

Sillitoe Disk Mastering System (SDMS) 2021/ 2022 Hardware Reference Manual

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
<b>SDMS</b>	Sillitoe Disk Mastering System	This document, associated images, assembly manuals, instruction manuals, videos & other information provided to clients is intended to educate & aid effective communication. Please familiarise yourself with it prior to contacting Sillitoe with any questions. Translation from English (if required) is the responsibility of the client.	Sillitoe reserves the right to charge clients for training time & additional resources/ materials. All intellectual property including this document, associated images, assembly manuals, instructional manuals, videos & other information provided to clients is owned by Sillitoe Audio Technology PTY LTD and shall not be distributed by any other party.	Please do not share images of subsystems with covers removed.	SDMS toolkit available on request. <ul style="list-style-type: none"> <li>•1.3mm hex key.</li> <li>•2mm hex key.</li> <li>•2.5mm hex key.</li> <li>•3mm hex key.</li> <li>•4mm hex key.</li> <li>•5mm hex key.</li> <li>•Engineers square (recommended, not essential for bracket alignment).</li> <li>•Slotted screwdriver (small).</li> <li>•Slotted screwdriver.</li> <li>•Stylus Tool (provided).</li> <li>•Stylus Tweezers.</li> <li>•Stylus Inspection Scope (provided).</li> <li>•Laser Focus Tool (provided with Stylus Alignment Laser).</li> <li>•Torque wrench (recommended).</li> <li>•Air Blower (manual, filtered for dust removal from disk).</li> <li>•Test LP (NAB).</li> </ul>	1
<b>Cutterhead</b>	MMFB Cutterhead	Stereo transducer assembly with moving magnet negative feedback & adjustable stylus rake angle. Drives heated cutting stylus, transcribing Master Control audio signal to disk groove geometry.	Cutterhead is not covered by warranty. Handle & operate with care. Extremely fragile elements within assembly. No user serviceable parts. Do not attempt to modify or remove screws. Follow instructions carefully. Use supplied tools.	Only operate with Sillitoe Master Control Integrated Cutting Amplifier & supplied cables. Unauthorised Cutterhead service/ modification will void Master Control integrated cutting amplifier warranty. Requires DSP pre-emphasis to achieve flat response.	2.5mm hex key. Stylus Tool. Stylus Inspection Scope. Precision Stylus Inspection Scope (optional).	2
	Torque Tube	Red bar with aperture for mounting cutting stylus. Tapered stylus holder mates with Torque Tube aperture via <u>light</u> press fit. Cutting stylus is inserted into torque tube aperture with flat cutting surface oriented towards rear of cutterhead.	Follow instructions carefully. Use supplied tools.	Neumann SX type cutting styli. Micro-Point NSH-2 & NSH-2S recommended for lacquer.	Stylus Tool. Stylus Inspection Scope. Precision Stylus Inspection Scope (optional).	2
	Feedback Armature	Moving Magnet Feedback system.	Extremely fragile elements within assembly. No user serviceable parts. Do not attempt to remove screws.	Novel design. Incompatible with 3rd party cutting amplifiers.		2

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	Stylus Heater Terminals	Gold split contacts. Stylus heating wire threaded through and wound around terminal.	⚠ IMPORTANT ⚠ Risk of Fire. Follow installation instructions carefully. Do not let wire touch the torque tube or any other part of the cutterhead while in operation. Monitor that chip is being effectively collected during heated lacquer cut.	Future upgrade to include spring-loaded terminals for quick termination.		2
	Mounting Bracket	Connects Cutterhead to Suspension Box. Pivot Bar clamps onto stem. Mounts to Stylus Inspection Scope/s.	Follow instructions carefully. Use tools supplied.	See Pivot Bar & Stylus Inspection Scopes.	2.5mm hex key. Slotted screwdriver. Stylus Inspection Scope.	2
	SRAA	Stylus Rake Angle Adjustment stage. Lefthand side thumbscrew locks/unlocks stage allowing turning of the top knob for angle adjustment.	Do not over-tighten locking screw.	+7° default setting for lacquer cutting with MMFB Cutterhead.		2
	Front Cover	Cover protects extremely fragile wiring.	No user serviceable parts. Do not remove screws due to high risk of damage.			2
	Drive Cable & Connector	Blue/ Brown/ White pigtail cable. Connects to Suspension Box Drive output.	Handle with care. Follow instructions.			2
	Feedback Cable & Connector	Red/ Pink/ Yellow pigtail cable. Connects to Suspension Box Feedback input.	Handle with care. Do not operate system when disconnected.			2
	Stylus Heat Cable & Connector	Orange/ Black pigtail cable. Connects to Suspension Box Stylus Heat output.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during heated lacquer cut. Handle with care, Follow instructions.			2
<b>Stylus Inspection Scope</b>		Cutting stylus mounting, positioning & inspection. Recessed area to orient cutterhead parallel to Platter, ensuring cutting stylus is set perpendicular disk surface.	Follow instructions. Handle cutterhead & cutting styli with care.	Can be used for QC Assembly alignment to Chassis (see assembly & adjustment).	Slotted screwdriver. 1.5mm hex key. Stylus Tool.	2
	STH	Cutterhead attachment.		Hardware to mount Cutterhead. Interfaces with STS Scope attachment.	2mm hex key. Slotted screwdriver. Stylus Tool.	2
	STS	Scope attachment.		Align STS with Torque Tube aperture via Scope.	2mm hex key.	2

