



---

# Operation and Maintenance Manual

---



## SY50U Excavator

[service@sanyamerica.com](mailto:service@sanyamerica.com)

SANY Part Number SSY005082347

**This Page Intentionally Left Blank**

# SANY

## SY50U Excavator

### Operation and Maintenance Manual



#### **WARNING!**

Read and understand all safety precautions and instructions in this manual and on the machine labels before operating or maintaining it. Failure to follow safety messages could result in death or serious injury. Keep this manual with the machine for future reference.

This manual and its contents prepared by SANY Technical Publications, while deemed to be accurate, is based upon technical information provided and for equipment designed, manufactured, and tested by:

SANY Group  
Shanghai SANY Heavy Machinery Limited  
318A, Lianggang Avenue, Lingang Industrial Park,  
Fengxian District, Shanghai, P.R. of China 201413

It is the responsibility of the owner, user, properly trained operator, and lessor to be knowledgeable of, and comply with, all industry standards, government regulations, workplace rules, and other directives that may govern and/or apply to this equipment as well as its environment/conditions of use.

SANY  
318 Cooper Circle  
Peachtree City, Georgia 30269  
[www.sanyamerica.com](http://www.sanyamerica.com)  
Phone: 470-552-SANY (7269)  
[www.sanyamerica.com/find-a-dealer](http://www.sanyamerica.com/find-a-dealer)



**WARNING!**

### **CALIFORNIA PROPOSITION 65 WARNING**

**Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.**



**WARNING!**

### **CALIFORNIA PROPOSITION 65 WARNING**

**The battery posts, terminals, and related accessories contain chemical lead and lead compounds, chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. Wash hands after handling.**

© 2020 by SANY. All rights reserved. No part of this publication may be reproduced, used, distributed, or disclosed except for normal operation and maintenance of the machine as described herein. All information included within this publication was accurate at the time of publication. Product improvements, revisions, etc., may result in differences between the machine and what is presented here. For more information, contact SANY.

# Table of Contents

## Introduction

About This Manual . . . . .	1-2
Documentation Package . . . . .	1-3
Operation and Maintenance Manual . . . . .	1-3
Parts Manual . . . . .	1-3
Maintenance Log . . . . .	1-3
Organization of This Manual . . . . .	1-4
Introduction . . . . .	1-4
Safety . . . . .	1-4
Machine Controls . . . . .	1-4
Machine Operation . . . . .	1-4
Maintenance . . . . .	1-4
Specifications . . . . .	1-4
Optional Equipment . . . . .	1-4
Machine Applications . . . . .	1-5
Machine Directions . . . . .	1-5
Serial Number Location . . . . .	1-6
Product Identification Plate . . . . .	1-6
Frame Serial Number . . . . .	1-6
Swing Motor Identification Plate . . . . .	1-7
Engine Identification Plate . . . . .	1-7
Hydraulic Pump Identification Plates . . . . .	1-8
Travel Motor Identification Plate . . . . .	1-8
SANY Contact Information . . . . .	1-9
Record of Serial Number and Dealer Information . . . . .	1-9
Correction Request Form . . . . .	1-10
Glossary of Acronyms . . . . .	1-11

## Safety

General Safety . . . . .	2-3
Hazard Alerts in This Manual . . . . .	2-3
Machine Decals . . . . .	2-3
Operator Safety Information . . . . .	2-4
Mount and Dismount the Machine . . . . .	2-5
Machine Safety . . . . .	2-5
Authorized Use of This Machine . . . . .	2-5
Unauthorized Use of This Machine . . . . .	2-5
Unauthorized Machine Modifications . . . . .	2-6

Escape Tool . . . . .	2-6
Fire Safety . . . . .	2-6
Electrical Fires . . . . .	2-6
Fire Extinguisher . . . . .	2-6
In Case of Fire . . . . .	2-7
Crushing Hazard . . . . .	2-7
Diesel Engine Exhaust . . . . .	2-7
Maintenance Safety . . . . .	2-8
Lockout/Tagout Procedure . . . . .	2-9
Cleaning the Machine . . . . .	2-9
Fluid Systems . . . . .	2-9
Adding Fluids to the Machine . . . . .	2-9
Refueling . . . . .	2-9
High-Pressure Fluid Lines . . . . .	2-9
Accumulator . . . . .	2-10
Electrical System . . . . .	2-10
Battery Safety . . . . .	2-10
Disconnect the Battery . . . . .	2-10
Job Safety . . . . .	2-11
Personal Protective Equipment (PPE) . . . . .	2-11
Hearing Protection . . . . .	2-11
Travel and Operation Precautions . . . . .	2-12
Inclined Areas . . . . .	2-12
Snow or Frozen Surfaces . . . . .	2-12
Avoid Backover Accidents . . . . .	2-13
Dust and Chemical Hazards . . . . .	2-13
Environmental Precautions . . . . .	2-13
Precautions in High-Voltage Areas . . . . .	2-14

**Machine Controls**

Machine Overview . . . . .	3-3
Monitor . . . . .	3-4
Daily Maintenance Information Screen . . . . .	3-4
Maintenance Information Screen . . . . .	3-5
Home Screen . . . . .	3-5
Function List Screen . . . . .	3-7
System Information Screen . . . . .	3-8
Main Menu Screen . . . . .	3-8
Operation Information Screen . . . . .	3-9
Switch Signals Screen . . . . .	3-10
Joystick Screen . . . . .	3-10
Machine Configuration Screen . . . . .	3-11
Failure Information Screen . . . . .	3-11
Global Positioning System (GPS) Information Screen . . . . .	3-12
Language Selection Screen . . . . .	3-12
Maintain Table Screen . . . . .	3-13
Operating Mode Screen . . . . .	3-13
Flow Rate Information Screen . . . . .	3-14
Flow Rate Setting Screen . . . . .	3-15

