編　　番
PARTS No.
EM16C-1-3

# Operator's Manual

## EX400-5
## EX400LC-5
## EX450LC-5
## EX450H-5
## EX450LCH-5

## Excavator

適用号機
Serial No. 07001～

HITACHI

MidWestTech | Hitachi EX400-5, EX400LC-5, EX450LC-5, EX450H-5, EX450LCH-5 Excavat... Order the manual at mid-west-tech.com >

# CONTENTS


## MACHINE NUMBERS

## SAFETY

Recognize Safety Information ..... S1
Understand Signal Words ..... S1
Follow Safety Instructions ..... S2
Prepare for Emergencies ..... S2
Wear Protective Clothing ..... S3
Protect Against Noise ..... S3
Inspect Machine ..... S3
Use Handholds and Steps ..... S4
Adjust the Operator's Seat ..... S4
Fasten Your Seat Belt ..... S5
Move and Operate Machine Safely ..... S5
Operate Only from Operator's Seat ..... S6
Jump Starting ..... S6
Keep Riders off Machine ..... S6
Investigate Job Site Beforehand ..... S7
Protect Against Falling Stones and Debris .... S7
Provide Signals for Jobs Involving Multiple Numbers of Machines ..... S8
Confirm Direction of Machine to be Driven .... S8
Drive Machine Safely ..... S9
Avoid Injury from Rollaway Accidents ..... S10
Avoid Injury from Back-Over and Swing Accidents ..... S11
Keep Personnel Clear from Working Area .... S12
Never Position Bucket Over Anyone ..... S12
Avoid Undercutting ..... S12
Avoid Tipping ..... S13
Never Undercut a High Bank ..... S13
Dig with Caution ..... S14
Operate With Caution ..... S14
Avoid Power Lines ..... S14
Object Handling ..... S15
Protect Against Flying Debris ..... S15
Park Machine Safely ..... S16
Handle Fluids Safely - Avoid Fires ..... S16
Safety Transporting ..... S17
Practice Safe Maintenance ..... S18
Warn Others of Service Work ..... S19
Support Machine Properly ..... S19
Stay Clear of Moving Parts ..... S19
Prevent Parts from Flying off ..... S20
Store Attachments Safely ..... S20
Prevent Burns ..... S21
Replace Rubber Hoses Periodically ..... S21
Avoid High-Pressure Fluids ..... S22
Prevent Fires ..... S23
Evacuating in Case of Fire ..... S24
Beware of Exhaust Fumes ..... S24
Avoid Heating Near Pressurized Fluid Lines . S25
Avoid Applying Heat to Lines Containing Flammable Fluids ..... S25
Remove Paint Before Welding or Heating ... S25
Prevent Battery Explosions ..... S26
Service Air Conditioning System Safely ..... S26
Handle Chemical Products Safely ..... S27
Dispose of Waste Properly ..... S27

## SAFETY SIGNS ..... S28

## COMPONENTS NAME ..... 1

## GETTING ON/OFF THE MACHINE .... 2

## OPERATOR'S STATION

Cab Features ..... 3
Front Right Panel and Right Console ..... 4
Monitor Panel ..... 5
Coolant Temperature Gauge ..... 5
Fuel Gauge ..... 5
S/P (Super Power) Mode Indicator ..... 6
E (Economy) Mode Indicator ..... 6
Auto-Idle Indicator ..... 6
Warm Up Complete Indicator ..... 6
Engine Oil Level Indicator ..... 7
Coolant Level Indicator ..... 7
Hydraulic Oil Level Indicator ..... 7
Fuel Level Indicator ..... 8
Engine Oil Pressure Indicator ..... 8
Air Filter Restriction Indicator ..... 8
Overheat Indicator ..... 8
Alternator Indicator ..... 9
Preheat Indicator ..... 9
Switch Panel ..... 10
Work Mode Select Switch ..... 10
Level Check Switch ..... 11
Buzzer and Buzzer Stop Switch ..... 12
Auto-Idle Switch ..... 13
Travel Mode Switch ..... 13
Wiper Switch ..... 14
Washer Switch ..... 15
Work Light Switch ..... 15
Cab Light ..... 16
Key Switch ..... 16
Engine Control Dial ..... 16
S/P (Super Power) Mode Switch ..... 17
E (Economy) Mode Switch ..... 17
Power Boost Switch ..... 18
Left Console ..... 18
Travel Alarm Stop Switch (Optional) ..... 18
Pilot Control Shut-Off Lever ..... 19
Fuse Box ..... 19
Hour Meter ..... 20
Horn Switch ..... 20
Cab Heater and Air Conditioner ..... 21
AM/FM Radio Operation ..... 26
Digital Clock Setting Procedure ..... 27