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	Scope	Stylus magnifier. 40X magnification		Measurement eyepiece with 0.02mm divisions.		2
<b>Precision Stylus Inspection Scope</b>	PSIS	Cutting stylus mounting, accurate positioning & inspection. Precision magnifier focusing & focus lock for inspection of cutting tip and cutting face. Coarse & precision cutterhead rotation with position lock.	Handle cutting styli with care. Follow instructions.	Optional accessory. Use supplied tools. Separate instructions available with purchase.	Slotted screwdriver. 1.5mm hex key. Stylus Tool.	No image in this HRM version.
<b>Stylus Tool</b>		Tool for fitting and orientation of cutting stylus in cutterhead torque tube.	Handle cutting styli with care. Follow instructions.	Fork straddles jewel. Recessed area interfaces with stylus holder square plane and is used to apply <u>light</u> pressure to fit into Torque Tube aperture.		2
<b>Suspension Box</b>		Mechanical positioning & suspension of cutterhead with precision global adjustment of compliance, damping, groove depth and chip pickup. Contains actuators for head drop/ lift & variable groove depth capable of operating in manual & automatic control modes. Houses cutterhead Drive, Feedback & Stylus Heat input & output connectors. Feedback line level gain stage with differential outputs.	Factory calibrated. Do not make any adjustments prior to initial test cuts. Only suitable for use with Sillitoe STC & associated cables. Handle with care.	Capacity for suspension & control of a wide variety of 3rd party cutterheads. Custom mounts & alternative compliance ranges available on request. (Preamp stage is suitable only for Sillitoe cutterheads). No oil required for damping.	Slotted screwdriver. 1.3mm hex key. 1.5mm hex key. 2mm hex key. 2.5mm hex key. 3mm hex key.	3, 4 & 5
	Arm Mount Plate	Connects Suspension Box to Arm via 4x dowel pins (preassembled in arm) & 4x M4 hex screws (supplied).	Follow instructions carefully during installation of Suspension Box onto arm.		3mm hex key.	3, 4 & 5
	Z Axis Stage (coarse)	Adjusts Suspension Box +/-10mm in Z axis.	Leave at factory set position for use with Sillitoe MMFB Cutterhead.	Used for alignment of third party Cutterheads.		3 & 5
	Y Axis Stage	Adjusts Suspension Box +/-10mm in Y axis.	Leave at factory set position for initial test cuts.	Stylus Alignment Laser option recommended.		3 & 5
	Z Axis Stage (fine)	Adjusts Suspension Box +/-6.5mm in Z axis with 0.01mm resolution.	Leave at factory set position for initial test cuts.			3 & 5

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	Pivot Bar	Sets the global pitch axis of the Cutterhead which “floats”, suspended from a damped spring in front of the fulcrum, controlled within an electromagnetic field acting on the rear of the bar.	Follow Cutterhead mounting & alignment instructions carefully.	Cutterhead connects to Pivot Bar via two slotted screws (front of suspension box) and clamp (accessible with 2.5mm hex key via slot at left side of the suspension box).	2.5mm hex key. Slotted screwdriver.	5
	Compliance	Spring adjustment.	Factory calibrated. Leave at factory set position for use with Sillitoe MMFB Cutterhead.	Adjustment micrometer head is locked & unlocked via grub screw by 1.5mm hex key.	1.5mm hex key.	3 & 5
	Damper	Pitch axis damping.	Factory calibrated. Leave at factory set position for use with Sillitoe MMFB Cutterhead.	No oil required for damping.	Slotted screwdriver.	3 & 5
	Front Panel	Cover.	No user serviceable parts.	Only remove under instruction from Sillitoe Audio Technology.	2mm hex key.	3, 4 & 5
	Middle Panel	Structurally Integral. Never remove screws.	No user serviceable parts.	Do not attempt removal.		4 & 5
	Large Panel	Cover.	No user serviceable parts.	Only remove under instruction from Sillitoe Audio Technology.	2mm hex key.	4 & 5
	Rear Panel	Cover.	No user serviceable parts.	Do not attempt removal.		4 & 5
	Remote Preamp Panel	Cover.	Remote preamp is factory calibrated.	Only remove under instruction from Sillitoe Audio Technology.	Small slotted screwdriver.	3
	Drop/ Lift/ Depth Input	Connects to Space/ Time Control via Sus- Box cable.	Only operate with supplied Sillitoe Space/ Time Control & Sus- Box cable.			4
	Drive Input	Connects to Master Control Integrated Cutting Amplifier Drive Output via Drive Cable.	Only operate with Master Control & supplied Sillitoe Drive cable.			4
	Drive Output	Connects to Cutterhead via Blue/ Brown/ White pigtail cable.	Only operate with supplied Sillitoe MMFB Stereo Cutterhead			3
	Feedback Input	Connects to Cutterhead via Red/ Pink/ Yellow pigtail cable.	Only operate with supplied Sillitoe MMFB Stereo Cutterhead. Contact Sillitoe for polarity confirmation prior to using a MMFB cutterhead purchased on the secondhand market.			3
	Feedback Output	Connects to Master Control Integrated Cutting Amplifier Feedback Input via Feedback Cable.	Only operate with Master Control & supplied Sillitoe Feedback cable.			4

