MAINTENANCE & SERVICE MANUAL · 2026 EDITION

Packaging Machinery Maintenance & Service Manual

The practical field guide to keeping SunAura packaging equipment running — daily inspections, lubrication points, wear-part replacement, troubleshooting and service procedures for every machine family and model we build.

11
machine family chapters

90+
models covered

5
service intervals

38
page catalog cross-ref

00 · SCOPE

What this manual covers

This manual is written for line operators, maintenance technicians and plant engineers who run SunAura packaging equipment. It is organized by **machine family** because machines within a family share the same drives, sealing systems, pneumatics and service points — even when frame sizes and speeds differ.

Every model in the *SunAura Packaging Machinery Catalog* is mapped to a family chapter through a **model coverage table**. If you know your model number (printed on the machine nameplate and in the catalog), use the index below to jump straight to the correct chapter. Each chapter follows the same layout so you can find a procedure in under a minute on the factory floor:

A

Maintenance schedule

Daily, weekly, monthly, quarterly and annual tasks with intervals and responsible role.

B

Lubrication chart

Every lubrication point, the correct grease or oil grade, quantity and frequency.

C

Wear parts list

Knives, seals, belts, heaters, suction cups and sensors that need periodic replacement.

D

Service procedures

Step-by-step instructions for the jobs technicians perform most often.

E

Troubleshooting

Symptom → likely cause → remedy tables for the faults we see in service.

F

When to call us

Which jobs are operator-level and which require a SunAura service engineer.

Model & chapter index

Horizontal / flow wrapping machines (pillow pack) SZ · SW

Shrink & sleeve wrapping machines	FL · FT · SL · SM · ST · RS · ZB · ZJ
Case / carton erectors (box forming)	CX · CXF · K
Case / carton packers (robotic & spider)	ZX · WS
Cartoning machines	ZH
Case / carton sealers (taping)	FX · FH · FA · 501 · 502 · 601
Labeling machines	YTB
Strapping / banding machines	KZ · 305 · 405 · 605 · A2 · LX
Stretch film wrapping machines (pallet wrap)	MH-FG
Palletizing & depalletizing robots	MD · XPG · XPD · R470 · YSR

ABOUT YOUR MODEL NUMBER

SunAura model numbers begin with a family prefix (e.g. CX-30T, MH-FG-2300A, YTB-B2000). The prefix identifies the family; the trailing numbers usually encode frame size, speed or configuration. The YS- prefix on some nameplates is the SunAura internal series code and is cross-referenced in every coverage table.

How to use this manual

1. **Identify your machine.** Read the model and serial number from the nameplate (usually on the electrical cabinet or infeed side). Note the electrical supply and build year.
2. **Find the family chapter** using the index above, then confirm your exact model appears in that chapter's coverage table.
3. **Start with the schedule.** Most faults on packaging lines trace back to skipped daily cleaning or overdue lubrication. Work through the interval that matches the machine's running hours.
4. **For a fault, go to troubleshooting** and match the symptom. Work causes top-to-bottom — the first rows are the most common and the quickest to check.
5. **Before ordering parts,** quote the serial number. Some wear parts (heaters, knives, belts) differ between frame sizes even within one family.

Running-hour basis

Intervals assume a two-shift operation (~16 h/day, ~250 days/year). On single-shift lines you may extend calendar intervals; on three-shift or 24/7 lines, shorten them by roughly one third.

Keep a service log

Record date, running hours, parts replaced and technician. A completed log protects the warranty and makes repeat faults easy to diagnose. A blank log template is available from SunAura service.

Genuine parts

Use SunAura genuine wear parts and approved lubricants. Sealing temperature, knife geometry and belt tension are tuned to original specifications; substitutes are the most common cause of the call-outs we receive.

Safety rules & lockout / tagout

Packaging machines combine heat, knives, moving conveyors, pneumatics and (on robotic cells) fast-moving arms. No maintenance task is urgent enough to bypass these rules.

DANGER — ISOLATE ENERGY BEFORE GUARDS ARE OPENED

Before clearing a jam, changing a knife, cleaning a sealing jaw or working inside any guard: press stop, switch the main isolator to OFF, apply your personal padlock/tag, and confirm the machine cannot restart. For pneumatic machines, shut off and vent air to 0 MPa. For robotic cells, follow the cell-specific lockout and never enter the safeguarded space while the controller is energized.

The eight rules on every SunAura line

1. Only trained, authorized operators may run or service the machine.
2. Keep all guards, interlocks, e-stops and light curtains in place and functioning — never bypass or wedge an interlock.
3. Tie back long hair, no loose sleeves or jewellery; wear the PPE specified for the task (heat-resistant gloves for sealing parts, eye protection for cleaning and compressed air).
4. Assume sealing jaws, knives and shrink tunnels are hot until verified. Allow heat-seal parts to cool or use a temperature probe.
5. Never reach into a machine to clear a product while it is running — stop it first. Restart only after everyone is clear and guards are closed.
6. During maintenance use lockout/tagout; release stored energy (springs, pneumatic pressure, gravity-loaded arms, capacitated drives).
7. Keep the area around the machine clean, dry and free of film scrap, tape off-cuts and oil — slip and trip hazards cause more reportable injuries than the machines.
8. Know the e-stop positions, fire extinguisher and emergency exits before starting a shift.