System Unlocked Screen . . . . .	3-15
Reserved Function . . . . .	3-15
Quick Coupler Control Screen . . . . .	3-16
Date and Time Setup Screen . . . . .	3-16
Diesel Particulate Filter (DPF) Screens . . . . .	3-17
Switches . . . . .	3-19
Joystick Switches . . . . .	3-20
Left Joystick Switch . . . . .	3-20
Right Joystick Switch . . . . .	3-20
Horn Button . . . . .	3-21
Throttle Control Dial . . . . .	3-21
Key Switch . . . . .	3-22
Travel Alarm Switch . . . . .	3-22
Windshield Washer Switch . . . . .	3-23
Windshield Wiper Switch . . . . .	3-23
Work Light Switch . . . . .	3-23
Emergency Stop Switch . . . . .	3-24
Battery Disconnect Switch . . . . .	3-25
Power Outlet (12V) . . . . .	3-25
Dome Light Switch . . . . .	3-26
Controls . . . . .	3-27
Dozer Blade Control Lever . . . . .	3-28
Return Flow Selector Valve . . . . .	3-28
Joystick Controls . . . . .	3-29
Joystick SAE Mode . . . . .	3-29
Left Joystick – SAE Mode . . . . .	3-29
Right Joystick – SAE Mode . . . . .	3-29
Joystick BHL Mode . . . . .	3-30
Left Joystick – BHL Mode . . . . .	3-30
Right Joystick – BHL Mode . . . . .	3-30
Pattern Change (SAE/BHL) Valve . . . . .	3-31
Hydraulic Lockout Control Lever . . . . .	3-32
Directional Arrow . . . . .	3-33
Travel Control Levers/Pedals . . . . .	3-33
Boom Swing Control Pedal . . . . .	3-34
Windshield . . . . .	3-35
Opening the Windshield . . . . .	3-35
Closing the Windshield . . . . .	3-36
Lower the Windshield . . . . .	3-37
Heating and Air Conditioning System . . . . .	3-38
Control Panel . . . . .	3-38
Heating and Air Conditioning System Operation . . . . .	3-39
Air Outlets . . . . .	3-39
Ventilation . . . . .	3-39
Radio . . . . .	3-40
Control Panel . . . . .	3-40
Radio Operation . . . . .	3-41
Presetting Radio Stations . . . . .	3-41
Searching Radio Stations . . . . .	3-42
Manual Tuning . . . . .	3-42
Automatic Tuning . . . . .	3-42

TABLE OF CONTENTS

INTRODUCTION

SAFETY

MACHINE CONTROLS

MACHINE OPERATION

MAINTENANCE

SPECIFICATIONS

OPTIONAL EQUIPMENT

Sound Mode Adjustment . . . . .	3-42
Time Adjustment . . . . .	3-43
Escape Tool . . . . .	3-44
Fire Extinguisher . . . . .	3-44
Machine Overview . . . . .	3-3
Monitor . . . . .	3-4
Daily Maintenance Information Screen . . . . .	3-4
Maintenance Information Screen . . . . .	3-5
Home Screen . . . . .	3-5
Function List Screen . . . . .	3-7
System Information Screen . . . . .	3-8
Main Menu Screen . . . . .	3-8
Operation Information Screen . . . . .	3-9
Switch Signals Screen . . . . .	3-10
Joystick Screen . . . . .	3-10
Machine Configuration Screen . . . . .	3-11
Failure Information Screen . . . . .	3-11
Global Positioning System (GPS) Information Screen . . . . .	3-12
Language Selection Screen . . . . .	3-12
Maintain Table Screen . . . . .	3-13
Operating Mode Screen . . . . .	3-13
Flow Rate Information Screen . . . . .	3-14
Flow Rate Setting Screen . . . . .	3-15
System Unlocked Screen . . . . .	3-15
Reserved Function . . . . .	3-15
Quick Coupler Control Screen . . . . .	3-16
Date and Time Setup Screen . . . . .	3-16
Diesel Particulate Filter (DPF) Screens . . . . .	3-17
Switches . . . . .	3-19
Joystick Switches . . . . .	3-20
Left Joystick Switch . . . . .	3-20
Right Joystick Switch . . . . .	3-20
Horn Button . . . . .	3-21
Throttle Control Dial . . . . .	3-21
Key Switch . . . . .	3-22
Travel Alarm Switch . . . . .	3-22
Windshield Washer Switch . . . . .	3-23
Windshield Wiper Switch . . . . .	3-23
Work Light Switch . . . . .	3-23
Emergency Stop Switch . . . . .	3-24
Battery Disconnect Switch . . . . .	3-25
Power Outlet (12V) . . . . .	3-25
Dome Light Switch . . . . .	3-26
Controls . . . . .	3-27
Dozer Blade Control Lever . . . . .	3-28
Return Flow Selector Valve . . . . .	3-28
Joystick Controls . . . . .	3-29
Joystick SAE Mode . . . . .	3-29
Left Joystick – SAE Mode . . . . .	3-29
Right Joystick – SAE Mode . . . . .	3-29
Joystick BHL Mode . . . . .	3-30



Left Joystick – BHL Mode . . . . .	3-30
Right Joystick – BHL Mode . . . . .	3-30
Pattern Change (SAE/BHL) Valve . . . . .	3-31
Hydraulic Lockout Control Lever . . . . .	3-32
Directional Arrow . . . . .	3-33
Travel Control Levers/Pedals . . . . .	3-33
Boom Swing Control Pedal . . . . .	3-34
Windshield . . . . .	3-35
Opening the Windshield . . . . .	3-35
Closing the Windshield . . . . .	3-36
Lower the Windshield . . . . .	3-37
Heating and Air Conditioning System . . . . .	3-38
Control Panel . . . . .	3-38
Heating and Air Conditioning System Operation . . . . .	3-39
Air Outlets . . . . .	3-39
Ventilation . . . . .	3-39
Radio . . . . .	3-40
Control Panel . . . . .	3-40
Radio Operation . . . . .	3-41
Presetting Radio Stations . . . . .	3-41
Searching Radio Stations . . . . .	3-42
Manual Tuning . . . . .	3-42
Automatic Tuning . . . . .	3-42
Sound Mode Adjustment . . . . .	3-42
Time Adjustment . . . . .	3-43
Escape Tool . . . . .	3-44
Fire Extinguisher . . . . .	3-44

**Machine Operation**

Work Area . . . . .	4-4
General Job Safety . . . . .	4-4
Operator Responsibilities . . . . .	4-4
Prestart Checks and Adjustments . . . . .	4-5
Fluid Level Checks . . . . .	4-6
Engine Coolant Level . . . . .	4-6
Check . . . . .	4-6
Add Coolant . . . . .	4-6
Engine Oil Level Check . . . . .	4-7
Fuel Level Check . . . . .	4-8
Add Fuel . . . . .	4-8
Fuel Tank Filler Cap . . . . .	4-9
Check and Drain the Fuel/Water Separator . . . . .	4-10
Check the Hydraulic Oil Level . . . . .	4-11
Windshield Washer Fluid Check and Fill . . . . .	4-12
Electrical Components Check . . . . .	4-13
Horn Function Check . . . . .	4-13
Seat and Seat Belt . . . . .	4-14
Seat Position Adjustment . . . . .	4-14
Seat Backrest Adjustment . . . . .	4-14

