SCANLIFT SL 190

MOBILE ELEVATING WORK PLATFORM (MEWP)

OPERATING MANUAL

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1.0 Introduction

The Scanlift SL 190 is a self-propelled mobile elevating work platform (MEWP) equipped with an internal combustion engine. The Scanlift 190 is intended for raising persons at various work sites such as construction and renovation sites and shipyards. The engine uses gasoline, liquid petroleum gas (LPG), or light diesel-type fuel oil as fuel. Due to its four-wheel drive and four-wheel steering capabilities, the Scanlift SL 190 is very agile and, driven from the platform, it can be manoeuvred over difficult terrain.

The Scanlift MEWP can be controlled from the work platform in all normal use situations, because all necessary controls have been centralised on the platform.
Similarly, an ignition switch for selecting the point of operating and other controls for running the MEWP from below have been clustered on the turntable.
The MEWP's brakes lock automatically when the drive engine pressure drops.
The electric emergency lowering system can be operated from either the platform or the turntable.

The Scanlift SL 190 has a wide side reach due to its telescopic boom. It also has an unlimited, fully rotational, slew mechanism, which thus places no restrictions on working. The jib boom with which all models are equipped guarantees agility, and the platform can be rotated to the required working position.

The Scanlift SL 190 MEWP comes equipped with many functions to enhance operating safety. Becoming familiar with these will help you achieve high-quality, efficient and safe results.

Always check the condition of the MEWP, using this manual as a guide, before you begin work each day. The use of a broken, poorly maintained, or uninspected MEWP is prohibited.

The manufacturer reserves the right to make changes in the machine's structure, fixtures, and maintenance instructions without prior notification.

With best wishes for ever-rising success,
KESLA OYJ

2.0 TRANSPORT DIMENSIONS

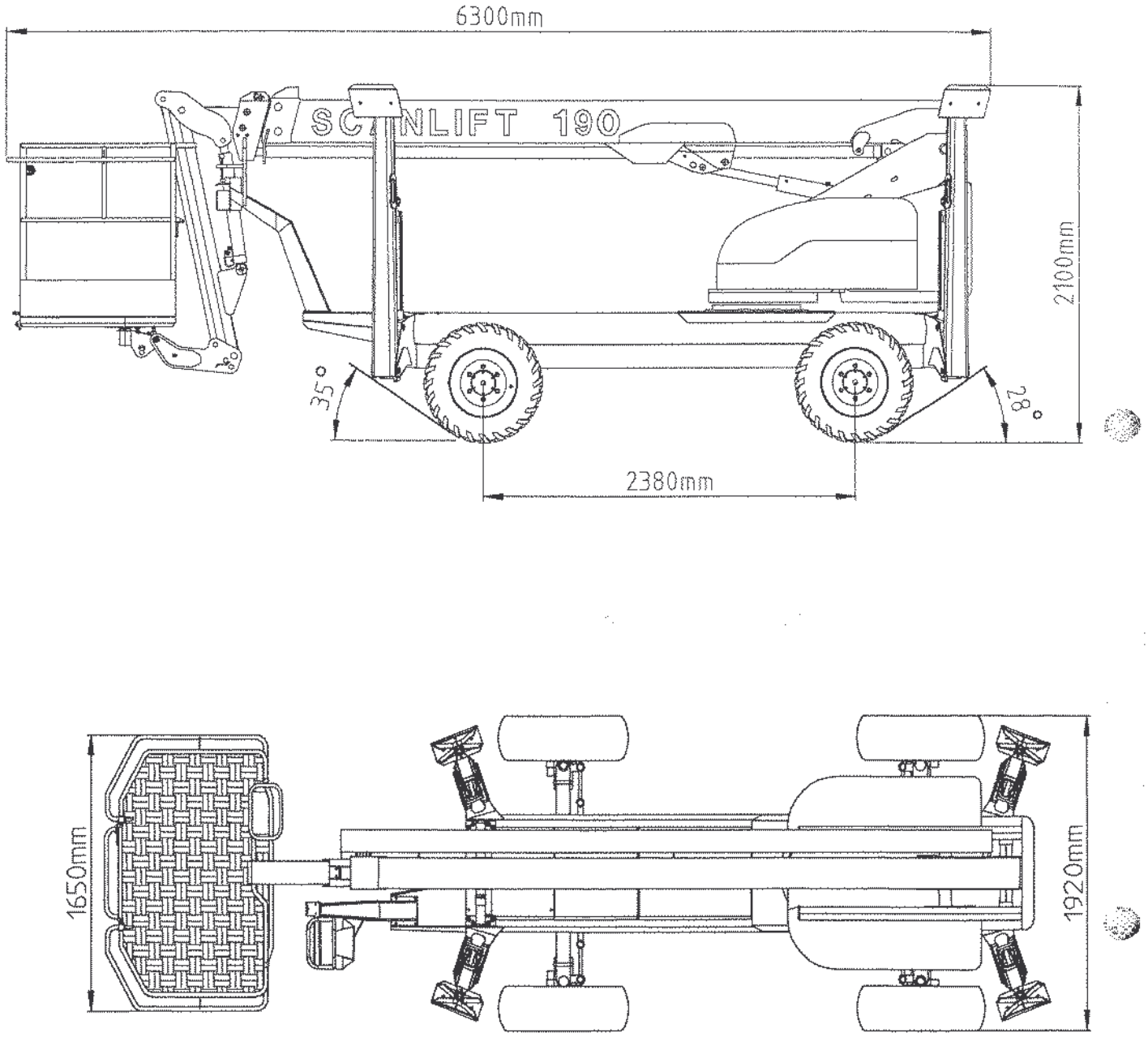

Figure 2-1. Transport dimensions

3.0 LIFTING THE MEWP WITH LIFTING HOOK

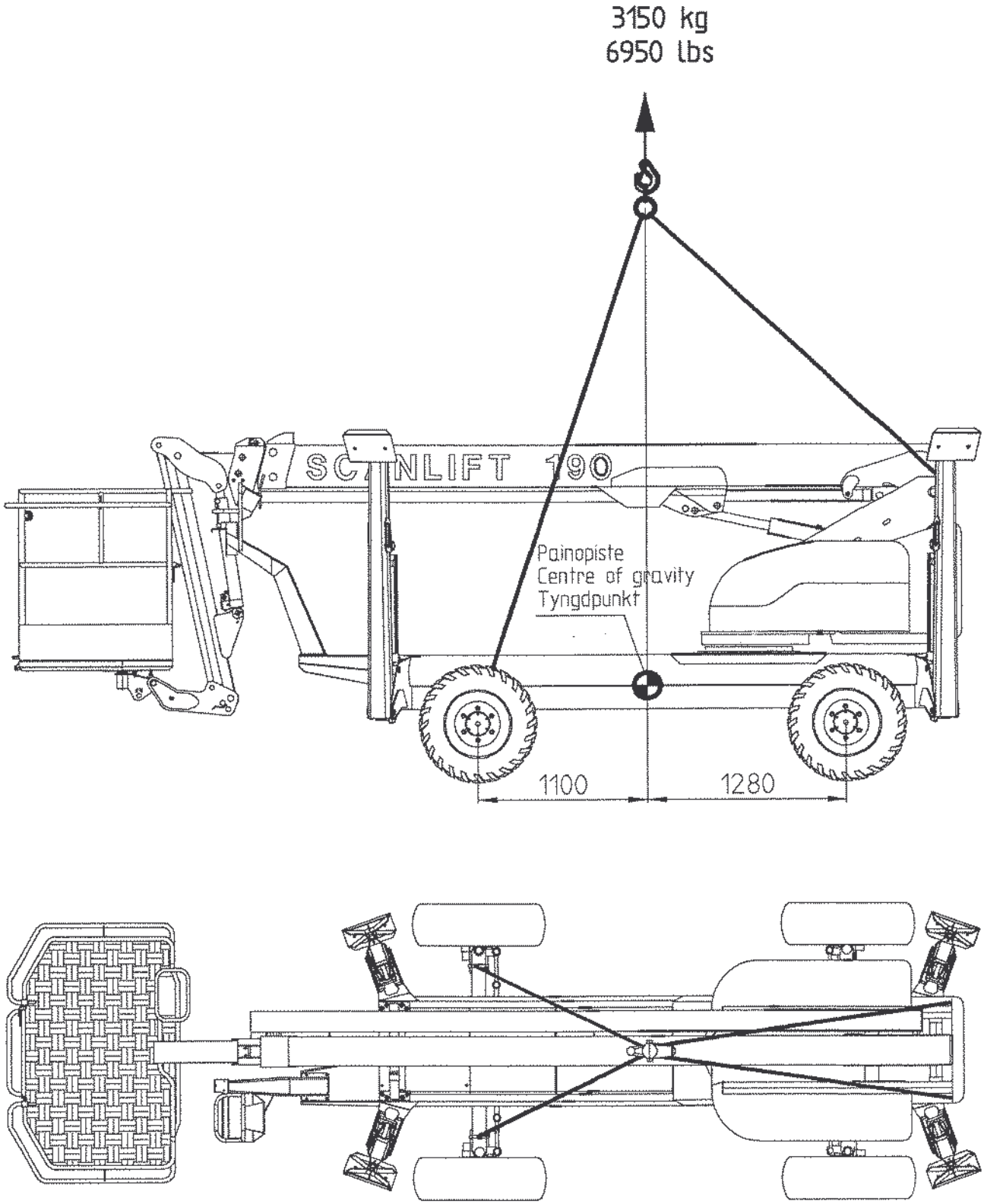

Figure 3-2. Lifting the MEWP with lifting hook

4.0 SPECIFICATION

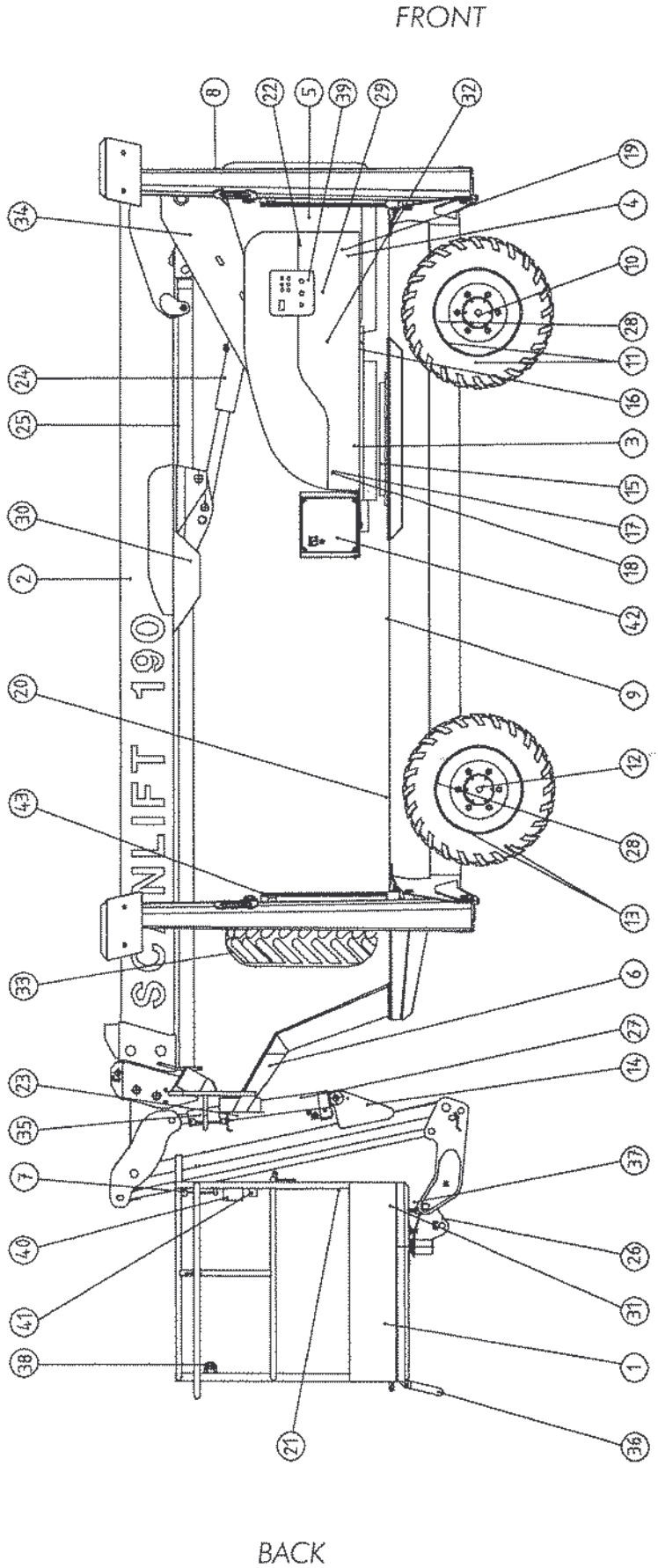

Figure 4-1. Specification

4.1 Specification

1 Platform
2 Booms
3 Turntable
4 Turntable cover
5 Internal combustion engine
6 Valve for drive / outrigger, and lifting arms
7 Control valve for booms, platform guiding
8 Control valve for booms, guiding from below
9 Chassis
10 Front axle, oscillating
11 Front wheel and brakes
12 Rear axle, fixed
13 Rear wheel and brakes
14 Jib
15 Pivot bearing
16 Slewing motor and worm gear reducer
17 Fuel tank, on right side of MEWP
18 Hydraulic oil tank, on left side of MEWP
19 Battery, on left side of MEWP
20 Tool case
21 Place for operating manual
22 Main power switch, on left side of MEWP
23 Override switch, for raising and lowering boom without outriggers
24 Lifting cylinder
25 Telescope cylinder
26 Stabiliser cylinder for platform
27 Jib cylinder
28 Steering cylinders
29 Hydraulic pump
30 Limiter device for lifting radius

31 *Foot pedal / change-over switch (in down position: boom operation)*

32 *Electric pump for emergency lowering system (on the left side)*

33 *Place for spare wheel (additional accessory)*

34 *Control cylinder for stabiliser cylinder*

35 *Drive selector, driving speed selector, horizontal level indicator*

36 *Platform step*

37 *Rotating cylinder of platform*

38 *Fastening hooks (2) for safety harness*

39 *Operating switch for emergency lowering system, EMERGENCY STOP switch, ignition switch for combustion engine, electric metre for hours of operation, and indicator lights for engine charging, oil pressure, glowing (diesel) as well as coolant overheating (operating switches at ground level)*

40 *Push button for sound signal, EMERGENCY STOP switch, operating switch for emergency lowering system, and load control indicator lights (operating switches on platform)*

41 *Electrical outlets for power tools (220V)*

42 *Electric motor unit 240 V / 50 Hz for indoor use (accessory)*

43 *Boom transport support*

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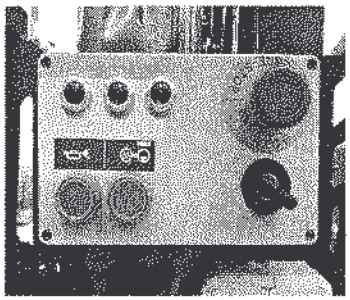

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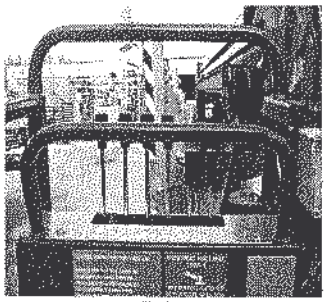

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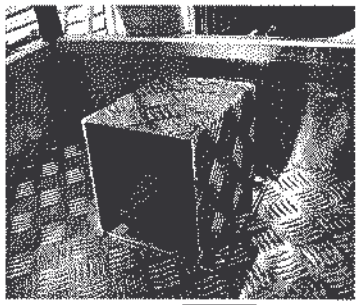

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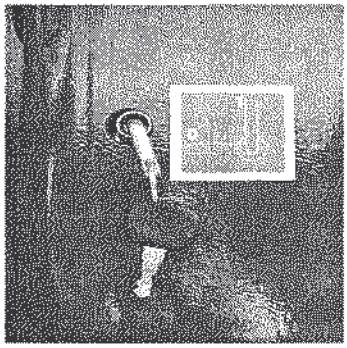

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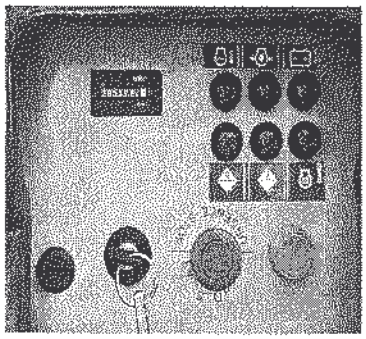

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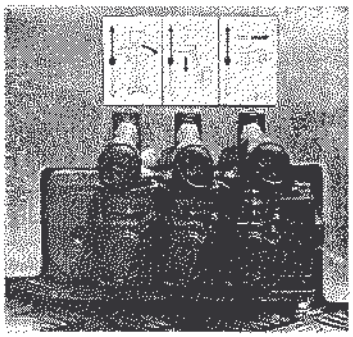


5.0 TECHNICAL DATA

Max. height of platform bottom from ground	16.45 m 54 ft.
Max. working height	18.45 m 60,5 ft.
Min. lifting radius measured from outer brim of platform at max. working height	1.90 m 6,2 ft.
Max. safe platform load	230.0 kg 506 lbs.
Max. safe lifting radius with 230.0 kg (507 lbs.) platform load	7.6m + 0,5 m 24.9ft.+1,6ft. working
Max. lifting radius per CE specification for 120 kg (264.55 lbs) platform load	9m 29.5 ft.
Dimensions of platform bottom	1,0 x 1.5 m 3.3x4.9ft.
Support distance of outriggers lengthwise	3920 mm 12.9 ft.
Support distance of outriggers widthwise	4000 mm 13.1 ft.
Max. supporting force in sole of outrigger	25500 N 5620 lbs.
Max. permissible sloping of the ground	±12°
Max. permissible sloping of the chassis	±1°
Transport length	6.30 m 20.6 ft.
Transport width	1.92 m 6.3 ft.
Transport height	2.10m 6.9 ft.
Ground clearance under bottom	0.38 m 1.2 ft.
Wheelbase	2.38 m 7.8 ft.
Turning radius:	
4WS, outermost wheel side	3.0 m 9.8 ft.
4WS, outermost platform part	5.0 m 16.4 ft.
2WS, outermost wheel side	5.0 m 16.4 ft.
2WS, outermost platform part	6.9 m 22.6 ft.
Oscillating angle of front axle	±10°
Total weight with tanks full:	
Diesel	3150 kg 6930 lbs.
Rear axle load with 80 kg (176 lbs.) platform load	1900 kg 4180lbs.
Front axle load with 80 kg (176 lbs.) platform load:	
Diesel	1300 kg 2860 lbs.
Driving speed:	
slow	1.8 km/h
fast	3.6 km/h
Traction force:	
slow, oil temperature +20°C	15400 N, 1570 kg, 3461 lbs.
fast, oil temperature +20°C	7700 N, 785 kg, 1730 lbs.
Hill climbing capacity (theoretical): slow speed range	35%/16°

All-terrain tires, tracting pattern	*10.0/75-15.3/8pr*
Max. noise level (measured 1 metre from the motor))	*93 db*

Output of hydraulic pump at 3000 rpm:

for booms	*9.0 l/min 2.4 US.gpm*
for drive:	
diesel	*26 l/min 5.8 US.gpm*

Hydraulic pressure:

turntable and booms	*230 bar 3336 psi*
driving motors and outriggers	*250 bar 3626 psi*

Hydraulic pump: adjustable displacement axial piston pump

Hyraulic oil tank capacity	*60 l 16 US.gal.*
Fuel tank capacity	*60 l 16 US.gal.*

Combustion engine

diesel	*Lombardini 1003 Focs*
gasoline (petrol) or liquid gas	*Kohler M25*

6.0 MEWP SL190 BOOM GEOMETRY

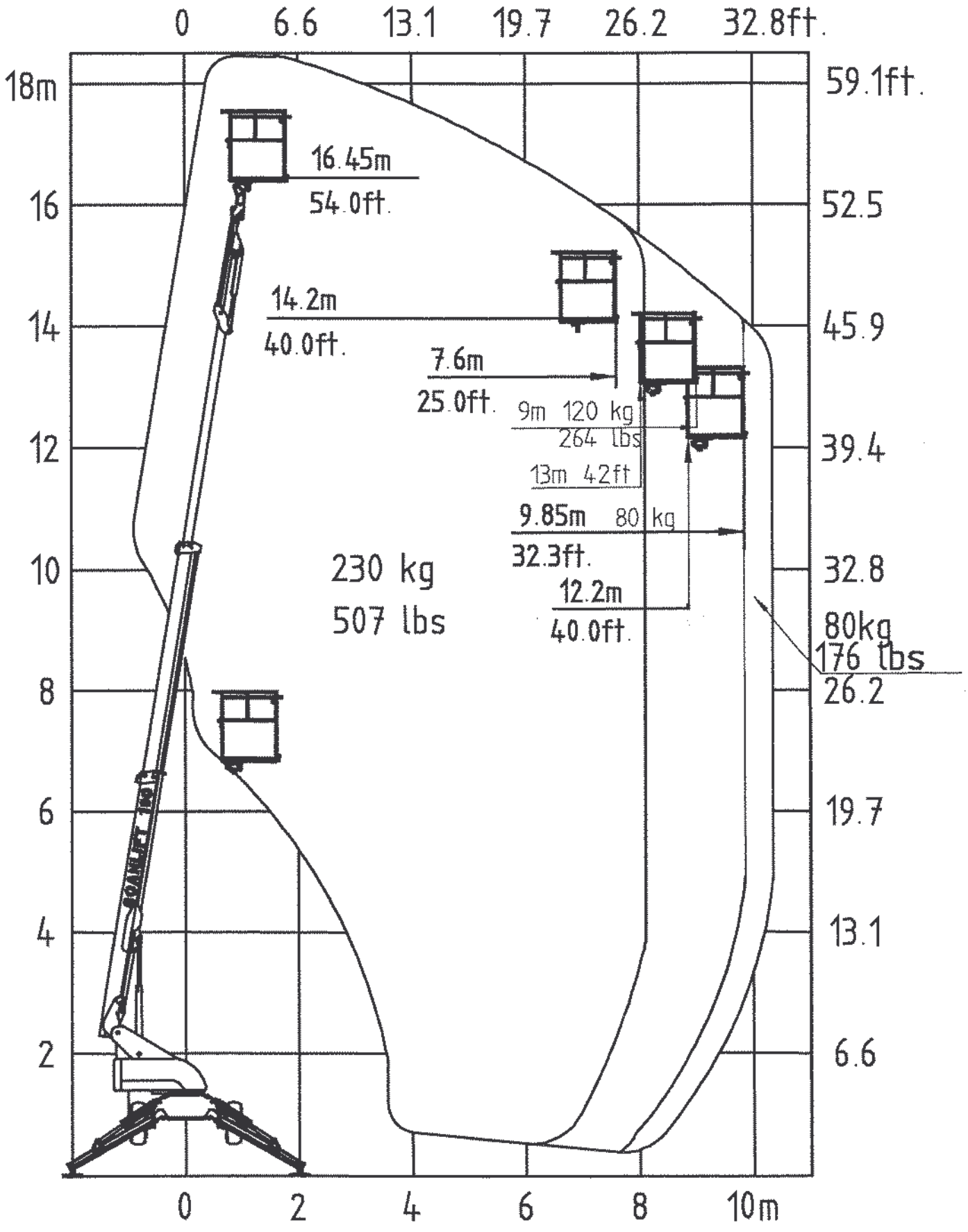


Figure 5-1. Boom geometry

7.0 GENERAL SAFETY INSTRUCTIONS

1. Study this operating manual carefully before using the mobile elevating work platform. The MEWP should never be driven by an operator not familiar with the handling and safety instructions. The operating manual should be kept in the operating manual case. ALWAYS keep the operating manual with the MEWP.

2. Anyone operating the MEWP must be at least 18 years old and must have undertaken training in its use.

3. The Scanlift SL 190 MEWP is equipped with the following fail-safe safety limit switches:

- support position for outriggers
- outrigger ground sensor
- limit switch to register boom transport position
- platform limit switch which prevents platform and jib boom from colliding
- limit switch between boom and turntable which identifies boom position

4. The emergency lowering system consists of the electric pump on the turntable, the boom control valve and control switches on the turntable and platform. For detailed operating instructions refer to chapter 20.0, how to operate the emergency lowering system.

5. Avoid elevating near live electrical conductors. A label on the platform specifies the minimum clearance distance necessary for cables of different types.

6. Always use a flashing yellow warning light when working on streets with heavy traffic. Fence off the area to avoid danger. Observe traffic regulations at the work site.

7. Always drive the MEWP with the platform supported in transport position. Use the override switch only when it is necessary for climbing a steep hill or traversing difficult terrain on which the platform might otherwise bump the ground or some obstacle.

8. No more than two (2) people with tools and equipment may be on the platform at any one time, and the total load must never exceed 230 kg (507 lbs). When moving the MEWP, it is advised that only one person be on the platform, for better tractive force.

9. When using the MEWP, ensure that the outriggers are always well supported. Use extra plates under the outriggers, if necessary. Make sure that the outrigger does not slip on the surface of the extra plate and that the plate can hold the weight of the outrigger. On an icy surface, attach additional calks or bolts to the outrigger plates. The sole plates are provided with holes for that purpose. For load-bearing capacities of different soil types refer to chapter 17.0.

Be aware that even asphalt can yield.

10. Take into consideration the hazardous effect of wind, rain, temperature, thunderstorms, poor visibility, and accumulated snow and ice on MEWP operation.

11. Do not take on additional loads while lifting. RISK OF TIPPING OVER !

12. Be aware that hot or cold working environments may be harmful to your health.

13. Do not add to the MEWP's wind load with extra cover boards or additional load that increases the wind plane.

14. Do not increase the reach or working height of the platform by using ladders, additional platforms, or any other devices on the work platform. Do nat jump on or swing with the work platform.

15. Do not throw any objects from the platform. Make sure nothing can fall from the platform.

16. Use ear protection when operating the MEWP from the lower control position, because the sound pressure level exceeds 84 db (A). When you operate the MEWP from the platform, the sound pressure level is less than 84 db (A), so wearing ear protectors is not obligatory.

17. When you use the MEWP indoors or in places with poor ventilation, use the engine only to move the MEWP. Try to improve the air circulation. Risk of poisoning! An auxiliary electric motor (240 v / 50 Hz) is available.

18. Do not use the MEWP os a lift for transferring goods or persons from one level or floor to another.

19. Do not deactivate the security device. Repair it or have it repaired by a competent maintenance facility before using it again.

20. Always make sure no persons or objects are beneath the platform before lowering it.

21. To ensure safe and trouble-free operation of the MEWP, keep it free of snow, ice, and other potential hazards.

22. Use caution when handling the MEWP's fuels, lubrication and hydraulic oils, and lubricating greases. Avoid contact with skin. Danger of exposure!

23. Always turn off the MEWP's engine before filling the fuel tank. Beware of splashing. Danger of fire!

24. Inspect and perform maintenance on the MEWP regularly, or let a maintenance facility familiar with mobile elevating work platforms carry out the service and repair work.

25. Do not make or let anyone make any structural alterations to the MEWP without the manufacturer's permission and instructions.

26. Never open the cooling system's filler while the engine is hot. Risk of accident!

27. Run through all pre-start checks on the MEWP every day before starting work.

28. Check the functioning of the standby safety limits for load control every day before starting work in accordance with 8. –8.13.

If you fall considerably under or over the safe lifting radius, contact a certified maintenance site immediately.
The MEWP may not be used before the safety limits for load control have been properly adjusted.

WARNING!

29. SAFETY INSTRUCTIONS FOR A LEAD-ACID BATTERY

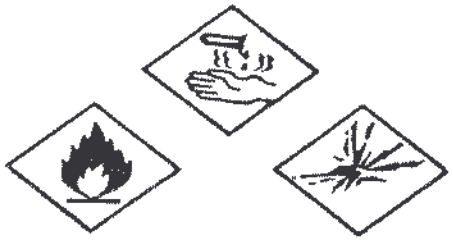
1. The liquid in the lead-acid battery is sulphuric acid solution. It corrodes many metals and organic substances. Always use protective goggles, gloves and clothing when working on batteries. In the event of contact with the skin, rinse immediately with plenty of water. In the event of contact with the eyes, rinse with water for at least ten minutes and seek medical assistance.

2. Hydrogen and oxygen are generated in the batteries during normal use. Together they form an explosive compound. All storage batteries containing more than 15 kWh of energy should be located in a separate, well ventilated room. The battery room should be equipped with materials that prevent static electricity and the resulting sparking. Ceramic shield plugs in the batteries prevent explosions and improve the safety of the battery room.

3. When connecting batteries, only use insulated voltage tools to prevent short circuits. Protect battery terminals during transportation.

4. The battery terminals and other lead components contain toxic lead compounds. Always wash your hands carefully after handling batteries.
Old lead-acid batteries are hazardous waste. They must be taken to an appropriate waste collection site. Service stations collect used starting batteries.
ALWAYS TAKE OLD BATTERIES TO A WASTE COLLECTION SITE!

5.



30. Perform or have a qualified inspector conduct a thorough inspection of the MEWP once every twelve (12) months, or more often if used in difficult conditions. The annual inspection should be conducted by someone fully qualified to inspect elevating mechanisms. A dated record of the inspections should always be kept with the MEWP, e.g. stored in the equipment case, with a backup copy held by the owner of the MEWP. An example of an officially approved record form is attached to this manual. Perform or have someone perform the next inspection within twelve months of the last inspection and so on every year, at the latest, during the same calendar month as the initial pre-delivery MEWP inspection at the factory. Have a reinspection done sooner if necessary, if the MEWP is being used in demanding conditions, or load-bearing structures have been welded, or there is some other reason for a new inspection. Run an inspection to verify the construction, safety, and general condition of the MEWP lifting equipment, paying special attention to alterations that may adversely affect safety. For alterations and repairs, the date of repair, location on the MEWP, and identification of the repair person must be recorded on the MEWP record. Stay current: check whether laws and regulations have changed retroactively since the last inspection. If so, take the changes into consideration at the next reinspection. Always contact the manufacturer or his authorised representative before making repairs or alterations to load-bearing structures.

31. Always drive the MEWP out of the way of others before leaving it. Drive the booms and outriggers into the transport position. Turn off the motor and always switch off the main current. Prevent unauthorised use by removing all ignition keys. Note! The keys should always be kept together on one ring, including during operation.

32. Never operate or drive the MEWP when under the influence of alcohol or narcotics.

8.0 DAILY INSPECTIONS

8.1 Checking the outriggers

8.1.1. Make sure the outrigger safety limits are functioning: test the outriggers in the support position (with wheels not touching the ground). After engagement, you should be able to operate the booms. The outriggers have ground and position sensors, so they require a force of at least 6 kg (13.2 lbs) and a positioning exceeding 75° from the transport position.

8.1.2 Check the ground sensor once a week. A sound signal will indicate, if an outrigger loses touch with the ground, e.g. due to soft ground or uneven support.

8.1.3 Support the MEWP with the outriggers, wheels about 100 mm above the ground.

8.1.4 Raise the booms about 100 mm above the transport support.

8.1.5 Turn off the combustion engine. Leave the ignition key in the ON position (power on).

8.1.6 Place a jack or other hoisting apparatus by an outrigger (see figure 8-1.2). Place e.g. a board (A) etc. between the jack and the chassis. Use the jack to lift the chassis until the sole comes slightly off the ground. This should activate the sound signal. The sound signal will stop when the outrigger is lowered back to the ground.

8.1.7 Repeat the procedure with all outriggers.

8.1.8 If the sound signal is not activated with all of the outriggers, the MEWP may not be used until the fault has been repaired.

8.1.9 If one or all of the outrigger soles is off the ground when the power is switched on and the foot pedal is pressed down, the alarm will sound. This does not prevent the use of the MEWP.

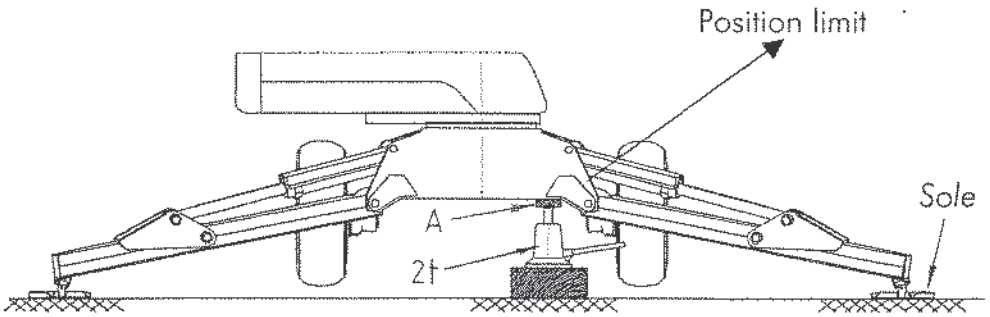


Figure 8-1.2

8.2 Checking the telescope

8.3 Support the MEWP with the outriggers so that the wheels are obout 100 mm off the ground.

8.4 Empty the plotform completely for the period of the test.

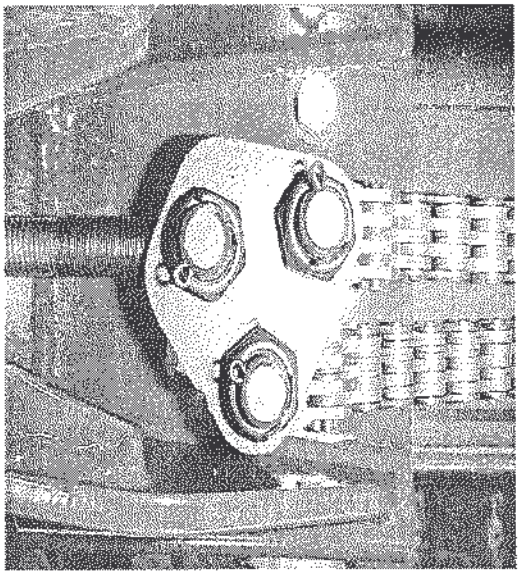
8.5 Extend the jib to an angle of 45 degrees to the booms according to the morkings on the jib ond the boom end, see figure 8-2 C. Roise the boom off the transport support, turn the booms to the left about 10 degrees. Lower the booms completely. Turn off the combustion engine from the platform ignition lock.