Lockout / tagout sequence

1. Complete the current cycle, press STOP and let moving parts come to rest.

2. Switch the main electrical isolator OFF and fit your personal padlock and tag.
3. Close the air isolation valve, vent the circuit to 0 MPa and lock the valve where fitted.
4. For heated machines, switch off heaters and wait until jaws/tunnel are below 50 °C.
5. Try to start the machine (zero-energy verification) — it must not move or energize.
6. Perform the work, then remove tools, refit guards, and only the person who applied a lock removes it.

Master maintenance schedule

These are the tasks common to **all** motorized SunAura packaging machines. Family-specific jobs (knife timing, jaw pressure, film carriage, robot grease, etc.) are added in each chapter. Frequency codes: `D` daily/shift, `W` weekly, `M` monthly, `Q` quarterly, `A` annual.

Freq.	Task	Check / standard	R
D	Clean machine, remove film/tape/carton scrap from conveyors, jaws, knives and sensors	No build-up; photoeyes unobstructed	Op
D	Inspect sealing faces, blades and belts for damage or product residue	Clean, undamaged	Op
D	Check air pressure and drain compressor water / filter-regulator	0.5–0.7 MPa; no water in bowl	Op
D	Test e-stops, guards and interlocks respond correctly	Machine stops instantly	Op
W	Check belt and chain tension; listen for bearing/gearbox noise	No slip, no abnormal noise	Ma
W	Inspect pneumatic fittings, hoses and cylinders for leaks	No audible leak	Ma
W	Clean/verify all photoeyes, labels and reflector surfaces	Reliable detection	Ma
M	Lubricate per the lubrication chart; top up gearboxes as specified	Correct grade, correct quantity	Ma
M	Check electrical terminals, cable glands and cabinet cooling fans	Tight, clean, dry, cool	El
M	Inspect heaters, thermocouples and temperature control accuracy	Holds setpoint ±5 °C	Ma
Q	Replace worn wear parts before failure (belts, suction cups, Teflon tape)	Per family wear list	Ma
Q	Re-check timing, jaw pressure, knife and seal alignment on wrapper/sealer	Per chapter procedure	Te
A	Gearbox oil condition/change; bearing repack; full mechanical inspection	Per lubrication chart	Te
A	Electrical insulation, earth continuity and full safety-function test	Per local standard	El
A	Back up / verify drive and PLC parameters; torque-check terminals	Parameters archived	El

RUNNING HOURS BEAT THE CALENDAR

If a machine reaches the running-hour limit before the calendar interval, service it then. Sealer and wrapper sealing systems on high-speed lines commonly need cleaning and wear-part checks well before the printed monthly interval.

Lubrication standards & approved consumables

Using the correct lubricant matters as much as lubricating at all. Too light an oil fails under load; too heavy a grease drags cold drives and blocks auto-lube lines. These are the default grades SunAura specifies; a machine's own nameplate or lubrication chart overrides them.

Application	Specification	Notes
General bearings, pivots, slides	NLGI #2 lithium-based multi-purpose grease	EP grade for loaded points; −20 to
High-temperature points near sealers/tunnels	NLGI #2 high-temp / synthetic EP grease	For points running above ~100 °C
Gearboxes (worm/helical)	ISO VG 46 or VG 68 industrial gear oil	Grade per nameplate; check level,
Chains (conveyor, film feed)	Chain oil / light ISO VG 68, or chain spray	Wipe excess to avoid contaminatin
Pneumatic system	Clean, dry compressed air; FRL lubricator only where specified	0.5–0.7 MPa; most modern valves
Linear guides & ball screws (robots, servo axes)	Manufacturer-specified #2 grease	Keep wipers intact; contamination
Food / pharmaceutical contact areas	NSF H1 registered lubricant where product contact is possible	Specify at order; machines are con

Golden rules

- **Clean before you grease.** Wipe the fitting and surrounding area; pumping grease onto dirt forces it into the bearing.
- **More is not better.** Fill until fresh grease just appears at the seal; over-greasing blows seals and drags drives.
- **Don't mix greases.** Different thickeners (lithium, polyurea, clay) can react and soften. If unsure, purge and repack.
- **Oil-lubricated gearboxes:** check level at the sight glass with the machine level and stopped; change oil if milky, dark or metallic.

CHAPTER 05

Horizontal flow wrappers (pillow-pack machines)

Flow wrappers form a flat film roll into a tube around the product, make a longitudinal (fin) seal, then seal and cut the cross seam between packs. SunAura builds them in rotary-jaw, long-dwell and reciprocating (box-motion) versions across the SZ and SW series, including multi-servo machines such as the SZ-5800W.

Catalog p.3–4 | Forming box | Fin-seal rollers | Cross-seal jaws | Servo-driven

Models covered

Model	Type	Typical application
SZ-280	Rotary-jaw, compact	Bakery, biscuits, small solid packs
SW60X / SW80X	Rotary-jaw, up-rated frame	Larger packs, confectionery, bars
SZ-5800W	7-servo reciprocating (box-motion)	Tall/long products, long-dwell seals
SZ-350 / SZ-450 / SZ-600	Rotary or long-dwell frames	Family packs, trays, instant-noodle multipacks

All SZ/SW-series flow wrappers and their servo/reciprocating variants are covered. If your nameplate carries an internal YS code for an SZ/SW machine, the procedures below apply unchanged.