TABLE OF CONTENTS

INTRODUCTION

SAFETY

MACHINE CONTROLS

MACHINE OPERATION

MAINTENANCE

SPECIFICATIONS

OPTIONAL EQUIPMENT

Seat Weight Suspension Adjustment . . . . .	4-14
Seat Belt . . . . .	4-14
Buckle the Seat Belt . . . . .	4-15
Unbuckle the Seat Belt . . . . .	4-15
Mirror Adjustment . . . . .	4-16
Antenna . . . . .	4-16
Starting the Engine . . . . .	4-17
Idling the Engine . . . . .	4-19
Cold Weather Engine Starting . . . . .	4-19
Warm-up Operation . . . . .	4-20
New Machine Break-In . . . . .	4-21
Engine Shutdown . . . . .	4-22
Inspection after Engine Shutdown . . . . .	4-22
Moving the Machine . . . . .	4-23
Directional Arrow . . . . .	4-23
Machine Moving Precautions . . . . .	4-23
Travel Controls . . . . .	4-24
Forward Travel . . . . .	4-24
Reverse Travel . . . . .	4-24
Right Turn . . . . .	4-24
Left Turn . . . . .	4-25
Spot Turning . . . . .	4-25
Stopping the Machine . . . . .	4-25
Work Equipment Control and Operation . . . . .	4-26
Arm Control—SAE Mode . . . . .	4-26
Arm Control—BHL Mode . . . . .	4-26
Boom Control—SAE Mode . . . . .	4-26
Boom Control—BHL Mode . . . . .	4-27
Swing Control . . . . .	4-27
Bucket Control . . . . .	4-27
Boom Swing Control Pedal . . . . .	4-28
Dozer Blade Control Lever . . . . .	4-28
Restricted Operation . . . . .	4-29
Never Operate with Bucket Force . . . . .	4-29
Never Use Swing Force . . . . .	4-30
Never Use Traveling Force . . . . .	4-30
Never Operate Using Machine Weight . . . . .	4-31
Do Not Operate a Cylinder to the Stroke End . . . . .	4-31
Avoid Dozer Blade Impact . . . . .	4-32
Avoid Shifting Travel Directions Suddenly . . . . .	4-32
Support the Dozer Blade . . . . .	4-32
Excavating Hard Ground . . . . .	4-32
Travel . . . . .	4-33
General Travel Instructions . . . . .	4-33
Traveling at High Speed . . . . .	4-34
Operating in Water . . . . .	4-35
Traveling on an Incline . . . . .	4-36
Precautions When Traveling on an Incline . . . . .	4-36
Engine Stalls on an Incline . . . . .	4-38
Operation on Soft Ground . . . . .	4-39
Removing a Stuck Machine . . . . .	4-39

One Track Stuck . . . . .	4-39
Two Tracks Stuck . . . . .	4-40
Towing the Machine . . . . .	4-41
Towing Point for a Light Load . . . . .	4-41
Recommended Operations . . . . .	4-42
Trenching Work . . . . .	4-42
Boom Swing Feature . . . . .	4-43
Vehicle Loading . . . . .	4-43
Leveling Operation . . . . .	4-43
Operating Precautions . . . . .	4-44
Park the Machine . . . . .	4-45
Parking the Machine on a Grade . . . . .	4-45
Cold Weather Operation . . . . .	4-46
Operation in Cold Weather . . . . .	4-46
Engine Coolant in Cold Weather . . . . .	4-46
Battery in Cold Weather . . . . .	4-46
After Daily Operation . . . . .	4-46
Machine Storage in Cold Weather . . . . .	4-47
After Cold Season . . . . .	4-47
Long-Term Storage . . . . .	4-48
Before Long-Term Storage . . . . .	4-48
During Storage . . . . .	4-48
Air Conditioner Storage . . . . .	4-49
Removing from Storage . . . . .	4-49
Starting the Engine After Long-Term Storage . . . . .	4-49
Transportation Information . . . . .	4-50
Transportation Method . . . . .	4-50
Loading and Unloading . . . . .	4-50
Loading the Machine . . . . .	4-51
Securing the Machine . . . . .	4-54
Unloading the Machine . . . . .	4-55
Lifting the Machine . . . . .	4-57

**Maintenance**

Maintenance Information . . . . .	5-5
Checks Before Maintenance . . . . .	5-5
Checks After Maintenance or Repairs . . . . .	5-5
Hour Meter Reading . . . . .	5-5
Genuine SANY Parts . . . . .	5-5
SANY-Approved Lubricants . . . . .	5-6
Windshield Washer Fluid . . . . .	5-6
Oil and Filter Inspection . . . . .	5-6
Collect Oil Sample . . . . .	5-6
Fuel Tank Strainer . . . . .	5-6
Preventing Contamination . . . . .	5-6
Installation of Hydraulic Hoses . . . . .	5-6
Securing Access Covers and Compartment Doors . . . . .	5-6
Cleaning the Machine . . . . .	5-7
Weld, Drill, Cut, or Grind on the Machine . . . . .	5-7