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Stylus Heat Input	Connects to Space/ Time Control Heat output via Heat cable.	⚠ IMPORTANT ⚠ Risk of Fire. Only operate with Space/ Time Control & supplied Sillitoe Heat cable. Vacuum chip collection must be used when cutting lacquer with heated stylus. Monitor that chip is being collected during cut. Inspect tube & hosing for chip regularly or if Pump operating noise changes.			4
	Stylus Heat Output	Connects to Cutterhead via orange/ Black pigtail cable.	⚠ IMPORTANT ⚠ Risk of Fire. Only operate with supplied Sillitoe MMFB Stereo Cutterhead. Vacuum chip collection must be used when cutting lacquer with heated stylus. Monitor that chip is being collected during cut. Inspect tube & hosing for chip regularly or if Pump operating noise changes.			3
	Chip Pickup Z Axis	Adjusts Chip Pickup Tube +/-3mm in Z axis with 0.01mm resolution.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that Chip Pickup Tube is positioned correctly & chip is being collected during cut.		1.3mm hex key to attach Y Axis Bracket to the Z Axis.	4 & 5
<b>Chip Pickup Assembly</b>		Chip Pickup Y Axis stage, brackets & Chip Pickup Tube ship separately from Suspension Box.	⚠ IMPORTANT ⚠ Risk of Fire. Vacuum chip collection must be used when cutting lacquer with heated stylus. Monitor that chip is being collected during cut. Inspect tube & hosing for chip regularly or if Pump operating noise changes.			4 & 5
	Chip YZ Bracket	Connects Chip Pickup Y Axis to Z Axis via 4x M2 countersunk screws.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that Chip Pickup Tube is positioned correctly & chip is being collected during cut.		1.3mm hex key to attach Y axis bracket to the Z axis.	4

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Chip Pickup Y Axis	Adjusts Chip Pickup Tube +/-3mm in Y axis with 0.01mm resolution.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that Chip Pickup Tube is positioned correctly & chip is being collected during cut.			4 & 5
	Chip Pickup Tube	Vacuum suction to collect cut chip. Rear connects to Chip Hose.	⚠ IMPORTANT ⚠ Risk of Fire. Vacuum chip collection must be used when cutting lacquer with heated stylus. Monitor that chip is being collected during cut. Inspect tube & hosing for chip regularly or if Pump operating noise changes.	Factory calibrated. Do not remove the bracket holding the Chip Pickup tube. Do not attempt to adjust the slotted head Chip Pickup Tube clamping screws.		4 & 5
<b>QC Assembly</b>		Quality Control assembly Consists of Groove Inspection Scope & hardware to position the microscope and tonearm relative to the disk.			5mm hex key. 2mm hex key. Stylus Inspection Scope.	6
	Mounting Bracket	Mounts to Lathe Baseplate via 3x M6 hex screws.	Do not remove any screws (other than 3x M6 hex) unless under Instruction from Sillitoe.	Engineers square (recommended for alignment to Chassis).	5mm hex key. Stylus Inspection Scope.	6
	Groove Inspection Scope	Visual quality control of cut disk. Measurement of groove width & land. Default magnification 200X (10X objective, 20X eyepiece). C-mount camera attachment & Bright-field Lighting included.		Also used for levelling of Vacuum Platter.		6
	Eyepiece	20X magnification for 200X total magnification. Measurement graticule in eyepiece.		Each division= 5um. 50um between each number when using the standard 10X objective. Other magnifications available on request.		6
	Camera Mount	C-mount camera attachment enables remote viewing.		Camera is not a necessity for disk mastering workflow.		6
	Objective	10X magnification objective included as standard.		Other magnifications available on request.		6
	Bright-field Lighting	Standard lighting. Provides clear (silhouette type) view of groove/ land edges. Connects to Space/ Time Control Scope output.		Operate only with Sillitoe Space/ Time Control.		6
	Scope Focus	Precision Z axis adjustment for focusing on disk surface.	6			6



Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	X Axis Scope Stage	Scope traverses disk radius. Scale markings are not calibrated to disk.				6
	RIAA Disk Diameter Scale (Microscope version)	Scale with 0.5mm markings + RIAA standard Disk Ø, Start, Program, Stop & Lock indicators. Calibrated to the X Axis Scope Adjustment hardware.		Optional accessory. Provides scope positioning for disk quality control using software automation groove warning references.		No image in this HRM version.
	Tonearm Mount	Fixed mount for standard SAT-16T tonearm.			2mm hex key.	6
	Tonearm Rest	Seat for Tonearm Wand.			2mm hex key.	6
	Universal Tonearm Bracket	Mounting option suitable for wide variety of arms.		Optional accessory. Custom tonearm specific hardware on request.		No image in this HRM version.
	Darkfield Scope Lighting	Allows for viewing of groove walls. Mounts to objective lens.		Optional accessory.	1.5mm hex key.	No image in this HRM version.
	10X Eyepiece	For 100X total magnification. Measurement graticule in eyepiece.		Optional accessory. Each division= 5um. 50um between each number when using the standard 10X objective.		No image in this HRM version.
<b>Tonearm</b>	SAT-16T	Standard playback tonearm for monitoring of test cuts on the lathe.	Standard tonearm is <u>not</u> a “reference” grade instrument. Minimal design, included primarily for stylus heat noise floor tests. Sillitoe highly recommends use of both reference & consumer grade turntables/ tonearms/ cartridges for “2nd opinion” QC of calibration & test cuts/ pressings. Follow installation instructions carefully.	Options available- See Universal Tonearm Bracket. Master Control Playback preamp calibrated using 2M Black. Sillitoe 5 pin Phono Cable can be used to monitor some 3rd party turntables via Master Control Integrated Cutting Amplifier for metering & monitoring. Custom cable options available on request.	2mm hex key. Slotted screwdriver (small). Digital scale. (Sillitoe will offer a model in future). Common 200g 0.01g resolution models recommended.	6
	Pillar	Attaches to QC Assembly Tonearm Mount. Houses 5 pin Phono Cable connector.	Pillar positioning is critical to tracking performance. Follow instructions carefully.		2mm hex key.	6
	Crown	Wand motion in yaw axis. Pivot attaches within Crown via 2x slotted screws for setting pivot bearing pressure.		Yaw axis bearing is factory set. May exhibit some endplay during handling. Provides accurate operation when tonearm is setup correctly.		6
	Pivot	Wand motion in pitch axis.	Pivot bearing pressure is critical to tracking performance.		Slotted screwdriver (small).	6