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean product residue from cross jaws, fin wheels, forming box and infeed lugs	No carbonized film or product build-up
D	Check film path rollers turn freely; verify jaw temperature at setpoint	Free-rolling; ±5 °C
W	Inspect Teflon coating/tape on cross jaws and fin wheels	Intact, not worn through
W	Check infeed chain/lug condition and tension; inspect cut knife edge	No broken lugs; clean cut
M	Lubricate fin-shaft bearings, cross-jaw drive and chains per chart	NLGI #2 / ISO VG68
M	Check jaw pressure, fin-seal pressure and knife timing	Per procedures below
Q	Inspect forming box for wear/scoring; check all drive belts	Smooth surface; belts not cracked
A	Gearbox oil, bearing repack, servo/encoder mounting and full timing check	Per master annual tasks

Lubrication points

Point	Lubricant	Quantity	Freq.
Cross-jaw shaft bearings & linkage	NLGI #2 EP	2–3 pumps	M
Fin-seal roller shaft bearings	NLGI #2	1–2 pumps	M
Infeed conveyor chain	Chain oil VG68	Light film	M
Main drive gearbox	ISO VG68 gear oil	To sight line	A
Film tension / dancer pivots	NLGI #2	1 pump	Q

Wear parts (keep on the shelf)

- **Cross-seal jaw inserts** — serrated sealing faces and their Teflon coating; replace when seals weaken or pattern is worn.
- **Fin-seal wheels** and Teflon sleeves/tape.
- **Cut-off knife** (straight or serrated) and anvil — a dull blade gives feathered or connected packs.
- **Forming box / former** — replace when scored, dented or film drags (a worn former causes creases and mis-tracking).
- **Heating elements and thermocouples** for jaws; infeed belts/chains and lugs; drive belts; carbon brushes on older DC machines.

Key service procedures

Setting cross-jaw temperature & pressure

1. Set temperature for the film (typical 140–180 °C for OPP/cold-seal differs; follow the film supplier) and allow full stabilization.
2. Run test packs; a correct cross seal is uniform across the width and peels with consistent resistance without burning.
3. Adjust jaw pressure only enough to seal — excess pressure squeezes film out, wears inserts and loads the drive.
4. On reciprocating machines confirm dwell suits film thickness; increase dwell rather than temperature for thick films.

Checking cut & eye-mark timing

1. With registered film, center the eye-mark sensor on the mark and set sensitivity so it sees mark vs. base reliably.
2. Jog and verify the cut falls on the register; use the phase/timing adjustment on the HMI in small increments.
3. Confirm the knife meets the anvil squarely with no gap; replace a dull or nicked blade.

Troubleshooting

Symptom	Likely cause	Remedy
Weak / open cross seal	Low temp, worn Teflon/inserts, low jaw pressure, insufficient dwell	Raise temp to film spec; clean jaws; re
Burned or shrunk seal	Temperature too high or dwell too long	Lower temperature; reduce dwell; chec
Fin (longitudinal) seal open	Film not centered, worn fin wheels, low pressure/temp, wrong former	Re-center film; clean/heat wheels; adju
Crooked / variable bag length	Eye-mark sensor, slipping feed, worn belts, timing drift	Clean/set sensor; tension belts; re-pha
Feathered cut or packs stay connected	Dull/nicked knife or knife-anvil gap	Replace/sharpen blade; reset anvil cle
Film creases or wanders	Worn/damaged forming box, tension imbalance, misaligned rollers	Replace former; balance dancer; align
Product crushed in seal	Infeed timing / push finger phasing wrong	Re-time infeed to jaw; check lug spaci
Servo / drive fault on start	Overload, encoder cable, parameter loss	Clear jam, check cables; restore archiv

WHEN TO CALL SUNAURA

Operator-level: cleaning, temperature, film threading, sensor cleaning, knife change. Call service for repeated servo faults, timing that will not hold, gearbox noise or seal-quality problems that remain after inserts, temperature and pressure are verified.

CHAPTER 06

Shrink & sleeve wrapping machines

These machines wrap product in center-folded or flat film and pass it through a hot-air shrink tunnel, or apply a sleeve that shrinks over multipacks. The sealing station (L-bar, intermittent or continuous) and the recirculating tunnel are the two systems that determine finish quality.

Catalog p.5–9 | Seal bar / wire | Hot-air tunnel | PTFE/silicone belt

Models covered

Model	Type	Typical application
YS-FL-5545 / 5545A / 7555A	Automatic L-bar sealer + tunnel	Single products, boxes, general shrink
YS-FT-4520 / 4525	Sealing / tunnel unit	Mid-speed shrink packing
YS-SL-6045B · YS-SM-4525 · YS-ST-5025	Sleeve / side-seal wrappers	Multipacks, bottles, long products
YS-RS-5	Hot-air shrink tunnel	Stand-alone shrinking
YS-ZB-3246/4255MINI/6084 · YS-ZB-1…6 · YS-ZJ-2	Automatic sleeve/straight-feed wrappers	Beverage multipacks, trays, sleeves

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean seal bar/wire and Teflon; wipe tunnel interior of film residue	No carbonized film
D	Check tunnel belt/rollers and airflow; verify temperatures	Belt tracks; ±5 °C
W	Inspect seal wire tension and Teflon cover; check tunnel belt edges/tracking	Intact, centered
W	Clean recirculation fan/filter; listen for bearing noise	Smooth, balanced airflow
M	Check all heaters, thermocouples and contactors; tighten terminals	Even heat, no hot spots
Q	Inspect/replace tunnel belt, seal elements and door seals	No fraying or heat loss
A	Fan bearings, conveyor gearbox, full electrical & insulation check	Per annual tasks