8.6. Toke the ignition key to the ignition lock at the turntable. Stort the engine.

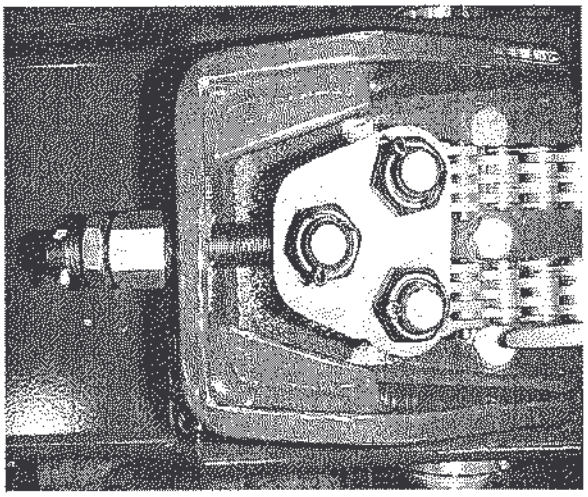
8.7 Roise the booms to a horizontol position from the point of control at the turntoble, see figure 8-2 D.

8.8 Drive out the telescope continuously until load control stops the movement.

8.9 Make sure thot the triangular fastener on the boom is straight ond the choins visibly tight, see figure 7-1. Note! If the fostener is not stroight, and one of the choins is therefore shorter, check the condition, fostening and adjustment of the chains. The MEWP may not be used, if e.g. one of the choins is broken, loose or not properly odjusted.



Wrong



Right

Figure 8-1. Triangulor fostener of the boom chains

8.10 The telescope should stop when the middle painted gauge mark on the boom becomes visible. You will then have verified that the limiter of the telescope lifting radius is working. Note! If the last part of the painted mark is more than 100 mm from the mouth of the boom, the MEWP may not be used; check the load control.

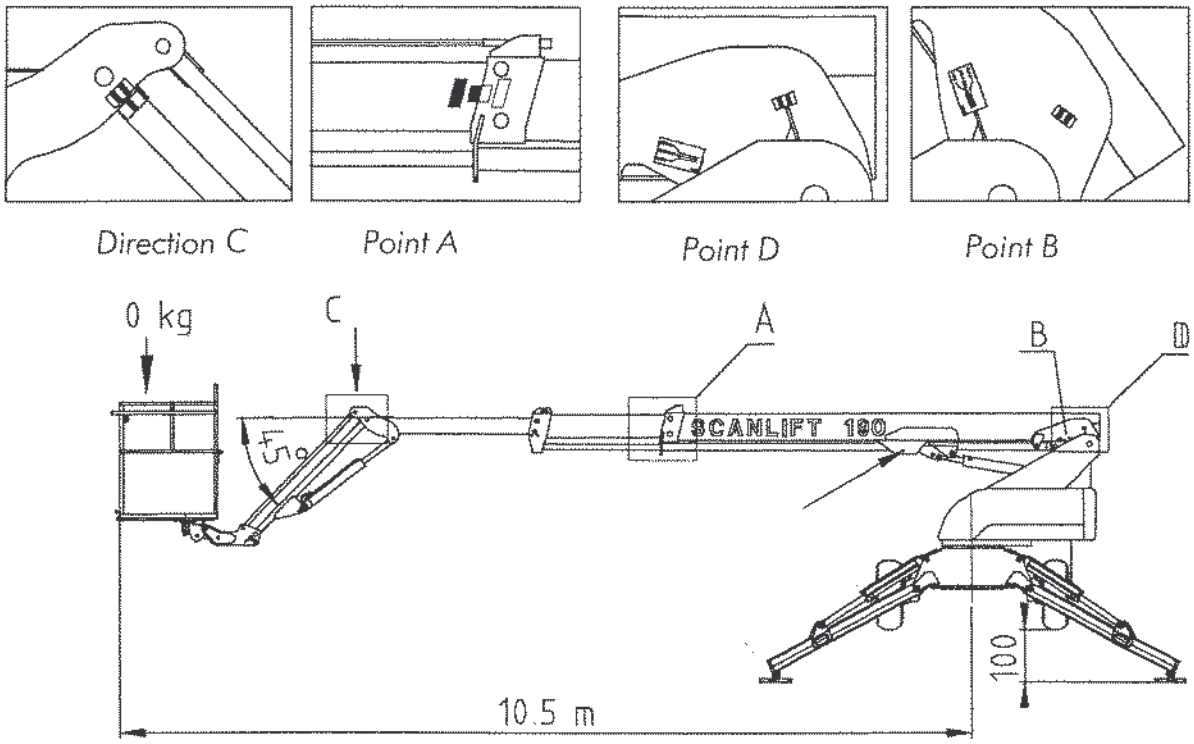


Figure 8-2. Gauge marks for lowering the boom and boom extension

8.11 Checking the lifting:

1. Extend the jib to an angle of 45 degrees to the booms according to the marks on the jib boom and the boom end, see figure C.
2. Raise the lifting boom as far up as it will go, see figure 8-3
3. Extend the telescope completely.
4. Lower the booms with the lifting cylinder, holding the control lever always in the lowering position.
5. When the booms stop descending, check the indicator on the turntable to find their stop position. The indicator should now point to the scale on the label located on the booms, see figure B.

Note! If the indicator passes the max. mark on the label by 5 mm, the MEWP may not be used; check the load control.

Checking the lifting radius

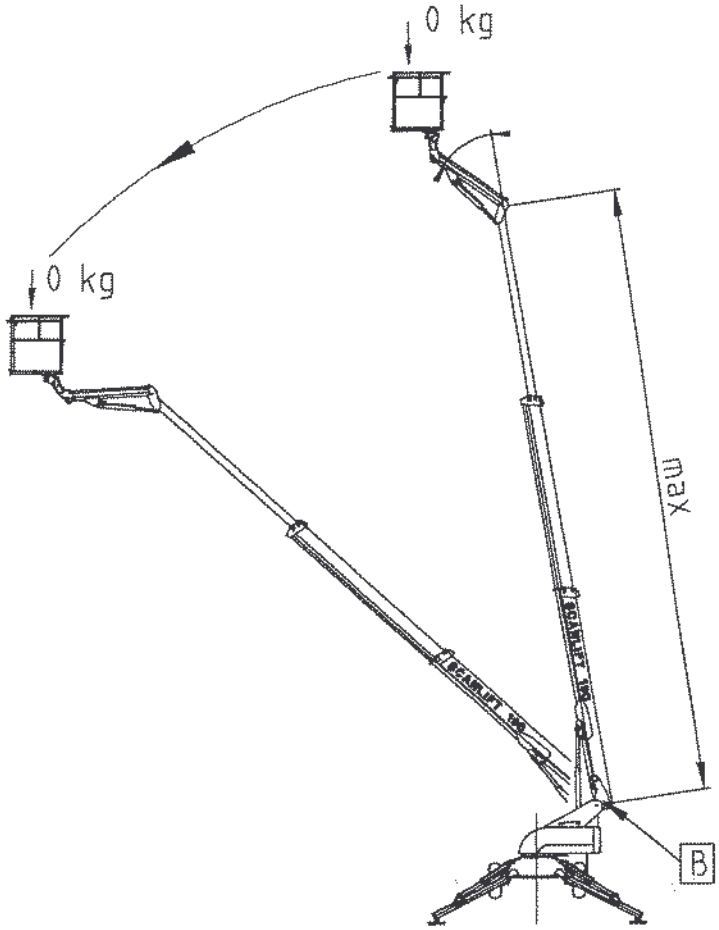


Figure 8.-3 Checking the lifting radius

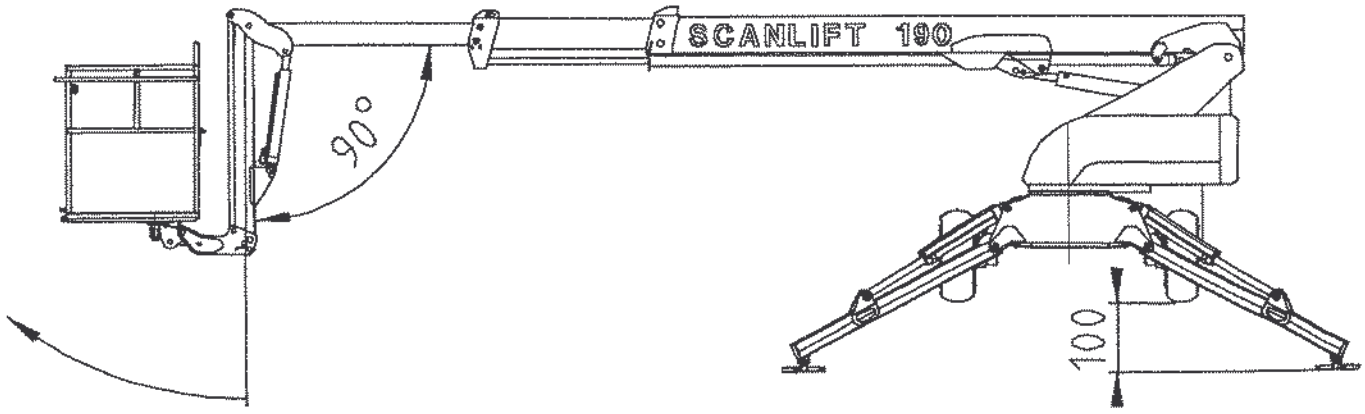


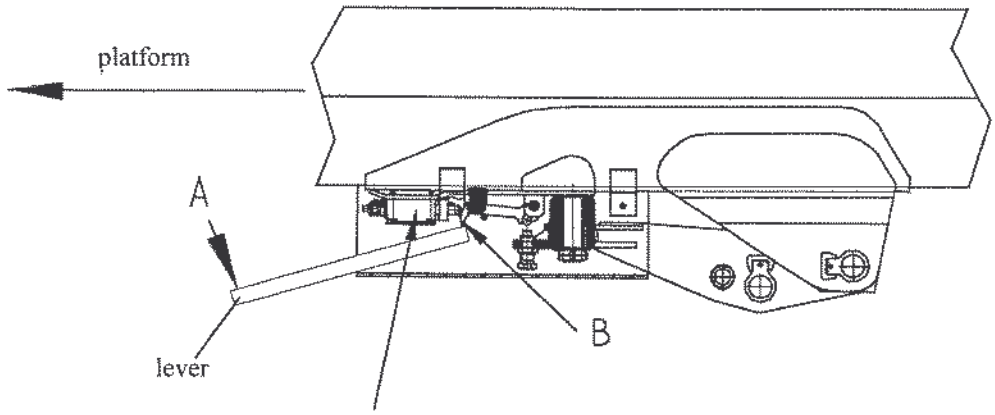
Figure 8.-4 Checking the lifting radius of the jib

8.12 Checking the jib *see figure 8.-4*

1. *Support the MEWP with the outriggers so that the wheels are about 100 mm off the ground.*
2. *Empty the platform completely for the period of the test.*
3. *Raise the booms off the transport support, slew the booms to the left for about 10 degrees, lower the booms so that they are level with the horizontal. Lower the jib boom to a vertical position. Angle between the jib boom and the booms is 90 degrees +- 5 degrees.*
4. *From the platform, extend the telescope continuously until load control stops the movement, see figure 8.-4.*
5. *Try raising the jib boom. This should not be possible, if the jib boom rises, do not use the MEWP. Check the operation of platform valves Y12 and Y13.*

8.13 Checking the operation of the standby safety limit switch

- *Along with the load control, there is also an electric safety limit which has been set for more extensive, that is, larger, lifting radiuses, which can halt all movements. This limiter takes over when the regular safety limit switch is defective or incorrectly adjusted. Under normal conditions this standby electric safety limit switch does not operate. Once the safety switch has been triggered, the booms must be brought to the normal operating area by means of the emergency lowering system, because the standby safety switch cuts the diesel engine and it cannot be used while the standby safety switch is activated. There is no danger of tipping in the standby safety limit switch's operating field.*



standby safety limit: located on the right side of the booms as seen from the platform

Figure 8.-5 Load control

Checking:

1. *Start the combustion engine, e.g. from the platform.*
2. *Place a lever, e.g. a wooden stick, between the guide B and the cover, figure 8.-5*
3. *Press the lever in direction A, in which case guide B will rise and trip the standby safety limit. The combustion engine should stop.*
4. *If the combustion engine does not stop, or continues to operate when the lever is removed, the MEWP may not be used before the operation has been repaired.*

8.14 Checking the cylinder lood lowering volves and blocks

1. Support the MEWP with the outriggers. Guiding the booms from the lower control position, raise the booms off the transport support. Slew the booms about 10 degrees. Then lower the booms to a horizontal position. Extend the booms continuously until load control stops the movement. Leave the combustion engine running.

2. Move each outrigger control lever forward and back; see figure 11-1 Drive and outrigger valve levers. When the booms are off the transport support, the outriggers must not function. If they do, the MEWP may not be used until the malfunction has been repaired.

3. Slew the booms and keep them above each outrigger for about 2 minutes. Watch the outrigger cylinder, it must not slide inwards. Repeat the procedure with all outriggers.

4. If the outrigger cylinders or lifting cylinder slide inwards, the MEWP may not be used before this has been repaired. See figures 8.14-1 and 8.14-2.

5. Stop the combustion engine. Try out all the hydraulic valve levers, also in the platform. The lowering functions of the booms and outriggers must not function, not even slowly. If they do, the MEWP may not be used until the hydraulics have been checked and repaired.

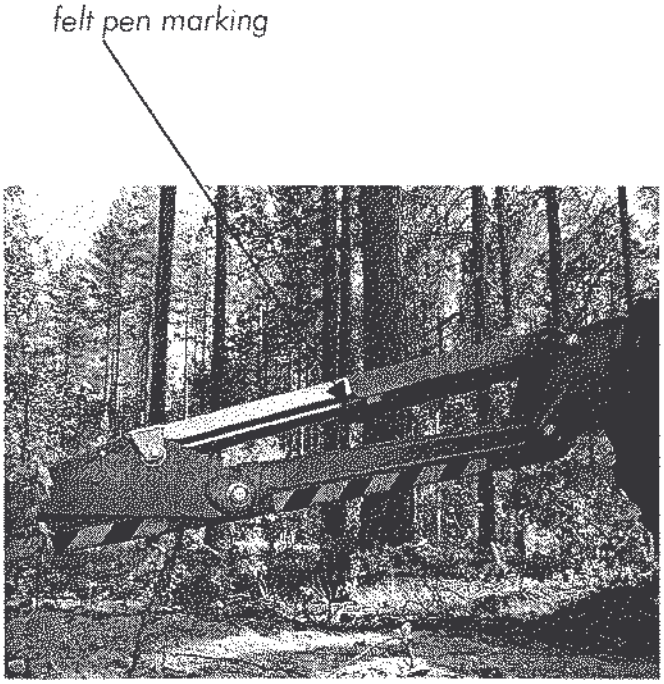


Figure 8.14-1 Outrigger cylinder

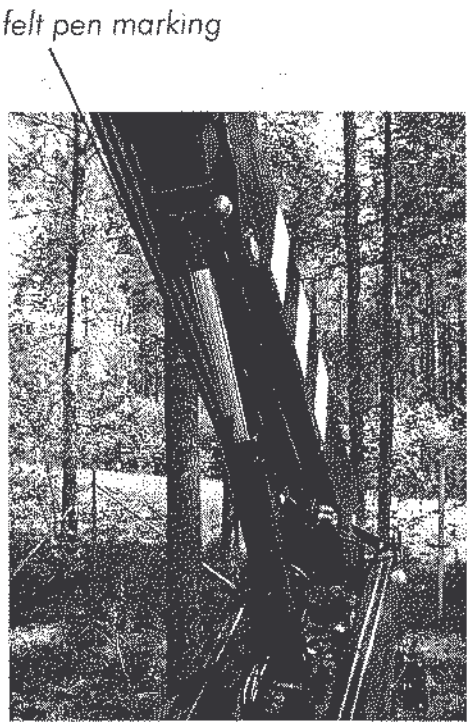


Figure 8.14-2 Lifting cylinder

9.0 CONTROLS AND FUNCTIONS

All Scanlift SL 190 controls are hydraulic. Only the safety limit switches are electrically powered. The safety limiters for lowering the telescope and booms and raising the jib also operate electrohydraulically. With the hydraulic controls, you can adjust speeds steplessly.

9.1 Controls on the turntable

1. The lower control valve is located on the turntable above the motor. With the outriggers in the support position, the power turned on from below and the motor running, you can use the lower control valve to slew, raise, extend or retract the boom, as indicated by the symbols (figure 9-1). The emergency lowering system can be operated using the same lower control valve.

2. The following electric controls are found on the turntable: emergency stop button, hour meter (for hours of operation), ignition lock, emergency lowering pump push-button, and the signal lights for glow, charge, oil pressure, and coolant overheating. To operate the boom from the ground, turn on the current from the lower control position. When driving from above, remove the ignition key from below and insert it in the ignition lock on the platform; start the engine from the platform.

Turntable control levers and their symbols

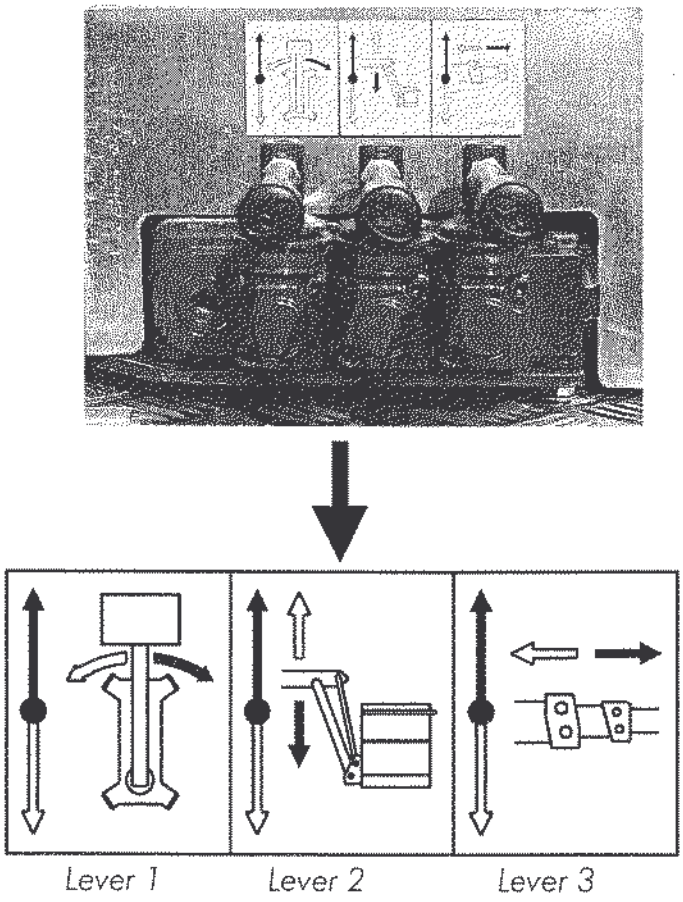


Figure 9.-1 Turntable control valves

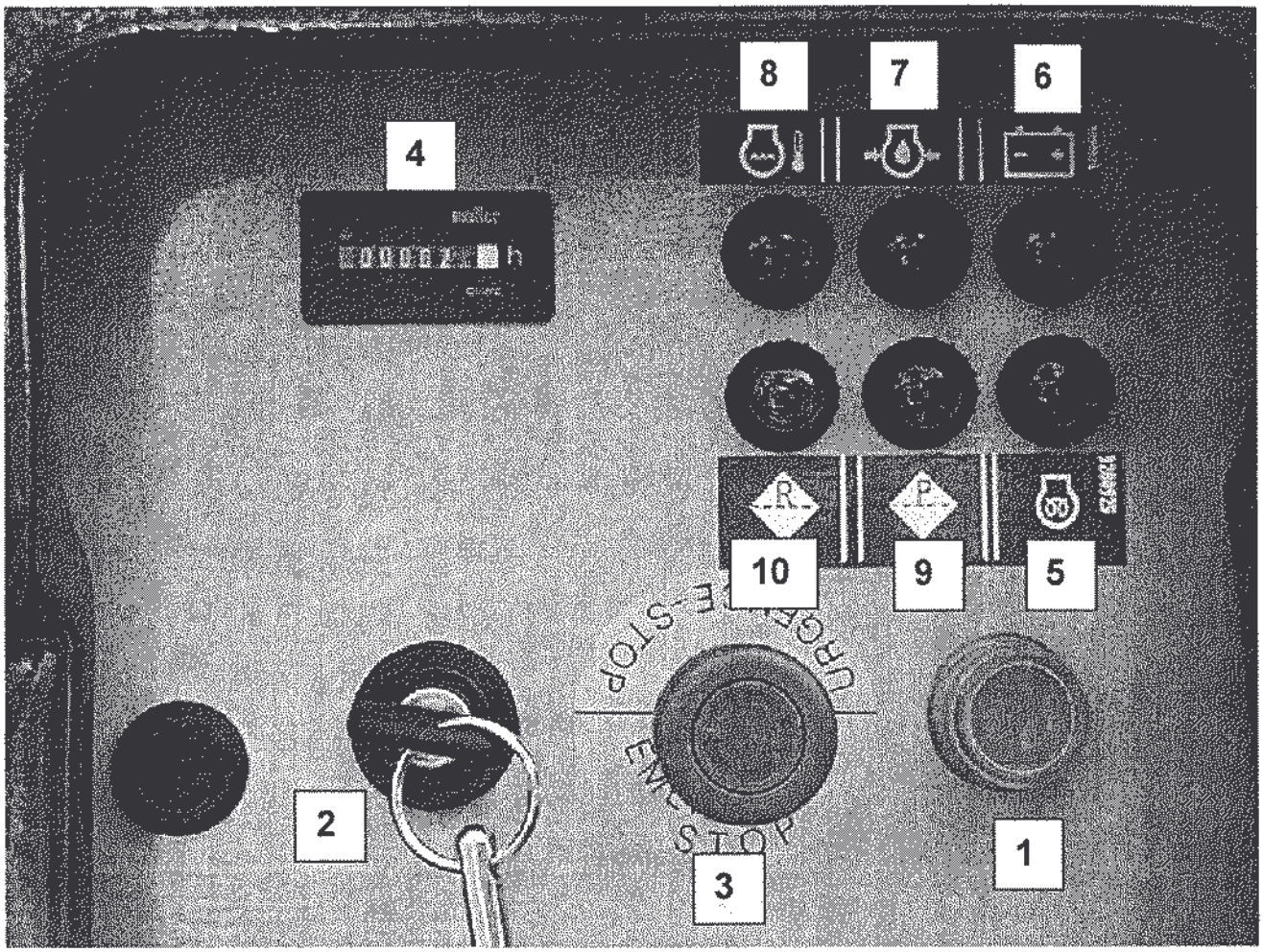


Figure 9-2 Turntable electricity box

Signal lights and push-buttons on the turntable

1. *Emergency lowering button*
2. *Ignition lock (diesel glow)*
3. *Emergency stop button*
4. *Hour meter*

Signal lights:

5. *Glow*
6. *Charge*
7. *Oil pressure*
8. *Engine temperature*
9. *Signal light for obstruction of pressure filter*
10. *Signal light for obstruction of return filter*

10.0 CONTROLS ON THE PLATFORM

The Scanlift SL 190 can be driven and controlled entirely from the platform. The following explains the functions of the controls, starting from the left as you face the direction of travel, beginning with the boom control valve and continuing with the drive and outrigger valve on the right.

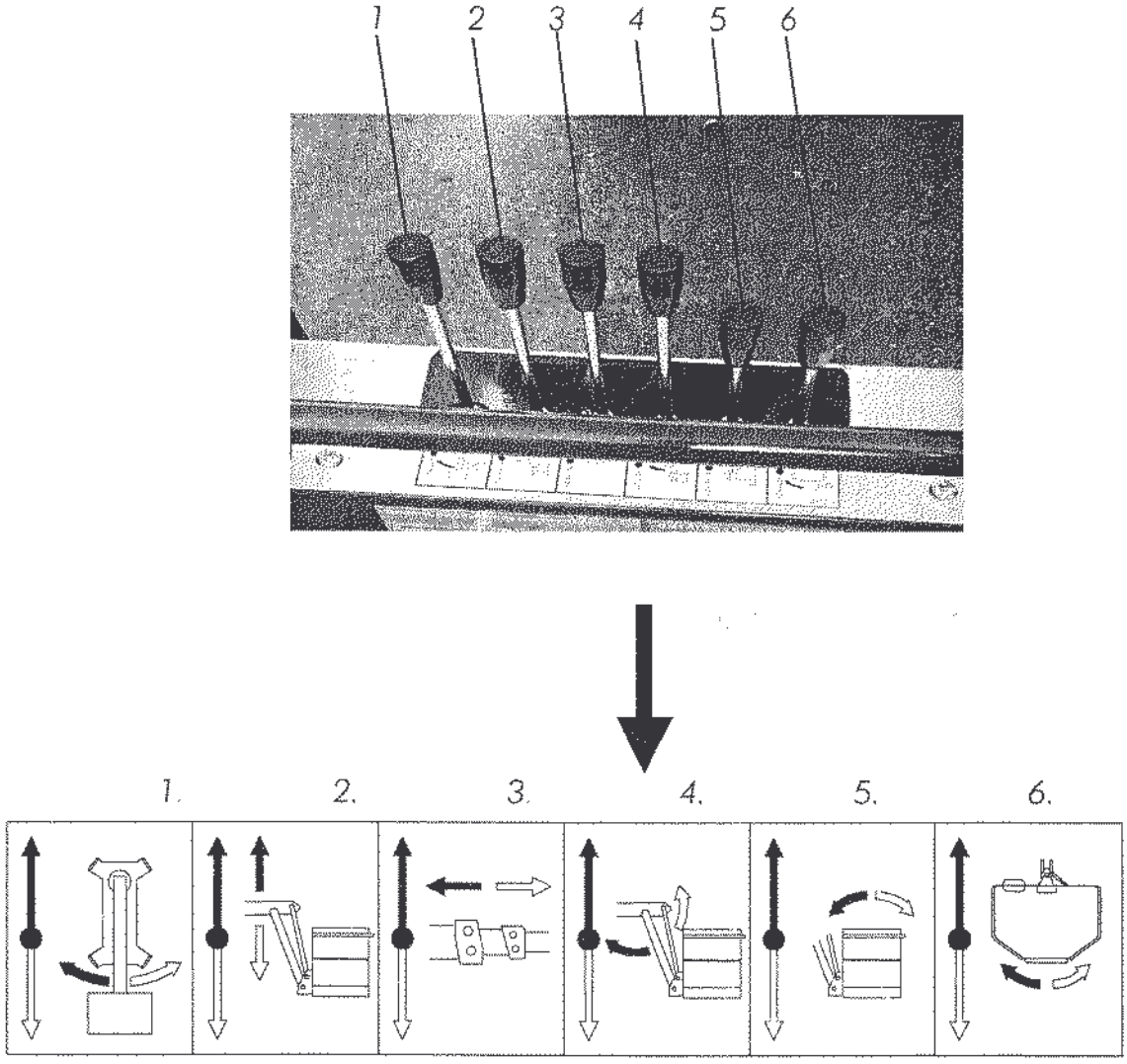


Figure 10-1. Platform control levers and their symbols

Control levers from left to right

1. *Slewing the booms; when the lever is pushed the booms turn to the left*
2. *Raising / lowering the booms; when the lever is pushed the booms will rise*
3. *Extending / retracting the telescope; when the lever is pushed the telescope will retract*
4. *Raising / lowering the jib; when the lever is pushed the jib will lower*
5. *Adjusting the horizontal plane of the platform; when the lever is pushed the platform will turn inward*
6. *Rotating the platform; when the lever is pushed the platform will turn to the left*

10.1 Electric controls on the platform

Platform electricity box:

1. *Emergency lowering pump operation button*
2. *Sound signal*
3. *Overload warning light; lights up when the max. lighting radius has been reached*
4. *Glow signal light*
5. *Emergency stop push button: stops the combustion engine and all movements of the MEWP*
6. *Ignition lock; starting/stopping the combustion engine*
7. *Warning light: engine oil pressure*
   engine water temperature
   engine charging

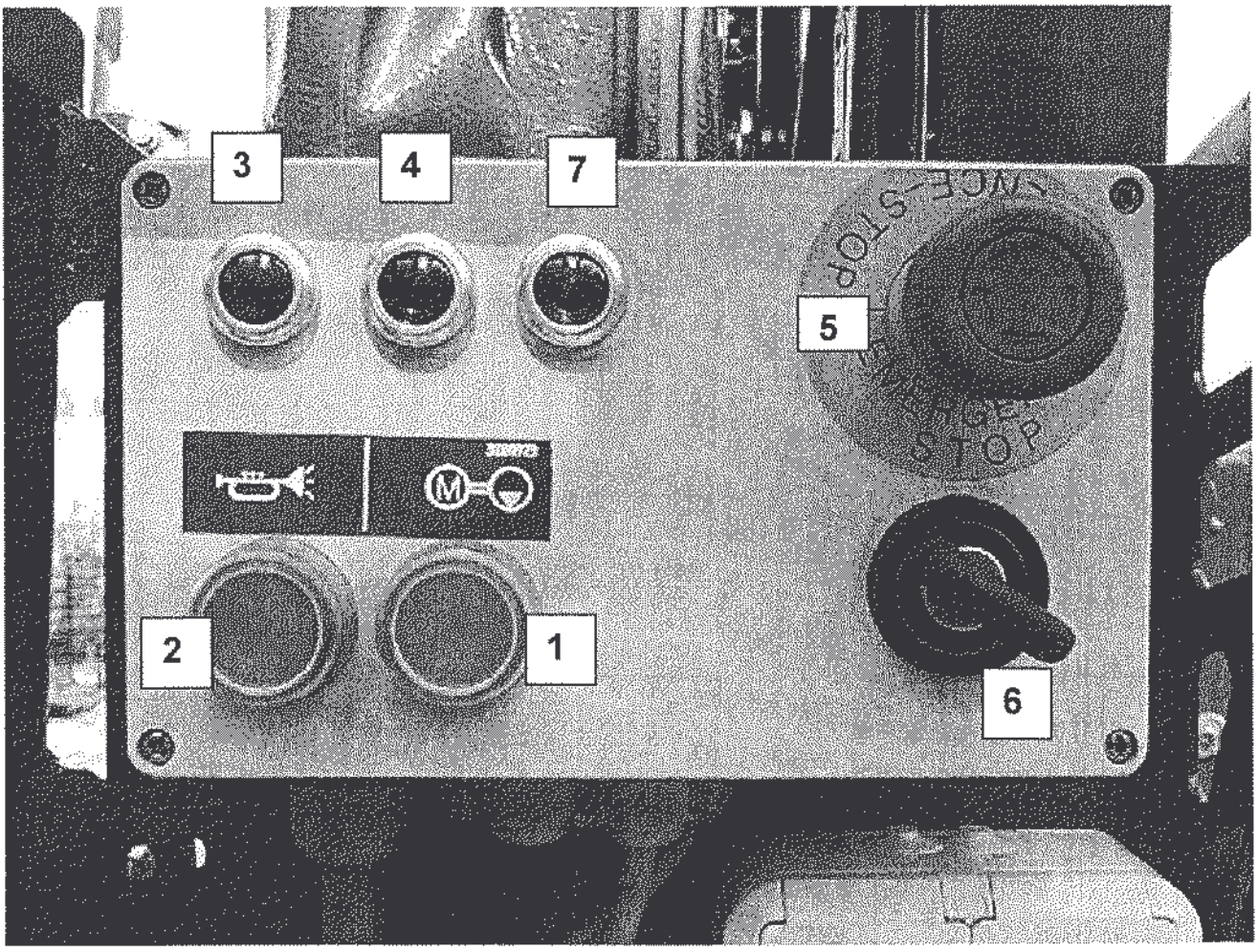
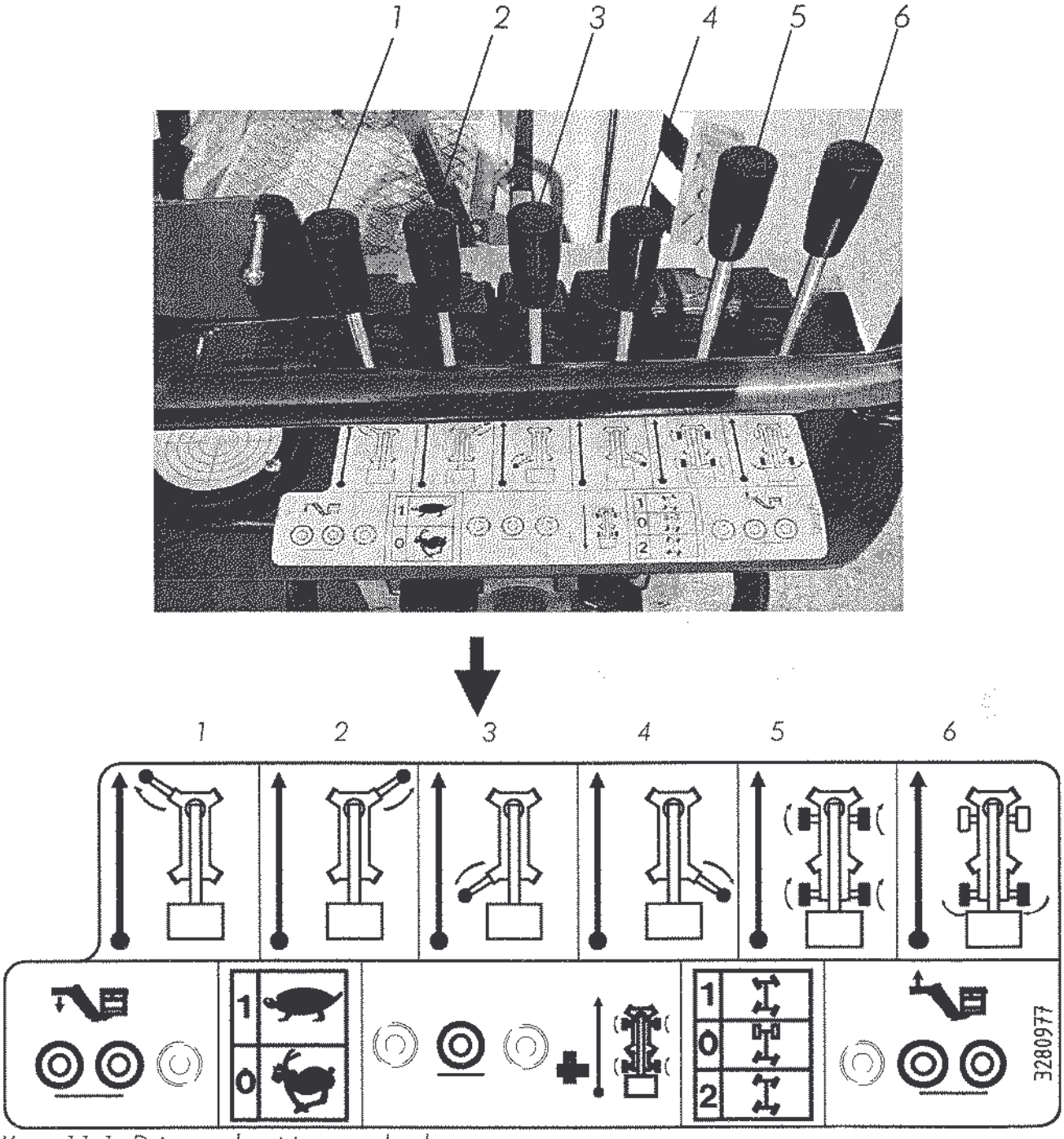


Figure 10.-2 Platform electricity box

11.0 DRIVE / OUTRIGGER VALVE LEVERS



Kuva 11-1. Drive and outrigger valve levers

Lever 1. Front left outrigger up / down
Lever 2. Front right outrigger up / down
Lever 3. Back left outrigger up / down
Lever 4. Back right outrigger up / down
Lever 5. Drive forward / reverse
Lever 6. Steer right / left
When levers 1, 2, 3 and 4 are pushed, the outriggers lower to the ground. When lever 5 is pushed, the MEWP moves forward. When lever 6 is pushed, the MEWP turns to the right.

