production	End Cycle	1 hour	Completed

2. Safety Device Checks

SAFETY DEVICE NAME	RESULT	NOTES
Exterior covering panels	Good / Verified	Satisfactory
Emergency stop button	Good / Verified	Functional
Main switch	Good / Verified	Functional
Red indicator lamp and buzzer	Good / Verified	Functional
Interior panels for high-voltage protection	Good / Verified	Satisfactory
Door locking mechanism	Good / Verified	Functional

3. Safety Label Compliance Check

REF	LABEL TYPE / DESCRIPTION	PART CODE	LOCATION	CONDITION
1	WARNING - Hazardous Voltage Inside	14711382.129	Line Panel	OK
2	WARNING - Magnetic Field	14711388.177	Test area	OK
3	WARNING - Hazardous Voltage	14711562.127	Instrument basket	OK
4	WARNING - Crush Hazard (Moving Parts)	14711768.187	Left, Right, Rear Doors	OK
5	WARNING - Crush Hazard Inside	14711767.179	Left, Right, Rear Doors	OK
6	WARNING - Avoid Injury (Guard)	14711769.195	Left, Right, Rear Doors (Inside)	OK
7	Axis X-Y-Z Warning	14711563.135	Axis X-Y-Z	OK
8	CAUTION - Laser Radiation Class 2	14711993.180	Axis 1 (Optional)	OK
9	CAUTION - Pinch Point	14711373.130	Test area outer front cover panel	OK
10	Safety Instructions / Emergency Recovery	14711425.117	Emergency push button	OK

Maintenance Cycle 2

Status: Calibration Needed

MACHINE MODEL	MAINTENANCE DATE	CYCLE TYPE
SPEA 4080	**June 24, 2025**	**Mid-Year Maintenance**

1. Maintenance Plan Execution

CARD ID	OPERATION	INTERVAL	TIME REQUIRED	STATUS / RESULT
FP-1A	Start of work meeting	Beginning	5 min	OK NPF
FP-2A	Preliminary checks	Beginning	5 min	No Errors
FP-3A	PC hard disk drive diagnostics	Monthly	20 min	N/A
FP-4A	Virus check	Monthly	20 min	N/A
FP-5A	Hard disk space check	Monthly	5 min	55% Free Files
FP-6A	Micro filter efficiency check	Monthly	15 min	Dry / OK
FP-7A	Safety device check	Monthly	40 min	NPF / Good
FP-8A	Light check	3 Months	1 min	Completed
FP-9A	Fan efficiency check	6 Months	15 min	Completed
FP-10A	X, Y axis guides lubrication	6 Months	1 hour	Completed
FP-11A	Machine cleaning	6 Months	30 min	Completed
FP-12A	Z-axis screw tightening check	1 Year	5 min	Completed
FP-13A	Warning and safety label check	1 Year	20 min	Completed
FP-14A	PC hard disk backup procedure	1 Year	30 min	Completed
FP-15A	Multi Probe Head replacement	500k/1M Cycles	1 hour	Completed
FP-16A	Check machine against reference sample	End Cycle	30 min	Completed
FP-17A	Monitor the machine during production	End Cycle	1 hour	Completed

2. Safety Device Checks & Operational Notes

SAFETY DEVICE NAME	RESULT	NOTES
Exterior covering panels	Verified	OK
Emergency stop button	Verified	OK
Main switch	Verified	OK
Red indicator lamp and buzzer	Verified	OK
Interior panels for high-voltage protection	Verified	OK
Door locking mechanism	Verified	OK

Technician Field Notes: Calibration is needed; out of spec this month. Quote pending. Unit starting to have test issues.

