

STARVOX

SV20R

MINI COMPACT EXCAVATOR

OPERATOR & MAINTENANCE MANUAL

English Edition | Version 2026

STARVOX EQUIPMENT

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1. PRODUCT IDENTIFICATION & SPECIFICATIONS

1.1 Product Serial Number

Record your machine model number, product serial number, and engine serial number below. Provide these numbers to your STARVOX dealer when ordering parts or service.

Record Your Information Here	
Machine Model	SV20R Mini Compact Excavator
Machine Serial Number	_____
Engine Model	_____
Engine Serial Number	_____
Manufacture Date	_____
Delivery Date	_____
Dealer Name	_____
Dealer Phone	_____

1.2 Overall Dimensions

Item	Specification (mm)	Specification (in)
A — Wheel Track	895	35.2 in
B — Overall Track Length	1,203	47.4 in
C — Ground Clearance (Platform Front)	357	14.1 in
D — Ground Clearance (Platform Rear)	800	31.5 in
E — Chassis Width	930	36.6 in
F — Crawler Width	180	7.1 in
G — Crawler Height	313	12.3 in
H — Overall Width	930	36.6 in
I — Overall Length (Transport)	2,775	109.3 in
J — Overall Height	2,219	87.4 in

1.3 Work Range

Item	Specification (mm)	Specification (in)
A — Max. Digging Radius at Ground Level	2,850	112.2 in
B — Max. Digging Depth	1,650	65.0 in
C — Max. Digging Height	2,600	102.4 in
D — Max. Unloading Height	1,800	70.9 in
E — Max. Vertical Digging Depth	1,380	54.3 in
F — Min. Swing Radius	1,300	51.2 in
G — Max. Lifting Height (Dozer Blade)	110	4.3 in
H — Max. Digging Depth (Dozer Blade)	110	4.3 in

1.4 Performance Parameters

Parameter	Metric	Imperial
Operating Weight	950 kg	2,094 lb
Standard Bucket Capacity	0.025 m ³	0.88 ft ³
Rated Engine Power	Refer to Engine Label	Refer to Engine Label
Fuel Tank Capacity	7 L	1.85 gal
Hydraulic Oil Capacity	16.5 L	4.35 gal
Engine Oil Capacity	~1.0 L	~1.06 qt
Travel Speed	0 – 4.5 km/h	0 – 2.8 mph
Max. Crawler Width	180 mm	7.1 in
Boom Swing Angle (Left/Right)	75° / 55°	75° / 55°
System Working Pressure	16 – 18 MPa	2,320 – 2,610 psi
Hydraulic Oil Temperature (Max.)	85°C	185°F

2. INTENDED USE & MACHINE COMPONENTS

2.1 Intended Use

The STARVOX SV20R Mini Compact Excavator is designed for compact earth-moving, landscaping, and construction applications. It is equipped with a quick-attach mount plate for easy connection of various attachments, greatly expanding its versatility.

The SV20R is equipped with a single-cylinder air-cooled diesel or gasoline engine (KOOP / CHANGCHAI diesel or BRIGGS & STRATTON gasoline). A water-cooled three-cylinder KUBOTA engine option is also available.

Typical Applications:

Available Attachments:

Attachment	Description
Quick Hitch	Quick-attach bracket for rapid attachment changes
Narrow Bucket	For trenching in confined spaces
Standard Bucket	0.025 m ³ capacity for general digging
Log Grapple	For handling logs and brush
Mechanical Thumb	For gripping irregular loads
Ripper	For breaking hard ground and rock
Rake	For clearing debris and grading
Auger	For drilling post holes
Dozer Blade	Front-mounted blade for backfilling and leveling