11.1 Electric control box for drive / outrigger volves

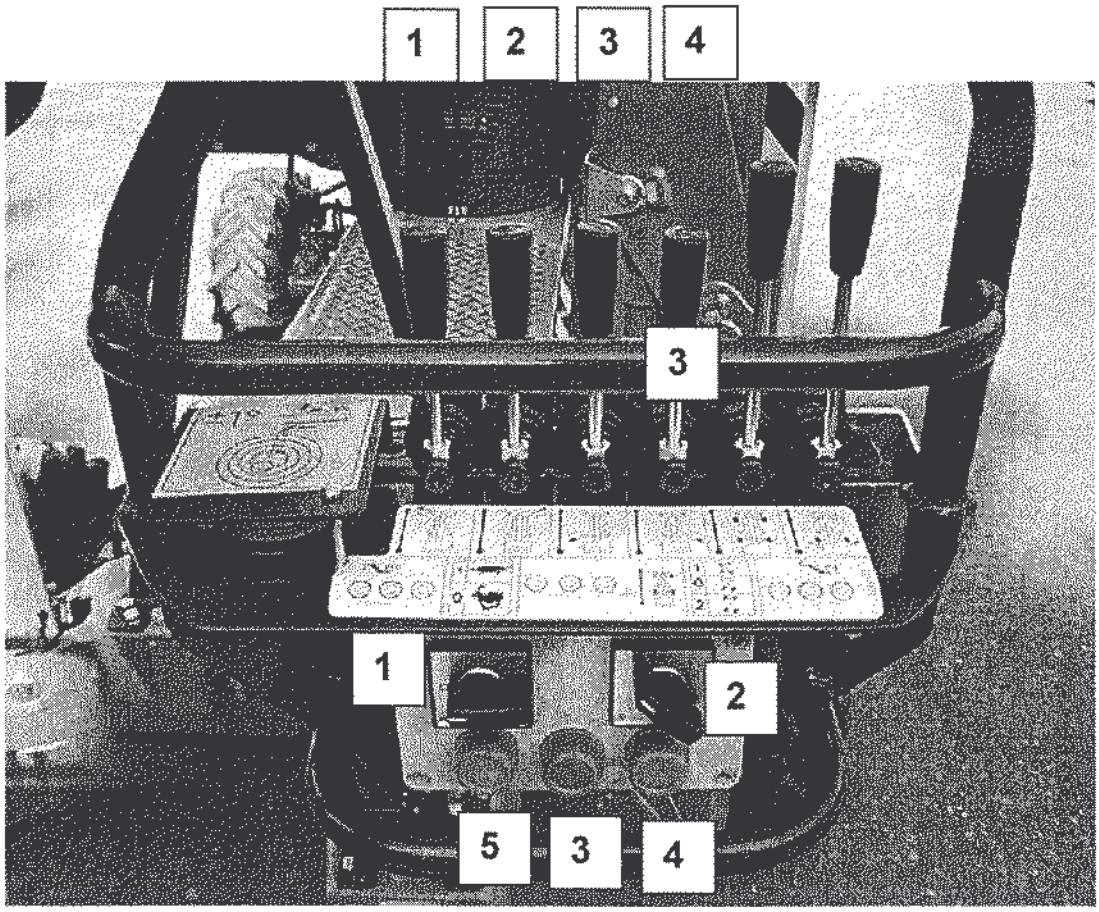
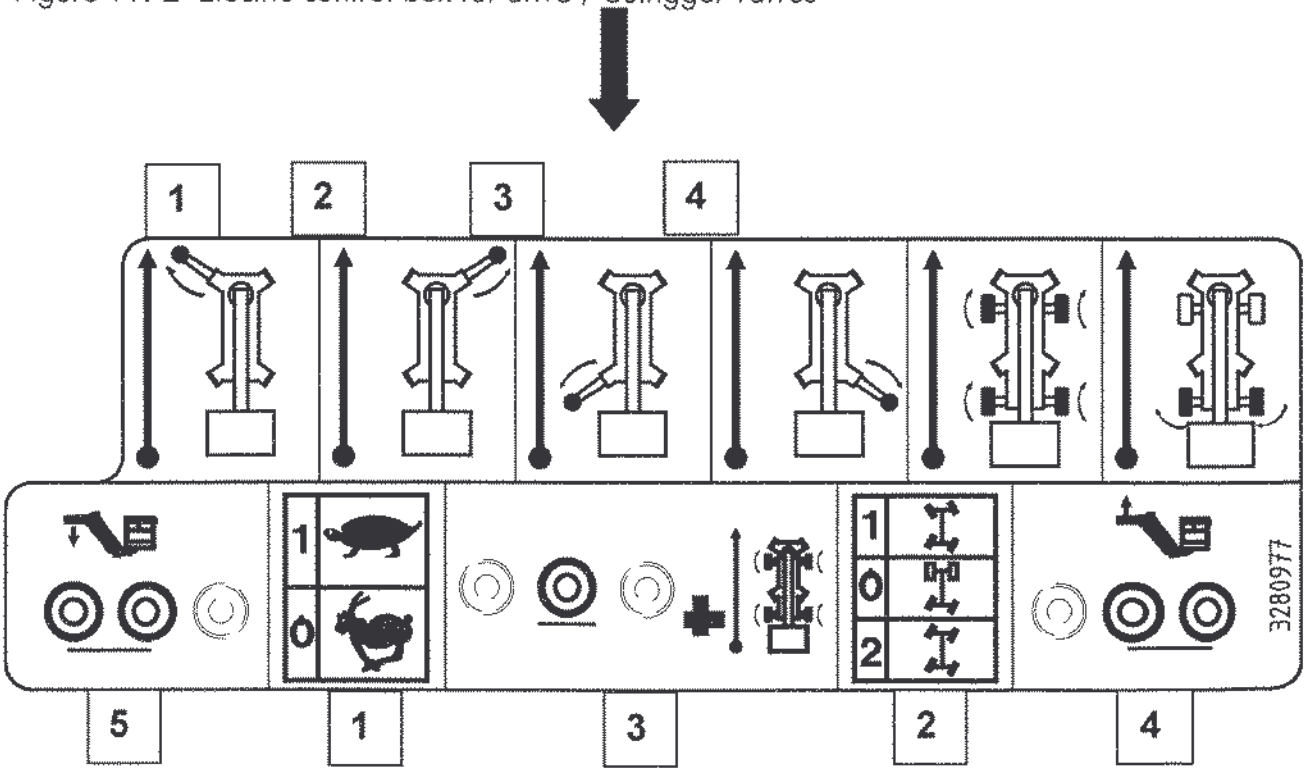


Figure 11.-2 Electric control box for drive / outrigger valves



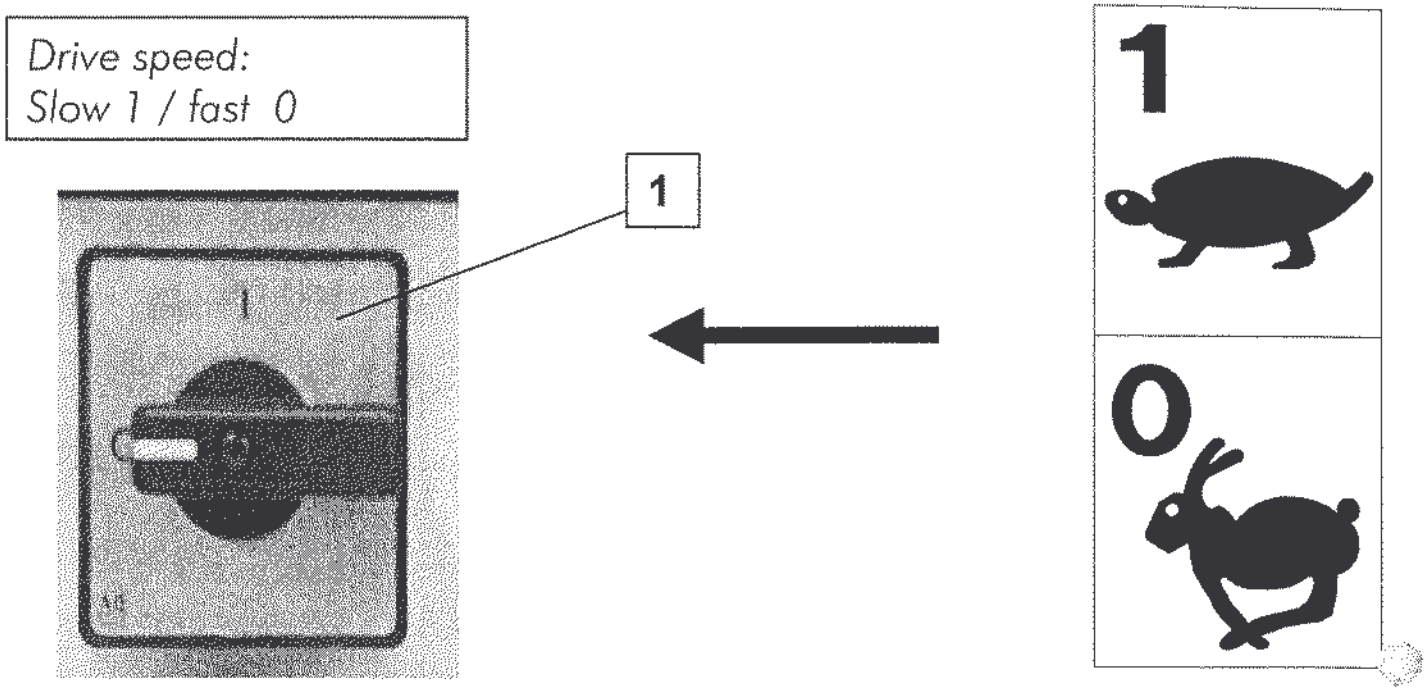


Figure 11.-3 Speed selector switch

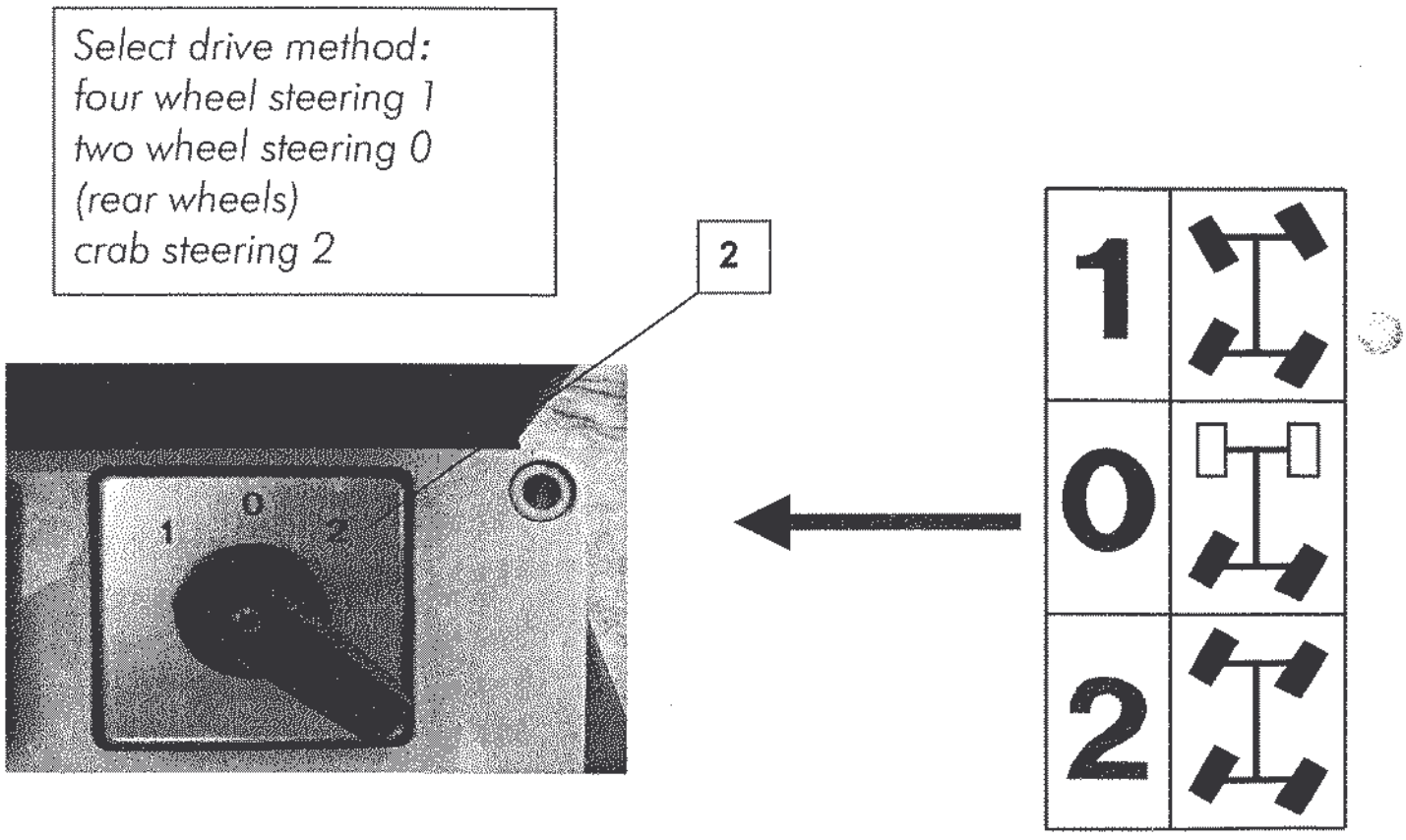


Figure11.-4 Selector switch for method of steering

11.2 How to use the override switches (photos overleaf)

1. [4] To raise the booms with the outriggers up, press the middle (red) button and the right-hand (green) button of the electric control box for drive / outrigger valves simultoneously (with the engine started from the platform). This way you can raise the booms to o maximum angle of 20 degrees. Slewing the booms and extending ond retracting the telescope have been prevented.

Note! The booms may not be lifted off the transport support when the MEWP is tilted more than +- 7,5 degrees; danger of tipping over.

2. [3] To drive in a situation described in point 1 [4], press the middle (red) button while using the drive valve lever 5, steer with volve 6.

Note! Observe extreme caution when driving with the booms raised; donger of tipping over.

3. [5] To lower the booms after a situation described in 1 [4], press the middle (red) and the left (green) button. Lower the booms on the transport support.

Note! When you exit the platform, check that the booms rest securely on the transport support. If necessary, use the lowering buttons outside the plotform to odjust the support.

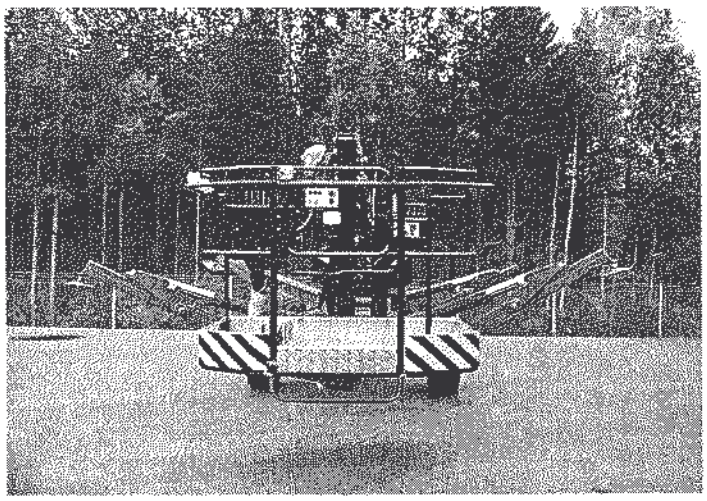
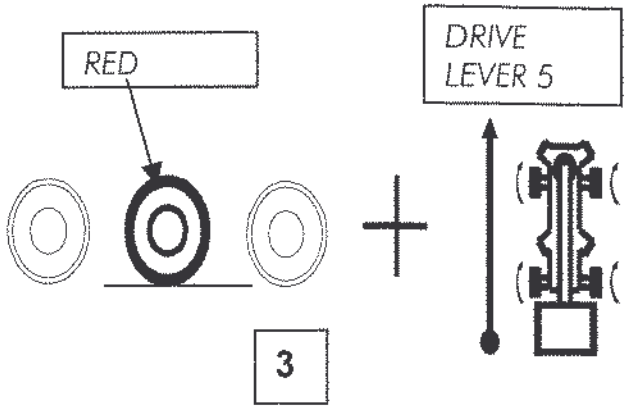


Figure 11.-5 MEWP with the outriggers raised high enough for the limit switches between the outrigger and the chassis to activate.

NOTE! If you use the override switch for raising, lowering, and driving the booms, moke sure that the outriggers are high enough that the position sensor limit switch (located between the chassis and the outrigger) is engaged.

Drive with outriggers up and booms off the transport support



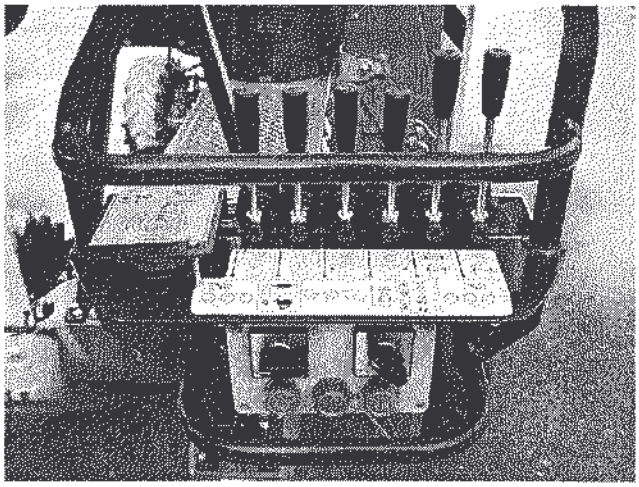
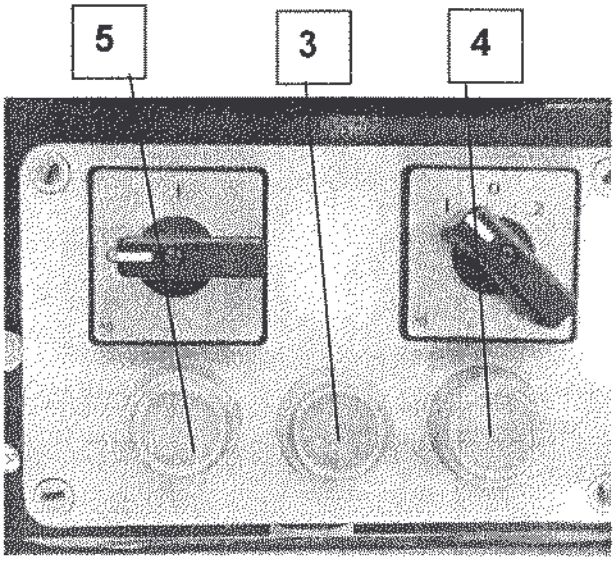
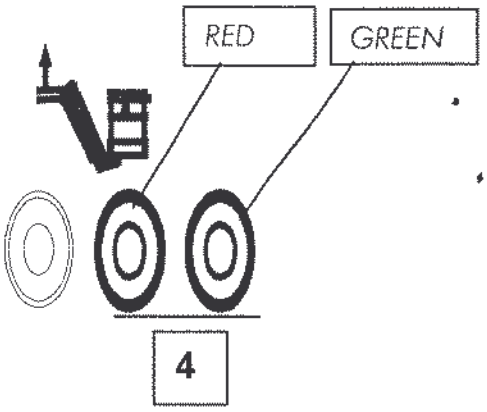


Figure 11.-6. Override switches and drive valve lever

Raise / lower boom





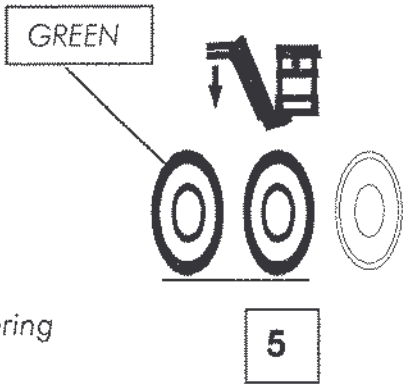


Figure 11.-7. Override switches for raising and lowering

12.0 BEFORE USING THE MEWP

Always check the following before using the MEWP, or at least once a day.

12.1 Check, and add, if necessary

- *function of the load control, refer to Daily checkups*
- *motor oil*
- *hydraulic oil (at least once a week)*
- *fuel (dipstick max.)*
- *hydraulic oil leaks - repair, if needed, check hydraulic oil level (dipstick max/min)*
- *condition of hydraulic hoses (steel fabric must not be visible)*
- *tyre pressure, 310 kPa (45,0 PSI) (3.1 bar)*
- *make a visual check of the bolted joints and supporting structures*
- *DO NOT USE A DEFECTIVE MEWP*

General safety instructions

Do not add load to the platform when the movements of the booms have been stopped by the lifting radius limiter. Additional load could cause a risk of the MEWP tipping over, and a large additional load could cause overloading of the booms.

DO NOT USE THE MEWP IF THE SAFETY LIMITS OR THE LIFTING RADIUS LIMITERS ARE NOT WORKING. CALL AN AUTHORISED PROFESSIONAL WHO IS WELL VERSED IN MEWPS. NEVER, UNDER ANY CIRCUMSTANCES, OVERRIDE A SAFETY DEVICE FOR EVEN THE SMALLEST OPERATION.

13.0 HOW TO DRIVE WITH THE MEWP

The Scanlift SL 190 is fitted with hydrostatic transmission, so the MEWP can be driven and controlled entirely from the platform. The transmission is equipped with continuous 4WD and two driving speed ranges. The slow driving speed range is 0 - 1.8 km/h (0 - 1.1 mph) with a tractive force of 15400 N measured with the machine at a standstill. The high speed range covers 0 - 3.6 km/h (0 - 2.2 mph) with a traction force of 7700 N. The brakes are released when the hydraulic pressure in the drive motors rises above 30 bar (425 psi), and they lock automatically when the driving pressure drops below the above mentioned 30 bar. All wheels are fitted with disc brakes.

13.1 How to operote the drive controls

13.2 Turn on the power at the main power switch. The main power key can be removed while power is on. Always keep the keys on the same ring.

Figure 13.-1 Main power switch

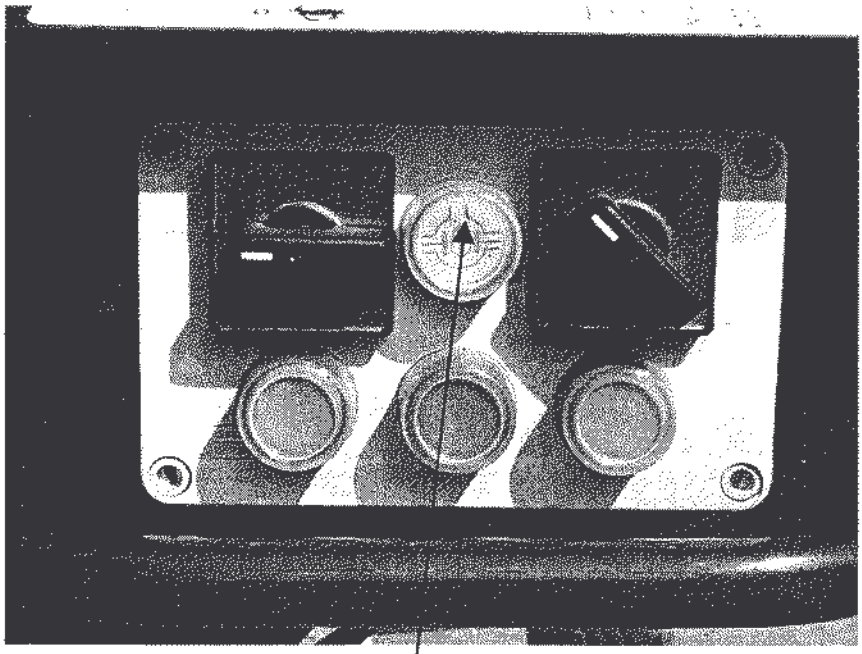
13.2 How to operote the drive controls (starting the combustion engine from the plotform)

Turn the ignition key to ON and start the motor with the key in glow position. Leave the motor at glow until the glow indicator light goes out. In cold conditions, repeat this two or three times. Max. glowing time 15 s at a time, figure 10-2. Turn on the combustion engine with the ignition key a) and let it run for a moment. Steer the MEWP, figure 11-1, with the drive / outrigger valve's rightmost lever and drive the MEWP with the lever b) on the left side. Select a driving speed range using the fast / slow selector switch. The slow speed range, figure 11.-3, has considerably greater traction force than the fast range. Select a mode of steering with the selector switch: four wheel steering, crab steering, or rear wheel steering, figure 11-4.

To avoid risks, the wheels should be centered by choosing four wheel steering and turning the front wheels to their middle position.
If the rear wheels remain at a different angle than the front wheels, use rear wheel steering to position them separately in the center position. The different angle of the wheels may be caused by air in the system. To get the air out of the system, turn the wheels to one extreme position, hold full hydraulic pressure for a moment, then turn them in the opposite direction. Do this three times if you think there may be air in the system. Rear wheel steering is recommended for high driving speed. If the platform must be raised to avoid an obstacle during driving, press the override button and the up button, figure 11.-7, **4** *for boom control in the electricity box for the drive / outrigger valves; then raise the platform,.*
Lower the boom back to transport support with the boom down button, figure 11.-7. **5**
Keep the override switch, figure 11.7, **3** *depressed the whole time while driving and turning the wheels, using the drive lever 5 and steering lever 6.*

The hydraulics and control system of Scanlift SL 190 have been changed starting from machine number 190038 as far as the flow divider valve is concerned. The flow divider valve functions like a differential lock eliminating the slippage of a wheel, caused by uneven fricition between the different wheels and the surface, thus improving the MEWP's off-road properties and hill-climbing capacity.

In the new models the flow divider valve is normally switched off. The valve engages when the switch is pressed (see the figure). This change ensures better control properties in normal driving situations and prolongs the life of the hydraulic motors. Use the function, if a wheel slips when driving on a slippery or soft surface.



Push-button switch for the flow divider valve

13.3 How to drive the MEWP

Note that lightening the platform load helps when traversing difficult terrain. However, to avoid risks, never walk beside the MEWP while driving it. Four wheel steering can help in difficult terrain by aiming the wheels to crush obstacles such as sand or snow.

14.0 HOW TO OPERATE THE MEWP

14.1 *Make sure that the surface intended for the MEWP is level, see figures 16.-1 and 16.-2, Vertical and lateral slope, and hard enough, refer to the Soil tightness table, section 17.*

14.2 *If the ground is soft, use sufficiently large and sturdy extra plates under the outriggers, refer to Soil tightness table, section 17, area / pressure.*

14.3 *Take into consideration the weather and other external conditions, e.g. the traffic, when selecting the place where you will use the MEWP. Prevent collisions with the outriggers. Use a flashing warning light to warn others.*

14.4 *Examine the work site before you drive the MEWP onto it.*

15.0 HOW TO SUPPORT THE MEWP ANO HOW TO OPERATE THE BOOMS

Lower the outriggers to the support position and use the horizontal level indicator to verify that the support is horizontal (± 1°), figure 15.1. Ensure that all four wheels are off the ground. Before rising, make sure that the support soles are well braced against the ground and present no risk of sinking or shifting. You can check the stability of each sole: drive the booms from the platform in horizontal position with the maximum permitted lifting radius (as determined by the limit switch) above each outrigger. If necessary, use extra plates. Note! Take into consideration continuity and the effect of wind loads. Before raising the booms, always ensure that the outriggers are firmly braced and use the horizontal level indicator to verify that the support is horizontal (bubble is in the middle of the indicator, ± 1°). Refer to figure 15.-1 and 10.-1 Platform control levers.

To test the emergency stop switch, raise the boom and press the emergency stop button at the same time. The lifting motion should stop. Refer to section 10.1, point 5, and figure 10.-2 for the emergency stop button. The best way to reach the work site is to slew and raise the booms in that direction, and then to drive the platform with the telescope to the work site.

You can cope with obstacles by using the jib boom. Apply the steps for lowering in reverse order. The boom steering valve has a special spindle for lifting, which allows the boom to start and stop smoothly. The slew mechanism is similorly equipped with a special spindle. If you will be working for a long time in one place, turn off the motor with the ignition key on the platform ond turn it on only to move with the boom from site to site.