MidWestTech | Hitachi EX400-5, EX400LC-5, EX450LC-5, EX450H-5, EX450LCH-5 Excavat... Order the manual at mid-west-tech.com >

# CONTENTS


Cab Door Release Lever ..... 28
Opening Upper Front Window ..... 28
Closing Upper Front Window ..... 29
Removing and Storing Lower Front Window ..... 29
Opening Side Windows ..... 30
Opening/Closing Overhead Window ..... 31
Emergency Exit ..... 32
Headguard-Integrated Cab (EX450H-5, EX450LCH-5) ..... 33
Emergency Exit (Headguard-Integrated Cab) ..... 34
Adjusting the Seat ..... 35
Seat Belt ..... 37

**BREAK-IN**
Observe Engine Operation Closely ..... 38

**PRE-START INSPECTION**
Inspect Machine Daily Before Starting ..... 39

**OPERATING THE ENGINE**
Before Starting Engine ..... 40
Level Check ..... 41
Starting the Engine ..... 42
Starting in Cold Weather ..... 43
Check Instruments After Starting ..... 43
Using Booster Batteries ..... 44
Stopping the Engine ..... 45

**DRIVING THE MACHINE**
Drive the Machine Carefully ..... 46
Steering the Machine Using Pedals ..... 47
Steering the Machine Using Levers ..... 48
Travel Mode Switch ..... 49
Travel Alarm (Optional) ..... 50
Traveling ..... 51
Operating on Soft Ground ..... 52
Raise One Track Using Boom and Arm ..... 52
Towing Machine a Short Distance ..... 53
Operating in Water or Mud ..... 54
Precautions for Traveling on Slopes ..... 55
Parking the Machine on Slopes ..... 56
Parking the Machine ..... 56

**OPERATING THE MACHINE**
Control Lever (HITACHI Pattern) ..... 57
Control Lever (ISO Pattern) ..... 58
Control Lever (HITACHI Pattern Loading Shovel) ..... 59
Control Lever (ISO Pattern Loading Shovel) ..... 60
Bucket Open-Close Pedals (Loading Shovel), ..... 61
Pilot Control Shut-Off Lever ..... 62
Warming-Up Operation ..... 63
Warming-Up the Motor and the Cylinders ..... 64
Auto-Idle ..... 65
Engine Speed Control ..... 66
Work Mode ..... 67
Power Boost ..... 67
E (Economy) Mode ..... 68
S/P (Super Power) Mode ..... 69
Precautions for Operations ..... 70
Operate the Machine Safely ..... 71
Operating Backhoe ..... 72
Grading Operation ..... 72
Face Shovel Operation ..... 73
Precaution for Arm Roll-In/Bucket Roll-In Combined Operation ..... 73
Avoid Abusive Operation ..... 74
Operating Tips ..... 75
Select Correct Track Shoes ..... 75
Loading Shovel
- Loading Shovel Operation ..... 76
- Straight Retraction Operation ..... 76
- Prohibited Operations (Loading Shovel) ..... 77
- Precautions for Operation (Loading Shovel) ..... 79

Object Handling — If Equipped ..... 80
Electronic Control System Bypass Procedure ..... 81
Overnight Storage Instructions ..... 82

**TRANSPORTING**
Transporting by Road ..... 83
Transporting the Machine by Trailer ..... 83
Backhoe (EX400-5)
- Packing Dimensions and Weights for Transportation-1 ..... 86
- Packing Dimensions and Weights for Transportation-2 ..... 87
- Packing Dimensions and Weights for Transportation-3 ..... 88

Backhoe (EX450H-5)
- Packing Dimensions and Weights for Transportation-1 ..... 89
- Packing Dimensions and Weights for Transportation-2 ..... 90
- Packing Dimensions and Weights for Transportation-3 ..... 91

Backhoe (EX400LC-5, EX450LC-5)
- Packing Dimensions and Weights for Transportation-1 ..... 92
- Packing Dimensions and Weights for Transportation-2 ..... 93
- Packing Dimensions and Weights for Transportation-3 ..... 94