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Wand	Standard headshell connector. Sliding Wand Weight sets tracking force.				6
	Counterweight	Balances wand with cartridge.		Heavier version available on request.		6
	Wand Weight	Sliding Wand weight sets tracking force.			Digital scale (common 200g, 0.01g resolution models recommended).	6
RIAA Disk Ø Scale (Carriage) & Indicator	RIAA Disk Ø Scale (Carriage) & Indicator	Scale with 0.5mm markings + RIAA standard Disk Ø, Start, Program, Stop & Lock indicators.	Accurate positioning is important.	Optional accessory. Mount the Indicator to the carriage using the two 2mm hex screws provided. Engineers square is recommended to aid in mounting the Scale. Peel the double sided tape backing off & position the Scale 48mm in from the right-hand side of Lathe Body with the millimetre increment markings under tip of the indicator.	1.3mm hex key.	3
Chassis		Assembly consisting of planes onto which Rail, Leadscrew, Limit Stops QC Assembly & Turntable Shaft mount.		Components available in Gray Iron on request.	1.3mm hex key. 3mm hex key. 4mm hex key. 5mm hex key. Slotted screwdriver (small). Scale Positioning Template. Focus tool.	7
	Vibration Isolation Mounts	Decoupling of lathe from external vibrations.		Revised mounts (higher durometer) will become available for 2021 preorder systems. Currently testing REV2 parts for improved performance. See Stand notes for additional isolation options depending on installation environment.		7
	Baseplate	Interface between Stand & Lathe Body. Connected to stand via 4x anti-vibration mounts. QC Assembly attaches to Baseplate.	Only remove screws if performing turntable motor retrofit under instruction from Sillitoe.	2021 preorder clients See Retrofit instructions.	5mm hex key.	7
	Lathe Body	Plate to which Turntable Shaft, Rail & Leadscrew are mounted.	Only remove screws if performing turntable motor retrofit under instruction from Sillitoe.	2021 preorder clients See Retrofit instructions. Alternative (to Microscope method) datum for Vacuum Platter levelling with dial indicator.	5mm hex key.	7



Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Rail	Cutterhead traverses disk radius as Carriage travels on rail.	Factory calibrated. Do not remove screws.			7
	Carriage	Leadscrew driven on Rail, traverses Arm, Suspension Box & Cutterhead over disk radius.	Factory calibrated. Do not remove screws.			7
	Arm	Support for Suspension Box & Stylus Alignment Laser.			3mm hex key.	7
	Stylus Alignment Laser	Provides laser reference for accurate alignment of cutting stylus with turntable spindle.		Optional accessory.	Laser Focus Tool.	7
	Leadscrew	Translates Pitch Motor rotary motion to linear actuation of Carriage, Arm, Suspension Box & Cutterhead over disk radius.	Factory calibrated. Do not remove screws.			7
	Carriage Nut	Interface between Leadscrew & Carriage.	Do not adjust spring bolt preload unless under instruction from Sillitoe.	Factory calibrated. Play of Carriage on Rail is not an issue (there is zero play during operation). Microswitch mounts onto Carriage Nut via 2x M1.2 screws.	Slotted screwdriver (small).	7
	LS Pulley	Drives Leadscrew via Pitch Motor Belt.				7
	Limit Stops	Set end positions for Carriage travel. Pitch Motor power is disabled when Microswitch engaged.	Leave at factory set positions unless performing turntable motor retrofit under instruction from Sillitoe.	See Microswitch section below.	3mm hex key.	No image in this HRM version.
<b>Pitch Motor Assembly</b>		Assembly consisting of Pitch Motor and associated mounting hardware.			3mm hex key.	4
	Pitch Motor	Rotary motion of PM Pulley drives Leadscrew via Belt resulting in linear motion of Carriage, Arm, Suspension Box & Cutterhead over disk radius.				4
	Pitch cable	Connects to Space/ Time Control Pitch output.	Do not bend.	Future option will include Carriage position reference for automation software. Modification to motor, wiring & Space/ Time Control.		4