Wear parts

- **Seal wire / heating element** and its Teflon adhesive cover or sleeve — the most frequently replaced part on L-bar machines.
- **Tunnel conveyor**: PTFE-coated fiberglass belt or silicone rollers; replace when tracking fails or coating is worn.
- **Tunnel heater elements / finned heaters, thermocouples, recirculation fan and bearings**, door/curtain heat seals.**
- **Film-feed rollers, clutches and photoeyes on automatic sleeve wrappers.**

Troubleshooting

Symptom	Likely cause	Remedy
"Fish-eyes" / wrinkles after tunnel	Insufficient heat or airflow, belt too fast, film too large	Raise tunnel temp/airflow; slow conveyor; right-
Dog-ears at corners	Film excess, poor seal, uneven airflow	Adjust film/perforation; check seal; reposition ba
Film burns or holes	Tunnel too hot, heater fault, dwell too long	Lower temp; inspect heater/thermocouple; spee
Film does not shrink fully	Low temp, weak airflow, wrong film orientation	Raise temp; clean fan; check film shrink directio
Weak/stringy seal at bar	Worn wire/Teflon, low temp, low pressure	Replace wire & cover; set temp/pressure
Tunnel belt tracks off or stalls	Belt stretched, rollers dirty/misaligned	Clean, re-track or replace belt
Uneven shrink one side	Blocked airflow, failed heater bank, curtain leak	Clear/inspect baffles & heaters; replace curtains

WHEN TO CALL SUNAURA

Operator-level: wire/Teflon change, cleaning, temperature and belt speed. Call service for failed heater banks or contactors, fan vibration, electrical faults or finish problems that persist after temperature, airflow and film are corrected.

CHAPTER 07

Case / carton erectors (box forming)

Erectors pull a flattened blank from a magazine by vacuum, square it, fold the bottom flaps and seal them with tape or hot melt. Reliability depends almost entirely on three things: the vacuum pickup, a well-adjusted magazine, and a clean tape head (or glue system).

Catalog p.10–11 | Vacuum cups | Blank magazine | Tape / hot-melt | Servo options

Models covered

Model	Type	Notes
YS-CX-30T / 60T	Automatic erector, tape bottom	Standard & higher-speed frames
YS-CX-R-25T/35T/60T/80T	High-speed / rotary erector	By case size & rate
YS-CX-L · YS-CXF-J/K/Z	Large-frame & variant erectors	Custom case ranges
K20TX · K30T · KXS400-5 (servo)	Servo / robotic erector-bottom sealers	Fast changeover, flexible cases

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean magazine, cups, flap folders and tape head of dust/debris	No build-up
D	Drain vacuum-pump/filter; check air pressure and vacuum level	Spec vacuum; dry air
W	Inspect suction cups for wear; clean tape blade & rollers	Cups supple; tape cuts clean
M	Check magazine guides, flap-folder timing and case squareness	Square cases, no jams
M	Lubricate drive, cam and bearings per chart (hot-melt: see notes)	NLGI #2
Q	Replace cups/filters pre-emptively; inspect belts and folder wear strips	Per wear list
A	Gearbox, vacuum-pump service, full timing & safety check	Per annual tasks

Wear parts

- **Vacuum suction cups and vacuum filter — replace on condition or quarterly on high-use lines; cracked cups cause missed/double picks.**
- **Tape head: serrated blade, pressure roller and feed rollers**; tape core brake.**
- **Hot-melt version: nozzle, filter, hose and tank service per the glue unit; use only compatible adhesive and keep char cleaned out.**
- **Folder wear strips, drive belts, photoeyes, magazine springs.**

Troubleshooting

Symptom	Likely cause	Remedy
No pickup / dropped blanks	Worn cups, low vacuum, clogged filter, cups not contacting	Replace cups/filter; check pump; adjust
Double blanks picked	Magazine too tight, separator/fingers mis-set, sticky blanks	Adjust magazine & separating fingers; fa
Case jam during forming	Wrong case size set, guides out, flap timing off	Reset changeover; re-time folders
Bottom not sealed / tape tails wrong	Tape head height, dull blade, roller pressure	Set head; replace blade; adjust rollers
Crooked / diamond-shaped cases	Folders misaligned, case not squared, worn strips	Align folders & forming; replace wear pa
Intermittent vacuum	Leaking hoses/fittings, pump wear, filter blocked	Fix leaks; replace filter; service pump

WHEN TO CALL SUNAURA

Operator-level: magazine loading, cups/filter/tape-blade change, changeover and cleaning. Call service for vacuum-pump failure, servo/cam timing faults, hot-melt unit service or persistent jamming after changeover is verified.

CHAPTER 08

Case / carton packers (robotic & spider)

Packers load product into erected cases using a 2-axis robotic arm, a delta/spider head or a drop/load station. Throughput is governed by product handling, end-of-arm tooling (grippers/suction) and the coordination between infeed and case conveyor.

