

Table of contents

1 Fundamental safety instructions

1.1	Warnings and symbols	1 - 2
1.2	Use of the loader as authorized	1 - 2
1.3	Organizational measures	1 - 2
1.4	Selection of personnel and necessary qualification	1 - 3
1.5	Safety information for certain operating phases	1 - 4
1.5.1	Normal operation	1 - 4
1.5.2	Special work within the exploitation of the machine and elimination of defects during process of work; disposal	1 - 7
1.6	Instructions regarding special categories	1 - 9
1.6.1	Electrical energy	1 - 9
1.6.2	Hydraulic systems	1 - 10
1.6.3	Noise	1 - 10
1.6.4	Oil, grease and other chemical substances	1 - 11
1.6.5	Gas, dust, steam, smoke	1 - 11
1.7	Transport and towing; restart	1 - 11
1.8	Safety information for the contractor or the contractor's authorized personnel	1 - 12
1.8.1	Organizational measures	1 - 12
1.8.2	Selection of personnel and necessary qualification; additional duties	1 - 12

2 Signs

2.1	Warning and information signs	2 - 2
2.2	Fuses	2 - 3
2.3	Symbols	2 - 3

3 Protection against theft

3.1	Identifying features on the loader	3 - 2
3.2	Parking the loader	3 - 2
3.3	Transponder for drive-away interlock	3 - 3

4 Description

4.1	Overview	4 - 2
4.2	Loader	4 - 3
4.3	Changing a wheel	4 - 7
4.4	Controls	4 - 9
4.5	Instrument panel	4 - 10

5 Operation

5.1	Checks before start-up	5 - 2
5.2	Starting up	5 - 2
5.2.1	Starting the diesel engine	5 - 2
5.2.2	Winter operation	5 - 3
5.2.2.1	Fuel	5 - 3
5.2.2.2	Engine oil change	5 - 3
5.2.2.3	Changing the oil in the hydraulic system	5 - 3
5.2.2.4	Anti-freezing agent for the windshield washer system	5 - 4
5.2.3	Driving the loader on public roads	5 - 4
5.2.3.1	Transporting a bucket	5 - 4
5.2.3.2	Transport of an excavator in the bucket	5 - 5
5.2.4	Working with the loader	5 - 7

5.2.5	Heating and ventilation system	5 - 8
5.2.5.1	Adjusting the amount of air	5 - 8
5.2.5.2	Switching on the heater	5 - 8
5.3	Stopping loader operation	5 - 9
5.3.1	Parking the loader	5 - 9
5.3.2	Switching off the engine	5 - 9
5.3.3	Switching off the heating and ventilation system	5 - 9
5.3.4	Leaving the loader	5 - 9
5.4	Adjusting the operator's seat	5 - 10
5.4.1	Isri seat	5 - 10
5.4.2	Grammer seat	5 - 10
5.5	Changing the steering	5 - 12

6 Attachments

6.1	Mounting and dismounting the attachments without hydraulic connections	6 - 2
6.1.1	Standard/lightweight bucket	6 - 2
6.1.2	Fork-lift attachment	6 - 3
6.1.3	Lifting hook	6 - 3
6.2	Mounting and dis-mounting attachments with a hydraulic connection	6 - 4
6.2.1	Multi-purpose bucket	6 - 4
6.2.2	Front-end excavator	6 - 7
6.2.2.1	Changing the backhoe	6 - 7
6.2.3	Grab	6 - 8
6.2.4	Temporary use of a working platform	6 - 9
6.3	Using other attachments	6 - 11

7 Rescue, towing, lashing, lifting by crane

7.1	Rescue, towing, lashing	7 - 2
7.1.1	Rescue/towing of the swivel loader if the engine or drive has failed	7 - 2
7.1.1.1	Towing the swivel loader if the engine has failed	7 - 2
7.1.1.2	Towing the swivel loader when the drive has failed	7 - 4
7.2	Lifting by crane	7 - 5

