

# CONTENTS

|                                                                     |       |
|---------------------------------------------------------------------|-------|
| EC declaration of conformity .....                                  | 0-1   |
| Foreword .....                                                      | 0-2   |
| Emission-related components warranty<br>(USA and CANADA only) ..... | 0-2-1 |
| Before servicing this machine .....                                 | 0-3   |
| Table to enter S/No and distribution .....                          | 0-4   |
| EC regulation approved .....                                        | 0-5   |
| Safety labels .....                                                 | 0-6   |
| Machine data plate .....                                            | 0-17  |
| Guide (direction, S/No, symbol) .....                               | 0-18  |

## 1. SAFETY HINTS

|                                       |      |
|---------------------------------------|------|
| 1. Before operating the machine ..... | 1-1  |
| 2. During operating the machine ..... | 1-15 |
| 3. During maintenance .....           | 1-24 |
| 4. Parking .....                      | 1-28 |

## 2. SPECIFICATIONS

|                                             |     |
|---------------------------------------------|-----|
| 1. Major components .....                   | 2-1 |
| 2. Specifications .....                     | 2-2 |
| 3. Weight .....                             | 2-6 |
| 4. Specification for major components ..... | 2-7 |

## 3. CONTROL DEVICES

|                                     |      |
|-------------------------------------|------|
| 1. Cab devices .....                | 3-1  |
| 2. Cluster .....                    | 3-2  |
| 3. Monitors .....                   | 3-11 |
| 4. Switches .....                   | 3-42 |
| 5. Control device .....             | 3-47 |
| 6. Air conditioner and heater ..... | 3-51 |
| 7. Others .....                     | 3-54 |

## 4. OPERATION

|                                           |      |
|-------------------------------------------|------|
| 1. Suggestion for new machine .....       | 4-1  |
| 2. Check before starting the engine ..... | 4-2  |
| 3. Starting and stop the engine .....     | 4-3  |
| 4. Warming-up operation .....             | 4-8  |
| 5. Operation of the working device .....  | 4-9  |
| 6. Traveling of the machine .....         | 4-10 |

|                                              |      |
|----------------------------------------------|------|
| 7. Efficient working method .....            | 4-15 |
| 8. Adjustment of the work equipment .....    | 4-22 |
| 9. Operation in the special work sites ..... | 4-23 |
| 10. Storage .....                            | 4-25 |
| 11. Raise the engine hood .....              | 4-27 |
| 12. Attachment manually lowering .....       | 4-29 |

## 5. TRANSPORTATION

|                                         |     |
|-----------------------------------------|-----|
| 1. Road traveling .....                 | 5-1 |
| 2. Preparation for transportation ..... | 5-2 |
| 3. Loading the machine .....            | 5-3 |
| 4. Fixing the machine .....             | 5-4 |
| 5. Loading and unloading by crane ..... | 5-6 |
| 6. Towing the machine .....             | 5-7 |

## 6. MAINTENANCE

|                                               |      |
|-----------------------------------------------|------|
| 1. Instructions .....                         | 6-1  |
| 2. Tightening torque .....                    | 6-5  |
| 3. Spec of fuel, coolant and lubricants ..... | 6-8  |
| 4. Maintenance check list .....               | 6-10 |
| 5. Maintenance chart .....                    | 6-13 |
| 6. Service instruction .....                  | 6-15 |
| 7. Electrical system .....                    | 6-49 |
| 8. Air conditioner and heater .....           | 6-52 |

## 7. TROUBLESHOOTING GUIDE

|                             |     |
|-----------------------------|-----|
| 1. Engine .....             | 7-1 |
| 2. Electrical system .....  | 7-2 |
| 3. Power train system ..... | 7-3 |
| 4. Hydraulic system .....   | 7-4 |

## 8. OTHERS

|                                            |     |
|--------------------------------------------|-----|
| 1. Central grease lubrication system ..... | 8-1 |
| 2. Quick coupler .....                     | 8-9 |

|             |     |
|-------------|-----|
| INDEX ..... | 9-1 |
|-------------|-----|