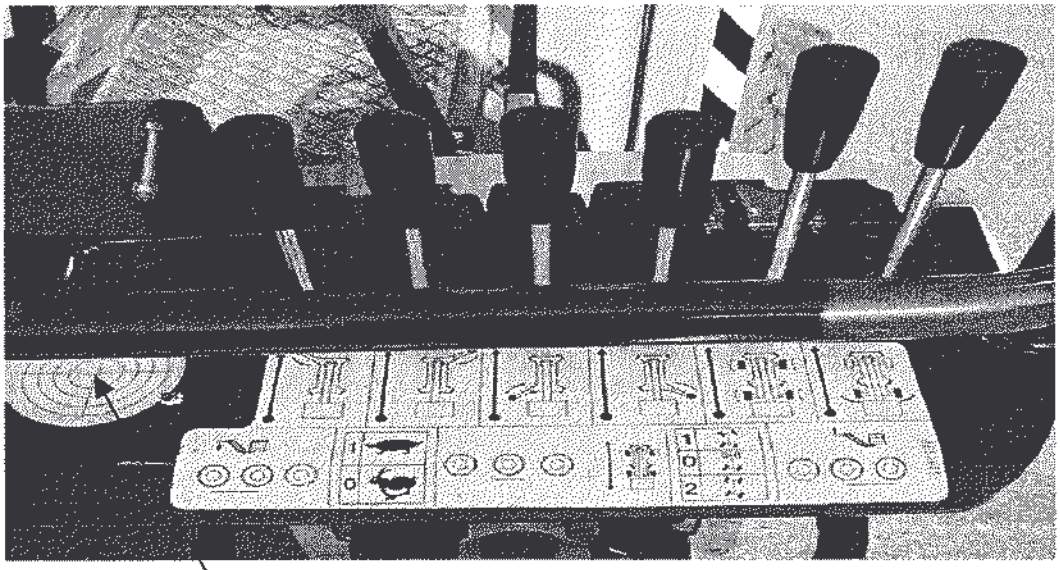


Figure 15.-1 Horizontal level indicator

15.1 Operotion of the ground contoct sensor

When the booms are slewed above an outrigger, the surface below the outrigger may yield, or the MEWP moy hove been incorrectly positioned, in which case the opposite outrigger loses touch with the ground. This will activate the sound signal. The operation of the booms is not prevented.

15.2 Lower the booms immediotely into the tronsport position.

15.3 Check the surfoce, use extro plotes, if necessory. Correct the position of the MEWP.

16.0 MAXIMUM SLOPE

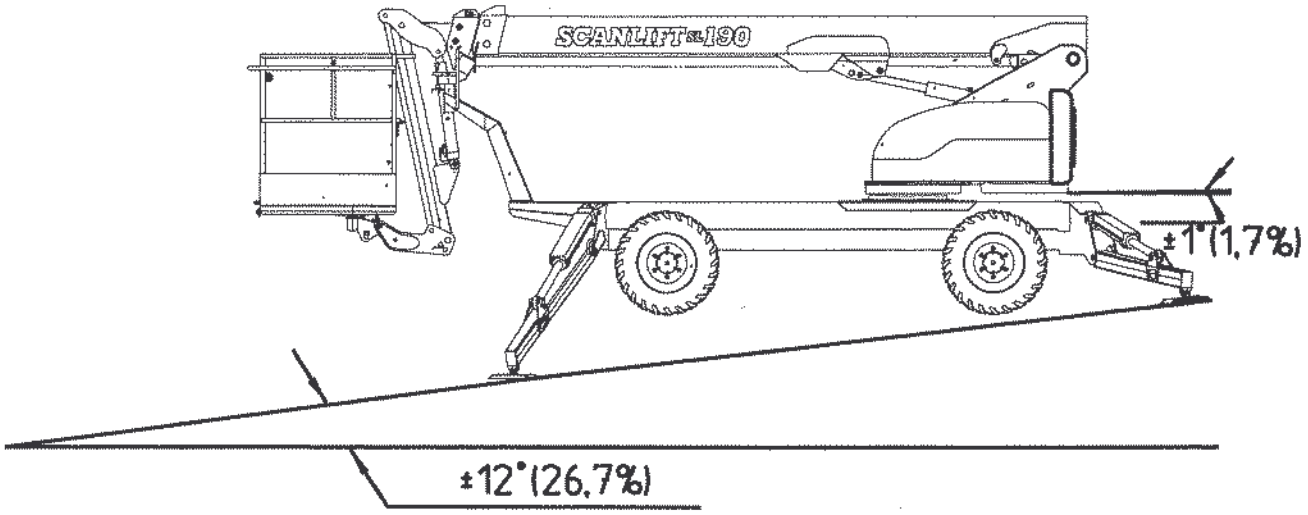


Figure 16-1. Vertical slope

16.1 Lateral slope

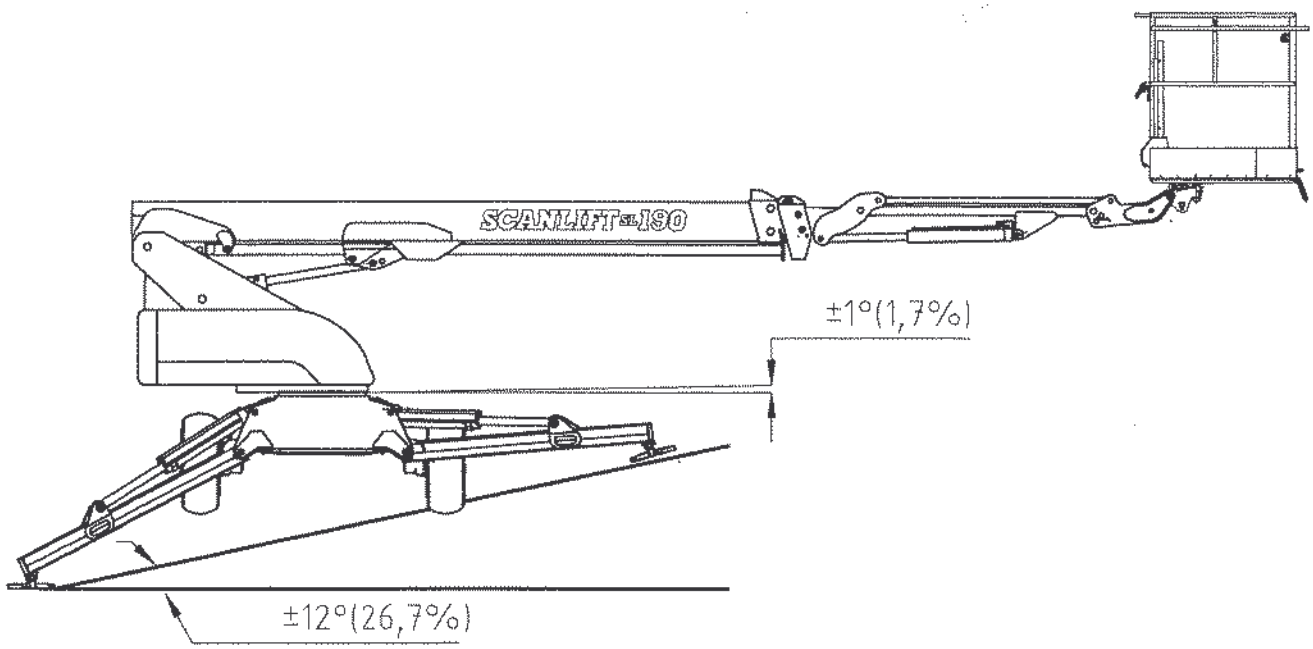


Figure 16.-2. Lateral slope

WARNING! MAKE SURE THAT THE MEWP WILL NOT SLIP ON SLOPING GROUND. USE EXTRA CALKS ON THE SOLE PLATES WHEN NECESSARY.

17.0 SOIL TIGHTNESS TABLE

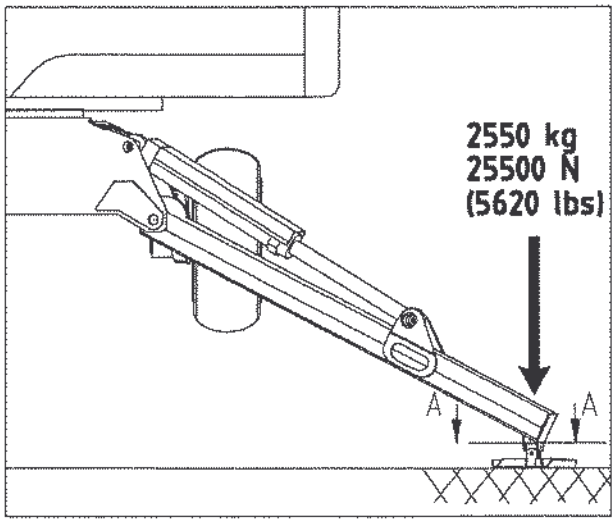


Figure 17.-1 Max. load on sole

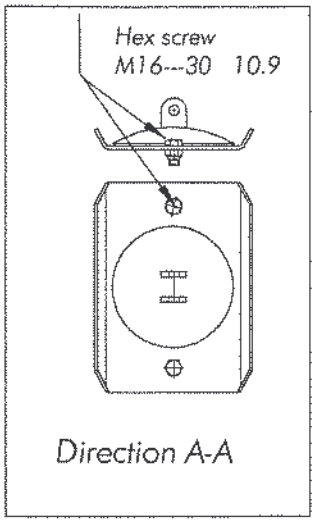


Figure 17.-2 Sole

On icy surface, attach extra calks to the sole plates as indicated in figure 2. The soles are provided with holes for the purpose.

Surface A of the sole: (SL190 standard sole)
A = 32,5 cm x 20 cm = 650 cm^2

Pressure $\frac{** 2550\ kg}{650\ cm^2}$ = 3.9 kg/cm2

A (extra calk) when safe pressure = 2.00 $A = \frac{2550\ kg}{Safe\ 2.00}$ = 1275 cm^2 (36cm x 36cm)

Safe contact pressure for some soil types:

Soil type	Soil density (structure)	Safe contact pressure kg/cm^2
Gravel	very tight somewhat tight loose	6.00 4.00 2.00 * <3.9
Sand	very tight somewhat tight loose	5.00 3.00 * < 3.9 1.50 * < 3.9
Fine sand	very tight somewhat tight loose	4.00 2.00 * < 3.9 1.00 * < 3.9
Clay & fine silt	very tight somewhat tight loose	1.00 * < 3.9 0.50 * < 3.9 0.25 * < 3.9

Note! In items marked with (*) broader extra plates must be used.
Note! Items marked with (**) include max. wind load, max. platform load with max. allowed lifting radius, and the continuity moment of the booms and the load when lowering the booms.

18.0 USING SUPPLY CURRENT ON THE PLATFORM

With the cable located in the equipment case, connect supply current 220 V / 50 Hz 16 AMP (USA = 110 V AC / 60 Hz / 16 AMP) to the outlet on the chassis, next to the equipment case. The platform has two grounded outlets for hand tools. The electric line is fitted with a fault circuit switch (in the tool box) and a slip-ring package (inside the turntable). The fault circuit switch is located in the chassis and it has a test button for checking the line before use. The fault circuit switch is also fitted with a supply voltage breaker, figure 18.-1.

18.1 Testing the foult circuit switch

Plug a device, e.g. a drill, into the outlet on the platform. Plug the MEWP into the mains current with the cable in the equipment case. Depress the test button of the ground fault circuit interrupter, thus releasing the main power switch, which acts as an automatic fuse. If the main switch does not release, and if the device has not functioned before this on the platform, check that the main power switch is in its power supply position.

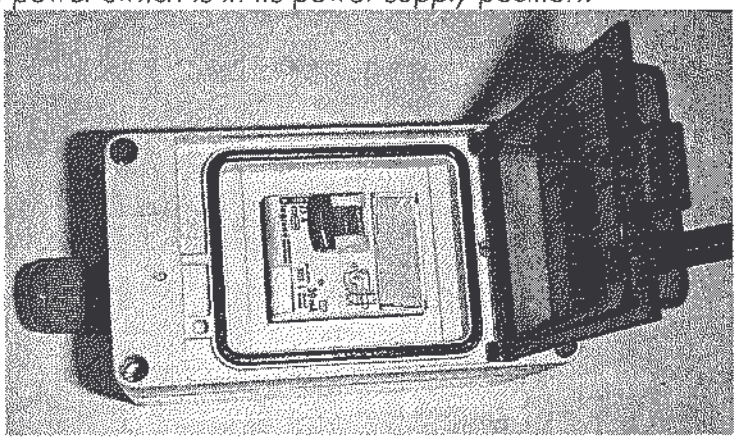


Figure 18.-1. Fault circuit switch

19.0 WARNINGS WHEN OPERATING THE MEWP

19.1 Operoting the booms in cold conditions

WARNING!

Do not stop the combustion engine when working in cold conditions (-5° C = 23° F, or colder) even if you work in the same place for a long period of time. The hydraulics and the combustion engine will cool unnecessarily. At such times it is advisable to reduce the engine speed.
Make sure that the safety limit switches are free of snow, ice and dirt.
Make sure the control valves function and are free of snow and ice. In extremely cold weather, let the diesel engine run for a few minutes and then perform some warm-up movements with the booms so that warm oil flows to the cylinders and the control valves work reliably.
Protect the control valves and the work platform from snow and ice when you are not using them.

Note! Do not use the MEWP for lifting if the temperature is below –25 C° (–13 F).

19.2 When moving from one work spot to onother with the boom, remember:

- look out for high voltage cables
- never touch uninsulated electric wires
- do not damage the work platform or controls
- do not damage external devices
- do not throw or let any object drop from the work platform
- do not lean from the work platform
- do not use ladders or other devices for standing higher in the platform
- do not jump on or swing the platform
- make sure the platform always remains in the horizontal position.

19.3 Raising by using the lower control volve for lifting

- do not use the MEWP as a lift to transport people or goods between different levels
- support the MEWP on a level and sturdy surface
- remove the ignition key from the electric control box on the platform
- turn on the main current and start the engine from the electricity box for the lower controls
- use the hydraulic control valve for the booms to drive the boom. Its control lever is located with the lower controls.

19.4 Plotform lood

WARNING: If the reach exceeds the values given in boom geometry, chapter 6.0, have it repaired before the next use. Do not use a defective MEWP! The maximum permissible platform load is 230 kg (507 lbs).

20.0 HOW TO OPERATE THE EMERGENCY LOWERING SYSTEM

20.1 Construction of the emergency lowering system

The emergency lowering system consists of the pump for emergency lowering, the emergency lowering pump control buttons on the platform and, at the lower control position, the control valve of the platform, the lower control valve, and the labels with operating instructions glued to the platform and turntable.

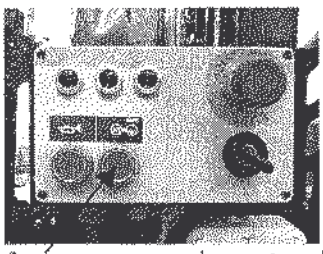
1. The electric emergency lowering system pump is continuously ready to back up the regular hydraulic pump of the hydraulic system by feeding oil into the system if the regular hydraulic pump breaks down or if for some reason the boom valves on the platform cannot be used.

2. Oil is pumped from the emergency lowering pump into either the platform control valve or the lower control valve.

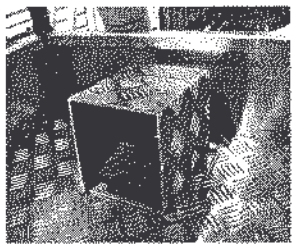
20.2 How to operote the emergency lowering system

From the plotform:

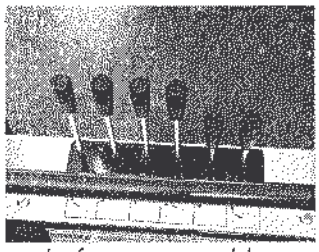
1. Press the emergency lowering button all the way down and continue to hold it down during the lowering procedure. Press the boom foot pedal to the floor while you use the platform control valve, refer to figures 20.-1.
2. Always retract the telescope prior to lowering the boom.



1. emergency lowering button



foot pedal

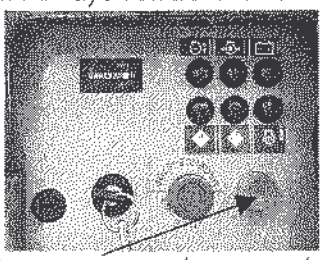


platform control levers

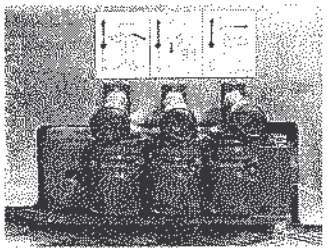
figures 20.-1

20.3. How to operote the emergency lowering system from the turntable:

1. Press the emergency lowering button all the way down and continue to hold it down during the lowering procedure. Lower the platform by using the control valve. Refer to figures 20.-2.
2. Always retract the telescope prior to lowering the boom.



1. emergency lowering button



turntable control levers

Figures 20-2

WARNING!

20.4. Oo not use the emergency lowering system for operoting the booms in normol working conditions

The pump motor may not be used continuously for longer than about 3 minutes. In addition, the battery runs down very quickly (the combustion engine does not start).
The motor of the emergency lowering pump is protected by a thermal overload relay. If the relay is tripped, the motor stops. Wait about 3-5 minutes until the motor cools. The thermal relay will engage automatically.

21.0 LOCATION OF SAFETY LIMITS ANO ELECTRIC COMPONENTS

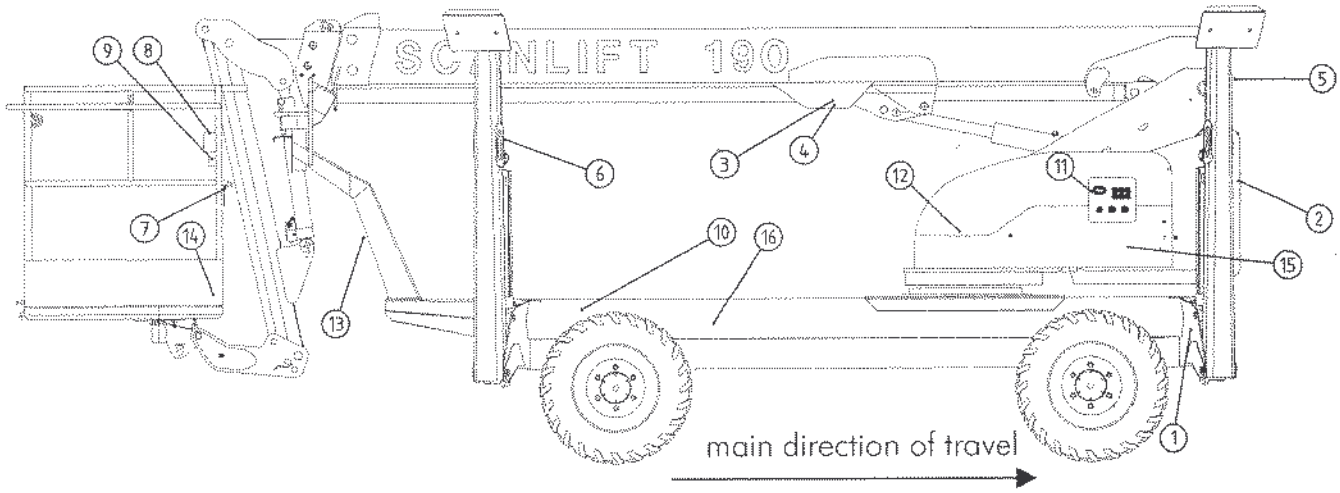


Figure 21-1. Location of safety limits and electric components

The above figure shows the location of the safety limits

1. *Safety limit switch for outriggers, positioning limit switch, 4 pcs*
2. *Ground contact limit switch, 4 pcs*
3. *Lifting radius limit switch, 2 pcs*
4. *Safety limit for booms, 1 pc*
5. *Limit switch for boom position, 1 pc*
6. *Limit switch for transport support, 1 pc*
7. *Jib limit switch, 1 pc*

Location of other electric components:

8. *Electric box on platform (emergency stop, emergency lowering button, ignition lock, glow plug indicator light, load control indicator light, and combustion engine malfunction light)*
9. *Supply current outlets (2) 240 VAC/16A*
10. *Fault circuit switch*
11. *Electric box on turntable (emergency stop, operating hours meter, emergency lowering button, ignition lock, signal lights for glow, oil pressure, charge, engine temperature, pressure and return filters)*
12. *Slip-ring package*
13. *Outlet 240 VAC/16A*
14. *Foot pedal*
15. *Battery, on left side (seen from the platform)*
16. *Electrical connector box*

22.0 TOWING THE MEWP

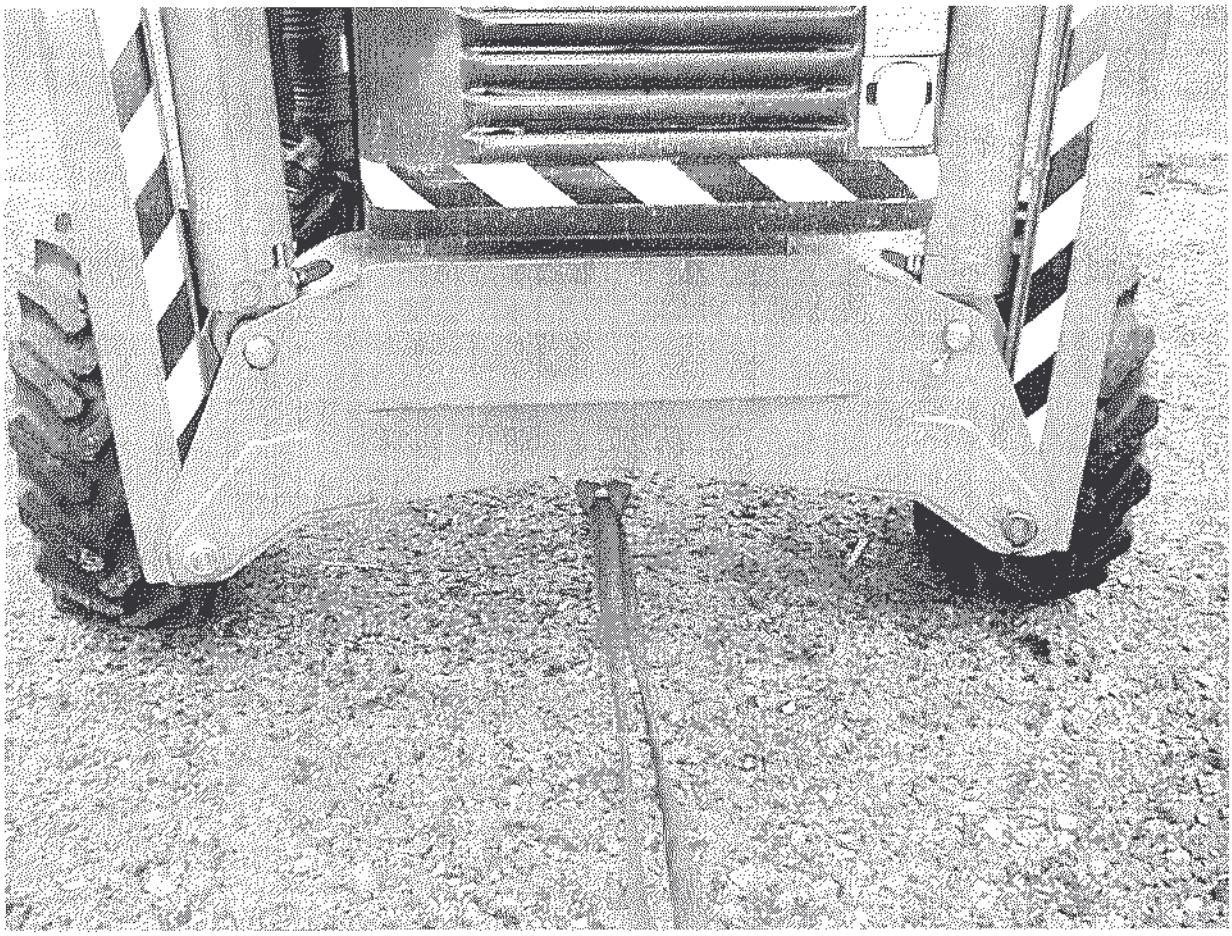


Figure 22.-1. Towing the MEWP

If the MEWP gets stuck when travelling:

1. Tow the MEWP with the tow hooks located at the front and back of the vehicle.

2. Keep the combustion engine running and keep the traction in the desired direction to prevent the brakes from locking. Steer the MEWP onto hard ground to release the pull rope. When towing on hard ground, switch to the fast driving speed range. Do not exceed a tow speed of 3.6 km/h (2.2 mph).

3. If necessary, the brakes can be released this way: release the hydraulic hoses of the brake cylinder. Replace the nipple by screwing in an R 1/4"-75 full threaded bolt into the hole of the hydraulic coupling or an R 1/4" special nipple and into this an M8 x 70 full threaded bolt. Squeeze loose the brake pads from the brake disc e.g. for the duration of towing. Refer to figure 22.-3.

4. *Note! After releasing the brakes, careful braking is possible by moving the hydraulic drive valve lever towards the middle position. When parking, fasten the MEWP to a solid structure to prevent it from rolling downhill.*

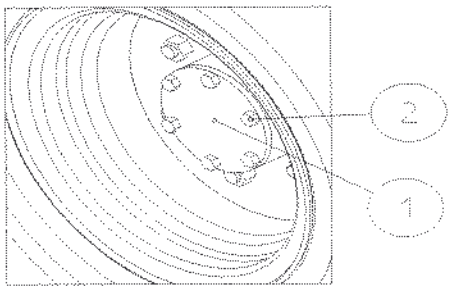


FIGURE 22-2

5. If the MEWP's engine is not working or if you have to tow the MEWP a long distance, you can disconnect the hydraulic traction motors from the wheels by removing the covers of the wheel hubs. There is no oil under the covers.
Removal of the covers (figure 22.-2): Unscrew the socket head bolts 2 and pull out cover 1 (all four wheels).

6. Note! After removing the axles, the MEWP may only be towed with the help of a tow bar.

7. When parking, fasten the MEWP to a solid structure.

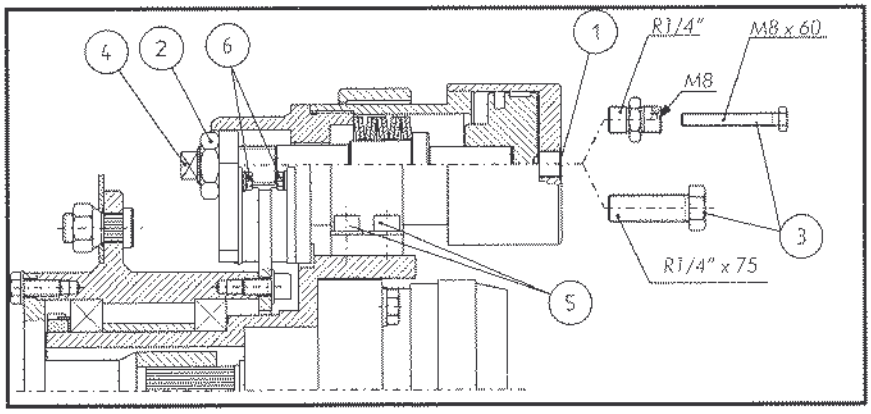


Figure 22.-3

Diagram of the brakes, special nipple and M8 bolt (all four wheels)
(Standard equipment provided with the machine)

23.0 PROCEDURES BEFORE TRANSPORTING THE MEWP

Do the following before transporting the MEWP:

1. *Put the booms into transport position and raise the outriggers.*
2. *Strap the MEWP carefully onto the base. Use the tow points on the chassis and the lifting points on the rear axle. If necessary, put chocks in front of and behind the wheels to prevent rolling.*
3. *Attach the boom securely to the transport support or strap the work platform carefully onto the transport base to avoid straining the boom during transport. Do not pull the ropes over the boom: use the wheel axle fastening links.*
4. *Turn off all current with the main switch.*
5. *Check the total height before starting to drive.*

24.0 MAINTENANCE

To keep the MEWP operating safely and efficiently it requires regular maintenance. For a description of the service procedures, refer to the maintenance scheme and annual inspection list. Do not hesitate to contact a service shop specialised in MEWPs for the necessary maintenance work and inspections.

24.1 Maintenance based an aperating hours

Observe extreme care and cleanliness before opening the hydraulic or fuel lines.
The first oil change of the diesel engine must take place after fifty (50) operating hours.
The first oil change of the petrol (gasoline) engine must take place after five (5) operating hours.
Normally the next oil change is due after fifty (50) operating hours, when the oil filter should also be changed. When used in very dusty, hot conditions or for large loads, the motor oil should be changed every twenty-five (25) operating hours. Use an SF-grade detergent motor oil. The viscosity is determined by the operating temperature; there is a table in the engine operating manual.
Change the hydraulic oil and filter. Change the oil more frequently in situations with dusty, moist, or corrosive conditions, very variable outdoor temperatures, or extremely high load levels.

25.0 MAINTENANCE SCHEME BASED ON OPERATING HOURS

Daily	1. Check fuel quantity
	2. Check support structures
	3. Check hydraulic hoses and pipes and tightness of hydraulic couplings
	4. Check functioning of emergency stop and safety devices
	5. Test functions in all directions. Devices should return automatically to the centre 0 position
Weekly	1. Check hydraulic oil quantity *
Every 50h	1. Lubricate all bearing and sliding surfaces
	2. Check the condition of telescope sliding pads and surfaces. Lubricate and adjust as needed
Every 500h	1. Change hydraulic oil and filter
	2. Check halting of boom movements
Every 1000 hrs or at least each 6 months	1. Check the condition of driving brakes; clean, adjust, and lubricate
Every 12 months	1. Annual inspection. Attached record must be completed, signed and dated.
	2. Tightness of slewing ring bolts **)
	3. Check the boom extension chains

MEWP in transport position

*) *the MEWP must be horizontal in longitudinal and cross direction*

- *oil quantity must not exceed the max. marking on the dipstick (oil will flow out from the filling cap when driving)*
- *oil quantity must not be under the min. marking on the dipstick (a small amount of oil will heat up quickly)*

**) *refer to instruction 32*

26.0 MAINTENANCE DF THE COMBUSTION ENGINES

26.1 KUBDTA D905E DIESEL ENGINE

The combustion engine is a Kubota D905-E diesel engine.
The maximum engine rpms have been adjusted by the manufacturer to 3000 rpm, which should not be exceeded. The operator can, of course, reduce the speed of rotation, thus saving fuel, lowering the noise level and prolonging the life of the motor. The maximum engine rpms are needed, when driving in poor shaped terrain. Anyhow, the speed of rotation should not drop below 1500 rpm. Due to the adjustable-displacement hydraulic pump the speed of the boom movements does not change, even if the engine rpms have been adjusted. In freezing conditions, about -5°C (+23°F) or colder, the use of a cold starter to start the engine is recommended.
The Kubota diesel engine has a glow plug functioning from the ignition lock.

Starting and stapping the Kubata D905 diesel engine

Starting:

1. *Switch on the current from main switch 1(figure 26-1). The main ignition key can be removed even when current is on.*
2. *Start the engine from the platform ignition lock 6 (figure 26-2), if you want to operate the MEWP from the platform. If you want to use the MEWP from the ground, start the engine from the operating point for ground guiding from ignition lock 2 (figure 26-3). When the booms are operated from the ground, the MEWP must be supported by the outriggers. Refer to OPERATING THE BOOMS FROM THE GROUND. Selection of the point of operating depends on where the combustion engine was started.*
   In freezing conditions, -10°C (+14°F) or colder, start the engine by keeping the ignition key in the glow position so long that the glow indicator light goes out before starting. Then start the engine by turning the ignition key to position START. Let the engine run warm.