3. Safety Label Compliance Check

REF	LABEL TYPE / DESCRIPTION	PART CODE	LOCATION	CONDITION
1	WARNING - Hazardous Voltage Inside	14711382.129	Line Panel	OK
2	WARNING - Magnetic Field	14711388.177	Test area	OK
3	WARNING - Hazardous Voltage	14711562.127	Instrument basket	OK
4	WARNING - Crush Hazard (Moving Parts)	14711768.187	Left, Right, Rear Doors	OK
5	WARNING - Crush Hazard Inside	14711767.179	Left, Right, Rear Doors	OK
6	WARNING - Avoid Injury (Guard)	14711769.195	Left, Right, Rear Doors (Inside)	OK
7	Axis X-Y-Z Warning	14711563.135	Axis X-Y-Z	OK
8	CAUTION - Laser Radiation Class 2	14711993.180	Axis 1 (Optional)	OK
9	CAUTION - Pinch Point	14711373.130	Test area outer front cover panel	OK
10	Safety Instructions / Emergency Recovery	14711425.117	Emergency push button	OK

SPEA Technical Intervention Report

Status: Service Completed

SYSTEM MODEL
SPEA 4080

CONTRACTOR
SPEA America LLC

INTERVENTION DATE
December 3, 2024

HIT COUNTER
6342

ECONOMIC CONDITIONS
Warranty / Free of Charge

CLASSIFICATION
SPEA Confidential

1. Executed Job Summary

#	INTERVENTION TYPE	DESCRIPTION	TIME PERIOD	HOURS	STATUS
1	Repair Intervention	Cleaned X2 encoder strip; readjusted Z2/Z3 measurement probe connections	11:45 AM – 01:45 PM	02:00	OK
2	Start / Restart Production	Ran Pt206 and gen 9 operational verification	01:45 PM – 03:00 PM	01:15	OK

2. Service Intervention Details

Findings & Corrective Actions:

Found grease on encoder strip where X2 axis was faulting out. Cleaned encoder strip thoroughly. Tester homing procedure completed with no issues. Diagnostic wiring check initially failed; discovered Z2 and Z3 measurement cables were just barely seated on the probe. Readjusted and securely re-seated all measurement cables.

3. Customer Feedback & Advisory Note

Maintenance Policy Update Notice: Tester no longer requires greasing as per the latest SPEA user manual specification. Note recorded regarding updated operational guidelines and preventive maintenance procedures.

4. Signatures & Approvals

AUTHORIZATION TYPE	CONFIRMATION STATUS	DATE CONFIRMED
SPEA Field Engineer	Digitally Confirmed	December 4, 2024
Customer Acceptance Reference	Digitally Confirmed	December 4, 2024

SPEA Technical Intervention Report

Status: Service Completed

SYSTEM MODEL **SPEA 4080**	CONTRACTOR **SPEA Charge**	INTERVENTION DATE **November 7, 2024**
HIT COUNTER **4204**	ECONOMIC CONDITIONS **SPEA Charge / Service**	CLASSIFICATION **SPEA Confidential**

1. Service Intervention Details & Diagnostics

Findings & Technical Actions:

Ran NZT calibration to reverify before cable replacement. Initial NZT failed all bottom heads measurement across every range with multiple zero values. Shut down tester, swapped YAPROCO board, and reran NZT calibration. NZT then measured with failure localized only to head 7 on the 1MΩ range. Replaced ZPROMEA7 to PRBINT/YAPROCO interconnect cables.

Attempted Z7 and Z8 motor controller swap. Ran HQ diagnostic to confirm noise presence on Head 7. Swapped Z5 and Z7 motor controllers and reprogrammed. Replaced Z7 linear motor and performed phase adjustment, successfully resolving the noise issue. Re-adjusted NZT calibration and performed data extraction, achieving passing results. Tinned flydc80 board probe wiring pad to resolve false diagnostic failures. Saved all X/Y/Z controller parameters to local C: drive and completed standard SPEA system backup procedure.

2. Signatures & Approvals

AUTHORIZATION TYPE	CONFIRMATION STATUS	DATE CONFIRMED
SPEA Field Engineer	Digitally Confirmed	November 7, 2024
Customer Acceptance Reference	Digitally Confirmed	November 7, 2024