2.2 Machine Components

No.	Component
1	Engine (Diesel or Gasoline)
2	Hydraulic Pump
3	Hydraulic Oil Tank
4	Upper Frame / Rotary Table
5	Slewing Bearing
6	Swing Motor
7	Counterweight
8	Boom
9	Arm
10	Bucket
11	Boom Cylinder
12	Arm Cylinder
13	Bucket Cylinder
14	Dozer Blade
15	Dozer Blade Cylinder
16	Traveling Motor (Left & Right)
17	Sprocket
18	Rubber Crawler
19	Track Roller (4 per side)
20	Idler Assembly
21	Operator Seat
22	Control Console
23	Traveling Levers / Pedals
24	Work Levers
25	Pilot / Safety Lock Lever
26	Fuel Tank
27	Battery
28	Main Power Switch
29	Canopy / ROPS Frame (Optional)

3. SAFETY RULES

⚠ WARNING — Read Before Operating

Safety operation is the operator's duty. Most accidents are caused by failure to follow safety rules. Before operating, servicing, or refueling the SV20R, read this manual carefully and completely. Improper operation can cause death or serious injury to the operator and bystanders.

3.1 Safety Alert Symbols

Symbol	Meaning
DANGER	Indicates an imminently hazardous situation. Failure to comply WILL result in death or serious injury.
WARNING	Indicates a potentially hazardous situation. Failure to comply MAY result in death or serious injury.
NOTICE / CAUTION	Indicates precautionary measures to avoid machine damage or personal injury.
IMPORTANT	Indicates a critical procedural step required to avoid damage to equipment or voiding the warranty.

3.2 General Safety Rules

Before First Operation (Break-In Period — First 100 Hours):

3.3 Pre-Operation Safety

⚠ WARNING — Operator Requirements

Do not operate, maintain, or refuel the excavator before completely understanding this Operator Manual.

Always conduct a pre-operation inspection before starting work (see Chapter 5).

Do not allow unauthorized persons to operate the machine.

Keep the work area clear of bystanders and obstacles.

Wear appropriate personal protective equipment (PPE): hard hat, safety glasses, steel-toe boots, high-visibility vest.

3.4 Working Near Hazards

Underground Utilities:

Overhead Power Lines:

Slopes and Soft Ground:

Operation Safety:

4. CONTROLS & INSTRUMENT PANEL

Familiarize yourself with all controls before operating the SV20R. Know the location and function of each lever, switch, and gauge.

4.1 Left Console — Traveling & Boom Control

Control	Function
Left Traveling Lever — Forward	Move machine straight forward
Left Traveling Lever — Backward	Move machine straight backward
Left Traveling Lever — Left	Pivot turn left (right track stationary)
Left Traveling Lever — Right	Pivot turn right (right track stationary)
Right Traveling Lever — Forward	Pivot turn right (left track stationary)
Right Traveling Lever — Backward	Pivot turn left (left track stationary)
Right Traveling Lever — Left	Lower boom (dozer blade down)
Right Traveling Lever — Right	Raise boom (dozer blade up)
Pilot / Safety Lock Lever	Lock all hydraulic controls when in UP position
Manual Throttle	Adjust engine RPM (idle to full throttle)
Engine Start Switch	OFF / ON / START positions

4.2 Right Console — Work Equipment Control

Control	Function
Right Work Lever — Forward	Retract arm cylinder (arm pulls in)
Right Work Lever — Backward	Extend arm cylinder (arm pushes out)
Right Work Lever — Left	Swing upper frame to the left
Right Work Lever — Right	Swing upper frame to the right
Left Work Lever — Forward	Retract bucket cylinder (bucket curls / dumps)
Left Work Lever — Backward	Extend bucket cylinder (bucket opens / digs)
Left Work Lever — Left	Lower boom
Left Work Lever — Right	Raise boom
Horn Button	Activate warning horn

4.3 Instrument Panel & Gauges

Gauge / Indicator	Function	Action if Abnormal
Hour Meter	Records total engine operating time	—
Fuel Gauge	Indicates fuel level in 7L tank	Refuel when below E
Engine Oil Pressure Light	Lights when oil pressure is low	Stop engine immediately

Charging Light	Lights when alternator is not charging	Check battery/alternator
Engine Temperature Light	Lights when engine is overheating	Stop engine, check coolant
Pilot Lock Indicator	Lights when controls are locked	Lower lever to unlock

4.4 Safety Lock (Pilot Lock Lever)

5. PRE-OPERATION CHECKS

Perform a thorough pre-operation inspection before each work shift. This protects the operator and ensures reliable machine performance.