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Microswitch	Disables Pitch Motor power when Microswitch is engaged by Limit Stops. Mounts to Carriage Nut via 2x M1.2 screws.	Incorrect installation may result in damage to cutting stylus, Cutterhead and Belt.	Correct installation of Microswitch onto Carriage Nut is essential for contact with Limit Stops. Follow instructions carefully.	Slotted screwdriver (small).	4
	PM Pulley	Drives LS Pulley via Belt.				1 & 4
	Belt	Timing belt transfers motion from Pitch Motor to Leadscrew.		Alternative belt lengths available on request (in the case or remote mounting of Pitch Motor).		1 & 4
	PM Bracket	Adjustable within PM Mounting Bracket. Allows for alternative Belt & Pulley combinations.	Factory calibrated. Do not make any adjustments prior to consultation with Sillitoe.			4
	PM Mounting Bracket	Clamps to Stand via 3x M6 grub screws. Positioned for alignment of Motor Pulley parallel with Leadscrew Pulley.	Incorrect installation may result in audible vibration on disk.	Can be mounted remotely to reduce audible vibration transferred to disk.		4
<b>Platter Assembly</b>		Vacuum disk holding chuck.		2021 preorder clients See Retrofit instructions.	3mm hex key. 4mm hex key. Slotted screwdriver.	1, 5 & 8
	Vacuum Platter	14" Platter. Vacuum suction Ø selectable between 7"/ 10"/ 12"/ 14".		2021 preorder clients See Retrofit instructions.	3mm hex key.	1 & 8
	Spindle	Disk center spigot.	Do not attempt to remove from Vacuum Platter.	See retrofit instructions for early collection (prior to retrofit availability) 2021 preorder systems.		1 & 8
	Disk Ø Selector	Slotted screwdriver selects airflow to disk Ø between 7"/ 10"/ 12"/ 14".	⚠ IMPORTANT ⚠ Risk of Fire. Ensure correct disk Ø is selected when cutting lacquer with heated stylus.	Do not attempt to remove from Vacuum Platter.	Slotted screwdriver.	1
	Sub- Platter	Interface between turntable Shaft & Vacuum Platter. Connects to Sub-Platter Junction via 3x M6 countersunk screws. 3x Levelling Screws adjust Vacuum Platter. Connects to Vacuum Platter via 3x M5 Fixings.			3mm hex key. 4mm hex key.	5 & 8
	Levelling Screws	3x point adjustment screws housed in Sub-Platter. Set Vacuum Platter surface perpendicular to the shaft.	Factory preset. Do not adjust prior to following Platter to Sub- Platter assembly instructions.	Levelling via Groove Inspection Scope focused on the surface of the Vacuum Platter grain.		8

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
<b>Shaft Assembly</b>		Precision rotation for Platter Assembly.	Factory calibrated. Do not attempt to disassemble or remove screws.	2021 preorder clients See Retrofit instructions.	4mm hex key.	5 & 8
	Shaft Mount	Plane to which Shaft Housing is attached via 3x M6 countersunk screws.	Factory calibrated. Do not attempt to remove screws.	Integrated into Lathe Body in 2022 preorder systems. Reference made here only for 2021 preorder clients performing turntable motor retrofit under instruction from Sillitoe.	4mm hex key.	5 & 8
	Shaft Housing	Turntable shaft bearing assembly fitted to Shaft Mount via 3x M6 countersunk screws.	Factory calibrated. Do not attempt to remove screws.	2021 preorder clients See Retrofit instructions.	4mm hex key.	5 & 8
	Shaft	Mates with TTM Adapter & TTM air.	Follow assembly instructions carefully.	2021 preorder clients See Retrofit instructions.		5 & 8
	Sub-Platter Junction	Sub-Platter attaches via 3x M6 countersunk screws.	Factory calibrated. Do not attempt to remove clamping screw.		4mm hex key.	5
<b>Scribe Platform</b>	Platform & Clamp	Clamps to Platter for stable leaning surface while marking dead wax.		Optional accessory. Clamp secures platform with centre spindle and Platter edge.		No image in this HRM version.
<b>Stand</b>		System support.	Mount stand in low vibration environment or on damped surface for best isolation of external vibration to groove geometry.	Sillitoe can provide custom stand with additional RU space & optional passive or active isolation platform.	5mm hex key.	1
	Frame	Black powder coat steel. Recessed top platform for Chassis mounting via 4x M6 hex screws. Lower bar for clamping Turntable Motor & Pitch Motor.	Do not remove tape. Marking for subsystem attachment points.		5mm hex key.	1
	Feet	4x adjustable levelling feet, M6 thread.				1
	Rack Rails	4RU 19" with 8x captive nuts for mounting Master Control & Space/ Time Control.		Sillitoe recommends placing the Master Control in the upper 2RU & Space/ Time Control in the lower 2RU.		1
<b>Turntable Motor</b>		High resolution closed loop direct drive tuned with mechanical system. 2.2Nm torque.	⚠ IMPORTANT ⚠ Risk of injury. Keep clear of rotating parts during operation. Do not leave children unattended with SDMS or operate with children in the vicinity.	2021 preorder clients See Retrofit instructions. Option for online retuning once installed.	3mm hex key. 5mm hex key. Phillips screwdriver.	8 & 9