MidWestTech | Hitachi EX400-5, EX400LC-5, EX450LC-5, EX450H-5, EX450LCH-5 Excavat... Order the manual at mid-west-tech.com >

# CONTENTS


Backhoe (EX450LCH-5)
Packing Dimensions and Weights for Transportation-1 ..... 95
Packing Dimensions and Weights for Transportation-2 ..... 96
Packing Dimensions and Weights for Transportation-3 ..... 97
Loading Shovel (EX400-5, EX450LCH-5)
Loader Partitioning Procedure-1 ..... 98
Loader Partitioning Procedure-2 ..... 100
Precautions for Loading Bucket Removal ..... 102
Retracting or Extending the Side Frame ..... 103
Retracting the Side Frame ..... 104
Extending the Side Frame ..... 105
Counterweight Removal ..... 108
Counterweight Installation ..... 114

**MAINTENANCE**

Correct Maintenance and Inspection Procedures ..... 118
Check the Hour Meter Regularly ..... 119
Use Correct Fuels and Lubricants ..... 119
Prepare Machine for Maintenance ..... 120
Hood and Access Covers ..... 121
Periodic Replacement of Parts ..... 122
Maintenance Guide ..... 124
A. Greasing ..... 127
Front Joint Pins (Backhoe) ..... 128
Front Joint Pins (Loading Shovel) ..... 130
Swing Bearing ..... 133
Lubricator --- If Equipped ..... 134
Swing Internal Gear ..... 136
B. Engine Oil ..... 137
Engine Oil Level ..... 138
Change Engine Oil ..... 138
Replace Engine Oil Filters ..... 138
C. Oil ..... 141
Pump Transmission ..... 142
Swing Reduction Gear ..... 144
Travel Reduction Gear ..... 146
D. Hydraulic System ..... 148
Inspection and Maintenance of Hydraulic Equipment ..... 149
Check Hydraulic Oil Level ..... 150
Drain Hydraulic Oil Tank Sump ..... 152
Change Hydraulic Oil ..... 153
Suction Filter Cleaning ..... 153
Replace Hydraulic Oil Tank Filter ..... 156
Replace Pump Drain Filter ..... 157
Replace Pilot Oil Filter ..... 158
Check Hoses and Lines ..... 159
Service Recommendations for Hydraulic Fittings ..... 162
E. Fuel System ..... 164
Refueling ..... 164
Drain Fuel Tank Sump ..... 165
Check Water Separetor ..... 165
Replace Fuel Filter ..... 167
Clean Feed Pump Strainer ..... 167
Check Fuel Hoses ..... 168
F. Air Cleaner ..... 170
Clean Air Cleaner Outer Element ..... 170
Replace the Air Cleaner Outer Elements ..... 170
G. Cooling System ..... 172
Check Coolant Level ..... 173
Check and Adjust Fan Belt Tension ..... 173
Change Coolant ..... 174
Clean Radiator Interior ..... 174
Clean Radiator Core ..... 175
Clean Oil Cooler Front Screen ..... 175
H. Air Conditioner ..... 176
Clean and Replace Air Conditioner Filter ..... 176
Check Refrigerant (Gas) Quantity ..... 178
Check Compressor Belt Tension ..... 178
Clean Condenser Core ..... 179
Check Looseness at Each of Fastened Areas ..... 179
Check In-Season and Off-Season ..... 180
I. Electrical System ..... 181
Batteries ..... 181
Replace Batteries ..... 183
Connecting Batteries ..... 183
Replacing Fuses ..... 184
J. Miscellaneous ..... 185
Check Bucket Teeth ..... 186
Replace Bucket ..... 191
Convert Bucket Connection into Face Shovel ..... 192
Adjust Bucket Linkage ..... 193
Remove Travel Levers ..... 194
Check and Replace Seat Belt ..... 194
Check Windshield Washer Fluid Level ..... 195
Check Track Sag ..... 195
Adjust Track Sag ..... 196
Loosen the Track ..... 197
Tighten the Track ..... 197
Check Tightening Torque of Bolts and Nuts ..... 198
Torque Specifications Chart ..... 200
Maintenance Under Special Environmental Conditions ..... 211

**STORAGE**

Storing the Machine ..... 212
Removing the Machine from Storage ..... 212
Installing Vandal-Proof Covers ..... 213


MidWestTech | Hitachi EX400-5, EX400LC-5, EX450LC-5, EX450H-5, EX450LCH-5 Excavat... Order the manual at mid-west-tech.com >