5.1 Daily Pre-Operation Inspection Checklist

Item	Check	Intervals
Engine Oil Level	Check at dipstick; oil level must be between marks	Daily (10 h)
Hydraulic Oil Level	Check at sight gauge; level must be between marks	Daily (10 h)
Fuel Level	Check gauge; refuel if below E	Daily (10 h)
Oil-Water Separator	Drain any water or sediment from separator	Daily (10 h)
Fuel Lines	Check for leaks, cracks, or bends	Daily (10 h)
Hydraulic Hoses & Pipelines	Check for leaks, damage, or rubbing	Daily (10 h)
Work Equipment Pivots	Check for wear, damage, and proper lubrication	Daily (10 h)
Bucket Teeth	Check for wear beyond service limit (new: 190 mm; limit: 130 mm)	Daily (10 h)
Seat Belt	Check condition and function	Daily (10 h)
Bolts & Nuts	Check all major attachment points for tightness	Daily (10 h)
Lights & Switches	Test all lights and control switches	Daily (10 h)
Track Tension	Check for proper tension; adjust if needed	Daily (10 h)
Battery Terminals	Check for tightness and corrosion; coat with vaseline	50 h
Air Filter Element	Check for blockage or damage; clean or replace	50 h
Oil Cooler	Clean debris from cooler fins	50 h
Slew Bearing Grease	Add grease to slew bearing zerk	50 h
Track Roller Condition	Check for abnormal wear or damage	50 h
Grease All Pivot Points	Lubricate all specified grease points	10 h

5.2 Cold Weather Pre-Operation

In cold weather conditions, additional precautions are required:

6. OPERATION GUIDE

6.1 Starting the Engine

⚠ WARNING — Engine Starting

Never start the engine in an enclosed space without adequate ventilation — exhaust fumes are deadly.

If the engine fails to start, turn the key to OFF and wait 10–15 seconds before retrying.

Do not crank the starter motor for more than 10 seconds continuously.

6.2 Traveling Operation

Basic Travel:

Steering:

Slope Operation:

6.3 Excavation Operation

Optimal Digging Position:

Digging Techniques:

6.4 Stopping and Shutting Down

⚠ IMPORTANT — Parking

Always lower the bucket to the ground and engage the pilot lock before leaving the operator seat.

Remove the key to prevent unauthorized operation.

7. ATTACHMENT CONNECTION

The SV20R accepts a variety of STARVOX-approved attachments via the quick hitch system. Always use approved attachments only.

7.1 Connecting an Attachment

7.2 Disconnecting an Attachment

⚠ WARNING — Hydraulic Attachment Safety

Do not connect or disconnect hydraulic attachments unless the attachment handle is in neutral and hydraulic pressure is fully relieved.

Hydraulic couplers, hoses, and fluid may be hot. Wear gloves when connecting and disconnecting hydraulic lines.

Escaping pressurized hydraulic fluid can penetrate skin and cause serious injury or death.

Use a piece of cardboard or wood, never your hands, to check for hydraulic leaks.

8. TRANSPORT & STORAGE

8.1 Transporting the Machine

8.2 Short-Term Storage (Up to 30 Days)

8.3 Long-Term Storage (Over 30 Days)

9. MAINTENANCE

Proper and regular maintenance protects the SV20R from damage and ensures long service life. Use only genuine STARVOX parts and approved lubricants to maintain warranty coverage.

⚠ WARNING — Service Safety

All service and maintenance must be performed with the engine OFF, all controls in neutral, the pilot lock engaged, and the key removed.