TABLE OF CONTENTS

INTRODUCTION

SAFETY

MACHINE CONTROLS

MACHINE OPERATION

MAINTENANCE

SPECIFICATIONS

OPTIONAL EQUIPMENT

---

Inspection and Maintenance in Adverse Environments . . . . .	5-7
Mud, Rain, or Snow Conditions . . . . .	5-7
Near Ocean (Salt Air) Environments . . . . .	5-8
Dusty Environments . . . . .	5-8
Cold Environments . . . . .	5-8
Other Weather Environments . . . . .	5-8
Check the Maintenance Log . . . . .	5-8
Daily Inspection and Maintenance . . . . .	5-9
Recommended Lubricants, Fuels, and Coolant . . . . .	5-10
Hydraulic Oil Description . . . . .	5-10
Lubrication and Grease . . . . .	5-10
Windshield Washer Fluid . . . . .	5-10
Fuel . . . . .	5-11
Engine Coolant . . . . .	5-11
Engine Oil Viscosity/Temperature Data . . . . .	5-12
Fluid Capacities . . . . .	5-12
Additional Approved Service Products . . . . .	5-13
Collect Oil Samples . . . . .	5-13
Maintenance Schedule . . . . .	5-14
Daily Maintenance and Inspection . . . . .	5-14
When Required . . . . .	5-14
After the First 50 Hours . . . . .	5-15
Weekly or Every 50 Hours . . . . .	5-15
Every 100 Hours . . . . .	5-15
After the First 150 Hours . . . . .	5-15
Every 250 Hours . . . . .	5-15
Every 3 Months or 500 Hours . . . . .	5-15
Every 6 Months or 1000 Hours . . . . .	5-16
Every 1500 Hours . . . . .	5-16
Annually or Every 2000 Hours . . . . .	5-16
Annually or Every 4000 Hours . . . . .	5-17
After Maintenance is Completed . . . . .	5-17
Hydraulic Breaker Maintenance Interval . . . . .	5-17
Lubrication and Maintenance Charts . . . . .	5-18
Accessory Light Outlet . . . . .	5-20
Doors and Hood . . . . .	5-20
Cab Door . . . . .	5-21
Engine Hood . . . . .	5-21
Opening the Engine Hood . . . . .	5-21
Closing the Engine Hood . . . . .	5-22
Right Rear Access Door . . . . .	5-22
Opening the Right Rear Access Door . . . . .	5-22
Closing the Right Rear Access Door . . . . .	5-22
Right Front Access Door . . . . .	5-22
Unlocking/Opening the Right Front Access Door . . . . .	5-22
Closing/Locking the Right Front Access Door . . . . .	5-23
Fuse Access Door . . . . .	5-23
Unlocking/Opening the Fuse Access Door . . . . .	5-23
Closing/Locking the Fuse Access Door . . . . .	5-23
Windshield . . . . .	5-24
Inspect the Windshield Mechanism . . . . .	5-24

---

Inspect and Tighten the Windshield Wiper Arm Nut . . . . .	5-25
Fuses . . . . .	5-26
Maintenance Procedures . . . . .	5-27
Engine . . . . .	5-27
Engine Inspection . . . . .	5-27
Prestart Inspection . . . . .	5-28
Collect Engine Oil Sample . . . . .	5-28
Check the Engine Oil Level . . . . .	5-28
Change the Engine Oil and Filter . . . . .	5-29
Check and Adjust the Fan Belt Tension . . . . .	5-30
Replace the Fan Belt . . . . .	5-30
Check and Replace the Air Filters . . . . .	5-31
Check . . . . .	5-31
Replace . . . . .	5-31
Check the Alternator . . . . .	5-31
Check the Starter . . . . .	5-32
Inspect Engine Crankcase Breather System . . . . .	5-32
Cooling System . . . . .	5-32
Check the Engine Coolant Level . . . . .	5-32
Change the Engine Coolant . . . . .	5-33
Inspect the Engine Water Pump . . . . .	5-34
Inspect and Clean the Cooling Package . . . . .	5-35
Heating and Air Conditioning System . . . . .	5-36
Check Heating and Air Conditioning System Operation . . . . .	5-36
Clean or Replace the Ventilation Filter Screen . . . . .	5-36
Check and Adjust the Air Conditioning Compressor Belt Tension . . . . .	5-37
Two Methods of Checking Belt Tension . . . . .	5-37
Adjust the Air Conditioning Compressor Belt Tension . . . . .	5-37
Air Conditioning Storage . . . . .	5-38
Air Conditioning Components Inspection and Maintenance Schedule . . . . .	5-38
Fuel System . . . . .	5-39
Bleed the Fuel System . . . . .	5-39
Drain the Fuel Tank . . . . .	5-39
Replace the Fuel Filter . . . . .	5-40
Drain and Clean the Fuel/Water Separator . . . . .	5-41
Battery . . . . .	5-43
Check the Battery . . . . .	5-43
Remove the Battery . . . . .	5-44
Hydraulic System . . . . .	5-46
Check the Accumulator Function . . . . .	5-46
Check the Hydraulic Hoses, Lines, and Connectors . . . . .	5-46
Relieve Hydraulic System Pressure . . . . .	5-46
Check Hydraulic Oil Tank Level . . . . .	5-47
Add Hydraulic Oil . . . . .	5-47
Replace the Hydraulic Tank Breather Filter Element . . . . .	5-48
Replace the Hydraulic Oil Pilot Filter . . . . .	5-49
Replace the Hydraulic Oil Return Filter . . . . .	5-50
Clean and Replace the Hydraulic Oil Suction Strainer . . . . .	5-51
Change the Hydraulic Oil . . . . .	5-53
Collect Hydraulic Oil Sample . . . . .	5-54
Track Assembly . . . . .	5-55

TABLE OF CONTENTS

INTRODUCTION

SAFETY

MACHINE CONTROLS

MACHINE OPERATION

MAINTENANCE

SPECIFICATIONS

OPTIONAL EQUIPMENT

Check the Track Tension . . . . .	5-55
Adjust the Track Tension . . . . .	5-55
Increase the Track Tension . . . . .	5-55
Decrease the Track Tension . . . . .	5-56
Check and Add Final Drive Oil . . . . .	5-57
Change the Final Drive Oil . . . . .	5-58
Collect Final Drive Oil Sample . . . . .	5-59
Check the Final Drive Motor Mounting Fasteners . . . . .	5-59
Lubrication . . . . .	5-60
Lubrication Points . . . . .	5-60
Arm Cylinder Rod End Pin . . . . .	5-61
Boom-Arm Connecting Pin . . . . .	5-61
Arm Cylinder Base End Pin . . . . .	5-62
Boom Pin . . . . .	5-62
Swing Bearing . . . . .	5-62
Dozer Blade Linkage Pins and Dozer Blade Cylinder End Pins . . . . .	5-63
Boom Cylinder Base End Pin . . . . .	5-63
Boom Cylinder Rod End Pin . . . . .	5-63
Bucket Linkage Pins . . . . .	5-64
Bucket Cylinder Rod End Pin . . . . .	5-64
Bucket Cylinder Base End Pin . . . . .	5-64
Boom Swing Cylinder Rod End Pin . . . . .	5-65
Boom Swing Cylinder Base End Pin . . . . .	5-65
Swing Gear . . . . .	5-65
Boom Swing Pin . . . . .	5-66
Cab Door . . . . .	5-66
Inspect and Lubricate the Cab Door . . . . .	5-66
Bucket . . . . .	5-68
Replace the Bucket Teeth . . . . .	5-68
Remove and Install the Bucket . . . . .	5-69

**Specifications**

Machine Dimensions . . . . .	6-2
Working Ranges . . . . .	6-3
Technical Specifications . . . . .	6-5
Lift Chart: Blade Down . . . . .	6-6
Lift Chart: Blade Up . . . . .	6-7

**Optional Equipment**

Optional Equipment Selection . . . . .	7-2
Read Equipment Instructions . . . . .	7-2
Installation and Removal Precautions . . . . .	7-2
Equipment Operation Precautions . . . . .	7-3
Install Optional Equipment . . . . .	7-4
Remove Optional Equipment . . . . .	7-6