Stopping:

1. *Stop the engine by turning the ignition key to position 0 (current off).*

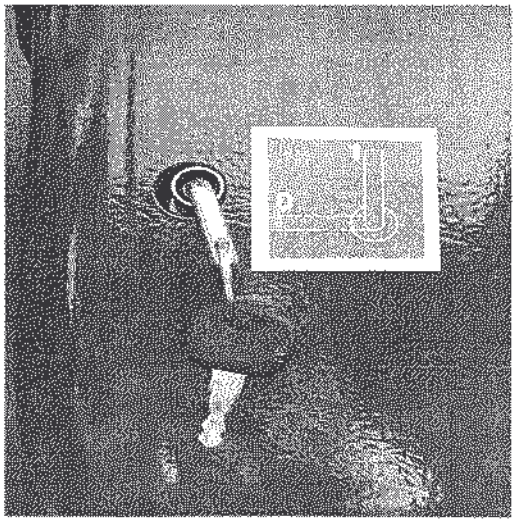


Figure 26.-1 Main power switch

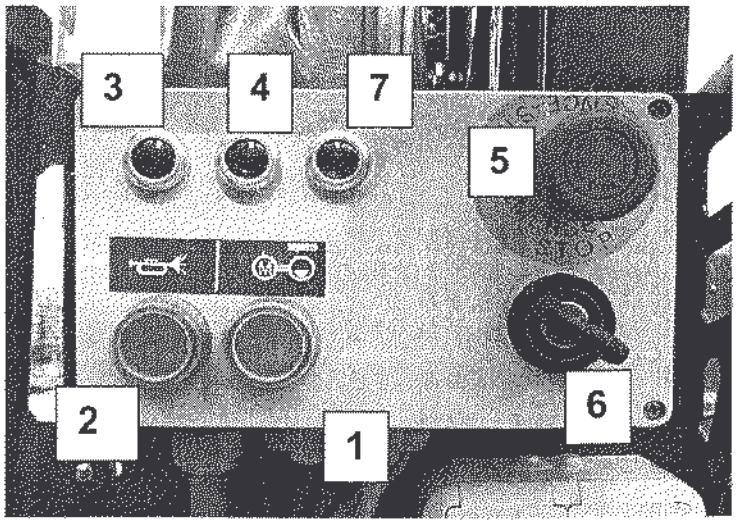


Figure 26.-2 Platform electricity box

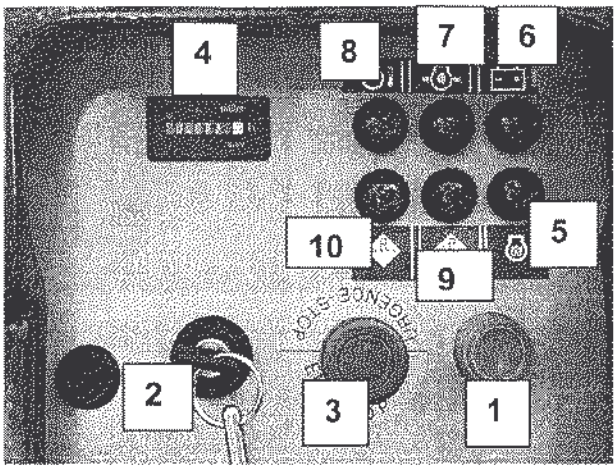


Figure 26-3 Turntable electricity box

26.1.1 Principol controls of Kuboto D905-E diesel engine:

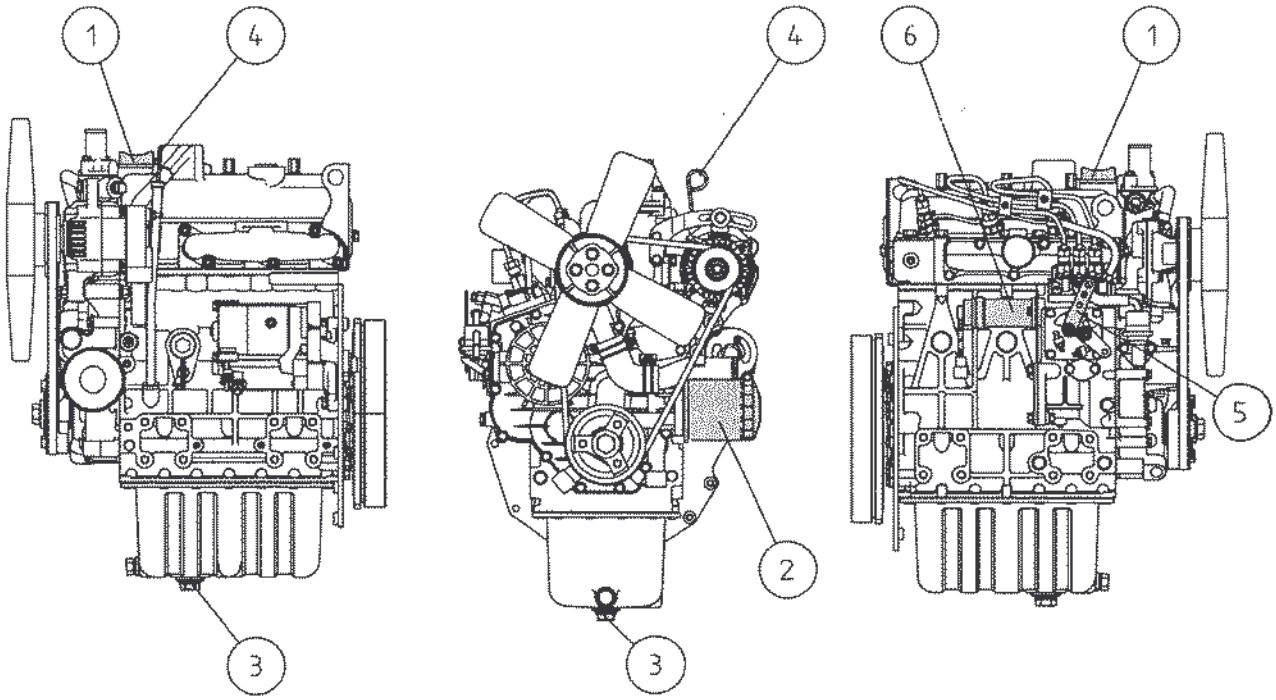


Figure 26.-1-1 Kubata D905-E

1. Filling cap for engine oil
2. Engine oil filter
3. Bleeding tap for engine oil
4. Oil dipstick
5. Adjusting the speed of rotation
6. Stop solenoid

26.1.2 Kubota D905-E maintenance scheme (based an aperating haurs)

Kubota D905-E

Daily Motor off:	Check oil and fuel leakages, repair leakages before use.
	Check oil level and cleanliness. Add oil, if needed.
	Check the amount of coolant. NOTE! NEVER OPEN THE RADIATOR FILLING CAP OF A HOT MOTOR. LET THE MOTOR COOL AT LEAST 30 MINUTES AFTER USE, BEFORE OPENING THE CAP. Add coolant, if needed.
	Check for loose bolts and nuts, and tighten, if needed.
Daily Motor on:	Listen to the sound of the motor. Stop the motor if: The rpms of the motor reduce or increase suddenly (the motor does not run smoothly). There is unusual interference noise.
	Check the colour of exhaust gas. Stop the motor, if the exhaust gas suddenly changes black.
	Stop the motor, if the signal light for oil pressure or overheating of the coolant are on while the motor is running.
After first 50h	Change motor oil and oil filter.
Every 50h	Check fuel pipes and hoses, and tightness of their connections and condition of hose clamps.
Every 100h	Clean the air cleaner element.
	Check the battery electrolyte level.
	Check the fan belt tightness and condition.
Every 200h	Change motor oil and oil filter.
	Check the condition of radiator hoses and hose clamps.
Every 400h	Replace the fuel filter element
Every 500h	Clean radiator system and radiator cell and check the condition of radiator.
	Replace fan belt.
Every 800h	Adjust valve clearance.
Every 12 months	Replace air cleaner element. **
	Check for damage to el. conductors and condition of connectors.
Every24 months	Replace fuel hoses and hose clamps.
	Replace radiator hoses and hose clamps.
	Change coolant.

** Once a year or every six cleanings.

26.1.3 Chonging oil ond oil filter of KUBOTA D905-E motor

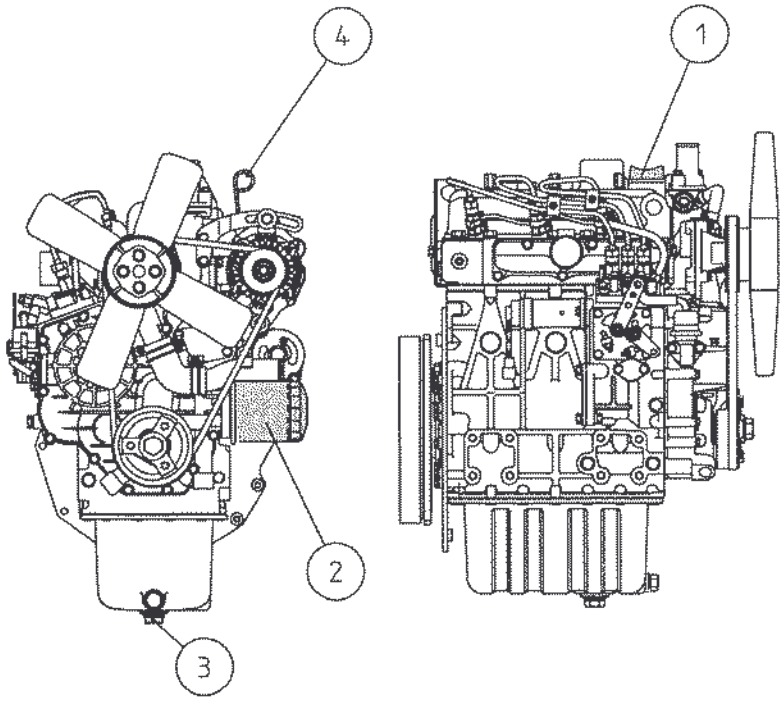
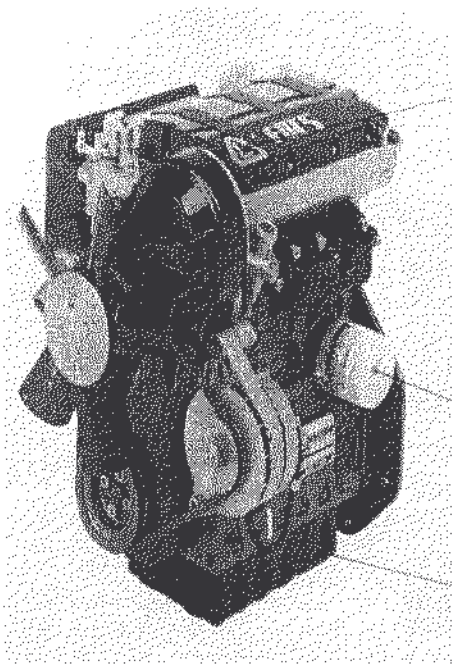


Figure 26-1.3 Changing oil and oil filter of Kubota D905-E motor

26.2 THE COMBUSTION ENGINE IS A LOMBAROINI 1003 FOCS

The maximum engine rpm has been determined by the manufacturer to be 3,000 rpm, which should not be exceeded. The operator can, of course, reduce the engine speed, thus saving fuel, lowering the noise level and prolonging the life of the engine. The maximum engine rpm is needed for traversing difficult terrain. In any event, the engine speed should not be allowed to drop below 1,500 rpm. Due to the adjustable displacement hydraulic pump, the speed of the boom movement does not change when the engine rpm is adjusted. In cold conditions (approximately 23° F / -5° C, and below) the use of a cold starter to start the engine is recommended. The Lombardini diesel engine has a glow plug which operates from the ignition lock.

26.2.1 Principal Lombardini 1003 cantrols:



Moottoriöljyn täyttöaukko
Tappo rifornimento olio
Bouchon remplissage huile
Oil filter cap
Öleifüllung
Tapon llenado aceite
Tampa reabastecimento oleo

Polttoainepumppu
Pompa alimentazione
Pompe d´alimentation
Fuel feeding pump
Kraftstoffpumpe
Bomba alimentación
Bomba alimentação

Öljynsuodatin
Filtro olio
Filtre á huile
Oil filter
Oelfilter
Filtro aceite
Filtro óleo

Öljyn poistoaukko
Tappo scarico olio
Bouchon vidange huile
Oil drain plug
Ölablaßschraube
Tapon vaciado aceite
Tampo descarregamento óleo

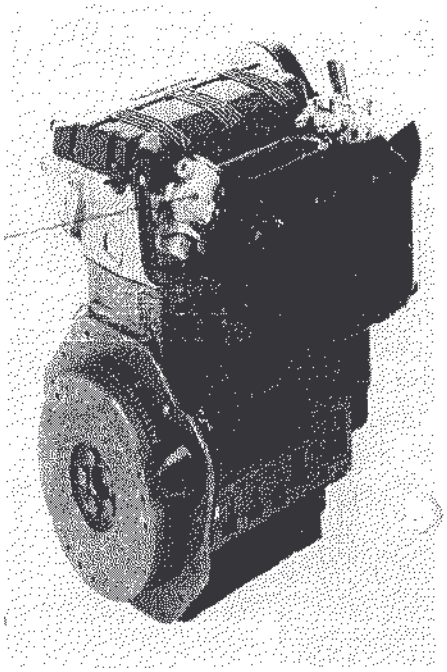


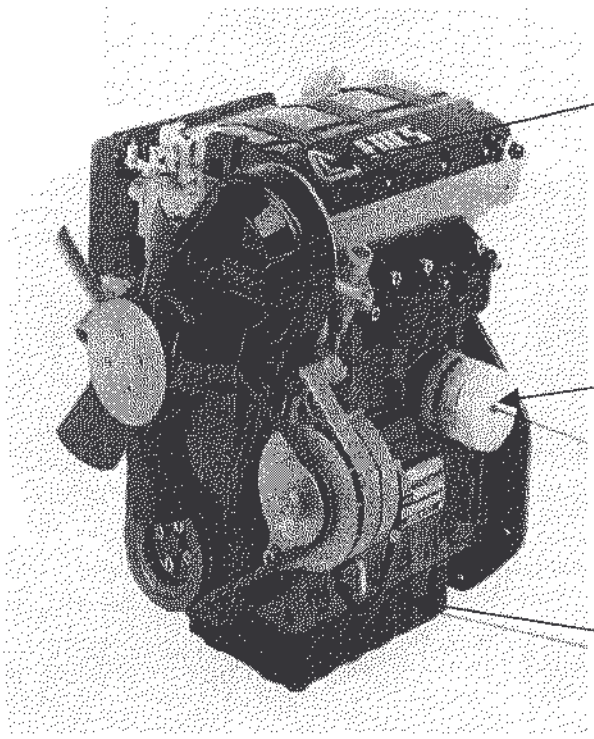
Figure 26-2.1. Lombardini 1003 FOCS diesel engine

26.2.2. Lambardini 1003 Facs maintenance scheme

Daily	1. Check motor oil quantity. Add as needed
	2. Check cleanliness of cooling air openings and water radiator grill. Clean as needed
	3. Check radiator fluid quantity *)
Every 250h	1. Change engine oil and oil filter
	2. Change air filter
Every 500h	1. Change fuel filter
Every 1000 h	1. Change radiator fluids

*) The fluid level must reach the "level"marking on the expansion tank located on the radiator.
Note! Do not open the radiator cap when the engine is hot.
Danger of burning by boiling water.

26.2.3 Chonging the oil filter and oil in o Lombardini 1003 Focs



Moottoriöljyn täyttö
Oil filter cap
Tappo rifornimento olio
Bouchon remplissage huile
Öleifüllung
Tapon llenado aceite
Tampa reabastecimento

Moottoriöljyn suodatin
Oil filter
Filtro olio
filtre á huile
Oelfilter
Filtro aceite
Filtro óleo

Mottoriöljyn poistotulppa
Oil drain plug
Tappo scario olio
Bouchon vidange huile
Ölablaßschraube
Tapon vaciado aceite

Figure 26-2.3 Lombardini 1003 FOCS

Please refer to the engine maintenance manual for more detailed maintenance instructions.

26.3. Chonging the oil

1. Lower the outriggers and turn the engine away from the chassis so that it is between the wheel and chassis.
2. Open and remove the engine cover.
3. Open the oil drain plug and drain the oil into a container for waste oil.
4. Fasten the oil filter tool to the filter and turn counterclockwise to remove the oil filter.
5. Apply a thin coating of new oil to the rubber gasket and turn until the rubber gasket contacts the adapter. Then tighten an additional ½ turn.
6. Reinstall and tighten the motor oil drain plug.
7. Open the oil cap and fill the case with new motor oil. Check that the oil level reaches the topmost mark of the dipstick.
8. Close the oil cap and replace the dipstick. Let the engine run for a few minutes. Check for oil leaks and, after the oil pressure is stable, check the oil level with the dipstick. Add oil as necessary.
9. Reinstall the engine cover.

27.0 LUBRICATION SCHEME

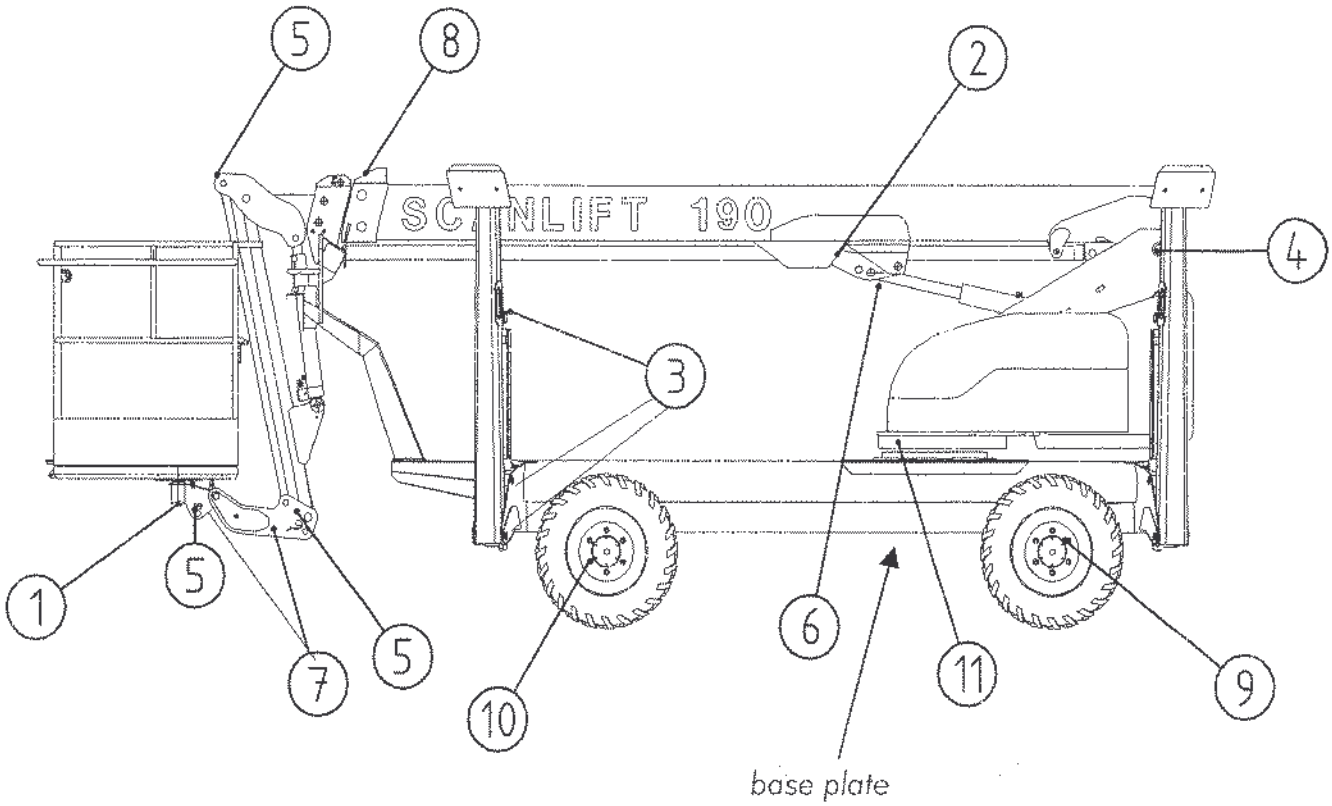


Figure 27.-1 Lubrication scheme

27.1 Lubricote the following points every fifty (50) operoting hours:

1. *The spherical bearings for platform rotation and slewing cylinder, 3 pcs*
2. *Bearing surfaces of lifting radius guard, 2 pcs*
3. *Outrigger links and spherical bearings of cylinders, 16 pcs*
4. *Spherical bearings of boom and turntable, 1 pc*
5. *Spherical bearings of platform, stabiliser arm, and jib, 7 pcs*
6. *Spherical bearings of lifting cylinder, 2 pcs*
7. *Spherical bearings of stabiliser cylinders, 4 pcs*
8. *Sliding surfaces of booms and sprocket bearings, 8+3 pcs*
9. *Pivoted axle bearings of wheels, 12 pcs*
10. *Sliding surfaces of brake cylinders, 4 pcs*
11. *Pivot bearing and worm gear reducer. Too much grease can damage the gasket of the pivot bearing. Lubricate every 950 hours or a minimum of every 6 months. The bearings have two lubrication points. Turn the bearing while greasing. Grease the pivot bearing by detaching the hexagonal base plate on the chassis.*
    To grease the worm gear reducer, drive the booms to a 90° angle from the transport support so that the worm gear reducer is no longer at the chassis. The worm gear reducer has three points requiring greasing.

27.2 Selection table of lubrication materials and oil volume

Combustion engines:

Kubota D905-E:

Oil volume..... 5,1 l (1.4 gal) with filter
SAE 30 or SAE10W-30, SAE10W-40..... above +25°C (+77°F)
SAE 20 or SAE10W-30, SAE10W-40..... 0°C ... +25°C (+32...+77°F)
SAE 10W or SAE10W-30, SAE10W-40 ..... below 0°C (+32°F)

Lombardini 1003 Focs

Oil volume .....2,4 l with filter
SAE 30W S ..... +0° . +30° C (32°F to 86°F) monograde oil
SAE 20W-30 SF..... +0° . +30° C (32° F to 86° F) first filling
SAE 10W-30 SF.....-5° . + 30° C (23° to 86° F)
5W-20 SF .....-25° . + 0° C (-13° to 32°F)

Hydroulics

Oil volume ..... 60,0 l total
Oil type EssoUltron0W-30
(warm conditions: Australia, USA, Central and Southern Europe)

Sphericol beorings

Lithium-based all-purpose grease, e.g. Esso Beacon EP2
Lubrication note: Oozes out a bit during greasing

Open cogging of pivot beoring

Molybdenum-sulphide-based, e.g.
- Esso Surrent Fluid 30F
- Shell Cardium EP Fluid H
- Mobil Dorcia 30

Lubrication instruction: Brush

Sliding surfoces of booms

Lithium-based all-purpose grease e.g. Esso Beacon EP2

Sliding beorings

Lithium-based all-purpose grease e.g. Esso Beacon EP2
Lubrication note: Oozes out a bit during greasing.

Boom extension choins

Motor lubrication oil, all types
Lubrication instruction: Brush, let flow down to the chain pin

Pivot beoring

Lithium-based all-purpose grease e.g.
- Esso Beacon EP2
- Shell Alvania EP2
- Mobil Mobilux EP2

Safety limit switches

- Molykote Separator Spray -40°C

28.0 MAINTENANCE OF DRIVING BRAKES

28.1 Brake structure

-The Scanlift SL 190 has driving brakes on both the front and rear axles of the wheel hub.
- The disc brake is opened by hydraulic pressure.

- When the pressure of the driving motor exceeds 30 bar (430 psi), the disc brakes open. When the driving motor pressure drops below 30 bar (430 psi), a spring automatically closes the brakes.

- The construction of the brake calliper is called "floating", which means that the spring presses against one of the brake pads but the slide mechanism distributes the clamp pressure so that both pads of the brake calliper squeeze the disc equally from both sides.

28.2 Maintenance of the brakes:

- Verify that the brake pads are pressing against both sides of the brake disc with equal pressure.

- Clean, lubricate, and check the functioning of the floating brake calliper mechanism every six months, or more often in greasy or dirty conditions.

- If the brake pad on the spring side is clearly more worn, pay extra attention to the cleaning and lubricating of the mechanism.

- The driving brake can be released (for example, during towing) by using the special nipples which are supplied in the MEWP equipment case. Screw these into the brake cylinder in place of the nipple already on its hydraulic hose, and use an M8 bolt in the nipple thread hole to release the brakes.
- Change the brake pad if the friction surface of the pad is less than 1.5 mm (0.059 in) thick.

28.3 Changing the brake pads

1. Change the brake pad if the friction surface of the pad is less than 1.5 mm (0.06 in).

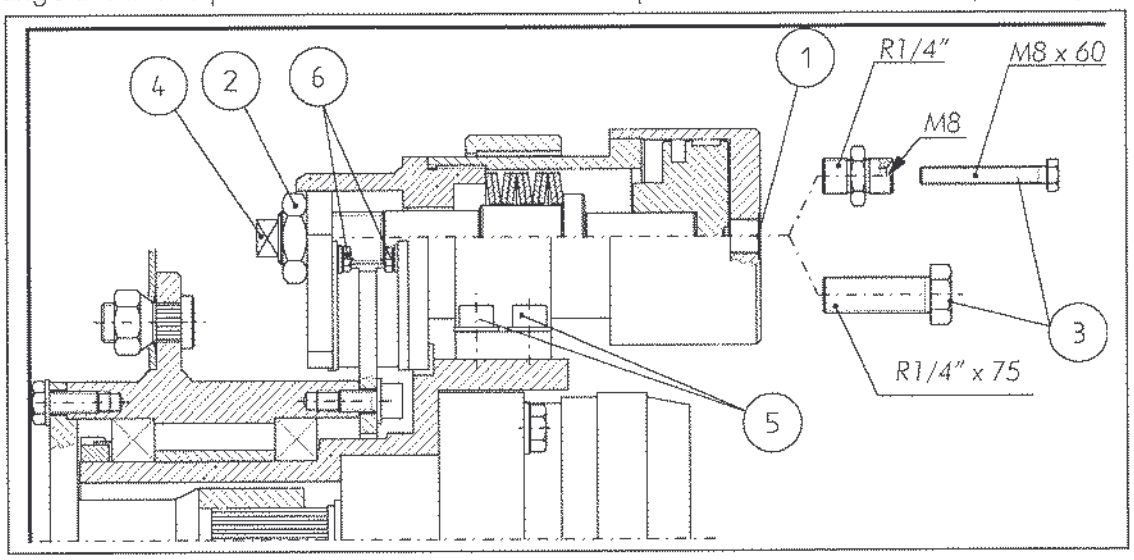


Figure 28.-1. Brake, special nipple, and M8 bolt

1. Drive the MEWP onto level and firm ground
2. Use the outriggers to raise the wheels slightly above the ground. Turn off the engine
3. Remove the wheels
4. Remove the brake hose from point 1 and plug the hose
5. Remove nut 2
6. Screw in a R1/4" x 75 screw or a 1/4" double nipple with a M8 x 60 screw into point 1
7. Tighten screw 3 so that brake pads detach themselves from the brake disc
8. Tighten from shank 4, and the brake pad will detach itself from the brake disc
9. Remove screws 5 and set the brake pads aside
10. Remove screws 6 and the brake pads

Install the brake caliper mechanism in reverse order.

28.4 Brake cylinder

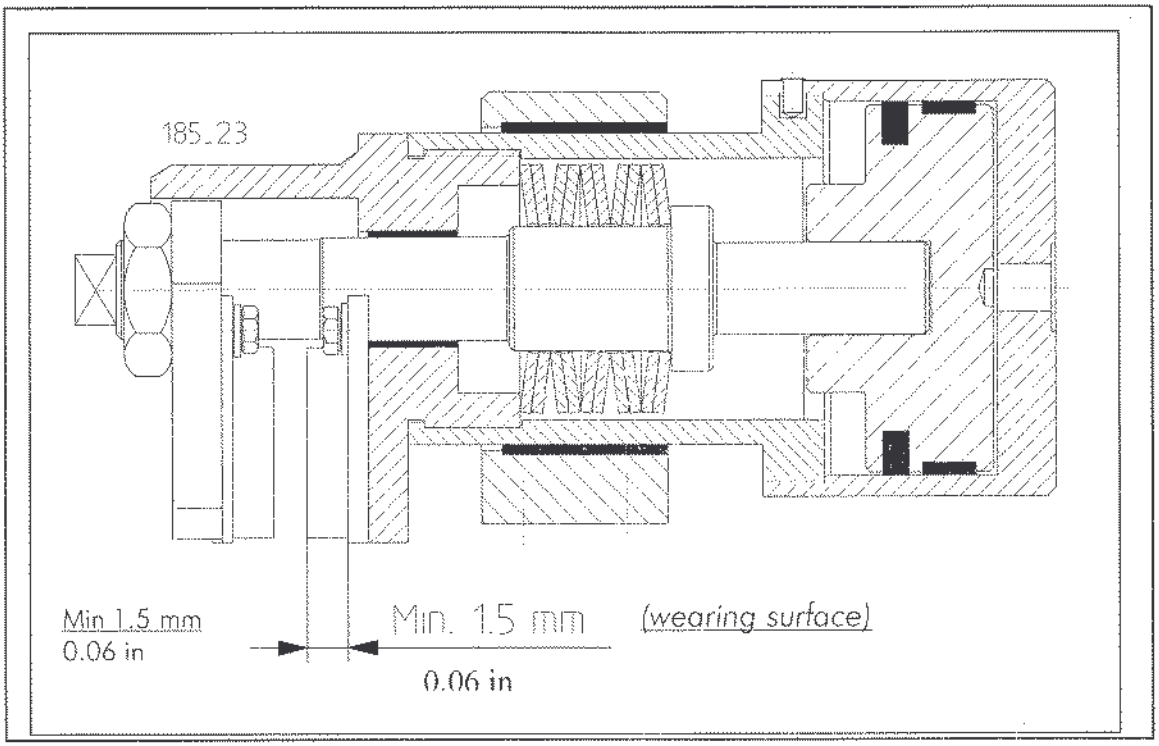


Figure 28.-2 Brake cylinder

29.0 ADJUSTMENT AND MAINTENANCE OF THE BOOM CHAINS

29.1 Inspection instructions

1. Retract the boom completely using the telescope

2. Position of outermost boom extension:

Check gap A (figure 1). If gap A is larger than 10 +5 mm (0.39 in. +0.196 in.), loosen nuts 2 and 4 of the extend chain 1 and tighten nuts 2 and 4 of retract chain 2. At this point, the outermost boom extension will move inwards.
If gap A is smaller than 10 -3 mm (0.39 in –0.118 in), loosen nuts 2 and 4 of the retract chain 2 and tighten nuts 2 and 4 of extend chain 1.
After adjustment, tighten lock nuts 2 while holding nut 4. Check that the split cotter 5 is intact and definitely in place.

3. Check the maximum allowable chain elongation, max. elongation 2%
3.1 Extend the booms until at least 2 m of the chain is visible.
3.2 Count e.g. 100 chain links (distance between pins).
3.3 Measure this length +- 1 mm (the chain must be straight, use e.g. a board under the chain), refer to figure 29.-1.2
3.4 The theoretical length of a 5/8"chain is 100 x pitch 15.875 = 1587.50 mm
3.5 If the measured length is more than 1620 mm, the chain must be replaced.

3.6 The chains must be replaced, if they are very worn, cracked, or plates are distorted. Also check the chain ends.

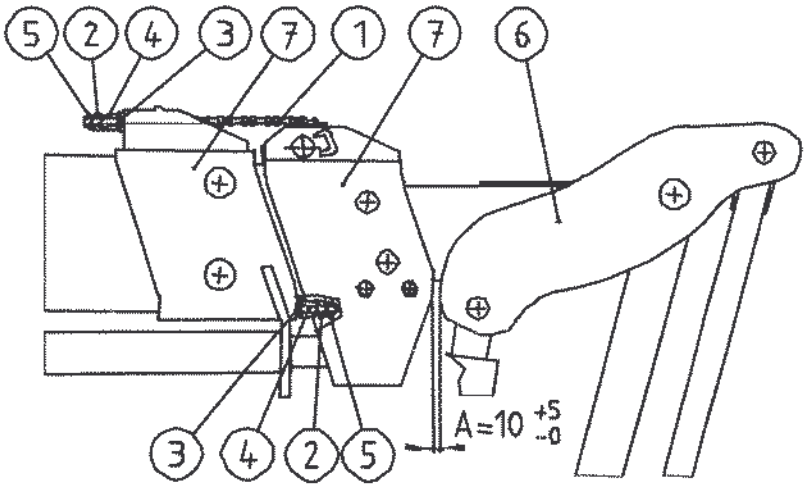


Figure 29.-1. Adjusting the boom chains

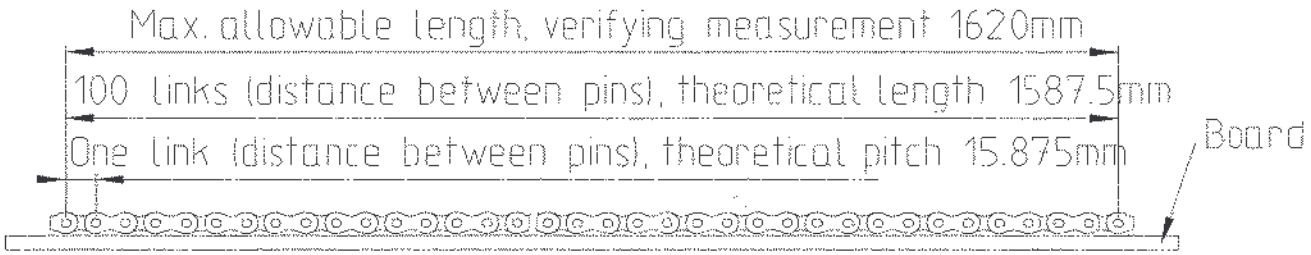


Figure 29.-1.2

29.2 Adjustment of chain tension

1. Support the MEWP on the outriggers with the wheels raised slightly off the ground. Raise the jib boom fully (the cylinder will stop it). Lower the platform to the ground and get off the platform.

2. Drive the booms fully out, with the work platform trailing on the ground and the lifting cylinder compensating. If the work platform rises off the ground during extension, the limiter of the lifting radius will cut both the lowering and extending movements of the booms. For this reason it is important to lighten the boom load during extending by trailing the platform on the ground. Use a base equipped with wheels under the platform, e.g. a pump carrier or similar.
Retract the booms about 50 mm (1.96 in.) from maximum reach and leave the booms in this position. (See diagram 29.-2.)
NOTE! During extension no load must be placed on the work platform and extreme caution must be observed. It is extremely important to compensate the booms with a lifting cylinder. If the boom is extended far enough the load control emergency limit switch may be triggered and the motor cut.

3. Adjust the tension of both extend chains so that with a single load of 8 kg (17.6 lbs) they just touch the top surface of the boom. The single load should be at the middle of the freely visible chain. A gap of 1-3 mm (0.039 - 0.118 in) may remain between the chain and the top surface of the boom.