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	TTM Bracket	Holds TTM Body. Clamps to Frame via 3x M6 hex grub screws.	Observe positioning Instructions carefully.	2021 preorder clients See Retrofit instructions.	3mm hex key.	8 & 9
	TTM Phase	Terminal block connector for Turntable Motor phase wiring to Motor Phase Cable. Attaches to TTM Bracket via 4x M4 hex screws. Wiring clamped via Phillips screws.	Observe wiring Instructions carefully.	2021 preorder clients See Retrofit instructions.	3mm hex key. Phillips screwdriver.	9
	TTM Sensor	Terminal block connector for Turntable Motor Sensor wiring to Motor Sensor Cable. Attaches to TTM Bracket via 4x M4 hex screws. Wiring clamped via Phillips screws.	Observe wiring Instructions carefully.	2021 preorder clients See Retrofit instructions.	3mm hex key. Phillips screwdriver.	9
	TTM Body	Motor housing, attaches to TTM Bracket via 4x M6 hex screws.		2021 preorder clients See Retrofit instructions.	5mm hex key.	8 & 9
	TTM Outlet	Vacuum platter airflow connector. Mates with VP hose.		Push in to mate. Push in ring to release. 2021 preorder clients See Retrofit instructions.		9
	TTM Foot	Base of Turntable Motor. Housing high resolution sensor.	No user serviceable parts. Do not attempt to remove screws. High risk of damage.			8 & 9
	TTM Rotor	Rotates when in operation. Couples to TTM Adapter via TTM Isolators.	High risk of damage. No user serviceable parts. Do not attempt to remove screws.	2021 preorder clients See Retrofit instructions.		8 & 9
	TTM Spindle	Vacuum suction flows between TT Spindle & Shaft via TTM Air anitvibration sleeve.		2021 preorder clients See Retrofit instructions.		8
	TTM Air	Antivibration sleeve for vacuum flow between TTM Spindle & Shaft.	Follow assembly instructions carefully.	2021 preorder clients See Retrofit instructions.		8
	TTM Adapter	Clamps to Shaft & interfaces with TTM Rotor via TTM Isolators.	Leave in assembled state unless under instruction from Sillitoe.	2021 preorder clients See Retrofit instructions. Currently testing REV2 parts for improved performance.	5mm hex key long T handle.	8
	TTM Isolators	3x anti-vibration couplings joining TTM Adapter to TTM Rotor.	Leave in assembled state unless under instruction from Sillitoe.	2021 preorder clients See Retrofit instructions. Currently testing REV2 parts for improved performance.		8
	TTM Upper Washers	3x anti-vibration interfaces joining TTM Adapter to TTM Rotor.	Leave in assembled state unless under instruction from Sillitoe.	2021 preorder clients See Retrofit instructions.		8

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	TTM Lower Washers	3x anti-vibration interfaces joining TTM Adapter to TTM Rotor.	Leave in assembled state unless under instruction from Sillitoe.	2021 preorder clients See Retrofit instructions.		8
	TTM Phase Cable	Cable for TTM Phases. Connect to STC Turntable (upper) output.	Observe wiring Instructions carefully.			9
	TTM Sensor Cable	Dual cable for TTM sensors. Connect to STC Turntable (lower) input. Ferrule ends connect to TTM Sensor terminal block.	No user serviceable parts. Do not remove screws from TTM Foot due to high risk of damage. Observe wiring Instructions carefully.	Remains connected to Turntable Motor at all times. Ferrule ends connect to TTM Sensor terminal block.		9
<b>Vacuum system</b>		Low noise vacuum for disk hold & chip collection.	⚠ IMPORTANT ⚠ Risk of Fire. Vacuum chip collection must be used when cutting lacquer with heated stylus. Monitor that chip is being collected during cut. Inspect tube & hosing for chip regularly or if Pump operating noise changes.			10
	Pump	Connects to Jar Pump Inlet via Pump Hose. Powered by Space/ Time Control via Vacuum cable.	⚠ IMPORTANT ⚠ Risk of Fire. Power only from Space/ Time Control Vacuum output. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes. Do not operate if hose/s clogged.	Decouple from lathe mounting platform/ surface. Space/ Time Control may need 240V power to achieve required suction.		10
	Jar	Chip collection Jar. Distributes suction for chip pickup via Chip Hose & to Vacuum Platter for disk retention via VP Hose.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes. Handle carefully.			10
	Pump Hose	Antistatic hosing connected between J-P & Pump.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes.	Interchangeable with Chip Hose. Longer lengths available on request.		10

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Chip Hose	Antistatic hosing connected between J-C & Chip Pickup Tube.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes.	Interchangeable with Pump Hose. Longer lengths available on request. Clear hosing available (enabling visual inspection) if chip regularly builds up inside hose.		10
	VP Hose	Red 6mm OD hosing connected between J-VP & TTM Outlet.		Longer lengths available on request.		10
	J-P	Jar connection to Pump Hose.	Handle carefully.	Push on Pump Hose.		10
	J-C	Jar connection to Chip Hose.	Handle carefully.	Push on Chip Hose.		10
	J-VP	Jar connection to VP Hose.	Handle carefully.	Push in VP Hose.		10
<b>Space / Time Control (STC)</b>		19" rack mount manual lathe controls & automation computer.	No user serviceable parts. Do not remove screws unless under Instruction from Sillitoe.	Automation computer is software driven for pitch, depth & head drop/ lift.		11 & 12
<b>STC Font Panel</b>						11
	Turntable Speed Selector	4x LED pushbuttons select between 16.6 / 22.5 / 33.3 / 45 rpm.		Defaults to 16.6 rpm upon power on.		11
	Turntable On/ Off	Enable/ disable Turntable Motor.	⚠ IMPORTANT ⚠ Risk of injury. Keep clear of rotating parts during operation. Do not leave children unattended with SDMS or operate with children in the vicinity.			11
	Light On/ Off	Microscope lighting enable/ disable.		See instructions for optional Darkfield lighting.		11
	Light brightness	Microscope lighting intensity.		See instructions for optional Darkfield lighting.		11
	Depth Manual/ Automatic	Groove depth actuator control mode via pushbutton LED switch. Select between manual (LED off) & automatic (LED green).	Risk of damage to cutting styli, cutterhead & STC. Do not switch between manual & auto control modes during cut. Do not operate in automatic mode without software automation active.	Operating in automatic mode without software automation active will result in depth actuator maximum current.		11
	Depth I	Manual Depth mode 1. Basic depth potentiometer. Depth actuator current reading shown on Heat meter.		Basic depth is used when cutting program material.	Slotted screwdriver (medium).	11



Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Depth II	Manual Depth mode 2. Second depth. Current reading shown on Heat meter.		Second depth can be set to cut deeper groove during lead in, track space (mark) & lead out.	Slotted screwdriver (small).	11
	Depth I/ II	Switch between manual depth modes 1 & 2, Basic & Second depth.		Switch auto-returns to mode 1 when released.		11
	Carriage (Pitch) Manual/ Automatic	Carriage control mode via pushbutton LED switch. Select between manual (LED off) & software automation (LED green).		Future option- Carriage position reference for automation software. Modification to motor wiring & Space/ Time Control.		11
	Carriage F/ R	Carriage direction. Switch active in both manual & software automation modes.		Future option- Carriage position reference for automation software. Modification to motor wiring & Space/ Time Control.		11
	Carriage Limit	Pitch motor microswitch power disable override (applies power to pitch motor when switched). Switch active in both manual & software automation modes.	Follow operating instructions carefully.			11
	XISSOX	Manual Carriage positioning mode. X= No carriage motion. IN = Lead In (set via In trimpot). SPEED = Program pitch (set via Speed switch). SPACE = track space/ mark (set via Space trimpot). OUT = Lead out (set via Out trimpot). X = No carriage motion (used for locked groove).	Follow operating instructions carefully.			11
	SPEED	Manual Carriage positioning. Active when XISSOX switch set to SPEED. Higher number indicates lower carriage velocity.	Follow operating instructions carefully.			11
	IN	Lead in trimpot sets the IN value for XISSOX Carriage positioning switch.			Slotted screwdriver (small).	11
	SPACE	Track spacing trimpot sets SPACE value for XISSOX Carriage positioning switch.		Sometimes referred to as mark.	Slotted screwdriver (small).	11
	OUT	Lead out value for XISSOX Carriage positioning switch.		Sometimes referred to as spiral.	Slotted screwdriver (small).	11

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Head Manual/ Automatic	Cutterhead Drop/ Lift control mode via pushbutton LED switch. Select between manual & software automation.		Dual function LED indicator/ pushbutton switch. Manual mode operation (LED off). Software automation operation (LED green).		11
	Head L/ D	Manual control of Cutterhead drop/ lift actuator.		Momentary switch operation (switch lever auto-returns to centre position). Cutterhead lift when switched to “up” position. Cutterhead drop when switched to “down” position.		11
	Power	STC power on/ off.		Power on when switched to “up” position.		11
	Heat Meter	Depth current monitor. (Previously switchable between monitoring stylus Heat & Depth actuator current).		May be reviewed in future. 2021/22 preorder STC have had stylus heating removed. Heat meter shows depth current only. Stylus heat current monitoring via user supplied DC PSU.		11
	Heat Switch	Switches Vacuum Pump power & Stylus Heat connection on/ off.	⚠ IMPORTANT ⚠ Risk of Fire. Vacuum chip collection must be used when cutting lacquer with heated stylus. Only power Vacuum Pump from Space/ Time Control Vacuum output. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes. Do not operate if hose/s clogged.	On when toggle switched to “up” position.		11
	Meter Heat/ Depth	NA		Not currently used.		11
	Heat Pot	NA		Not currently used.		11
<b>STC Rear Panel</b>				Use only with Sillitoe supplied STC Cables.		12
	IEC Connector	Fused mains power input.		Fuse F 4H 250V		12

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Vacuum	Power to Vacuum Pump. Switched on/ off via Heat switch on front Panel.	⚠ IMPORTANT ⚠ Risk of Fire. Vacuum chip collection must be used when cutting lacquer with heated stylus. Only power Vacuum Pump from Space/ Time Control Vacuum output. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes. Do not operate if hose/s clogged.	Switched on/ off via front Panel Heat switch which also switches stylus heater on/ off.		12
	Pitch	Pitch Motor connector.		Future option, Carriage position reference for automation software. Modification to motor wiring & Space/ Time Control rear panel.		12
	Aux- DC	STC 2021/22 preorder systems Aux- DC is connected to Heat output via Heat switch. For use with user supplied DC PSU for stylus heating.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes.	See stylus heating instructions.		12
	Heat	Connects to Suspension Box via Heat Cable.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes.			12
	Sus-Box	Connects to Suspension Box via Sus- Box cable to control head drop/ lift & groove depth.				12
	Turntable (upper)	Turntable Motor Phase output.				12
	Turntable (lower)	Turntable Motor Sensors input.				12
	Scope	Groove inspection scope lighting output.				12
	USB- Out	USB type A		STC USB hub output for less computer connections.		12
	USB- In	USB type B		Connects to STC internal USB hub & automation computer.		12
<b>Cables STC</b>		Space/ Time Control to lathe interconnects.		Use only with Sillitoe STC.		13, 14, 15 & 16