Allow hydraulic oil and engine components to cool before inspection or maintenance.

Support raised booms and arms with safety props before working underneath them.

Do not operate the engine with the canopy/canopy frame removed unless specifically required for service.

9.1 Lubrication Schedule

Lubrication Point	Qty	Every 10 h	Every 50 h
Boom base pivot	1	★	★
Boom cylinder base pivot	1	★	★
Arm base pivot	1	★	★
Arm cylinder plunger pivot	1	★	★
Bucket pivot & connecting rod	2	★	★
Bucket cylinder plunger pivot	1	★	★
Slew bearing (internal gear)	1	—	★ (every 250 h)
Slew bearing (external gear)	1	—	★ (every 500 h)

Note: Use lithium-based grease for all lubrication points. Clean grease fittings before lubricating. Replace any damaged or missing fittings immediately.

9.2 Engine Oil & Filter

NOTICE — Engine Oil

Recommended engine oil: SAE 15W–40 (API SJ or higher) for general use.

Oil viscosity must be selected based on ambient temperature range.

Inspect engine oil level daily. Add oil if below the lower mark on the dipstick.

Change engine oil every 500 hours (or annually, whichever comes first).

Change the engine oil filter every 500 hours at the same time as the oil change.

9.3 Hydraulic System

NOTICE — Hydraulic System

Recommended hydraulic oil: ISO VG 46 or equivalent.

Do not mix different grades or brands of hydraulic oil in the system.

Hydraulic oil change interval: every 2,000 hours under normal conditions.

Change the hydraulic oil suction filter element every 1,000 hours.

With NO hydraulic oil in the system, NEVER start the engine — this will destroy the hydraulic pump.

After any maintenance that opens the hydraulic circuit, bleed air from the system by running all functions at low engine speed for 15 minutes.

9.4 Fuel System

9.5 Battery Maintenance

Task	Procedure
Check Electrolyte Level	Non-sealed battery: check every 10–15 days in winter, 5–6 days in summer. Add distilled water if below minimum.
Maintenance-Free Battery	Check every 50 hours. Green indicator = OK. Yellow/black = recharge or replace.
Terminal Maintenance	Clean terminals with a wire brush. Coat with vaseline to prevent corrosion.
Jump Starting	Use quality cables (400A+). Never disconnect battery terminals while engine is running.
Storage	Store in a cool, dry, well-ventilated area. Keep fully charged.

9.6 Full Maintenance Schedule Summary

Service Item	Interval	Notes
Check engine oil level	Every 10 h	Add SAE 15W–40 if low
Check hydraulic oil level	Every 10 h	Between marks on dipstick
Check fuel level	Every 10 h	Refuel if below E
Drain oil-water separator	Every 10 h	Prevent fuel contamination
Check fuel lines for leaks/cracks	Every 10 h	Replace if damaged
Check hydraulic hoses & pipelines	Every 10 h	Use cardboard to check for leaks
Check bucket teeth wear	Every 10 h	New: 190 mm; Limit: 130 mm
Check seat belt	Every 10 h	Replace if damaged
Tighten bolts & nuts (major)	Every 10 h / 50 h	Use torque wrench; see torque

		chart
Grease all pivot points	Every 10 h	Use lithium grease
Check battery terminals	Every 50 h	Clean and coat with vaseline
Check air filter element	Every 50 h	Clean or replace if blocked
Clean oil cooler fins	Every 50 h	More frequently in dusty conditions
Grease slew bearing (internal gear)	Every 250 h	Park flat, add grease to zerk fittings
Check hose & pipeline (detailed)	Every 250 h	See hose inspection table
Change engine oil (initial)	100 h	First oil change after break-in
Change engine oil	Every 500 h	SAE 15W-40
Change engine oil filter	Every 500 h	Replace at same time as oil
Change hydraulic oil suction filter	Every 1,000 h	Never run without filter
Change hydraulic oil	Every 2,000 h	ISO VG 46 hydraulic oil
Check / replace fuse	As needed	Use correct amperage fuse only
Check track deflection & tension	Every 50 h	Adjust tensioner if needed
Check seat belt	Every 50 h	Replace every 3 years or if damaged
Grease slew bearing external gear	Every 500 h	Add ~0.5 kg grease to external gear

10. TROUBLESHOOTING

The following troubleshooting tables help identify and resolve common issues. For complex faults, contact your authorized STARVOX dealer or a qualified technician.