4. Adjust the chains so that there is a gap of approximately 10 mm (0.39 in) between the loose chains and the boom at the centre point of the chain.

5. For adjustment and inspection, it is recommended that you use a counter-motion to loosen the chains to be inspected.
The extend chains can be loosened by slightly retracting the telescope which you have extended fully according to the above instructions.
To loosen the retract chains, on the other hand, slightly extend the fully retracted telescope.

Adjusting the chain tension

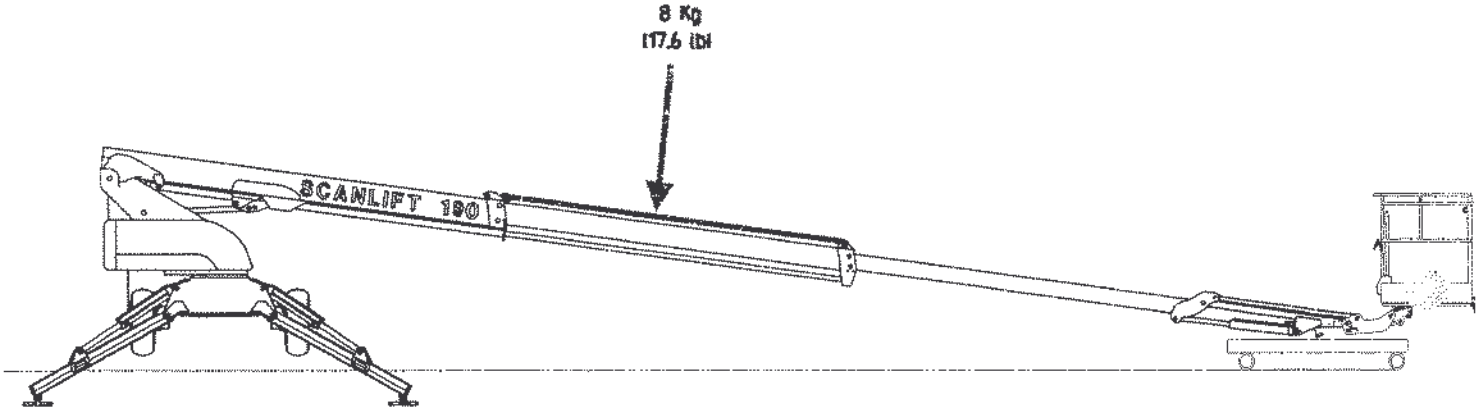


Figure 29.-2 Adjusting tension of the boom extend chain

30.0 TORQUE SCHEME

Wheel nuts .....250 Nm

Bolts of pivot bearing, inner shell .....280 Nm

Bolts of pivot bearing, outer shell .....280 Nm

Holding capacity of pull eliminator in inlet of electricity boxes .....5 kg(11lbs) when pulling from cable

Outrigger axle clasp nuts (nylon nuts).....50-70 Nm

Wheel hub nuts and pivoted axles.....50-70 Nm

Locking of cylinder pin axle nuts (nylon nuts).....50-70 Nm

If you see that the nylon lock nuts have loosened during operation, replace them with new nylon lock nuts. Whenever a nylon nut has been unscrewed, such as during repairs, always replace it with a new nylon nut.

30.1 Torques, if not mentioned separately

Preliminary torque for screws with metric ISO thread			
	Nm		
	8.8	10.9	12.9
M4	2,8	4,0	4,9
M5	5,7	7,9	9,5
M6	9,7	13,7	16,2
M8	23,5	33,3	39,2
M10	47,1	65,7	79,4
M12	81,4	114,7	137
M14	130	181	216
M16	196	280	333
M18	270	382	461
M20	382	539	647
M22	519	730	873
M24	662	932	1118
M30	1324	1863	2236

Preliminary torque for screws with metric ISO fine thread			
	Nm		
	8.8	10.9	12.9
M8 x 1	24,5	34,3	40,2
M1 x 1,25	49	68,6	80
M1 x 1,25	85,3	118	147
M12 x 1,5	80,4	118	138
M14 x 1,5	118	167	206
M16 x 1,5	196	285	343
M18 x 1,5	295	412	491
M20 x 1,5	402	569	687
M22 x 1,5	540	765	912

31.0 MEASURING THE GAP OF THE SLEW MECHANISM

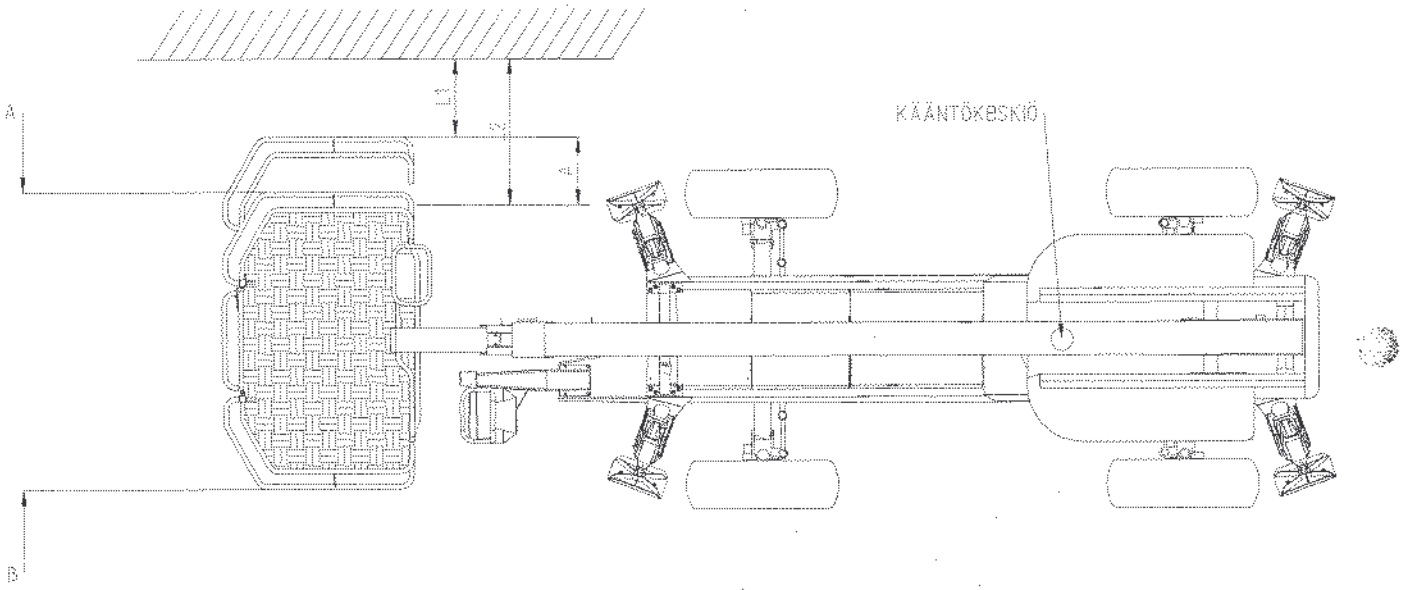


Figure 31.-1 Measuring the gap of the slew mechanism

1. *Retract the booms completely and lower the jib.*
2. *Lower the transport support and leave the boom horizontal.*
3. *Push the platform lightly from direction B, removing any slack. Measure L1.*
4. *Now push the platform lightly from direction A. Measure L2.*
5. *L1 minus L2 must not be greater than 40 mm (1.57 in)*
6. *Check wear on the worm gears.*

32.0 TIGHTNESS OF SLEWING RING BOLTS

32.1 Inner shell bolts: figure 32.-1

1.Detach the turntable front plastic guard and filter group from their fastenings.
2.Tighten the bolts to torque 270 Nm using a torque wrench. Bolts M16x90 10.9 initial installation tightness 280 Nm.

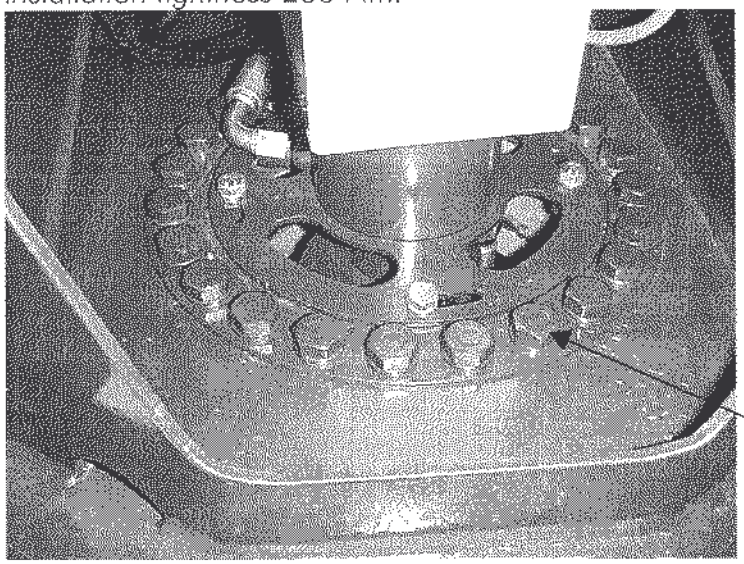


Figure 32.-1 Inner shell bolts

32.2 Outer shell bolts: figure 32.-2

1.Tighten the bolts of the outer shell through the chassis bottom by removing the hexagonal base plate.
2. Tighten the bolts to torque 270 Nm using a torque wrench. Bolts M16x90 10.9 initial installation tightness 280 Nm.

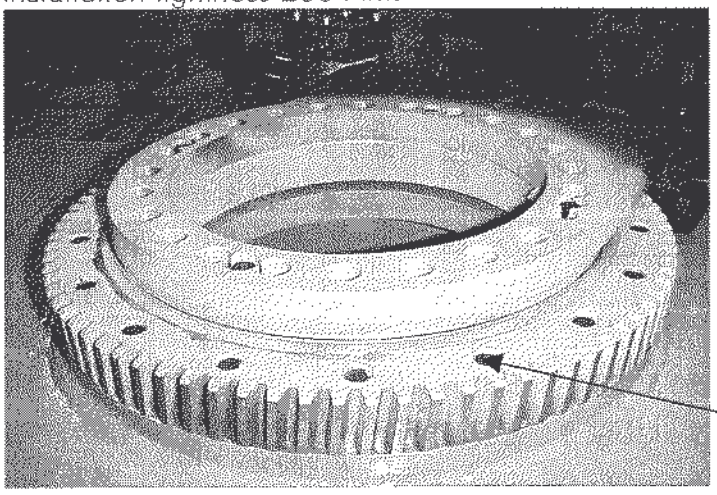


Figure 32.-2. Outer shell bolts

3. When the slewing ring is detached from the turntable or chassis, all fixing bolts and washers must be replaced. All bolts must then be tightened to torque 280 Nm.

33.0 INSTRUCTIONS AND RECORDS FOR REINSPECTION

Inspecting the MEWP

The Scanlift SL 240 must be examined in accordance with these instructions at least once a year, and more frequently if necessary.
The first inspection date must not exceed 12 months after the commissioning of the MEWP.
Test loading with overload and an inspection must also be performed when supporting structures have been repaired or renewed, e.g. cylinders, axle pins, boom parts, jib, platform, outriggers, turntable, chassis, or other similar parts. Repair or replacement of parts must be recorded in the inspection record.
If uncertain, contact the manufacturer or importer.

Introduction

The inspection instructions listed here should be considered the minimum general requirements. To conduct an inspection, first become familiar with the chapters in the operating manual that explain controls (9.0 - 10.0), checking the safe lifting radius(chapter 8.0), construction of and how to operate the emergency lowering system (chapter 20.0), and the location of safety limit switches(chapter 21). Fill out the MEWP inspection record in conjunction with the annual inspection. The inspector should have the following labels with him to replace any that are worn:
- general instructions for operator
- directions for daily checks
- check support

33.1. Generol requirements

33.1.1 Operating monuol

The operating manual must always be on the MEWP

33.1.2 Comportment for storing the manual

Always keep the operating manual in the compartment beside the operating valve on the platform.

33.1.3 Manufacturer's plate

- The plate of the MEWP must be unbroken and visible.
- The plate has been riveted onto the chassis under the equipment case cover.

33.1.4 Lood plate

- *SWL (=safe working load) must be marked indelibly and clearly in an easily visible place on the platform. SWL is defined as the number of persons and additional load along with the largest permissible lateral load caused by persons.*
- *The load plate is located on the outside of the platform. Replace the label if it is illegible or damaged.*

- A label or paint mark will do, because any lost information can be obtained from the manufacturer's plate if needed.
- The calculated weight for the first person is 80 kg (176 lbs.) and for the next ones 80 kg (176 lbs.), leaving 70 kg (154 lbs.) for additional load.
- The additional equipment load 70 kg (154 lbs.) and the largest safe lateral load 400 N (40 kg / 88 lbs.) are listed on the load plate. A second load plate is located beside the lower control valve.

33.1.5 Worning plote

Both the lower control position and the platform of the MEWP are fitted with the following warning plates. The engine cover also has a label with instructions for operating the emergency lowering system.

- Working near live electrical conductors
- Outrigger operation plate: CHECK SUPPORT! EVEN ASPHALT CAN YIELD!
- Safe working load
- Voltage label
- Warning of high sound intensity at the lower control position
- Verify MEWP condition and test drive before starting actual work (= daily checklist)
- What to do if MEWP malfunctions during operation
- General instructions for MEWP operators

33.1.6 Plote for outriggers

The maximum supporting load and instructions regarding the use of extra plates must be indelibly and clearly marked wherever the outriggers are being used.
With the booms slewed above the concerned outrigger and with the largest safe working load, the supporting load will be 25500 N = 2550 kg (5621 lbs.).
Chapter 17.00 of the operating manual lists the soil tightness table for determining the need for extra plates.
Building instructions or requirements concerning specific sites must be considered individually.
Max. supporting load = 25500 N (5621 lbs.). On soft ground extra plates must be used under the outriggers.
For clarity, the outriggers and their corresponding operating levers are numbered 1-2-3-4.

33.1.7 Hazord colours

The MEWP must be clearly visible. All projecting parts must be clearly marked.
Any parts outside the actual chassis, such as the extendible outriggers and work platform, are considered projecting parts. Yellow / black diagonals are used to mark them because they provide the best contrast with their surroundings.
Markings:

- stripes are marked on the MEWP with yellow and black labels
- striping on the sides of the outriggers
- stripes on the work platform baseboard

33.1.8 Diagram af wark area

A work area diagram is in the manual (BOOM GEOMETRY, chapter 6.0) and on the platform.

33.1.9 Inspectian plate

The inspection plate on which the inspector stamps his initials and the date is riveted to the chassis in a visible spot.

NOTE!
Any warning or symbol labels that have been damaged or have become hard to read must be immediately replaced with new originals before further use of the MEWP.

33.2. Safety requirements

33.2.1 Harizantal level indicatar

The indicator gauge is on the left side of the outrigger valve system beneath a protective cover. The bubble of the water level indicates whether the MEWP is on a horizontal plane. The range of precision falls between $\pm$ 0.5° and 1.0°.

33.2.2 Device to prevent raising the platform

The MEWP must be fitted with a device (limit switches 1 and 2) to prevent use of the work platform before the outriggers are in support position, i.e. in the fully extended position with sole plates firmly on the ground. Use of the outriggers is prevented when the booms have diverged from the transport support (limit switch 6) and the platform is raised more than 3.0 meters (9.81 feet) off the ground (limit switch 5).
- The electric limit switches must be analogous to the originals and so connected that they become safely deactivated (forced opening).

33.2.3 Device to prevent releosing the support

The MEWP must be fitted with a device (limit switch 6) to prevent moving the outriggers whenever the booms are in other than transport position.

– The raising and transport support functions of the booms have electric safety limit switches that prevent use of the outriggers when the booms deviate from transport position. On the platform, the foot pedal on the platform must be depressed while the booms are in use. In practice, the transport position may differ from the position of boom lowered for transport support. For operation in difficult terrain, it is considered transport position whenever the driver on the platform can reach the control levers for the drive / outrigger valve and the override switches.
– Deliberate opening or moving is prevented with the lock valve of the hydraulics (no hose is allowed between the cylinder and the lock valve). The outriggers of the Scanlift SL 190 have position and ground sensor limits. The position sensor is activated when the outriggers are at an angle of at least 30° from transport position. The ground sensor is triggered when an outrigger is pressed against the ground with a force greater than 6 kg (13.2 lbs).

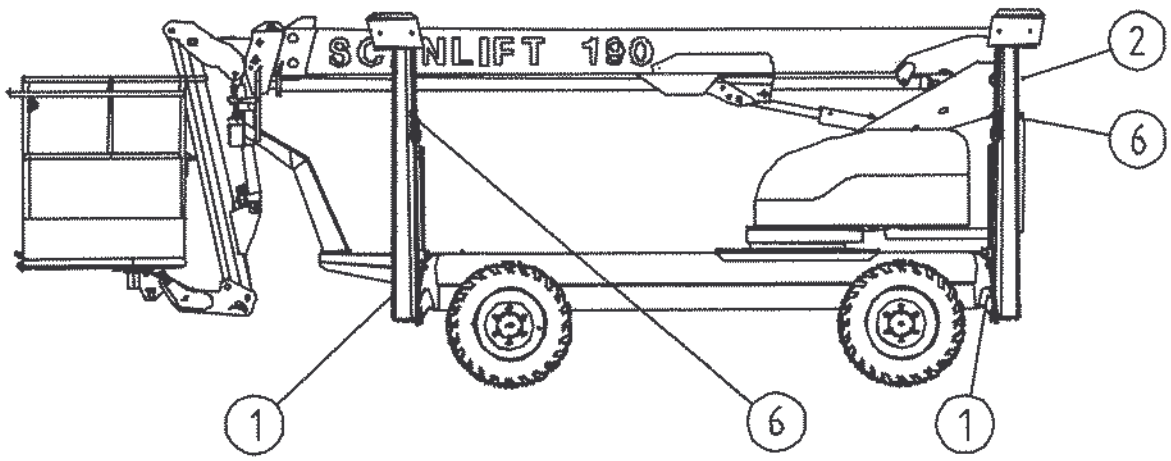


Figure 33.2.-1. Limit switches that prevent raising the platform or releasing support

1) *Outrigger position limit switch*
2) *Boom raising limit switch*
6) *Outrigger ground sensor limit switch*

33.2.4 Position of work platform

The platform must be safely attached to the MEWP unit. Avoid any inadvertent swinging, inclining, slewing or motion. The screws, nuts, fulcrum pins, and fasteners must be secured or locked.

- a cotter pin should also be used to secure the double nut (fixing the chain end of the booms)
- mechanical locking is used for moving parts
- this does not refer to normal motion caused by gaps between fastener parts or the stabiliser and slewing gear
- replace the Nyloc fastener nuts with new ones whenever they are removed

The platform must remain sufficiently horizontal (recommended ± 5° at most) regardless of the position of the boom.

– In case of hose damage the platform must be kept locked by the hydraulic stabilising equipment.
– The hydraulic stabilising equipment is fitted with a lock valve.
– The horizontal level of the platform can be corrected by using the control lever located with the control valves of the booms
– The stabilising equipment must function automatically in all situations.
– The platform must always be horizontal during raising.

33.2.5 Emergency lowering system

MEWPs equipped with a mechanical operating system must have an emergency lowering system with which to lower the platform. The controls for the emergency lowering system must be clearly indicated, and their inadvertent use must be prevented.

-the electric pump for the emergency lowering system is located beneath the battery case, and the control buttons are on both the platform and the turntable.
- operating instructions for the emergency lowering system are pasted on the side cover of the turntable and on the platform's electric box
- pressure for the emergency lowering system is provided by an electric pump which is controlled with the lower control valve or, on the platform, with the boom control valve and the foot pedal.

33.3 General condition of the MEWP

Visual check of condition

33.3.1 Chassis

- *corrosion damage*
- *welds (no visible breaks or cracks)*
- *permanent deformations*

33.3.2 Slewing ring

- *tightness of ring screws and the joint (see manufacturer's directions)*
- *slewing gear*
- *condition and gap of tooth ring (see operating manual for permissible gap)*
- *bearing*
- *welds*

33.3.3 Booms

- *welds*
- *wearing of links*
- *locking of links and cylinders*
- *battered places and tears*
- *permanent deformations*
- *shafts and screws of stabilizing equipment*
- *cylinders*
- *slide pads and adjustments*

33.3.4 Work platform

- *fasteners*
- *joint lockings*
- *tears and other damage*
- *condition and self-closure of gate*
- *gates and handrails*

33.3.5 Outriggers

- *signs of wear*
- *corrosion damage*
- *welds*

33.3.6 Tronsport position

- *rack for transport position of booms*
- *position of outriggers and tightness of lock valves*
- *condition of brakes*

33.3.7 Hydroulic system

- leaks
- condition of hoses (replace hose if you notice even slight damage or leaking)

33.3.8 Electric system

- condition of cables and fasteners
- condition of connections
- good operation of limit switches

33.4 Test drive / test looding

Operating movements
- first of all, the test drive or test loading (i.e. overloading) should be carried out in accordance with the manufacturer's instructions
- if there are no instructions, we recommend a test drive with the largest permissible load in the most unfavourable and extreme positions. Mark the load used for testing in the record book.
- test the functioning of all operating movements. There should be no jerkiness.
- check the "creeping" of the outriggers, i.e. the tightness of the lock valves of the stabiliser cylinders during loading (approximately 1 hour).
- after loading, check thoroughly for any tears in or permanent deformations of the loaded parts

33.4.1 Controls

- check their general condition and automatic return to the middle, or off, position
- protect the controls on the work platform from inadvertent faulty guiding
- make sure the pipe frame around the control levers is intact

33.4.2 Symbols

- the directions of movement and the way the control levers correspond to platform movements are illustrated on attached labels. Replace any that become unclear or damaged with new labels from the original manufacturer.

33.4.3 Emergency stop

- the emergency stop switch must be red and it must have a plate fastened next to it carrying the word "STOP"
- the emergency stop must be able to be operated both from the platform and from the turntable below
- The emergency stop should halt all movement immediately when the button is pushed. It should not allow the MEWP to start again as soon as the switch returns to operating position. Note that it takes a while for the motor to stop rotating.
- The emergency stop switch must be easy to differentiate from other operating switches.
- Do not use the emergency stop to stop the MEWP under normal conditions. Use the ignition switch.
- The emergency stop must be impossible to disengage.

33.4.4 Safety limit switches

- test their functioning
- doublecheck the fastenings

33.4.5 Saund signal

- check that it works
- the button is located on the platform

33.4.6 Sealing

- check the sealing: fastenings of all limit switches, levers and rollers, all pressure relief cartridges, lock valves, hydraulic pump governors, max. speed of rotation of combustion engine, and adjustment nuts of boom extension chains.

33.5 Repairs

33.5.1 Welding

If you see that repair welding has been carried out on the MEWP's bearing structures, note it on the record under "Notes":

- location of welding
- date of repair welding
- welder

Determine whether the manufacturer's directions were followed during welding.

33.5.2 Other repairs

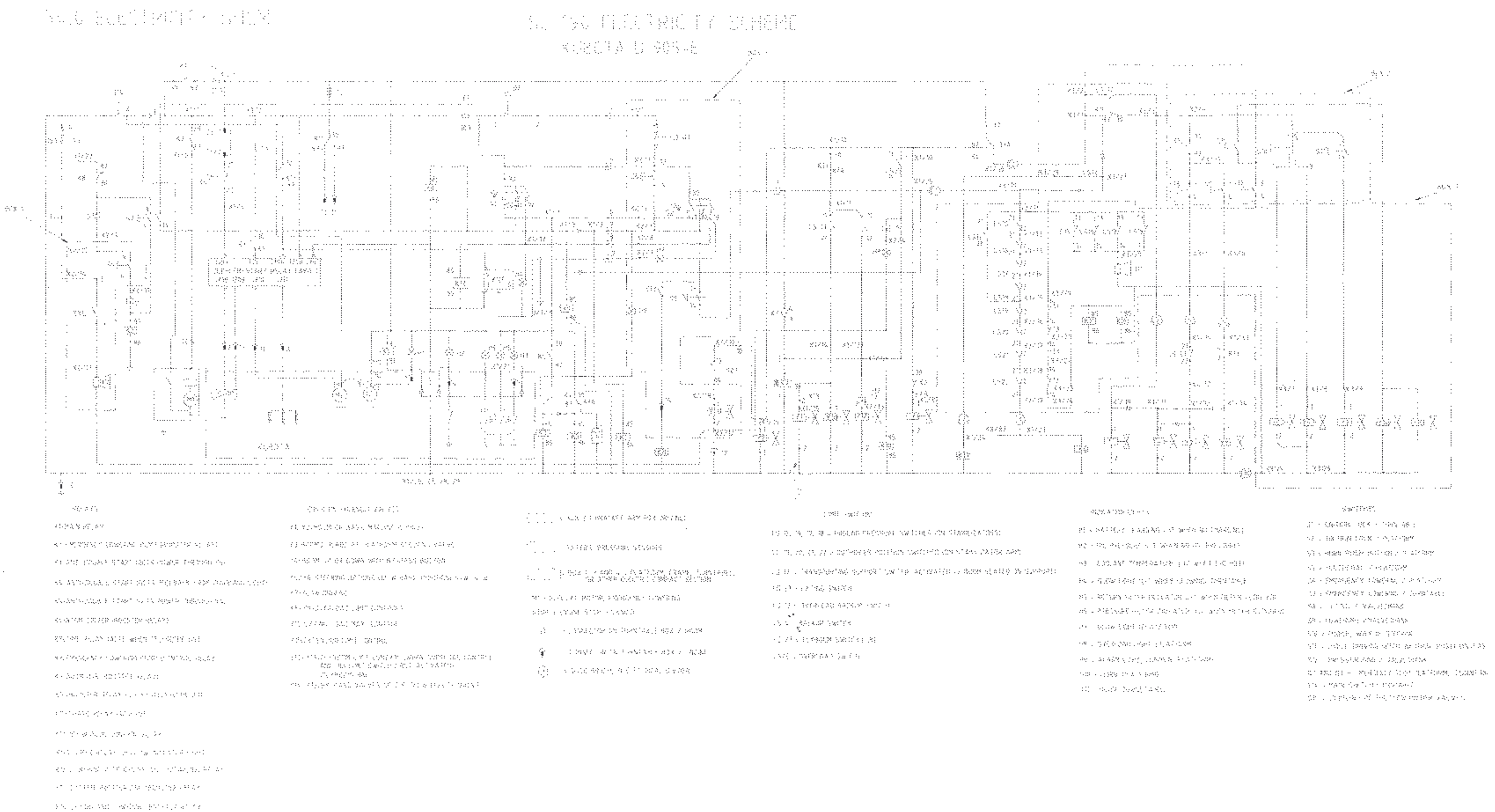
If repairs are made to other primary structures (such as the cylinders), note them on the record under "Notes". Include:

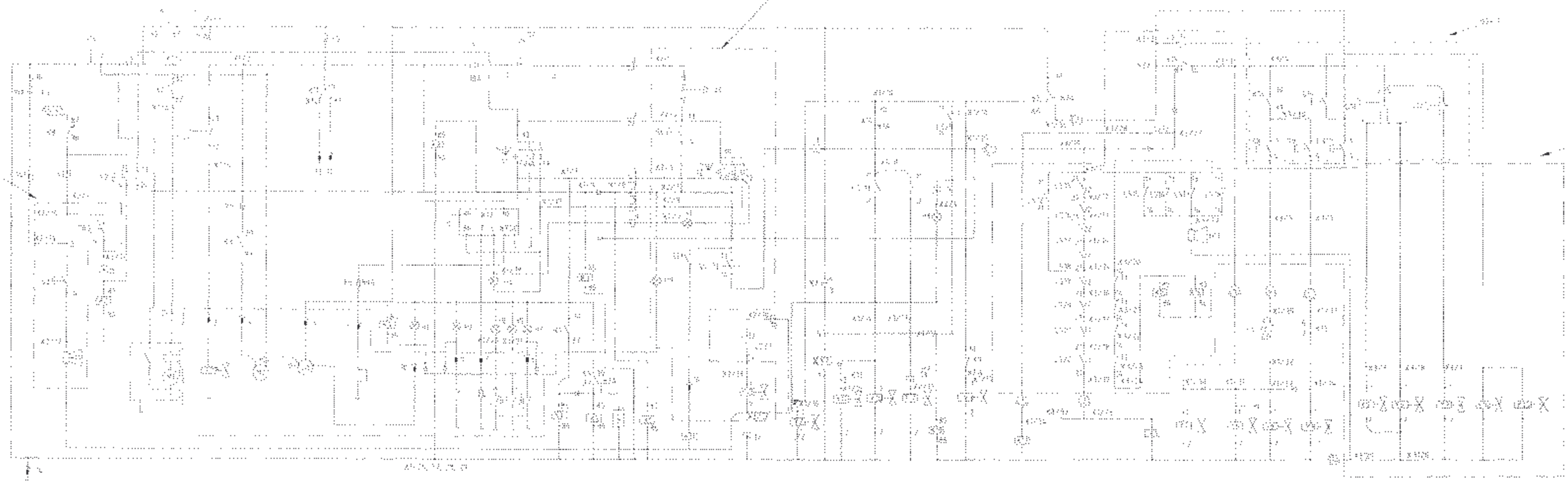
- location of repair
- date
- repair person

Make sure that the manufacturer's directions were observed. Original parts from the manufacturer must be used for all repairs.

33.5.3 Test laading (i.e. overloading)

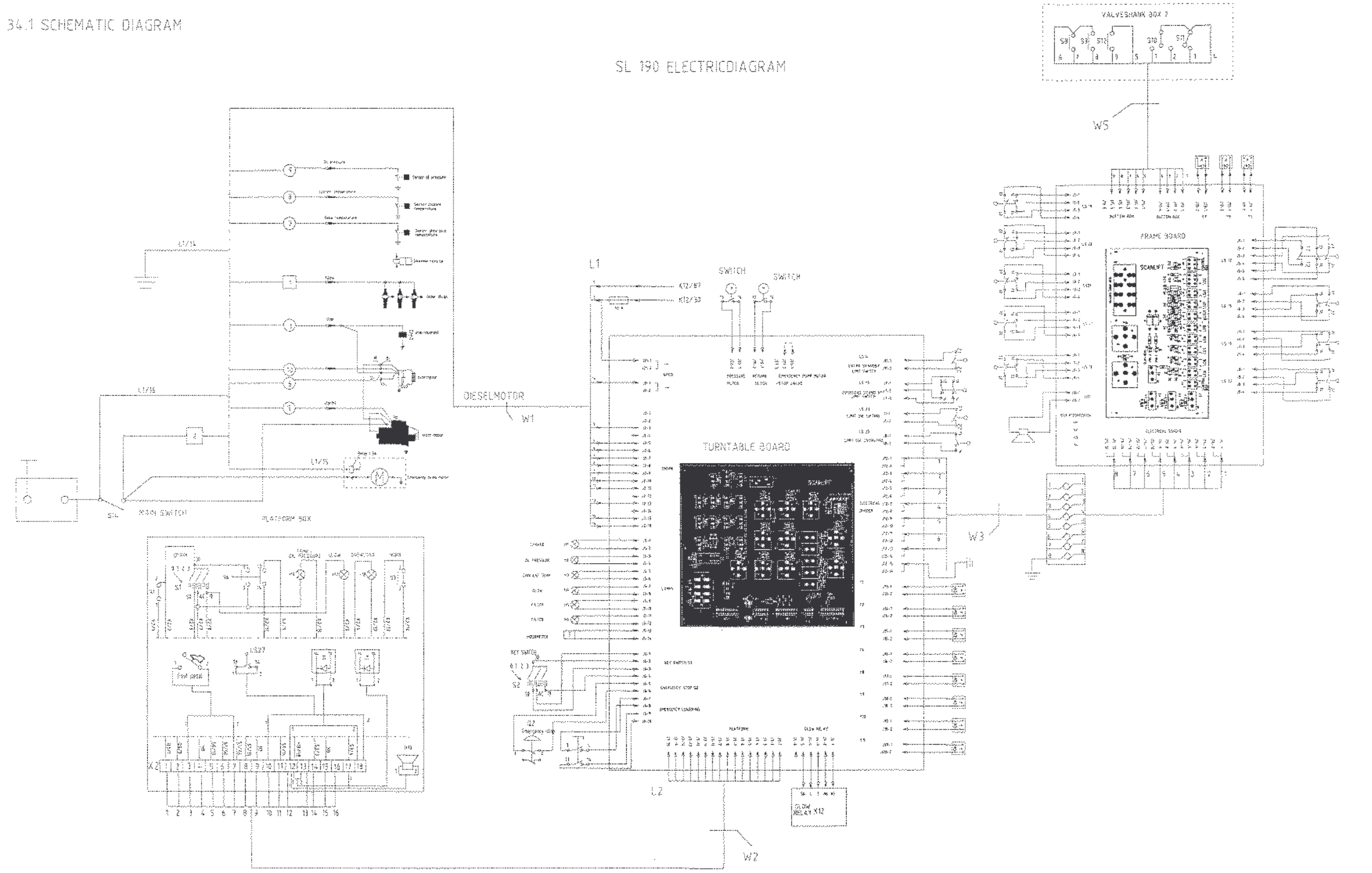
After repairs on any load-bearing structures, the MEWP must be test loaded according to the EN 280 draft standard. Record the test load used on the inspection record. After loading, check thoroughly for any tears or permanent deformations of the load-bearing structures. The test load should be performed using a load 1.25 times the largest permissible platform load.