Catalog p.12–13 | 2-axis / delta robot | End-of-arm tool | Servo + vision options

Models covered

Model	Type	Typical application
`ZX-500R`	2-axis robotic case packer	Bags, bottles, cartons into cases
`WS-1200`	Spider (delta) case-packing station	High-speed picking, pouches, flow-wrapped packs
`Top-load / drop-pack variants`	Continuous or indexing loader	Rigid containers, multipacks

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
`D`	Clean grippers/suction cups, infeed and case conveyor; drain air	No product build-up
`D`	Verify pick positions and e-stop/guarding	Consistent picks; safe
`W`	Inspect end-of-arm tooling, vacuum and hoses	No wear or leaks
`M`	Lubricate linear guides/axes per robot chart; check belts	Smooth motion
`M`	Check homing, pick points and (if fitted) vision calibration	Accurate placement
`Q`	Inspect delta arms, rod ends/belts; replace grippers/cups	No play in joints
`A`	Full robot service, gearbox, backup of motion programs	Per robot chapter

Wear parts

- **End-of-arm tooling: suction cups, vacuum generators, gripper fingers/jaws and springs.**
- **Delta rod ends / spherical joints, drive belts, gearboxes.**
- **Conveyor belts/chain, photoeyes, vision lighting (if fitted).**

Troubleshooting

Symptom	Likely cause	Remedy
Missed / dropped product	Worn cups/grippers, low vacuum, mis-set pick point	Replace tooling; check vacuum; re-teach poi
Product placed crooked / not in case	Case not located, vision drift, timing offset	Check case stops; recalibrate; re-sync conve
Robot fault / alarm	Overload, servo, collision, program/encoder issue	Clear & reset; inspect; restore program
Reduced speed / stalling	Vacuum demand, air supply, worn guides, belt tension	Fix air/vacuum; service axes; tension belts
Collision / crash on changeover	Wrong recipe or points not re-taught	Load correct recipe; re-teach; run dry cycle

ROBOTIC CELL — SAFETY

Never enter the safeguarded space while the controller is energized. After a collision, inspect joints, tooling and the gripper before resuming, and re-home/re-teach any point that moved. Keep the correct recipe for each product; run a dry (no-product) cycle after every changeover.

CHAPTER 09

Cartoning machines (end-load box packing)

Cartoners erect a folded carton, load the product (manual, automatic or with a bucket infeed) and close/tuck or glue the flaps. They combine a carton blank pickup, a flighted chain, flap-opening guides and a closing or gluing station — timing between these is the heart of the machine.

ZH series | Flighted bucket chain | Tuck or hot-melt close | Servo options

Models covered

Model	Type	Typical application
ZH-200	Intermittent cartoner	Pharma, food, small goods cartons
ZH-250P	Automatic servo cartoner	Higher-speed, fast changeover

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean flights, guides, pickup and closure stations	No paper dust/glue build-up
W	Inspect vacuum cups, chain tension and flap guides	Cups good; correct chain tension
M	Lubricate main chain, cam and bearings; check timing	NLGI #2; synchronized stations
M	Hot-melt: clean nozzle/tank, check temperature; tuck: check guides	Clean glue; flaps fold cleanly
Q	Replace cups, worn chain/belts and closure tooling as needed	Per wear list
A	Gearbox, full cam timing, electrical and program backup	Per annual tasks

Wear parts

- Vacuum cups & filter; flighted/bucket chain and sprockets; carton-pickup suction.
- Flap-opening and closing guide wear strips; tuck blades/fingers.
- Hot-melt nozzle/filter/hose; drive belts; sensors.

Troubleshooting

Symptom	Likely cause	Remedy
Carton not erected / opens late	Vacuum pickup, flap guides, magazine setting	Replace cups; adjust guides/magazine
Product won't load / jams at push	Carton not square, timing offset, product oversize	Re-time load; check carton/product size
Flaps not closing / poor tuck	Guide wear, mis-adjusted tuck fingers, glue fault	Adjust/replace guides; check glue
Glue failure / stringing	Temperature, nozzle, adhesive grade, char	Set temp; clean nozzle; correct adhesive
Chain stalls / overload	Jam, chain tension, worn sprockets	Clear jam; tension/replace chain

WHEN TO CALL SUNAURA

Operator-level: loading, cups/chain/guide adjustment, glue cleaning and changeover. Call service for cam/encoder timing faults, servo alarms or recurring loading/closure faults after setup is verified.

CHAPTER 10

Case / carton sealers (taping machines)

Case sealers fold the top flaps and apply tape to the top and bottom center seams as the case passes through driven side belts. Uniform, wrinkle-free taping depends on the tape head (blade and rollers), correct case-width/height settings and steady belt drive.

Catalog p.16–19 | Tape head | Side drive belts | Flap folders | Uniform & random (FX/FH)

Models covered

Model	Type	Notes
YS-501D / 501X · YS-502 / 502D · YS-601AW	Semi & fully automatic sealers	Uniform & random case sizes
FA500	Semi-automatic	Manual flap fold, fixed sizes
FX500	Automatic uniform sealer	Fixed case size, high rate
FH500L · L-type corner-edge · cross sealer	Corner/edge & H-type sealing	Adds edge strips for heavy loads
E-commerce / SCJF-500 variants	Small-parcel & corner-edge	Light, variable parcels

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean tape head, rollers, side belts and folders of adhesive/dust	No build-up
D	Check tape threading and tension; verify cases feed square	Smooth tape application
W	Inspect serrated blade and pressure rollers; side-belt condition/tension	Clean cut; belts grip
M	Lubricate drive bearings and adjust belt tension; check leg/rollers	NLGI #2; cases driven evenly
Q	Replace blade/rollers and worn side belts pre-emptively	Per wear list
A	Gearbox/motor, full mechanical & guarding inspection	Per annual tasks

Wear parts

- **Tape head: serrated cutting blade, application/pressure rollers and tape feed rollers**, core brake and tension spring.**
- **Side drive belts (and their tension), flap-folder wheels, conveyor/table rollers, leg-height locks.**
- **Corner-edge machines: additional edge tape heads and folding guides.**