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Sus- Box cable	Grey cable. Both ends of cable have same male connectors.				13
	Heat Cable	Black cable. Screw- on DC connectors.				14
	Vacuum Cable	Black cable. PowerCON to female 3 pole connector.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes.	Vacuum Pump power.		15
	Aux DC Cable	SDMS 2021/22 preorder systems Aux- DC is connected to Heat output via Heat switch. For use with user supplied DC PSU for stylus heating.	⚠ IMPORTANT ⚠ Risk of Fire. Monitor that chip is being effectively collected during cut. Inspect hosing for chip regularly or if Pump operating noise changes.	See stylus heating instructions.		16
	USB Cable (input)	Standard A to B usb cable. (Not provided).		Connects user computer to STC internal USB hub & automation computer.		NA
	USB Cable (output)	Standard A to B usb cable. (Not provided).		STC USB hub output for less computer connections.		NA
<b>Master Control (MC)</b>		19" rack mount audio control.	No user serviceable parts. Do not remove screws unless under Instruction from Sillitoe.			17 & 18
<b>MC Front Panel</b>						17
	Input D/ A	Switches Source audio input between internal USB DAC & Analog inputs (rear panel XLR's).		DAC source selected when switched to "down" position. XLR source when switched to "up" position. Sillitoe recommends using USB DAC levels for reference when calibrating Analog input for cutting source.		17
	Source LCD	DAC settings display.	Follow operating instructions carefully. Leave DAC set to USB mode.	MC can be used as class compliant DAC with VUPPM metering via USB input & XLR monitor outputs (0dBFS = +14dBu.		17

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
	Gain	DAC control. Combination pushbutton & rotary encoder.	Follow operating instructions carefully. Ensure DAC is set to USB mode.	Pushbutton functions- wake/ sleep & DAC input source. Rotary encoder gain (DAC). Previous level setting is saved and recalled when powered on.		17
	Monitor FB/ IN/ PH	3 way rotary switch for selection of Monitor outputs source (rear panel XLR's) & VUPPM Level metering. Select between Source Input (centre position), Cutterhead Feedback (left position)& Phono Playback (right position).		IN monitor is pre SFP Preamp gain, taken directly from the DAC output (or rear panel Analog XLR's depending on D/ A switch setting). PH monitor is post RIAA, 1kHz 7cm/ sec lateral (NAB) calibrated to meter 0 (upper scale). FB monitor has RIAA applied only for early collection (prior to retrofit availability) 2021 preorder systems as it runs via a phono playback stage (can be updated in future by Sillitoe service).		17
	Level	VUPPM metering. Switchable between Source Input, Cutterhead Feedback & Phono Playback. (Left channel top LED's, Right channel bottom LEDD's).	Follow level setting instructions carefully.	Comparison of source input to disk playback for source gain settings. DAC 0dB FS calibrated to VUPPM meter top scale +14. -14dB FS = 0dB on Disk (relative to 7cm/ sec Phono Playback calibrated with 1kHz 7cm/ sec Ortofon 2M Black to VUPPM meter top scale 0. FB factory calibrated depending on individual system.		17
	Peak	Switches meter Peak hold on/ off. Maximum level is retained by LED until reset.		Peak hold active when switched to "up" position.		17
	Fuse L & R	Cutterhead fuses. Left & Right channel drive coil protection.	Only use recommended fuses.	Recommend replacement cutterhead fuses FF ≤630mA.		17
	Meter L & R	Cutterhead current metering. Left & Right channel drive coil monitoring.				17
	On	Master Control power on/ off.		Power on when switched to "up" position.		17
	Limit	NA		Not currently used.		17
	Mute	Cutterhead mute. Disables L & R power amplifier channels.	Mute cutterhead at all times when not cutting / testing the cutterhead.	Cutterhead muted when switched to "down" position.		17

Subsystem	Component	Description	⚠ Warning ⚠	Note	Tools	Image Reference
<b>MC Rear Panel</b>						18
	IEC Connector	Fused mains power input.		Fuse F 4H 250V		18
	Drive	Output to MMFB Cutterhead.	Only use with Sillitoe Drive cable & Suspension Box.	4 pole XLR.		18
	Feedback	Input from Remote Preamp.	Only use with Sillitoe Feedback cable & Suspension Box.	9 pole.		18
	Monitor L & R	Monitor output		3 pole XLR's. Standard pin 2 hot.		18
	Analog L & R	Analog source input		3 pole XLR's. Standard pin 2 hot. Sillitoe recommends using USB DAC levels for reference to calibrate Analog source.		18
	Aux 1 & 2	NA		XLR covers. Not currently used as standard. Moving Coil phono preamp upgrade MM/ MC phono switch may be installed at Aux 1.		18
	Phono	Tonearm input.	Only suitable for use with Sillitoe Phono cable.			18
	DAC	USB input. Type B.	Follow operating instructions carefully. Leave DAC set to USB mode.			18
<b>Cables MC</b>		Master Control to lathe interconnects.				19, 20 & 21
	Drive cable	Red cable.	Only use with Sillitoe Master Control & Suspension Box.	4 pole XLR.		19
	Feedback cable	Red cable.	Observe connector genders. Only use with Sillitoe Master Control & Suspension Box.	9 pole.		20
	Phono cable	Red cable.	Only suitable for use with Master Control. Not a standard phono cable. Will work with 3rd party tonearms & Sillitoe Master Control.	6 pole XLR to phono.		21
	Monitor (L & R) cables	2x standard XLR cables, pin 2 hot. (Not provided).		User supplied.		NA
	Analog (L & R) cables	2x standard XLR cables, pin 2 hot. (Not provided).		User supplied.		NA
	USB cable (input)	Standard A to B usb cable. (Not provided).		User supplied. Use STC USB hub output for less connections to user computer.		NA