8 Manitenance

8.1	Maintenance notes	8 - 2
8.2	Maintenance work	8 - 3
8.2.1	Checking the oil level in the engine	8 - 3
8.2.2	Checking the oil level in the axles	8 - 3
8.2.2.1	Rear axle - slow loader » 20 km/h «	8 - 3
8.2.2.2	Rear axle - fast loader	8 - 3
8.2.2.3	Planetary gear	8 - 4
8.2.2.4	Front axle	8 - 4
8.2.3	Checking the oil level in the hydraulic oil reservoir	8 - 5
8.2.4	Changing the engine oil	8 - 5
8.2.5	Changing the oil in the axles	8 - 5
8.2.5.1	Rear axle - slow loader » 20 km/h «	8 - 5
8.2.5.2	Rear axle - fast loader	8 - 6
8.2.5.3	Planetary gear	8 - 7
8.2.5.4	Front axle	8 - 7
8.2.6	Changing the oil in the hydraulic system	8 - 8
8.2.7	Changing the hydraulic oil filter inserts	8 - 9
8.2.8	Maintaining/replacing the air filter	8 - 9
8.2.9	Changing the safety cartridge	8 - 10
8.2.10	Replacing the fuel filter	8 - 11
8.2.11	Exchanging the starter battery	8 - 11
8.2.12	Maintaining/replacing the fresh air filter	8 - 11
8.2.13	Checking/adjusting the parking brake	8 - 12
8.3	Greasing points/lubrication points	8 - 13
8.3.1	Rear axle pivot bolt	8 - 13

8.3.2	Rear axle	8 - 13
8.3.3	Front axle	8 - 13
8.3.4	Bucket motor	8 - 14
8.3.5	Ball bearing ring	8 - 14
8.3.6	Driver's cabin doors	8 - 15
8.3.7	Multi-purpose bucket	8 - 15
8.3.8	Front-end excavator	8 - 16
8.3.9	Oil lubrication points	8 - 16
8.3.9.1	Parking brake	8 - 16
8.3.9.2	Supporting valve activation	8 - 17
8.4	Maintenance plan	8 - 19

9.1 Malfunctions, causes and remedies

10 Wiring and Hydraulics

10.1	Wiring diagram	10 - 1
10.2	Hydraulic circuit diagram	10 - 3
10.2.2	Hydraulic circuit diagram AS 90	10 - 3

11 Technical Data

11.1	AS 70	11 - 2
11.1.1	Loader	11 - 2
11.1.2	Engine	11 - 2
11.1.3	Starter	11 - 2
11.1.4	Alternator	11 - 2
11.1.5	Hydrostatic drive unit	11 - 2
11.1.6	Axle loads	11 - 3
11.1.7	Tires	11 - 3
11.1.8	Steering system	11 - 3
11.1.9	Brake system	11 - 3
11.1.10	Electrical system	11 - 3
11.1.11	Hydraulic system	11 - 3
11.1.11.1	Swivel mechanism	11 - 4
11.1.11.2	Stabilizers	11 - 4
11.1.12	Fuel supply system	11 - 4
11.1.13	Heating and ventilation system	11 - 4
11.1.14	Full flow suction filter	11 - 4
11.1.15	Electrical contamination indicator	11 - 4
11.1.16	Oil cooler with thermostat control	11 - 4
11.2	AS 90	11 - 5
11.2.1	Loader	11 - 5
11.2.2	Engine	11 - 5
11.2.3	Starter	11 - 5
11.2.4	Alternator	11 - 5
11.2.5	Hydrostatic drive unit	11 - 5
11.2.6	Axle loads	11 - 6
11.2.7	Tires	11 - 6
11.2.8	Steering system	11 - 6
11.2.9	Brake system	11 - 6
11.2.10	Electrical system	11 - 6
11.2.11	Hydraulic system	11 - 7
11.2.11.1	Swivel mechanism	11 - 7
11.2.11.2	Stabilizers	11 - 7
11.2.12	Fuel supply system	11 - 7
11.2.13	Heating and ventilation system	11 - 7
11.2.14	Full flow suction filter	11 - 7
11.2.15	Electrical contamination indicator	11 - 7
11.2.16	Oil cooler with thermostat control	11 - 7

12 Technische Daten (Anbaugeräte)

12.1	AS 70	12 - 2
12.1.1	Bucket	12 - 2
12.1.2	Fork-lift attachment	12 - 4
12.1.3	Front-end excavator	12 - 6
12.1.4	Grab	12 - 8
12.1.5	Lifting hook	12 - 10
12.2	AS 90	12 - 12
12.2.1	Shovels	12 - 12
12.2.2	Fork-lift attachment	12 - 14
12.2.3	Front-end excavator	12 - 16
12.2.4	Grab	12 - 18
12.2.5	Lifting hook	12 - 20

13 Additional options, modifications, notes on inspection for loaders

13.1	Additional options	13 - 2
13.2	Modifications	13 - 2