Troubleshooting

Symptom	Likely cause	Remedy
Tape won't cut / trails	Dull blade, tape tension, head timing	Replace blade; set tension; check head
Tape wrinkled / off-center	Head alignment, roller pressure, case not square	Align head; clean rollers; guide case
Tape tails uneven	Head height, roller/tension setting	Set head height and tension
Cases jam / won't feed	Width/height set wrong, worn side belts, flap fold	Re-set changeover; replace belts; check folders
Top flaps not folded	Folder adjustment, case variation on random model	Adjust flap folders; confirm random-capable model
Slipping / case stalls mid-seal	Worn/loose side belts, low drive tension	Tension or replace belts

WHEN TO CALL SUNAURA

Operator-level: tape threading, blade/roller change, changeover, cleaning. Call service for drive/gearbox faults, repeated mis-feed on correct settings or edge-sealing head timing.

CHAPTER 11

Labeling machines

Labelers apply pressure-sensitive labels to containers using a peel edge, a driven label web and a wrap/wipe or tamp station. Label placement accuracy is a function of the dispense timing, container handling, label-roll setup and a clean peel surface.

Catalog p.14–15 | Peel edge | Label web & backing | Wrap/tamp station

Models covered

Model	Type	Notes
YTB-A2000	Fully automatic wrap labeler	Round containers, front/back options
YTB-B2000	Fully automatic, up-rated	Larger/taller containers, higher speed

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean peel edge, rollers, wrap station and product sensor	No adhesive residue
W	Check label web threading, backing take-up and roller condition	Smooth feed, no tears
M	Lubricate where specified; check dispense timing and label sensor	Accurate placement
Q	Inspect drive belt/stepper, rollers and sponge/wipe pads	No wear; firm wipe
A	Full drive/electrical check and parameter backup	Per annual tasks

Wear parts

- Peel edge/plate, drive roller and pressure/idler rollers; label & gap sensors.
- Wrap sponge/roller, tamp pad, drive belt/stepper; backing take-up.

Troubleshooting

Symptom	Likely cause	Remedy
Labels not separating at peel	Peel edge worn, label too thin, web tension	Replace edge; adjust tension; check labels
Wrinkled / bubbled labels	Wipe pressure, container speed match, surface condition	Adjust wipe; sync speed; dry/clean containers
Placement offset / skewed	Dispense timing, guides, sensor setting	Re-time; center container; set sensor
Double labels / no label	Gap sensor dirty/mis-set, label web	Clean/set gap sensor; rethread web
Web tears / jams	Over-tension, sharp edge, misaligned rollers	Set tension; smooth edge; align rollers

WHEN TO CALL SUNAURA

Operator-level: label roll loading, peel-edge/roller cleaning, sensor setting, guides. Call service for stepper/drive faults, persistent timing errors or placement faults after labels, sensors and timing are verified.

CHAPTER 12

Strapping / banding machines

Strapping machines feed plastic (PP/PET) strap around a load, tension it, heat-seal the overlap and cut off. The strap feed/tension track, the sealing unit (heated blade) and the coil feed are the service-critical systems; most faults are strap-feed or heater related.

Catalog p.20–27 | Arch & strap track | Sealing heater | Feed/tension unit

Semi & fully automatic

Models covered

Model	Type	Notes
YS-305B/BP/X · YS-405/B/BD/BL	Semi & automatic, side/frame variants	By strap width & load
YS-605/P/R/RP/RPD · YS-612	Fully automatic / high-frame & side-seal	Pallet & heavy loads
YS-A2C/A2F/A2L · YS-LX-500/D · YS-SZ90 · YS-SO	Automatic & special-frame strappers	Inline & low/large frames
KZ-101 / KZ-102 · fully automatic · through-eye	Semi, automatic & pallet (vertical) strappers	Box & pallet strapping

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clear strap dust from track, feed unit and sealing area	No swarf build-up
D	Check coil loading, strap threading and heater temperature	Free feed; seals hold
W	Clean arch/track flaps; inspect feed rollers and tension	Strap feeds full loop
M	Lubricate per chart (keep oil off strap/seal); check heater blade	NLGI #2; clean fusion
Q	Inspect/replace feed rollers, heater, track flaps and knives	Per wear list
A	Gearbox/motor, full electrical & safety check	Per annual tasks

Wear parts

- **Heater / sealing blade** (heat-fusion), sealing jaws/press and the cut-off knife.**
- **Feed and tension rollers (and their grip springs), arch/track gate flaps, guide rollers.**
- **Strap coil brake, limit switches/sensors; for pallet/through-eye units, the vertical lance and wear guides.**

Troubleshooting

Symptom	Likely cause	Remedy
Strap fails to feed around arch	Track flap open/misaligned, feed rollers worn, strap set wrong	Reset/clean track; replace rollers; rethread
Seal fails / strap pulls apart	Heater temp, worn blade, insufficient fusion time/pressure	Set heater; replace blade; adjust cycle
Strap won't tension / loose load	Tension setting, worn tension rollers, strap grade	Increase tension; replace rollers; use corr
Strap jams in feed	Coil tangle, worn guides, curled/poor strap	Re-fit coil; clean guides; use quality strap
Machine cycles but no cut	Knife/cam timing, worn cutter	Re-time; replace knife
Heater not warming	Heater element, thermofuse, wiring	Replace element/check fuse; call electricia

STRAP & HEATER CARE

Use the strap width and grade the machine is set for and store strap dry and flat — curled, damp or off-width strap is behind most feed faults. Keep oil and grease away from the heater and seal faces; they carbonize and weaken fusion.