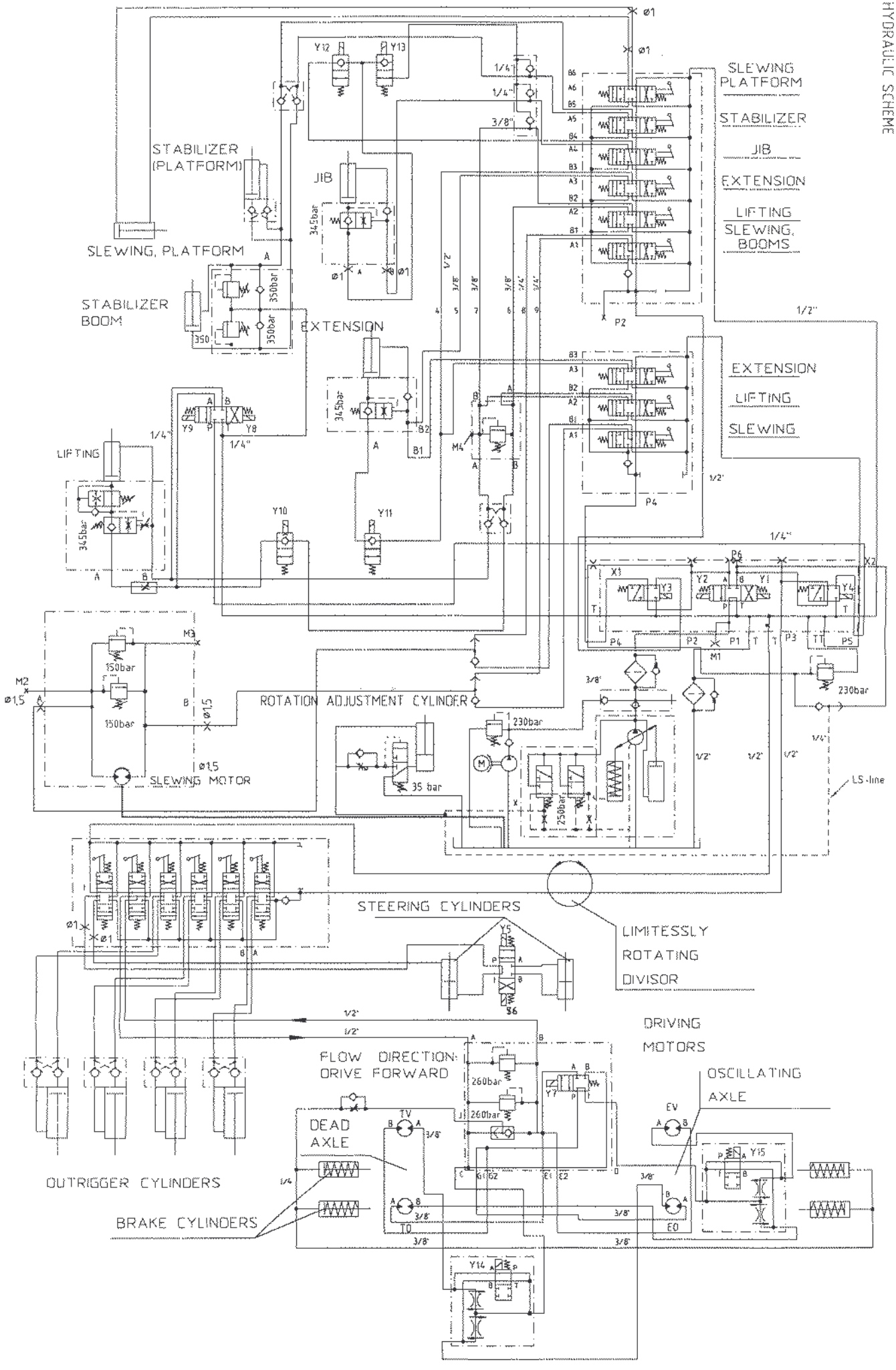




34.1 SCHEMATIC DIAGRAM

SL 190 ELECTRICDIAGRAM




SLEWING PLATFORM
STABILIZER
JIB
EXTENSION
LIFTING
SLEWING, BOOMS
STABILIZER (PLATFORM)
JIB
SLEWING, PLATFORM
STABILIZER BOOM
EXTENSION
LIFTING
EXTENSION
LIFTING
SLEWING
ROTATION ADJUSTMENT CYLINDER
SLEWING MOTOR
LS-line
STEERING CYLINDERS
LIMITESSLY ROTATING DIVISOR
DRIVING MOTORS
FLOW DIRECTION: DRIVE FORWARD
DEAD AXLE
OSCILLATING AXLE
OUTRIGGER CYLINDERS
BRAKE CYLINDERS
150bar
345bar
350bar
35 bar
230bar
260bar
250bar

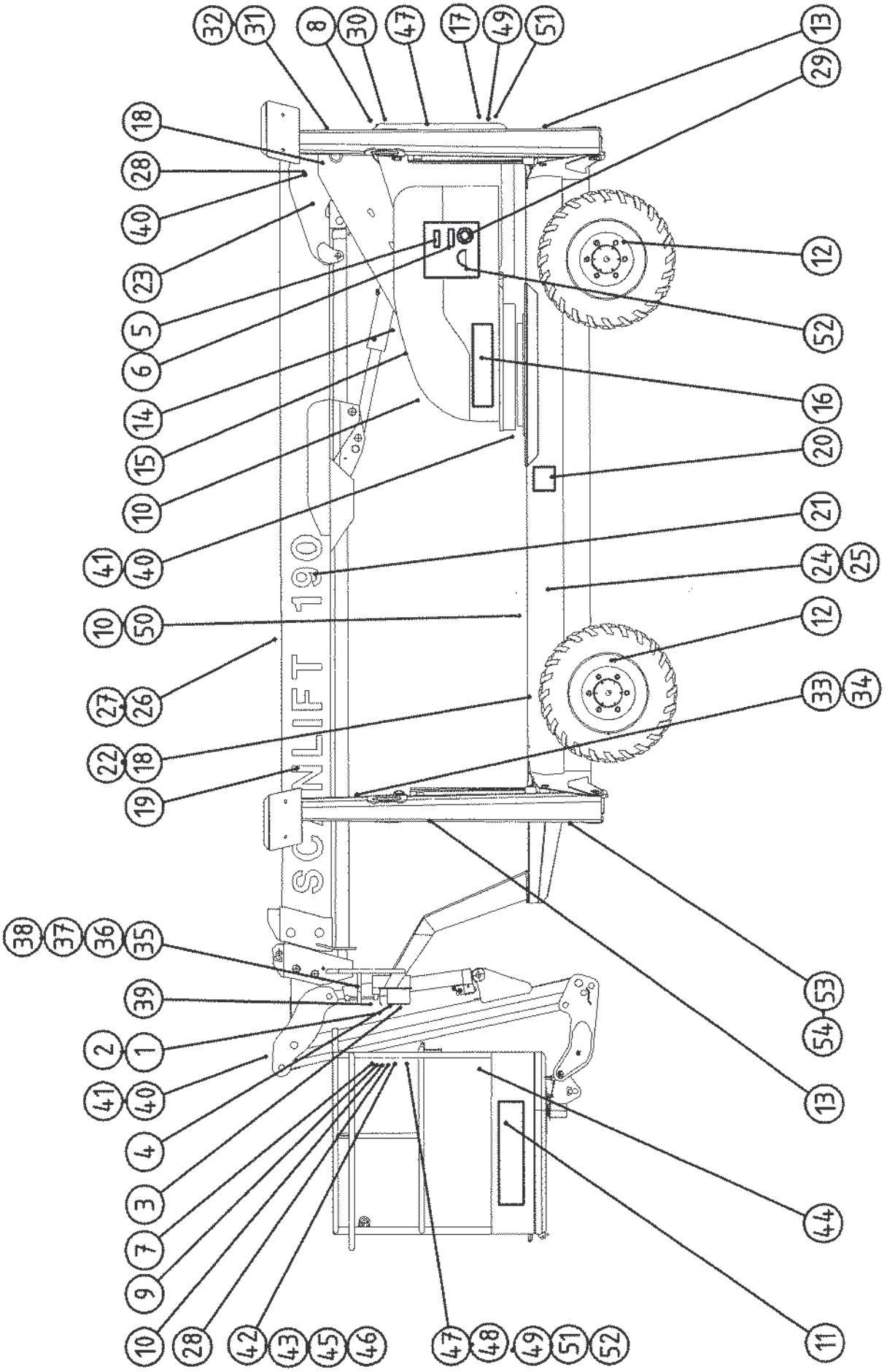
36. LIST OF LABELS

SL 190 MEWP

POS.	ITEM NO:	NAME OF LABEL	TYPE	PCS	LOCATION
1	3280977	DRIVE VALVE / OVERRIDE	PLASTIC	1	DRIVE VALVE ADAPTER PLATE
3	3280923	SOUND SIGNAL AND EMERGENCY LOWERING	PLASTIC	1	PLATFORM BOX
4	3280922	OVERLOAD/GLOW/MALFUNCTION	PLASTIC	1	PLATFORM BOX
5	3280924	BOX FOR LOWER CONTROLS1	PLASTIC	1	TURNTABLE BOX
6	3280925	BOX FOR LOWER CONTROLS 2	PLASTIC	1	TURNTABLE BOX
7	3280289	VALVE CONTROL	PLASTIC	1	PLATFORM VALVE
8	3280290	TURNTABLE VALVE CONTROL	PLASTIC	1	TURNTABLE VALVE
9	3280297	MAINTENANCE MANUAL	PLASTIC	1	MANUAL CONTAINER
10	3280300	VOLTAGE	PLASTIC	3	OUTLET, FAULT CURRENT SWITCH, DISTRIBUTOR
11	3280586/ 3280597	PLATFORM LOAD/LATERAL LOAD	PLASTIC	2	PLATFORM KICKPLATE
12	3280316	TYRE PRESSURE	PLASTIC	4	RIM, NEXT TO VALVE
13	3280392	OUTRIGGER STRIPING	PLASTIC	8	OUTRIGGERS
14	3280317	FUEL; DIESEL	PLASTIC	1	SIDE COVER
15	3280767	0W-30 OIL	PLASTIC	1	SIDE COVER
16	3280320	KESLA	PLASTIC	2	SIDE COVER
17	3280298	MAIN SWITCH	PLASTIC	1	SIDE COVER
18	3280444	LIFTING HOOK	PLASTIC	4	LATERAL AXIS, TURNTABLE
19	3280563	PRODUCT SCANLIFT	PLASTIC	2	LIFTING BOOM
20	3280403	CENTRE OF GRAVITY	PLASTIC	2	CHASSIS, CENTRE
21	3280860	TYPE 190	PLASTIC	2	LIFTING BOOM
22	3280450	STRAPPING	PLASTIC	4	AXLES
23	3280521	BOOM LOWERING MARK	PLASTIC	1	LIFTING BOOM
24	3280556	CHASSIS STRIPING, RIGHT	PLASTIC	1	CHASSIS
25	3280557	CHASSIS STRIPING, LEFT	PLASTIC	1	CHASSIS
26	3280564	BOOM STRIPING, LEFT	PLASTIC	1	LIFTING BOOM
27	3280560	BOOM STRIPING, RIGHT.	PLASTIC	1	LIFTING BOOM
28	3280570	EMERGENCY LOWERING	PLASTIC	2	PLATFORM AND TURNTABLE BOXES
29	3280658	EMERGENCY STOP	PLASTIC	2	PLATFORM AND TURNTABLE BOXES
30	3280604	EARMUFFS	PLASTIC	1	TURNTABLE
31	3280896	OUTRIGGER NO. 1	PLASTIC	1	OUTRIGGER
32	3280897	OUTRIGGER NO. 2	PLASTIC	1	OUTRIGGER
33	3280898	OUTRIGGER NO. 3	PLASTIC	1	OUTRIGGER
34	3280899	OUTRIGGER NO. 4	PLASTIC	1	OUTRIGGER
35	3280900	OUTRIGGER LEVER NO. 1	PLASTIC	1	PLATFORM VALVE FASTENING
36	3280901	OUTRIGGER LEVER NO. 2	PLASTIC	1	PLATFORM VALVE FASTENING
37	3280902	OUTRIGGER LEVER NO. 3	PLASTIC	1	PLATFORM VALVE FASTENING
38	3280903	OUTRIGGER LEVER NO. 4	PLASTIC	1	PLATFORM VALVE FASTENING
39	3280927	HORIZONTAL LEVEL INDICATOR	PLASTIC	1	DRIVE LEVER

40	3280979	GAUGE MARK, FEMALE	PLASTIC	2	JIB BOOM AND CHASSIS
41	3280980	GAUGE MARK, MALE	PLASTIC	3	OUTER EXTENSION, TURNTABLE AND LIFTING BOOM
42	3280579/ 3280580	PLATFORM LOAD / LATERAL LOAD	PLASTIC	1	PLATFORM
43	3280574/ 3280575	SUPPORT FORCE	PLASTIC	1	PLATFORM
44	3280637	FOOT PEDAL	PLASTIC	1	PLATFORM
45	3280362	CHECK SUPPORT	PLASTIC	1	PLATFORM
46	3280368	DAILY CHECKUPS	PLASTIC	1	PLATFORM
47	3280359	GENERAL INSTRUCTIONS	PLASTIC	2	PLATFORM
48	3280907	BOOM GEOMETRY	PLASTIC	1	PLATFORM
49	3280328	HIGH VOLTAGE WARNING	PLASTIC	2	PLATFORM/LOWER CONTROL POSITION
50	3280425	FAULT CURRENT SWITCH	PLASTIC	1	CHASSIS - FAULT CURRENT SWITCH
51	3280584	EMERGENCY LOWERING INSTRUCTION	PLASTIC	2	PLATFORM/LOWER CONTROL POSITION
52	3280991	IGNITION LOCK	PLASTIC	2	PLATFORM/LOWER CONTROL POSITION
53	3280589/ 3280590	TYPE PLATE	ALUMINIUM	1	CHASSIS
54	3280341	INSPECTION PLATE	ALUMINIUM	1	CHASSIS

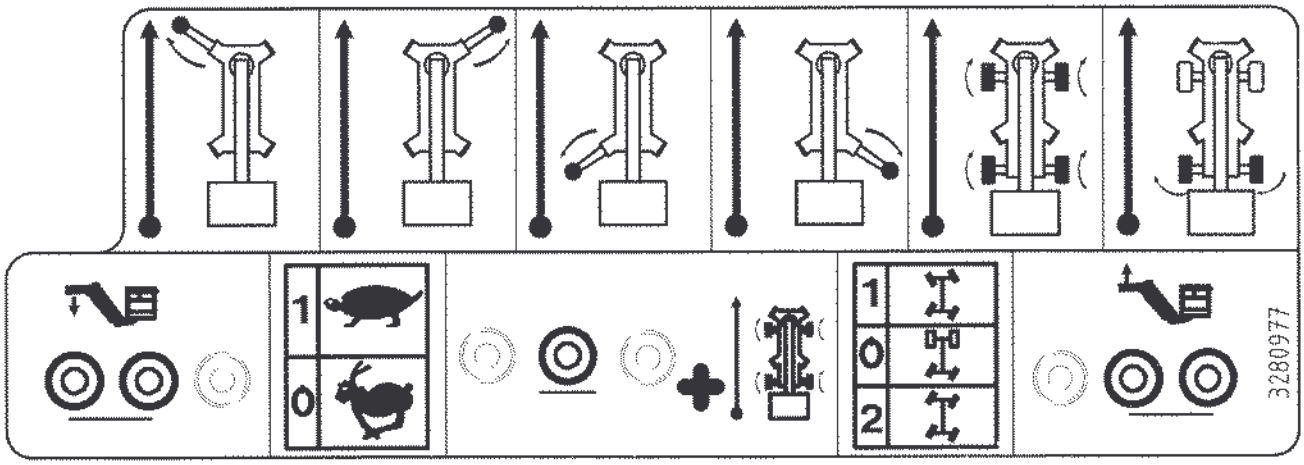
36.1 LOCATION OF LABELS



36.2 LIST OF LABELS

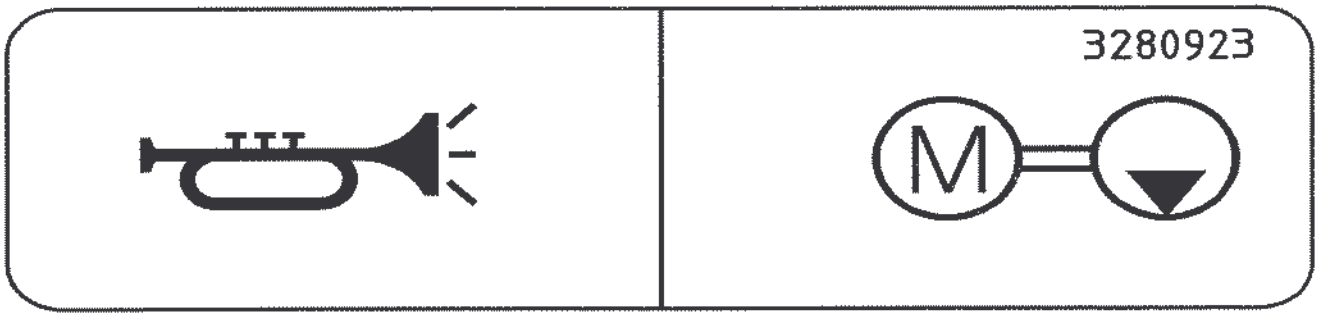
Refer to diagram 36.1 for locations of labels.

1-2. Drive valve / override 3280977



3. Platform box 3280923

Sound signal *Emergency lowering*



4. Platform box 3280922

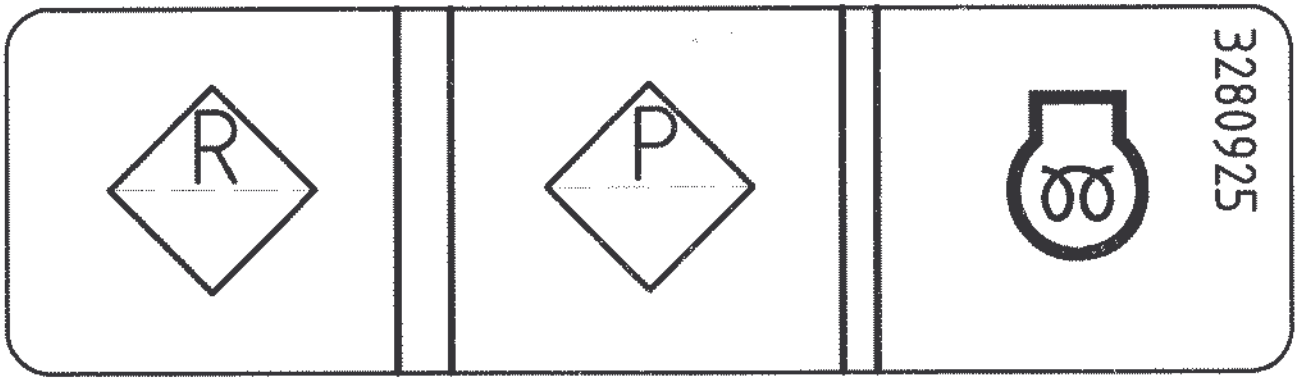
Overload *Glow* *Engine malfunction -oil pressure –water temp. - charging*

5. Turntable box label 1. 3280924

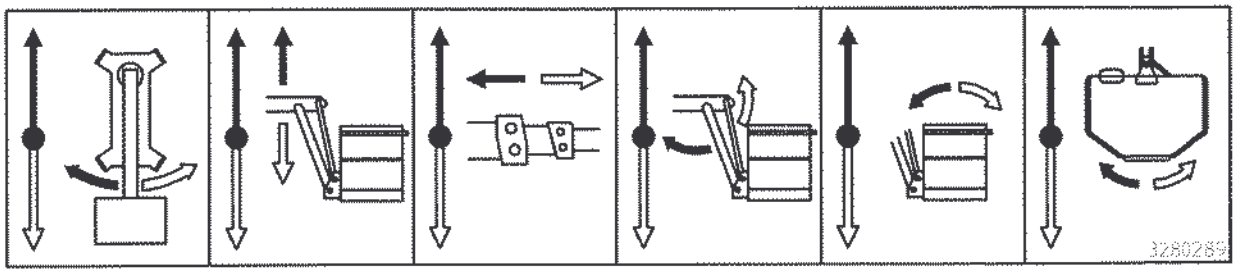
water temperature oil pressure charge

6. Turntable box label 2. 3280925

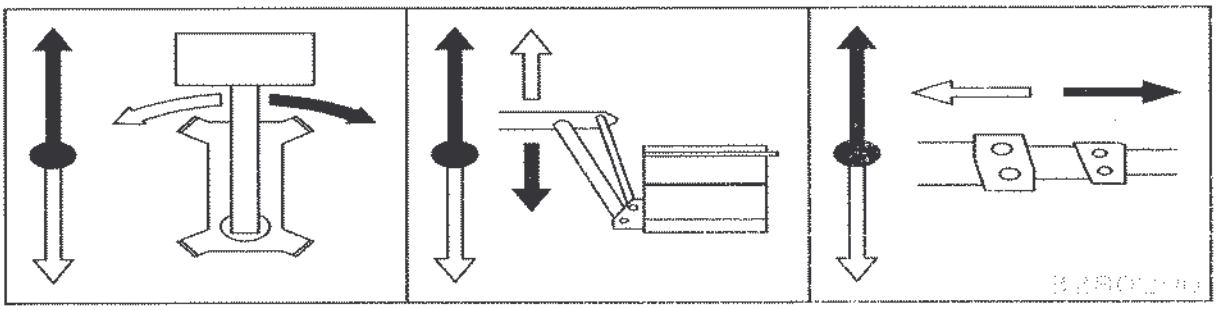
return filter clogging pressure filter clogging glow



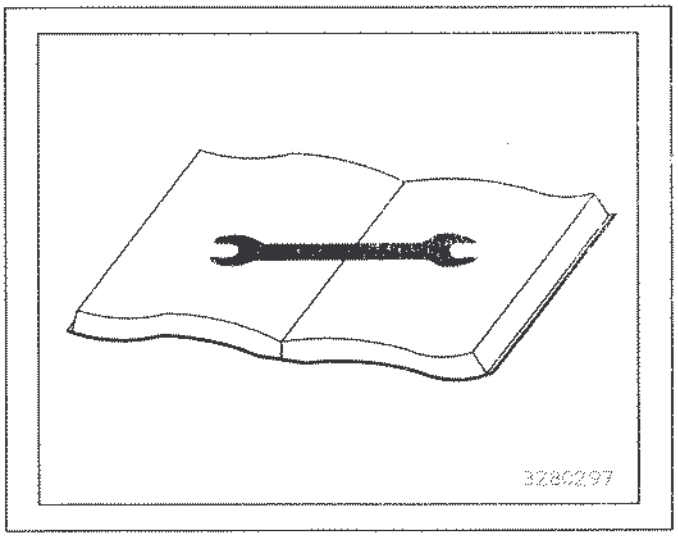
7. Platform valve; valve control 3280289



8. Turntable valve; valve control 3280290

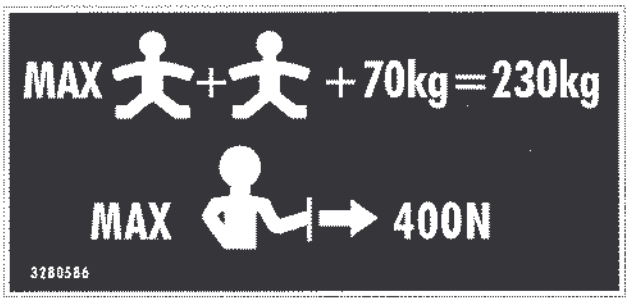


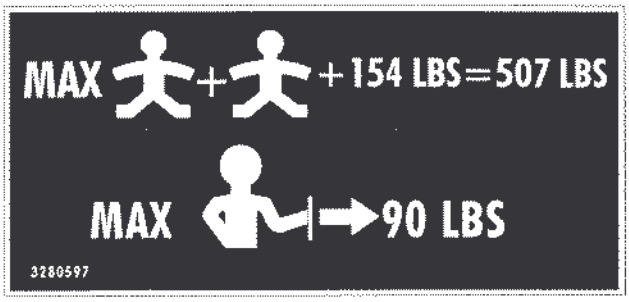
9. Maintenance manual 3280297



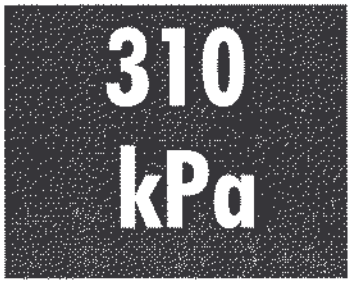
10. Voltage 3280300

11. *Platform load and lateral load 3280586/ 3280597 (USA)*

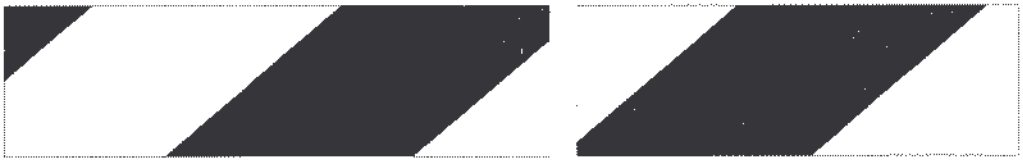




12. *Tyre pressure 3280316*

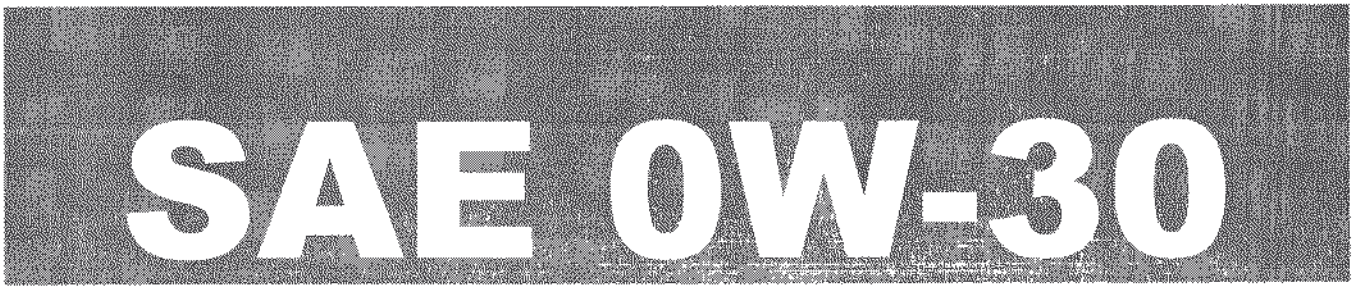


13. *Outrigger striping 3280392*



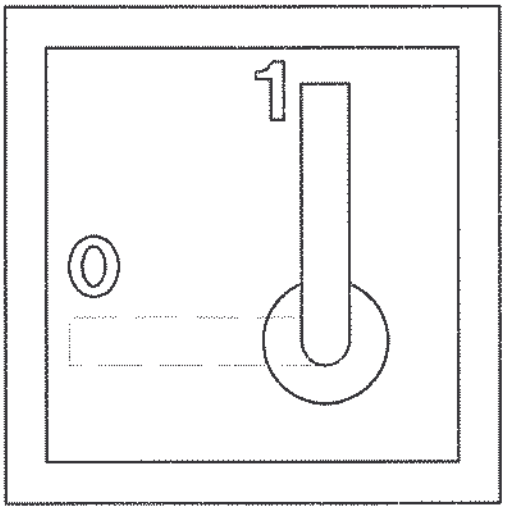
14. *Fuel; diesel 3280317*

15. Hydraulic oil; OW-30 oil 3280767

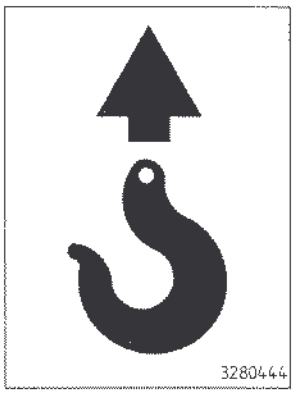


16. Manufacturer; Kesla 3280320

17. Main switch 3280298



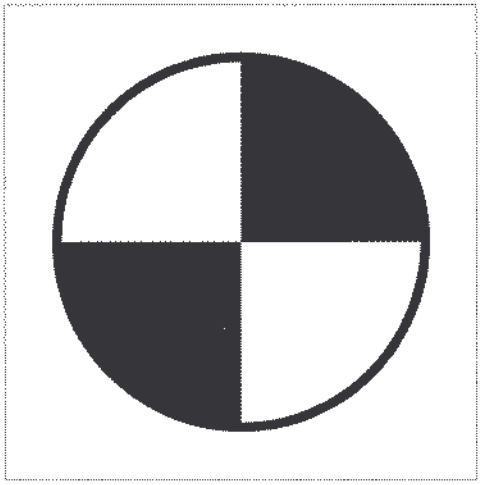
18. Lifting hook 3280444



19. Product 3280563

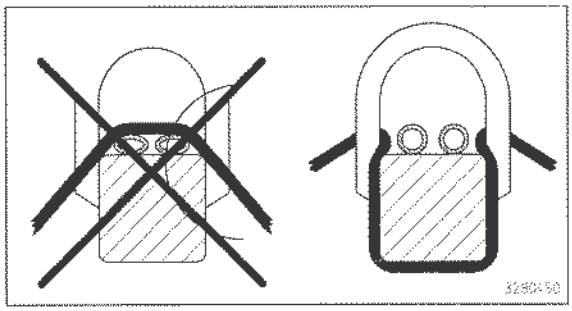
SCANLIFT SL

20. Centre of gravity, longitudinal 3280403

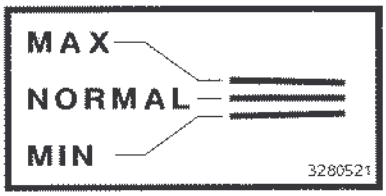


21. Type of MEWP 3280860

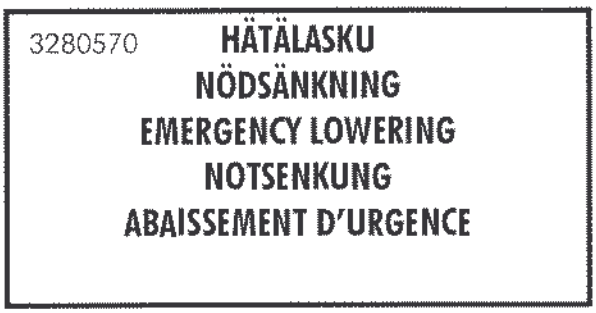
22. Strapping for transport 3280450



23. Boom load control, lowering mark 3280521



28. Emergency lowering 3280570



29. Emergency stop 3280658

30. Earmuffs 3280604

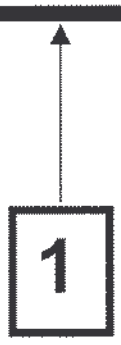
Outrigger numbers

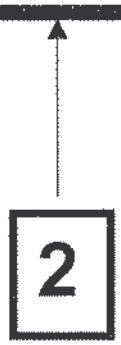
31. Left front
3280896

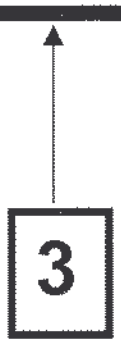
32. Right front
3280897

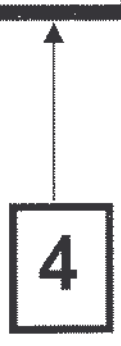
33. Left rear
3280898

34. Right rear
3280899







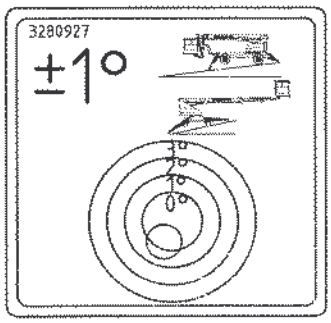


3280900 3280901 3280902 3280903

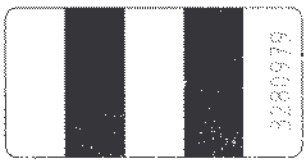
35. 36. 37. 38.