# Introduction

About This Manual . . . . .	1-2
Documentation Package . . . . .	1-3
Operation and Maintenance Manual . . . . .	1-3
Parts Manual . . . . .	1-3
Maintenance Log . . . . .	1-3
Organization of This Manual . . . . .	1-4
Introduction . . . . .	1-4
Safety . . . . .	1-4
Machine Controls . . . . .	1-4
Machine Operation . . . . .	1-4
Maintenance . . . . .	1-4
Specifications . . . . .	1-4
Optional Equipment . . . . .	1-4
Machine Applications . . . . .	1-5
Machine Directions . . . . .	1-5
Serial Number Location . . . . .	1-6
Product Identification Plate . . . . .	1-6
Frame Serial Number . . . . .	1-6
Swing Motor Identification Plate . . . . .	1-7
Engine Identification Plate . . . . .	1-7
Hydraulic Pump Identification Plates . . . . .	1-8
Travel Motor Identification Plate . . . . .	1-8
SANY Contact Information . . . . .	1-9
Record of Serial Number and Dealer Information . . . . .	1-9
Correction Request Form . . . . .	1-10
Glossary of Acronyms . . . . .	1-11

---

## ABOUT THIS MANUAL

This manual provides operation and maintenance information for the SY50U excavator.



### WARNING!

**Unsafe operation and maintenance of this machine could result in death or serious injury. This machine must be operated and maintained by trained and experienced personnel. Do not operate or work on this machine without first reading and understanding this Operation and Maintenance Manual supplied with the machine.**

It is important to read and understand this manual before beginning any operation or service. All personnel involved with this machine should read this manual periodically to remain knowledgeable on its operation and service.

Items addressed in this manual are designed to help the operator or service personnel:

- Understand the controls and operation of the machine.
- Point out possible hazardous situations when operating or maintaining the machine.
- Increase machine efficiency during operation.
- Prolong the service life of the machine.
- Reduce maintenance costs.

Continuing improvements in the design of this machine can lead to changes which may not be covered in this manual. Contact a SANY dealer for the latest available information on the machine or to answer any questions regarding information in this manual.



## DOCUMENTATION PACKAGE

This documentation applies only to this machine and should not be used with any other machine. The documentation for this machine includes the following items:

### Operation and Maintenance Manual

A copy of this manual must be stored in the machine or be accessible to the operator at all times. If the machine is sold, a copy of this manual must be provided to the new owner.

A copy of the operation and maintenance manual should be made available to maintenance personnel when servicing the machine.

### Parts Manual

The parts manual consists of parts lists and matching drawings used for ordering parts as needed. The parts manual must be made available to all service personnel.

### Maintenance Log

The maintenance log lists regularly scheduled maintenance that should be performed by the operator or service personnel. All maintenance performed on the machine must be recorded in the maintenance log.

## **ORGANIZATION OF THIS MANUAL**

### **Introduction**

Contains an overview of this manual, serial number information, and SANY contact information.

### **Safety**

Hazard alerts used throughout the manual are explained. General and product-specific safety information is provided for this manual.

### **Machine Controls**

An overview of controls and the operating systems is provided in this section.

### **Machine Operation**

Detailed prestart checks, operating procedures, end-of-day checks, general operating instructions, and storage information.

### **Maintenance**

Provides routine maintenance procedures and fluid specifications.

### **Specifications**

General dimensions and weight of the machine, and systems/components performance information.

### **Optional Equipment**

Provides general hydraulic installation and removal information for optional equipment.

## MACHINE APPLICATIONS

This excavator is a multipurpose construction machine used primarily for digging or loading earth and stones. It can also be used for grading, slope-trimming, lifting, breaking, demolishing, and trenching. It can perform the functions of a bulldozer, loader, and a crane.

This excavator can also operate a variety of optional equipment.

SANY assumes no responsibility for any consequence caused by use outside this specified range.

## Machine Directions

In this manual, the front, back, left, and right directions indicate the moving direction when viewed from the operator seat.

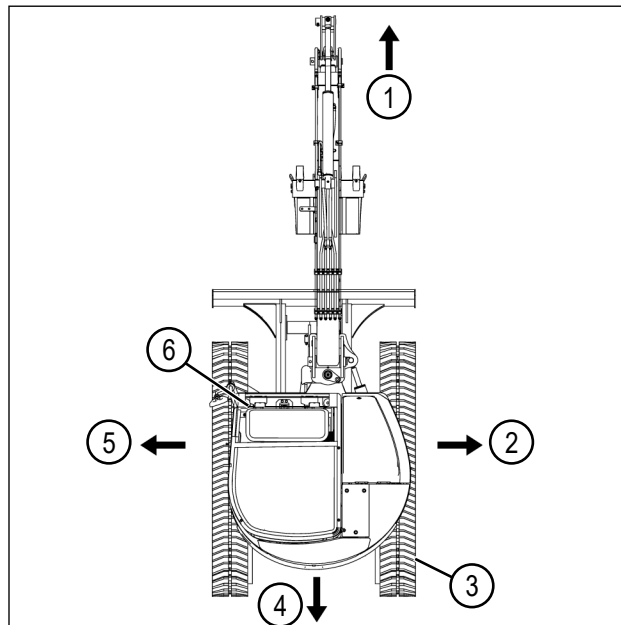


Fig. 1-1

0003784

- |             |                  |
|-------------|------------------|
| 1) Front    | 4) Back          |
| 2) Right    | 5) Left          |
| 3) Sprocket | 6) Operator seat |

## SERIAL NUMBER LOCATION

Product identification plates are located in various places on the excavator. These list model and serial numbers that will be needed by a SANY dealer when ordering replacement parts or providing assistance for your machine.