CHAPTER 13

Stretch film wrapping machines (pallet wrappers)

Pallet wrappers bind a load to a pallet with stretched LLDPE film. Turntable models rotate the load; rotary-arm models rotate the film around a stationary load (for light/unstable loads). The film carriage (pre-stretch or power pre-stretch), turntable drive and rotation/height controls determine load stability and film use.

Catalog p.28–31 | Film carriage / pre-stretch | Turntable or rotary arm | Top-platen options

Models covered

Model	Type	Notes
MH-FG-2100	Turntable, cylindrical-load specialist	Rolls/round loads
MH-FG-2200	Horizontal wrapper for fabric/roll goods	Non-pallet long goods
MH-FG-2300A / 2300B	Gantry / single-mast rotary arm	Light & unstable loads
MH-FG-2400	Fixed rotary-arm wrapper	High-rate inline
Standard/large turntable · top-platen · high-speed rotary arm	Turntable & inline variants	By load weight & rate

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean turntable/arm area; check film threading and load settings	No film scrap; free rotation
W	Inspect pre-stretch rollers and film tension; clean rollers	Smooth draw, even stretch
M	Lubricate turntable bearing/slew ring, mast chain and arm drive	NLGI #2; even rise/rotate
M	Check limit switches, top/bottom wrap counts and photoelectric load-height sense	Correct wrap pattern
Q	Inspect pre-stretch belts/rollers, mast and drive; check film clamp/cut	Reliable start/finish
A	Slew bearing repack, gearbox, full electrical & safety check	Per annual tasks

Wear parts

- Pre-stretch rollers & belts/drive, film tension rollers; mast lift chain/sprocket.
- Turntable slew bearing/support rollers; rotary-arm drive and bearings.
- Film clamp and cut/wipe assembly, load-height photoeye, limit switches.

Troubleshooting

Symptom	Likely cause	Remedy
Load unstable / film loose	Low stretch/tension, too few wraps, wrong pattern	Increase pre-stretch/tension & wraps; add top sheeting
Film breaks during wrap	Over-stretch, sharp load corners, damaged rollers	Reduce stretch; protect corners; inspect rollers
Film tails not secured	Clamp/cut/wipe fault at cycle end	Service clamp & cut assembly
Carriage rises unevenly / jerks	Mast chain tension, lubrication, drive	Tension/lubricate chain; check drive
Turntable won't turn / noisy	Slew bearing, drive, load over capacity	Lubricate/inspect bearing; check load rating
Wrong wrap count / height	Photoeye dirty, limits, parameters	Clean sensor; reset limits & counts

WHEN TO CALL SUNAURA

Operator-level: film loading, wrap-pattern/settings, cleaning, sensor and chain care. Call service for slew-bearing or gearbox faults, rotary-arm drive problems or repeated clamp/cut failures.

CHAPTER 14

Palletizing, depalletizing & robotic cells

This chapter covers conventional and robotic palletizers, depalletizers, collaborative palletizing robots and the robot servo cells that build end-of-line patterns. Reliability centers on the end-of-arm tool (vacuum/fork/gripper), axis drives/lubrication, and correctly stored motion programs and layer patterns.

Catalog p.32–37 | End-of-arm tool | Servo axes & gearboxes | Layer patterns / vision

Models covered

Model	Type	Notes
YS-MD-60T	Palletizer (gantry/mechanical)	High-rate layer palletizing
YS-R470-MD45 / MD70 / MD80	Robot servo palletizing cells	By payload & rate
YS-XPD-36 · YS-XPG-50 · YS-XPGG-50	Depalletizers	Emptying/glass & bulk
YSR-2/4/6 (F/C) · YSRD-3/4 · YSRS-4-10-W · YS-RP20/25/35	4-axis palletizing & delta/robot units	Palletizing, picking, collating
WP-40 collaborative · robotic palletizing system	Collaborative & system cells	Flexible, fence-free options

Maintenance schedule (add to master schedule)

Freq.	Task	Standard
D	Clean end-of-arm tool, cups/forks, conveyors and area; drain air	No product debris
D	Verify e-stops, safeguarding and home position	Safe; correct home
W	Inspect tooling, vacuum, hoses and cable dress/energy chain	No wear or air leaks
M	Lubricate linear guides, ball screws and joints per robot chart	Smooth, quiet axes
M	Check axis backlash, pick/place points and layer pattern	Accurate, square layers
Q	Inspect gearboxes, belts, joint seals and wipers; replace cups/grippers	No play; protected guides
A	Manufacturer robot service, gearbox oil/grease, full safety-function test; back up programs	Per robot service schedule

Wear parts

- **End-of-arm tool: vacuum cups, vacuum pumps/generators, fork tines, gripper jaws and compliance parts.**
- **Axis gearboxes/reducers, drive belts, linear-guide wipers, ball screws and bearings; cable/energy-chain dress.**
- **Conveyor chains/belts, pallet locators, photoeyes, slip/tile sheets handling parts.**

Troubleshooting

Symptom	Likely cause	Remedy
Dropped cases / weak pick	Vacuum cups/pump, gripper wear, pick point	Replace cups; check pump; re-teach point
Crooked / misaligned layers	Place points, pallet locator, pattern, backlash	Re-teach; locate pallet; check backlash
Robot alarm / axis fault	Overload, collision, servo, cable/encoder	Inspect after collision; check cables; reset
Excess vibration / noise	Gearbox, mounting, lubrication, worn joint	Inspect reducers/mounts; lubricate; call service
Depalletizer misses / double picks	Vision/sensor, vacuum, layer condition	Calibrate sensor/vision; service vacuum
Pattern wrong after changeover	Wrong recipe/program loaded	Load correct pattern; dry-run before production

ROBOTIC CELL SAFETY

Never enter the safeguarded space with the controller energized; follow the cell lockout. After any collision, inspect the tool, joints and reducers and re-home/re-teach before resuming. Collaborative robots still require the configured safety zones and limits — do not raise speed/payload settings beyond the risk assessment.