10.1 Troubleshooting — Mechanical System

Symptom	Possible Cause	Solution
Loose fasteners causing noise	Bolts loosened	Inspect and tighten all bolts
Noisy structural components	Worn bucket-to-arm connection	Adjust clearance to < 1 mm
Bucket teeth falling off	Deformed spring or worn pin	Replace spring or bucket tooth pin
Uneven track movement	Loose crawler	Tighten track tension
Track tangled or derailed	Debris in track path	Remove debris, check track alignment

10.2 Troubleshooting — Hydraulic System

Symptom	Possible Cause	Solution
Machine does not move at all	Low hydraulic oil level	Add hydraulic oil to proper level
	Oil filter blocked	Replace filter; clean system
	Engine coupling damaged	Replace coupling
	Main pump damaged	Repair or replace pump
	Safety valve pressure too low	Adjust or clean safety valve
One track fails to move	Oil suction pipe broken or loose	Replace suction pipe
	Traveling motor damaged	Replace motor
	Main valve rod stuck	Repair or replace valve
	Central swivel joint seal damaged	Replace oil seal
Machine moves slowly / weakly	Low engine RPM	Adjust engine speed
	Low system safety valve pressure	Adjust to specified pressure
	Serious internal leak in main pump	Repair or replace pump
	Worn hydraulic components	Replace seals or components
	Blocked engine or hydraulic filter	Replace filter element
Boom or arm drops quickly	Wrong hydraulic oil grade	Change to ISO VG 46 oil
	Low overload valve pressure	Adjust to specified pressure
	Cylinder internal leak	Replace cylinder seals
	Pilot lock not engaged	Engage pilot lock lever

Hydraulic oil overheating	Wrong oil grade	Change to correct grade
	Oil cooler blocked with dirt	Clean oil cooler fins
	Low hydraulic oil level	Add oil to proper level
	Worn hydraulic components causing internal leak	Replace worn seals and components
Abnormal noise during operation	Low hydraulic oil level	Add oil
	Oil contains moisture or air	Change hydraulic oil
	Safety valve vibrating	Adjust or replace valve
	Damaged coupling	Replace coupling
	Air in suction hose	Bleed air from system
	Loose pipe clamps	Tighten or replace clamps
	Lack of lubrication at bearings	Lubricate or replace bearing

10.3 Troubleshooting — Engine Starting

Symptom	Possible Cause	Solution
Starter does not engage	Battery not fully charged	Charge or replace battery
	Battery terminals loose or rusted	Clean and tighten terminals
	Battery ground wire loose	Clean and tighten ground wire
	Start circuit disabled	Inspect and repair start circuit
	Starter relay armature stuck	Repair or replace starter relay
	Starter motor fault	Repair or replace starter motor
Engine turns over but does not start	Fuel tank empty	Fill with correct fuel
	Fuel system blocked (air, water, dirt)	Bleed fuel system; replace filter
	Fuel pump fault	Inspect and repair fuel pump
	Wrong fuel grade for temperature	Use correct fuel grade
	Engine fault	Contact authorized service technician
Engine stalls during operation	Loose wire harness connection	Check all connectors; repair
	Poor ground connection	Inspect ground circuit; repair

10.4 Fuse Specification

Fuse	Rating	Protected Circuit
F1	15A	Main power / ignition circuit

F2	10A	Lights
F3	10A	Horn / accessories
F4	5A	Instrument panel
F5	15A	Fuel pump
F11	10A	Safety lock switch

NOTICE — Electrical System

Always use fuses with the correct amperage rating. Incorrect fuses can cause electrical fires or damage to electronic control modules.