### Product Identification Plate

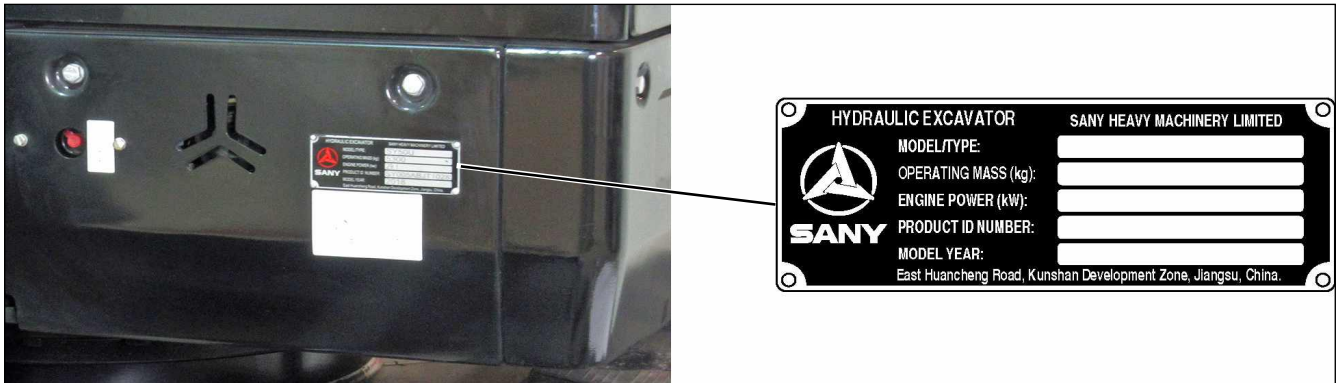


Fig. 1-2

0003139

The identification plate is on the lower front of the cab.

### Frame Serial Number

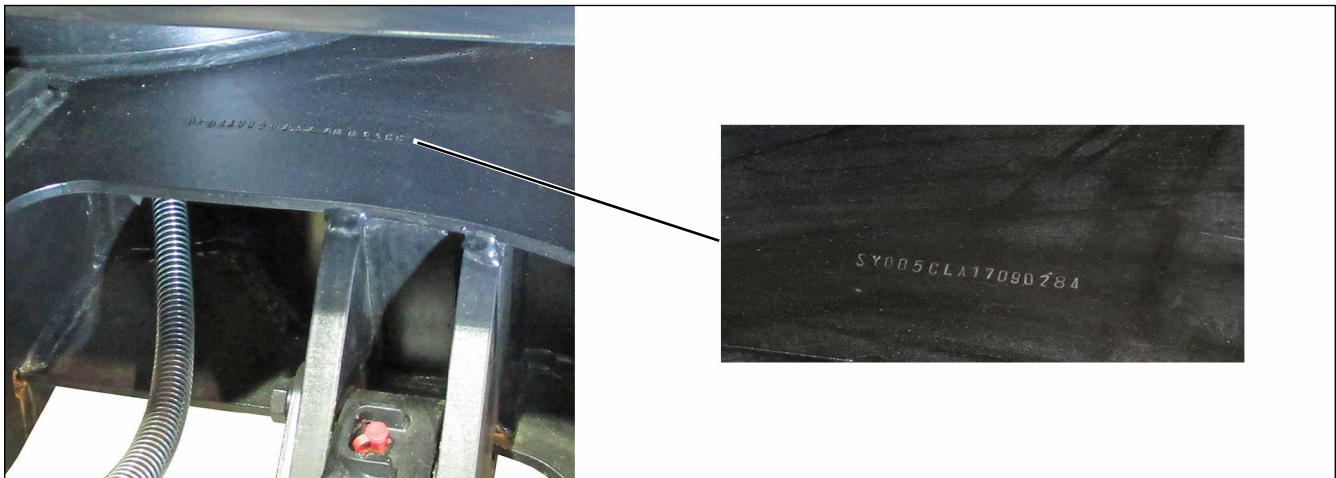


Fig. 1-3

0003170

The frame serial number is stamped on the front of the travel carriage frame.

### Swing Motor Identification Plate

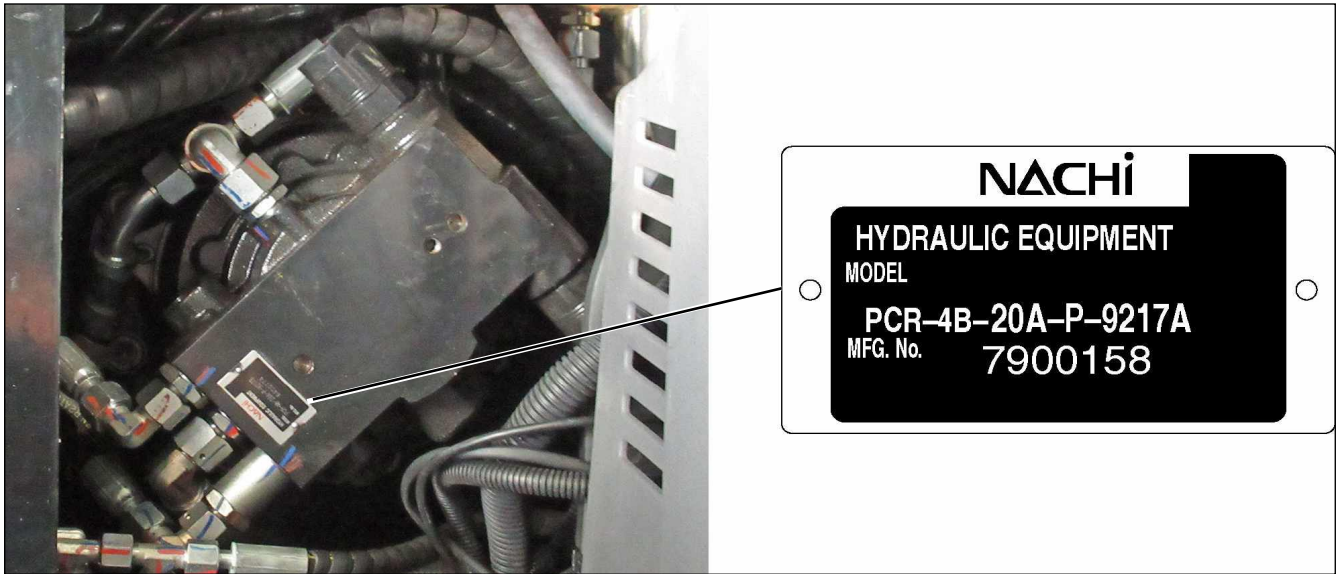


Fig. 1-4

0003140

The identification plate is on the top of the swing motor.