CHAPTER 15

Complete end-of-line & intelligent packaging systems

Integrated systems combine erecting, packing, sealing, strapping, wrapping and palletizing with interconnecting conveyors and a common control architecture. On a line, a fault in one machine starves or blocks the rest, so maintenance must cover the machines (their own chapters), the conveyors/transfers and the coordination controls.

Catalog p.2 | Interconnecting conveyors | Line control / HMI | Case erect–pack–seal–palletize

Systems covered

- **Case erecting–packing–sealing–palletizing systems and turnkey end-of-line cells.**
- **Intelligent (unmanned) packaging systems with central HMI, accumulation conveyors and line balancing.**

Line-level maintenance (in addition to each machine chapter)

Freq.	Task	Standard
D	Walk the full line; clear transfers; check accumulation and e-stop circuits	No blocked product; all stops work
W	Inspect all interconnecting conveyor belts/chains, guides and transfers	Smooth hand-off between machines
M	Lubricate conveyor drives; check line sensors and zone logic	Correct flow & accumulation
Q	Verify machine-to-machine timing, HMI alarms and backup line program	Coordinated; no nuisance stops
A	Full line safety-circuit test, drive/PLC backup, gearbox & electrical inspection	Per annual tasks

Troubleshooting line flow

Symptom	Likely cause	Remedy
Frequent line stops / starvation	Sensor/zone fault, accumulation setting, upstream rate	Check sensors/zones; balance speeds & accumul
Product backs up at a transfer	Guide/timing mismatch, conveyor speed	Align guides; match speeds; re-time hand-off
Whole line will not restart	Uncleared e-stop, guard, alarm on one machine	Reset each alarm; check stops/guards; use HMI d
Machines run but out of sync	Encoder/line-timing, program, parameter change	Restore line program; re-sync; call service if need

DIAGNOSE THE BOTTLENECK, NOT JUST THE ALARM

On an integrated line the machine that alarms is often the victim of the machine upstream or downstream. Before resetting, note where product first accumulates or runs empty — that is usually the true bottleneck.

Ordering spare parts

Fast repairs start with the right information. When requesting parts, always quote the machine model and serial number so we supply the correct frame-specific item — heaters, knives, belts and tape heads differ between sizes.

Recommended spare-parts stock

Category	Suggested stock	Typical items
Sealing / heating	1–2 sets	Heating elements, thermocouples, Teflon tape/covers, jaw inserts
Cutting	1–2 each	Cut-off knives/blades and anvils
Belting	1 each	Drive belts, conveyor/tunnel belts, chains
Vacuum / pneumatic	Kit	Suction cups, vacuum filters, fittings/tubing, grippers
Taping / gluing	As used	Tape blades & rollers, hot-melt nozzles/filters
Electrical / sensors	Key items	Fuses, contactors, photoeyes, relays

To order, contact SunAura service with your model and serial number and the part description (or part number from the machine documentation). We can also advise a machine-specific recommended spares list at commissioning.

Warranty, support & contacting service

SunAura Machinery supports the equipment we build through commissioning, operator training, genuine spare parts and remote/on-site service. Keeping to the maintenance schedule and using approved parts and lubricants protects your warranty and gives the longest, most reliable machine life.

Before you call

Note the model & serial number, the alarm/fault code, when it started, and what changed (product, film, changeover). Check the matching troubleshooting table — most calls are resolved there.

Remote & on-site support

Connected machines allow remote diagnostics; where an on-site visit is needed we arrange a service engineer and parts. Commissioning, training and scheduled maintenance plans are available.

Service contact

SunAura Machinery, Building 2, No.407 Huaihe West Road, Huangdao, Qingdao, China.
Tel / WhatsApp: +86 136 4542 9121
Service: +86 131 5322 3342
Email: service@sunaura.com.cn

GOOD MAINTENANCE IS THE BEST WARRANTY

The majority of unplanned stops we attend are preventable — skipped cleaning, overdue lubrication, non-genuine wear parts, or running the wrong film/strap/tape. Following this manual costs a few minutes a shift and saves hours of downtime.

SunAura Machinery — Maintenance & Service Manual (2026 Edition).

Packaging machinery maintenance, lubrication, wear-part and troubleshooting guidance for flow wrappers, shrink wrappers, case erectors, case packers, cartoners, case sealers, labeling machines, strapping machines, stretch wrappers, palletizing robots and complete end-of-line lines.

Website: sunaurakey.com · Products: sunaurakey.com/products/ · Downloads: sunaurakey.com/downloads/

This manual is provided for the operation and care of SunAura equipment. Always follow the specific documentation, nameplate ratings and local safety regulations for your machine. Specifications and procedures are subject to update; confirm the latest revision with SunAura service.