If a fuse blows repeatedly, do not install a higher-amperage fuse — identify and repair the underlying fault.

11. SPECIFICATIONS — SV20R Mini Compact Excavator

11.1 Overall Dimensions

Item	Metric	Imperial
Overall Length (Transport)	2,775 mm	109.3 in
Overall Height	2,219 mm	87.4 in
Overall Width	930 mm	36.6 in
Wheel Track	895 mm	35.2 in
Overall Track Length	1,203 mm	47.4 in
Crawler Width	180 mm	7.1 in
Crawler Height	313 mm	12.3 in
Ground Clearance (Front)	357 mm	14.1 in
Ground Clearance (Rear)	800 mm	31.5 in

11.2 Work Range & Performance

Item	Metric	Imperial
Max. Digging Radius	2,850 mm	112.2 in
Max. Digging Depth	1,650 mm	65.0 in
Max. Digging Height	2,600 mm	102.4 in
Max. Unloading Height	1,800 mm	70.9 in
Max. Vertical Digging Depth	1,380 mm	54.3 in
Min. Swing Radius	1,300 mm	51.2 in
Boom Swing Angle (Left / Right)	75° / 55°	75° / 55°
Dozer Blade Lift Height	110 mm	4.3 in
Dozer Blade Dig Depth	110 mm	4.3 in
Standard Bucket Capacity	0.025 m ³	0.88 ft ³

11.3 Engine & System

Item	Metric	Imperial
Engine Type	Single-cylinder air-cooled diesel/gasoline (KOOP / CHANGCHAI / BRIGGS & STRATTON) or 3-cylinder KUBOTA water-cooled diesel	—
Rated Power	Refer to engine label	Refer to engine label
Fuel Tank Capacity	7 L	1.85 gal

Hydraulic Oil Capacity	16.5 L	4.35 gal
System Working Pressure	16–18 MPa	2,320–2,610 psi
Max. Hydraulic Oil Temperature	85°C	185°F
Engine Oil Capacity	~1.0 L	~1.06 qt
Battery Voltage	12V, negative ground	12V, negative ground
Travel Speed	0–4.5 km/h	0–2.8 mph
Gradeability	Up to 15°	Up to 15°
Noise Level (Operator Ear)	< 85 dB(A)	< 85 dB(A)

11.4 Torque Specifications

Thread	Standard Torque	Thread	Standard Torque
M6	12 ± 3 N·m	M14	160 ± 30 N·m
M8	28 ± 7 N·m	M16	240 ± 40 N·m
M10	55 ± 10 N·m	M20	460 ± 60 N·m
M12	100 ± 20 N·m	M30	1,600 ± 200 N·m
M16 Traveling Motor Bolts	252 ± 39 N·m	M16 Sprocket Bolts	252 ± 39 N·m
M20 Slewing Bearing Bolts	570 ± 60 N·m	M20 Swing Mechanism Bolts	570 ± 60 N·m

12. WARRANTY & SUPPORT

12.1 Warranty Coverage

STARVOX Equipment warrants the SV20R Mini Compact Excavator against defects in materials and workmanship under normal use and service for the period specified in your purchase agreement. The warranty does not cover:

For full warranty terms and conditions, refer to your STARVOX Warranty Certificate.

12.2 Ordering Parts & Service

12.3 Contact Information

Manufacturer	STARVOX Equipment
Website	www.starvox.com
Email	info@starvox.com
Technical Support	Contact your authorized STARVOX dealer
Parts Ordering	Contact your authorized STARVOX dealer
Emergency Service	Contact your authorized STARVOX dealer

STARVOX SV20R Mini Compact Excavator — Operator & Maintenance Manual

Specifications are subject to change without notice. For the latest information, visit www.starvox.com or contact your authorized STARVOX dealer. Version 2026