### Engine Identification Plate

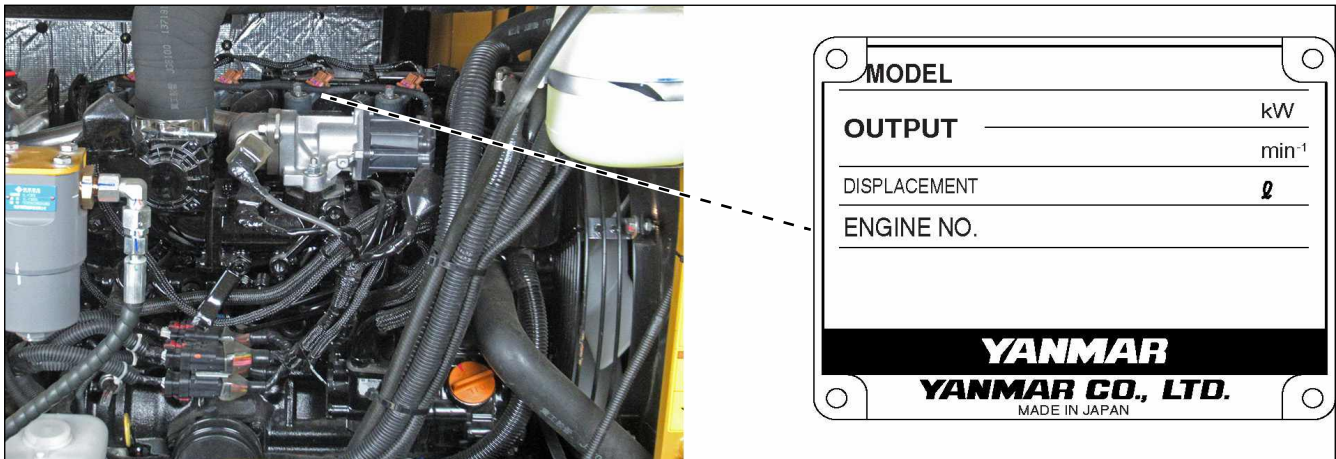


Fig. 1-5

0003138

The identification plate is on the top of the engine.

### Hydraulic Pump Identification Plates

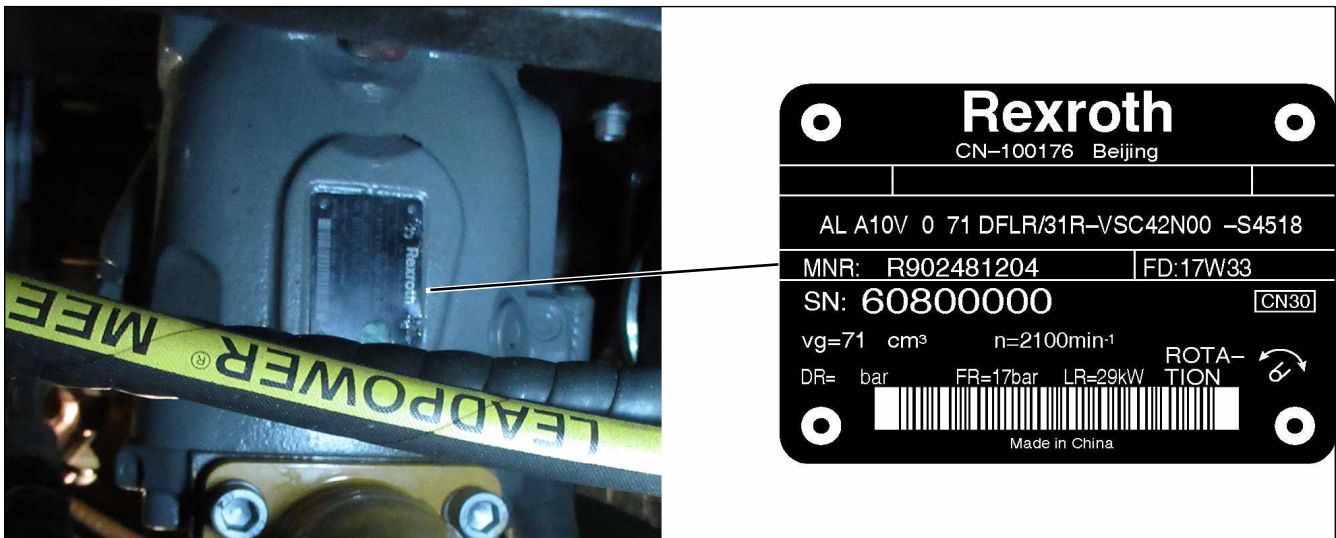


Fig. 1-6

0003169

The identification plate is on the bottom of the hydraulic pump.

### Travel Motor Identification Plate

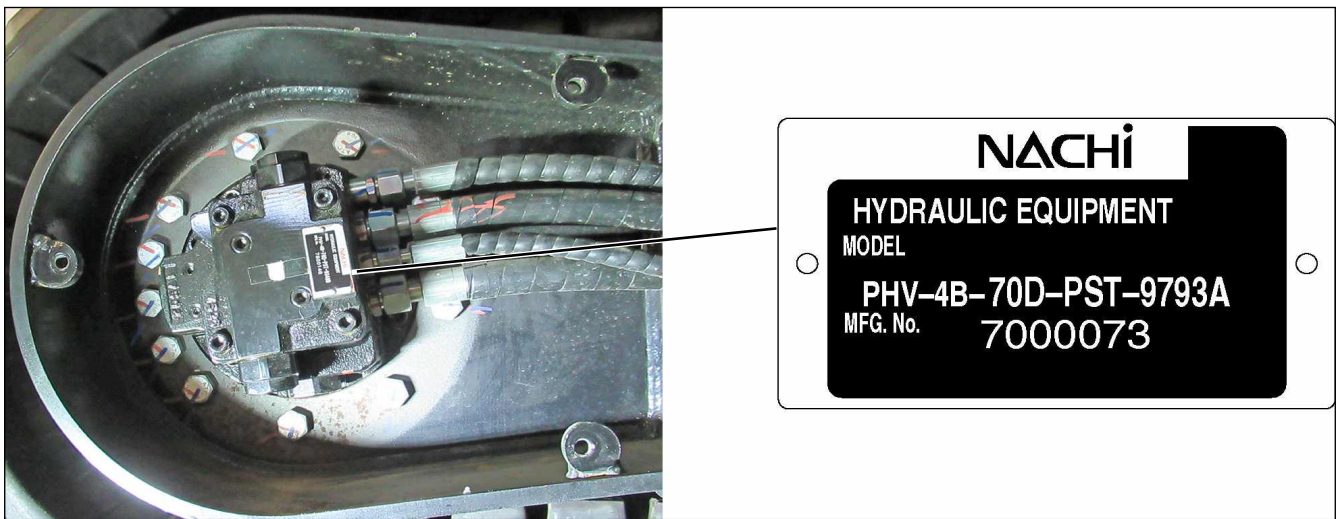


Fig. 1-7

0003188

An identification plate is on each travel motor. Remove the cover plates to access the travel motors.

**SANY CONTACT INFORMATION**

SANY  
 318 Cooper Circle  
 Peachtree City, GA 30269  
 www.sanyamerica.com  
 Phone: 470-552-SANY (7269)  
 Find a dealer go to: [www.sanyamerica.com/find-a-dealer](http://www.sanyamerica.com/find-a-dealer)

**RECORD OF SERIAL NUMBER AND DEALER INFORMATION**

Use this table to record the product information related to this machine.	
Machine Serial No.	
Engine Serial No.	
Right Travel Motor Serial No.	
Left Travel Motor Serial No.	
Swing Motor Serial No.	
Hydraulic Pump Serial No.	
Dealer Name:	
Address:	
Phone Numbers:	

# CORRECTION REQUEST FORM

If you find a problem with this manual, make a copy of this page, complete the form below, and send it to SANY.

Correction Request Form
Date of This Notification
Your Name
Company Name
Department
Street Address
City, State, and ZIP/Postal Code
Phone
E-mail
Machine Model and Serial No.
Description of Problem (wrong information, unclear or erroneous procedure, etc.)
Corrective Action Taken (if any)



## GLOSSARY OF ACRONYMS

ANSI – American National Standards Institute

BHL – Backhoe Loader

DEF – Diesel Exhaust Fluid

DPF – Diesel Particulate Filter

ECM – Engine Control Module

GPS – Global Positioning System

HEST – High Exhaust System Temperatures

ISO – International Organization for Standardization

LCD – Liquid Crystal Display

OEM – Original Equipment Manufacturer

OSHA – Occupational Safety and Health Administration

PPE – Personal Protective Equipment

PQR – Procedure Qualification Report

ROPS – Rollover Protective Structure

SAE – Society of Automotive Engineers

SCA – Supplemental Coolant Additive

SDS – Safety Data Sheet

WPS – Weld Procedure Specification

**This Page Intentionally Left Blank**

# SANY

## Safety

General Safety . . . . .	2-3
Hazard Alerts in This Manual . . . . .	2-3
Machine Decals . . . . .	2-3
Operator Safety Information . . . . .	2-4
Mount and Dismount the Machine . . . . .	2-5
Machine Safety . . . . .	2-5
Authorized Use of This Machine . . . . .	2-5
Unauthorized Use of This Machine . . . . .	2-5
Unauthorized Machine Modifications . . . . .	2-6
Escape Tool . . . . .	2-6
Fire Safety . . . . .	2-6
Electrical Fires . . . . .	2-6
Fire Extinguisher . . . . .	2-6
In Case of Fire . . . . .	2-7
Crushing Hazard . . . . .	2-7
Diesel Engine Exhaust . . . . .	2-7
Maintenance Safety . . . . .	2-8
Lockout/Tagout Procedure . . . . .	2-9
Cleaning the Machine . . . . .	2-9
Fluid Systems . . . . .	2-9
Adding Fluids to the Machine . . . . .	2-9
Refueling . . . . .	2-9
High-Pressure Fluid Lines . . . . .	2-9
Accumulator . . . . .	2-10
Electrical System . . . . .	2-10
Battery Safety . . . . .	2-10
Disconnect the Battery . . . . .	2-10
Job Safety . . . . .	2-11
Personal Protective Equipment (PPE) . . . . .	2-11
Hearing Protection . . . . .	2-11
Travel and Operation Precautions . . . . .	2-12

---

Inclined Areas . . . . .	2-12
Snow or Frozen Surfaces . . . . .	2-12
Avoid Backover Accidents . . . . .	2-13
Dust and Chemical Hazards . . . . .	2-13
Environmental Precautions . . . . .	2-13
Precautions in High-Voltage Areas . . . . .	2-14

## GENERAL SAFETY

This section provides detailed information on basic safety precautions and preventive measures that should be followed during the operation and maintenance of this machine.

### Hazard Alerts in This Manual

Hazard alerts in this manual are used to alert operators, job supervisors, maintenance staff, and job site workers to hazardous operating practices and maintenance procedures. Hazard alerts are used throughout this manual. Each hazard alert contains a hazard alert symbol and a signal word to identify the hazard's degree of consequence if the message is ignored.

The following American National Standards Institute (ANSI) and International Organization for Standardization (ISO) signal words are used to warn of a potentially hazardous situation that may lead to damage, personal injury, or even death. In this manual and on the machine decals, signal words or illustrations are used to express the potential level of hazard.



#### **DANGER!**

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



#### **WARNING!**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.



#### **CAUTION!**

**CAUTION** indicates a hazardous situation which, if not avoided, could result in injury.

#### **NOTICE!**

**NOTICE** is used to address practices not related to personal injury.



This symbol is used within a graphic to alert the user not to do something.

### Machine Decals

All safety and warning decals must be in place, undamaged, and visible. Become familiar with the location and content of all decals on the machine. Walk around the machine and review each of them. Decals provide important instructions and warnings and must be read and understood prior to any operational or maintenance function.

Contact a SANY dealer for replacement decals if needed.

**NOTE:** When replacing decals, make sure they are placed in the proper locations. Contact a SANY dealer if you have any questions about their meaning and placement.

---

## OPERATOR SAFETY INFORMATION

It is impossible to compile a list of safety precautions that covers every situation. However, there are basic principles that must be followed when operating this machine:

- Only qualified personnel who have been specifically trained on this machine are permitted to operate and/or work on this machine.
- The seat belt must be worn by the operator at all times.
- Operator aids such as warning lights, horns, or buzzers, along with displays on the monitors, are designed to alert the operator to potential problems. Sole reliance on these operator aids in place of good operating practices can lead to an accident. Inspect the operator aids of this machine daily and make sure each operator aid is in normal working condition. Any faults found shall be reported to a SANY dealer. Stop all work immediately if any operator aid is not working properly.
- All accident prevention guidelines, operating instructions, etc., are based on the intended usage of the machine.
- Read and understand this manual and any accompanying manuals before operating this machine.
- This manual must be readily available to the operator at all times and must remain on the machine while it is in use.
- Make sure all personnel in the working area around the machine are thoroughly familiar with the safe operating practices stated in this manual.
- Review the local, state, and federal regulations and standards regarding this machine and its operation. Work practice requirements may vary among government regulations, industry standards, and employer policies. A thorough knowledge of all such relevant work rules is required before operating this machine or performing maintenance on it.
- Check the maintenance log before the start of each workday shift. Make sure routine maintenance has been performed as stated in this manual. Do not operate a damaged or improperly maintained machine.
- Only the operator should be on the machine while it is in operation.
- Be sure all underground utilities have been marked before excavating.

This as a preview PDF file from [best-manuals.com](https://best-manuals.com)



Download full PDF manual at [best-manuals.com](https://best-manuals.com)