Outrigger lever numbers

39. Horizontal level indicator 3280927

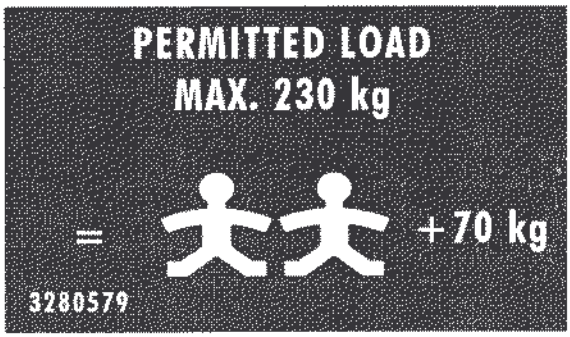


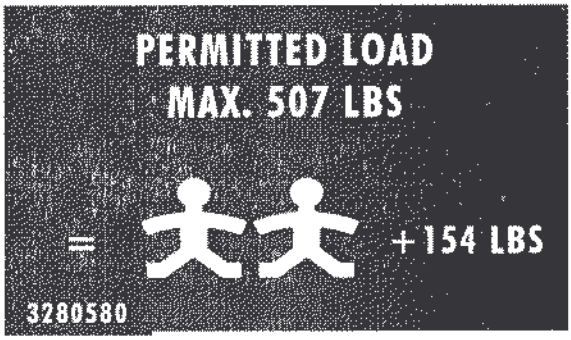
Boom load control gauge marks:
40. Gauge mark, female 3280979



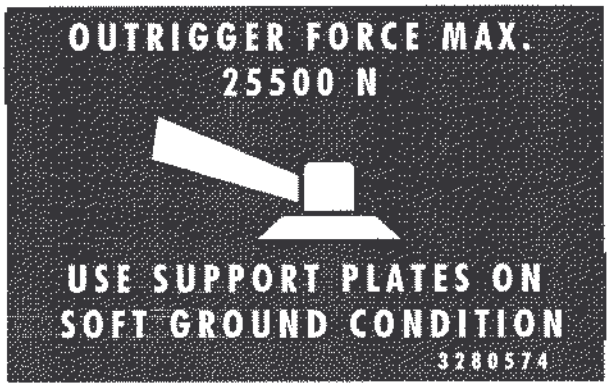
41. Gauge mark, male 3280980

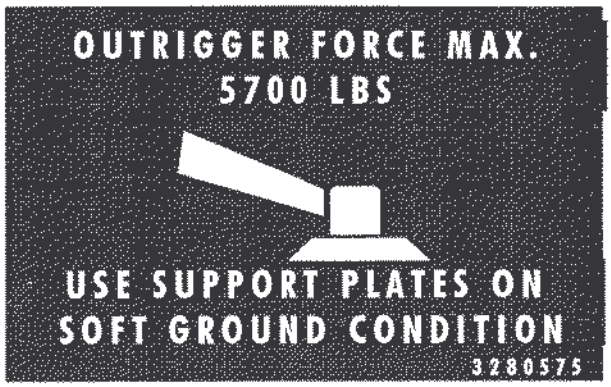
42. Platform load / lateral load 3280579/ 3280580 (USA)



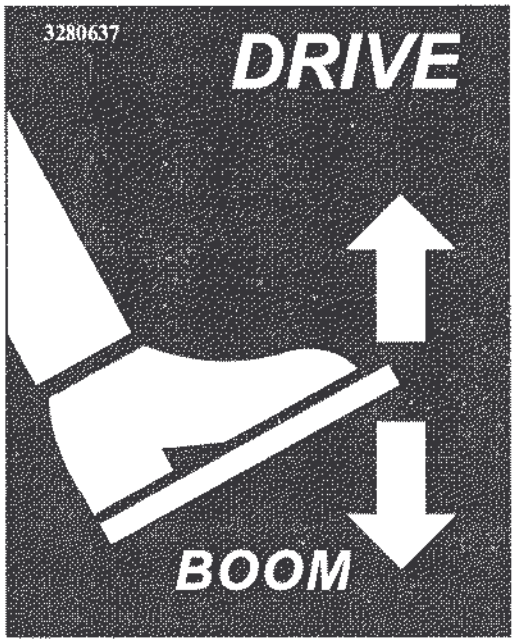


43. Support force, label in platform 3280574 / 3280575 (USA)

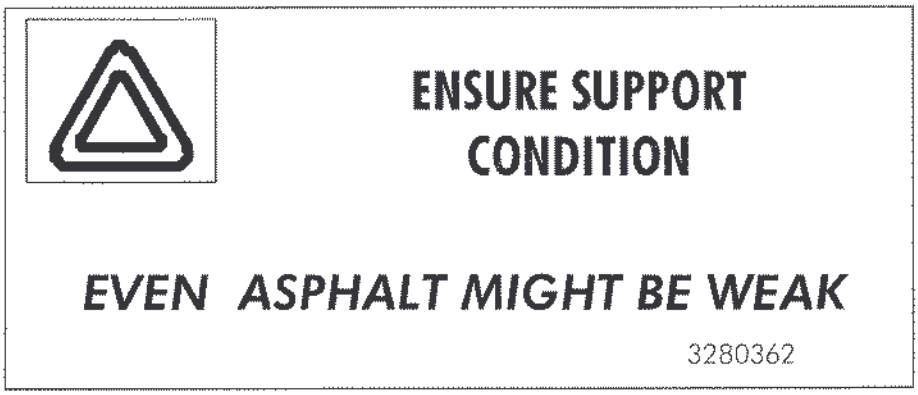




44. Foot pedal, label in platform 3280637



45. Check support 3280362

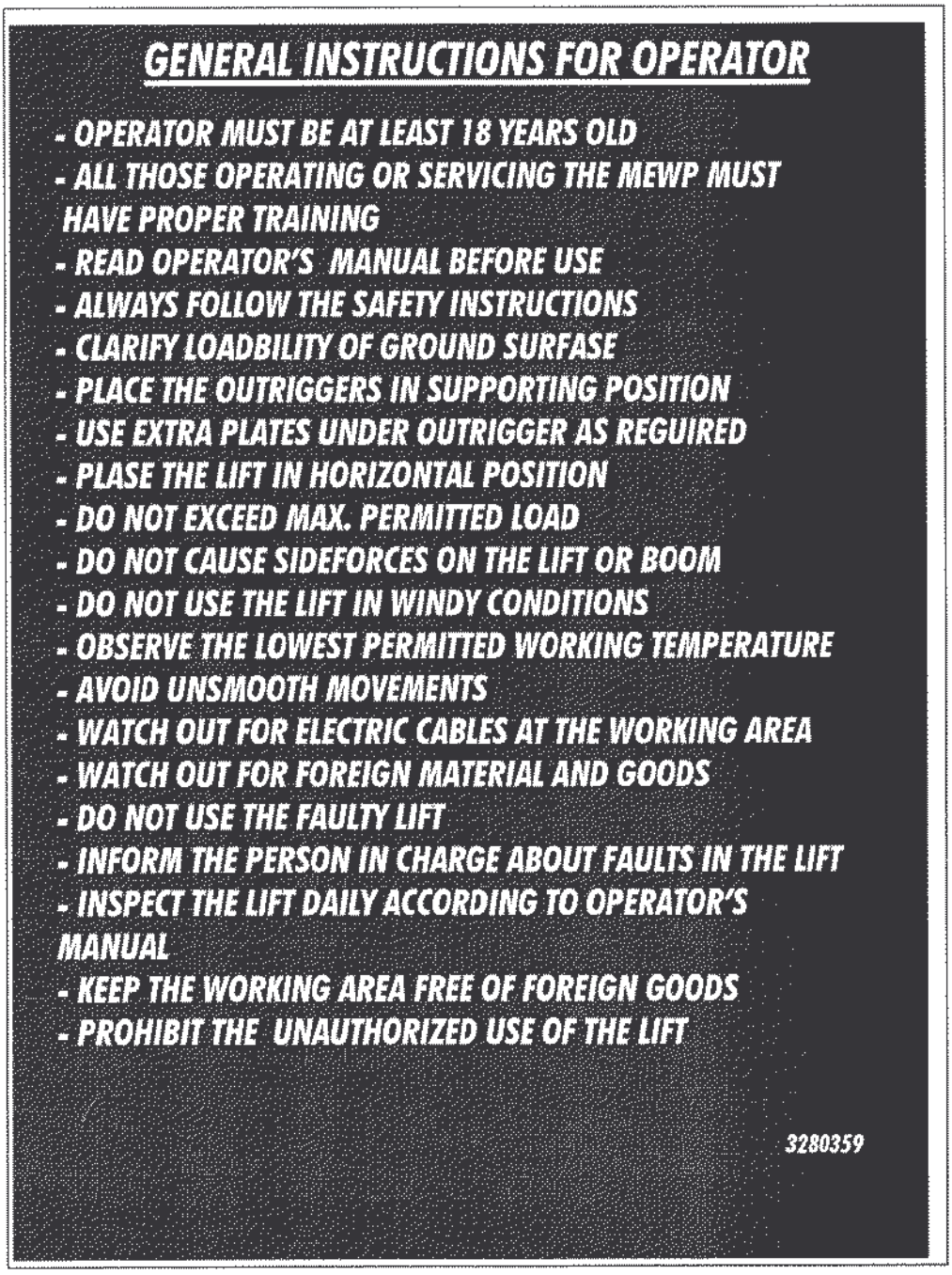


46. Daily checkups by operator 3280368

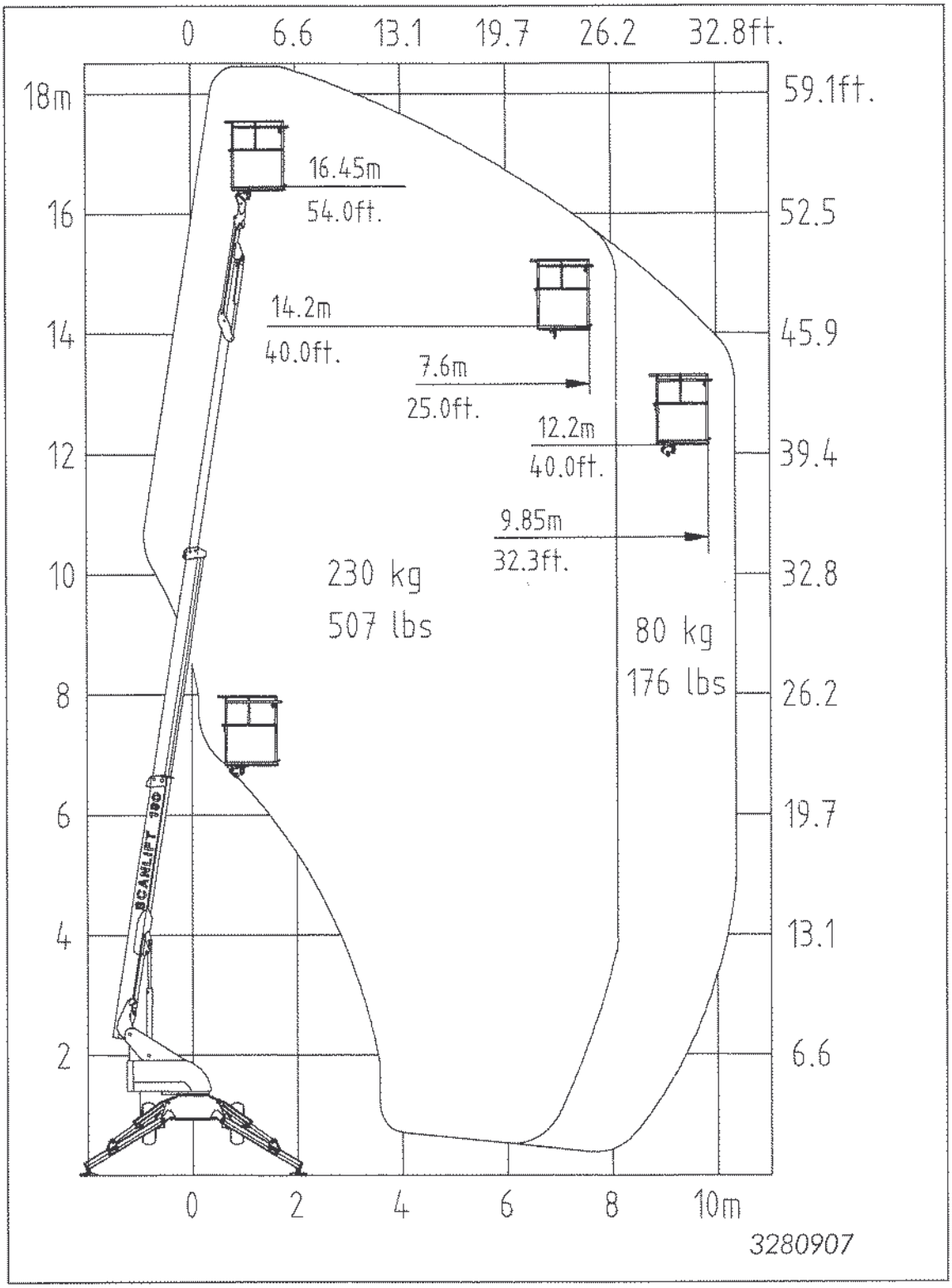
DAILY INSPECTION

- GROUND CONDITION - OUTRIGGERS	- CONTROLS LEVERS - BASKET DOOR
- HORIZONTALITY	- BASKET
- EMERGENCY STOP	- LIMIT SWITCHES
- EMERGENCY LOWERING	- OIL LEAKAGE
- HORN	- BRAKES
- LIGHTS	- WORKING AREA
- ENGINE OIL LEVEL	3280368

47. General instructions 3280359



48. Boom geometry 3280907



49. Warning label, high voltage 3280328

VARNING WARNING		
NOMINELL SPÄNNING NOMINAL TENSION kv	MINIMIAVSTÅND FRÅN OISOLERAD LEDNING MINIMUM DISTANCE FROM UNINSULATED WIRE m	MINIMIAVSTÅND FRÅN ISOLERAD LEDNING MINIMUM DISTANCE FROM INSULATED WIRE m
0,S	2	0,S
0,S - 4S	3	1,S
110	S	
220	5	
440	5	3280328

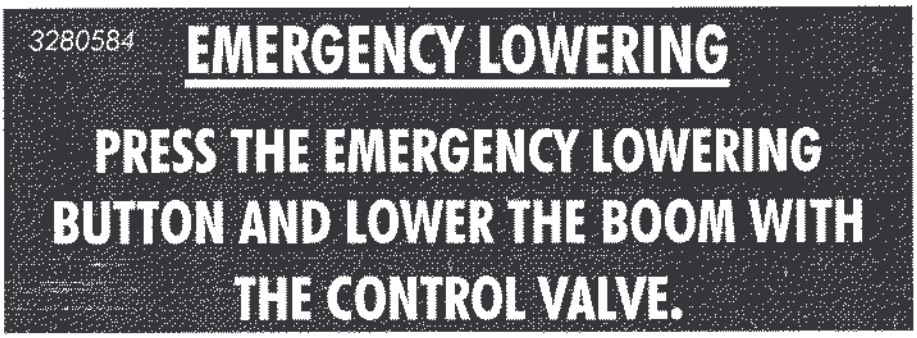
50. Testing the fault current switch 3280425

3280425

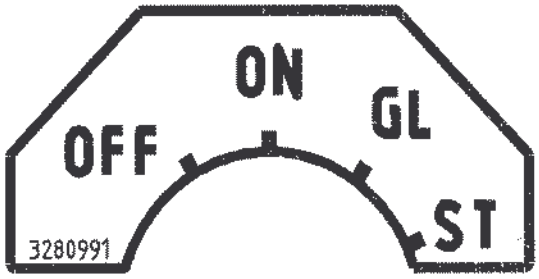
WARNING !

Occasionally press test button "T". The switch should then trip. By pressing test button "T", only operation of the switch itself is checked. Therefore the Earth Resistanse (RE) (including resistance of earth conductor) must be checked separately, by measurement.

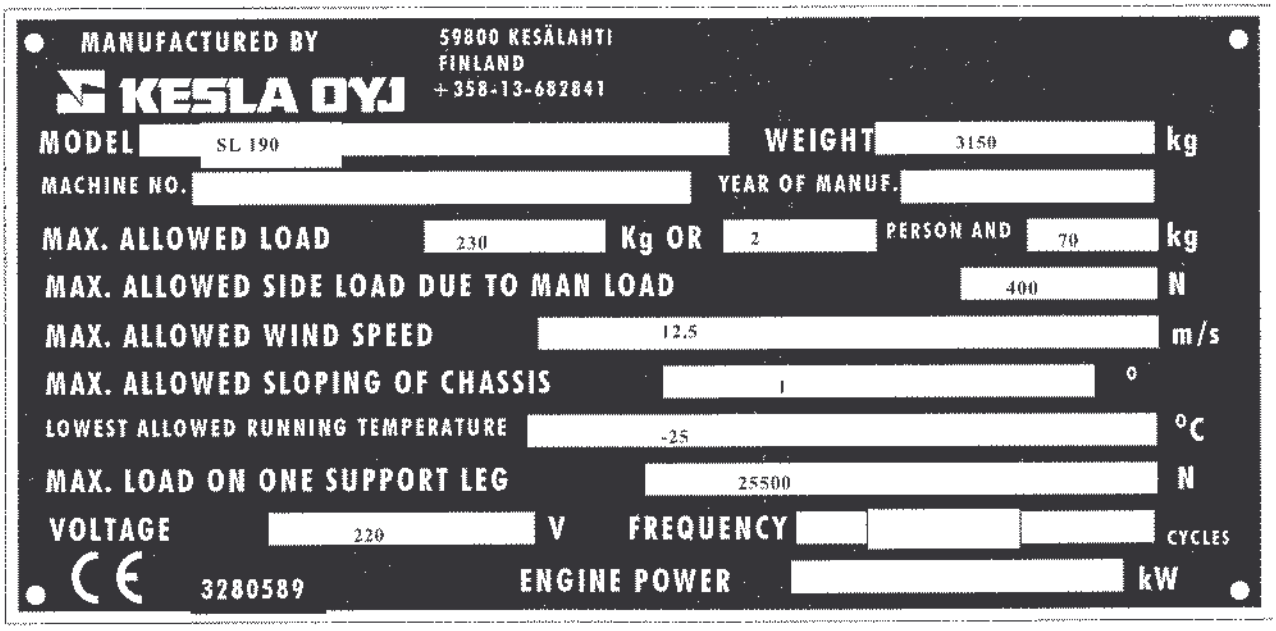
51. Emergency lowering instruction 3280584

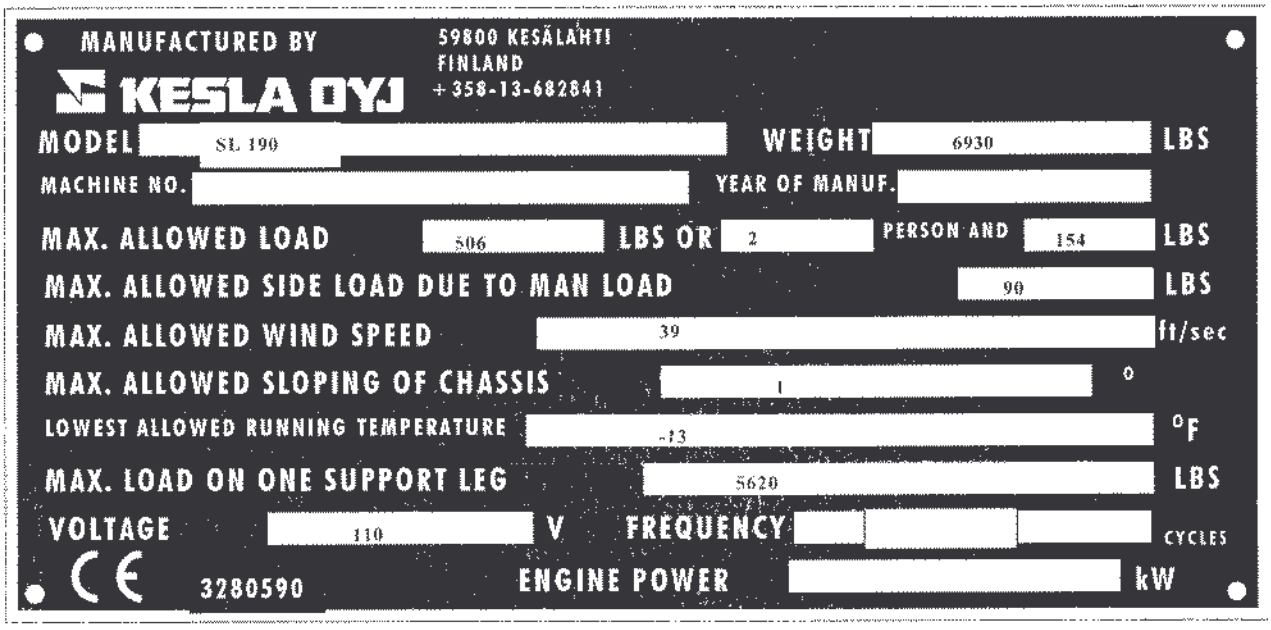


52. Ignition lock label 3280991

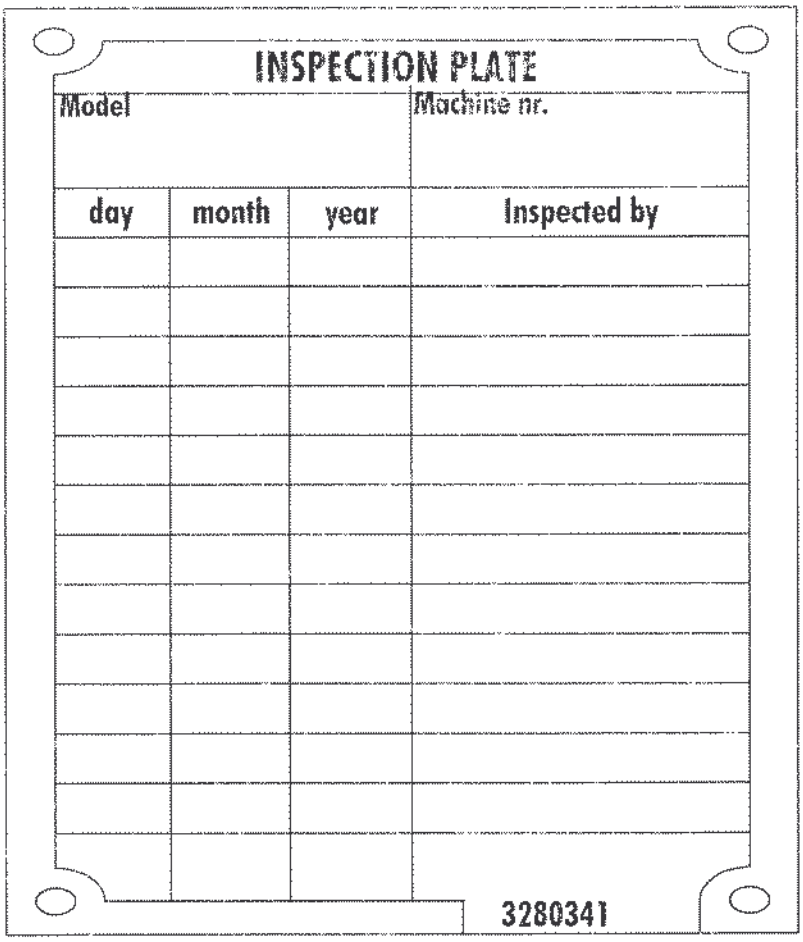


53. Type plate 3280589 / 3280590 (USA)





54. Inspection plate 3280341



37.0 MEWP INSPECTION RECORD

Initial inspection (examination before commissioning) *Date* _____
INSPECTION SITE: KESLA OYJ, KESÄLAHTI, FINLAND

Inspector's signature _____
Name in block letters _____

BASIC INFORMATION ABOUT THE MEWP
Manufacturer: Kesla Oyj *Country of manufacture: Finland*
Address: Metsolantie 2, 59800 Kesälahti, FINLAND

Type of MEWP: BC Boom chassis *Booms: TB Telescope boom*
Chassis: MS MEWP (self-propelled) *Outriggers: HT Hydraulic turning*

TECHNICAL DATA

Model and type: Scanlift SL 190		*Max. platform height*	*PH=16.45m/54.8 ft*
Serial No. / Yr.: _____		*Max. side reach*	*SR=9.85m / 32.8 ft*
Max. safe load: 230 kg / 507 lbs.		*Slewing of booms*	*SB = Limitless*
Number of persons: 2		*Support width*	*SW= 4.0 x 3.92 m*
			13.3 x 13 ft
Extra load: 70 kg / 154 lbs.		*Transport width*	*TW = 1.92 m / 6.4 ft*
Internal combustion engine: petrol / LPG ☐ diesel ☐		*Transport length*	*TL = 6.1 m /20.3 ft*
Lowest operating temperature: -25°C / -13°F		*Transport height*	*TH = 2.10 m /7 ft*
Weight: 3,150 kg / 6,944 lbs.		*Platform size*	*PS = 1.0m x 1.5m*
			3.3 x 5 ft

INSPECTED POINTS: OK = In order, NO = In need of repair

A. STRENGTH

OK	NO	
☐	☐	*Materials certificate*
☐	☐	*Strength certificate*

B. STABILITY

☐	☐	*Stability test certificate*
☐	☐	*Operating zone scheme*

C. GENERAL REQUIREMENTS

☐	☐	*Operating manual*
☐	☐	*Compartment for storing manual*
☐	☐	*Product / Inspection plates*
☐	☐	*Load plate, outrigger plate*
☐	☐	*Warning plate*
☐	☐	*Hazard colours*

D. SAFETY DEVICES

☐	☐	*Safety limit switches*
☐	☐	*Sound signal*

E. LOADING

☐	☐	*Loading = _____ kg / lbs*
☐	☐	*Operating movements*

F. SAFETY REQUIREMENTS

OK	NO	
☐	☐	*Indicator of horizontal level*
☐	☐	*Securings and locks*
☐	☐	*Device to prevent raising*
☐	☐	*Device to prevent release of support*
☐	☐	*Safe distances*
☐	☐	*Position of work platform*
☐	☐	*Construction of work platform*
☐	☐	*Emergency lowering system*
☐	☐	*Limiter devices*

☐ ☐ *G. ELECTRICAL EQUIPMENT*

H. CONTROLS

☐	☐	*Symbols / directional markings*
☐	☐	*Locations*
☐	☐	*Emergency stop*
☐	☐	*Safety limits*

DEFECTS AND NOTES _____

_____

_____

Observed defects and faults have been corrected: _____ *(day, month, yr)* _____, *20*___
Signature _____ *Name in block letters* _____

MEWP INSPECTION RECORD

(Complete record thoroughly. Keep it with the MEWP for at least two years.)

REINSPECTION (= regular maintenance check) Date ___ / _____ 20____
(day) (month) (yr)

Inspection site _____ Inspector _____

Address _____ Name, printed _____

BASIC INFORMATION ABOUT THE MEWP

Manufacturer KESLA OYJ Model and type SCANLIFT SL190

Importer / Distributor _____ Serial no. / Yr. of manufacture _____

Owner _____ Address _____

MEWP TYPE: BC ☒ Boom chassis SC ☐ Scissor chassis MC ☐ Mast chassis
CHASSIS: T ☐ Truck MS ☒ MEWP (self-prop.) Tt ☐ Trailer (towed) M ☐ Monkey
BOOMS: A ☐ Articulated boom T ☒ Telescope boom AT ☐ Articulated telescope boom
S ☐ Scissor FM ☐ Fixed mast TM ☐ Telescope mast
OUTRIGGERS:
HT ☒ Hydraul. turning HE ☐ Hydraul. extending M ☐ Mechanical NO ☐ No outriggers

---

INSPECTED POINTS OK = In order NO = In need of repair

1. GENERAL REQUIREMENTS

OK	NO	
☐	☐	1. Operating manual
☐	☐	2. Operating manual case
☐	☐	3. Product plate
☐	☐	4. Load plate
☐	☐	5. Warning plate
☐	☐	6. Outrigger plate
☐	☐	7. Hazard colours
☐	☐	8. Operating zone scheme
☐	☐	9. Inspection plate

2. SAFETY REQUIREMENTS

☐	☐	1. Horizontal level indicator
☐	☐	2. Device to prevent raising
☐	☐	3. Dev. to prevent release of support
☐	☐	4. Position of work platform
☐	☐	5. Emergency lowering system

3. MEWP GENERAL CONDITION

☐	☐	1. Chassis
☐	☐	2. Slewing ring
☐	☐	3. Booms
☐	☐	4. Work platform
☐	☐	5. Outriggers
☐	☐	6. Transport position
☐	☐	7. Hydraulic system
☐	☐	8. Electric system

4. TEST USE / LOADING

OK	NO	
		Load _____ kg
☐	☐	1. Movements
☐	☐	2. Controls
☐	☐	3. Symbols
☐	☐	4. Emergency stop
☐	☐	5. Safety lmt switches
☐	☐	6. Sound signal

5. REPAIRS

☐	☐	1. Welding
☐	☐	2. Other repairs
☐	☐	3. Test loading

DEFECTS AND NOTES:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Observed defects / faults repaired: (day/mo./yr) ___ / _____ 20____ Signature _____
Name, printed _____

ATTACHMENTS: ☐ Notes continue on back of page
☐ Other document(s) _____ (no. of pieces)

Distrib.: MEWP owner
Operating manual
Inspector

MEWP INSPECTION RECORD

(Complete record thoroughly. Keep it with the MEWP for at least two years.)

REINSPECTION (= regular maintenance check) Date ____ / _____ 20____
(day) (month) (yr)

Inspection site _____ Inspector _____

Address _____ Name, printed _____

BASIC INFORMATION ABOUT THE MEWP

Manufacturer KESLA OYJ Model and type SCANLIFT SL190

Importer / Distributor _____ Serial no. / Yr. of manufacture _____

Owner _____ Address _____

MEWP TYPE: BC ☒ Boom chassis SC ☐ Scissor chassis MC ☐ Mast chassis
CHASSIS: T ☐ Truck MS ☒ MEWP (self-prop.) Tt ☐ Trailer (towed) M ☐ Monkey
BOOMS: A ☐ Articulated boom T ☒ Telescope boom AT ☐ Articulated telescope boom
S ☐ Scissor FM ☐ Fixed mast TM ☐ Telescope mast
OUTRIGGERS:
HT ☒ Hydraul. turning HE ☐ Hydraul. extending M ☐ Mechanical NO ☐ No outriggers

---

INSPECTED POINTS OK = In order NO = In need of repair

1. GENERAL REQUIREMENTS

OK	NO	
☐	☐	1. Operating manual
☐	☐	2. Operating manual case
☐	☐	3. Product plate
☐	☐	4. Load plate
☐	☐	5. Warning plate
☐	☐	6. Outrigger plate
☐	☐	7. Hazard colours
☐	☐	8. Operating zone scheme
☐	☐	9. Inspection plate

2. SAFETY REQUIREMENTS

☐	☐	1. Horizontal level indicator
☐	☐	2. Device to prevent raising
☐	☐	3. Dev. to prevent release of support
☐	☐	4. Position of work platform
☐	☐	5. Emergency lowering system

3. MEWP GENERAL CONDITION

☐	☐	1. Chassis
☐	☐	2. Slewing ring
☐	☐	3. Booms
☐	☐	4. Work platform
☐	☐	5. Outriggers
☐	☐	6. Transport position
☐	☐	7. Hydraulic system
☐	☐	8. Electric system

4. TEST USE / LOADING

OK	NO	
		Load _____ kg
☐	☐	1. Movements
☐	☐	2. Controls
☐	☐	3. Symbols
☐	☐	4. Emergency stop
☐	☐	5. Safety lmt switches
☐	☐	6. Sound signal

5. REPAIRS

☐	☐	1. Welding
☐	☐	2. Other repairs
☐	☐	3. Test loading

DEFECTS AND NOTES:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Observed defects / faults repaired: (day/mo./yr) ____ / _____ 20____ Signature _____
Name, printed _____

ATTACHMENTS: ☐ Notes continue on back of page
☐ Other document(s) _____ (no. of pieces)

Distrib.: MEWP owner
Operating manual
Inspector

MEWP INSPECTION RECORD

(Complete record thoroughly. Keep it with the MEWP for at least two years.)

REINSPECTION (= regular maintenance check) Date ____ / ____ 20____
(day) (month) (yr)

Inspection site _____ Inspector _____

Address _____ Name, printed _____

BASIC INFORMATION ABOUT THE MEWP

Manufacturer KESLA OYJ Model and type SCANLIFT SL190

Importer / Distributor _____ Serial no. / Yr. of manufacture _____

Owner _____ Address _____

MEWP TYPE: BC ☒Boom chassis SC ☐Scissor chassis MC ☐Mast chassis
CHASSIS: T ☐Truck MS ☒MEWP (self-prop.) Tt ☐Trailer (towed) M ☐Monkey
BOOMS: A ☐Articulated boom T ☒Telescope boom AT ☐Articulated telescope boom
S ☐Scissor FM ☐Fixed mast TM ☐Telescope mast
OUTRIGGERS:
HT ☒Hydraul. turning HE ☐Hydraul. extending M ☐Mechanical NO ☐No outriggers

---

INSPECTED POINTS OK = In order NO = In need of repair

1. GENERAL REQUIREMENTS

OK	NO	
☐	☐	1. Operating manual
☐	☐	2. Operating manual case
☐	☐	3. Product plate
☐	☐	4. Load plate
☐	☐	5. Warning plate
☐	☐	6. Outrigger plate
☐	☐	7. Hazard colours
☐	☐	8. Operating zone scheme
☐	☐	9. Inspection plate

2. SAFETY REQUIREMENTS

OK	NO	
☐	☐	1. Horizontal level indicator
☐	☐	2. Device to prevent raising
☐	☐	3. Dev. to prevent release of support
☐	☐	4. Position of work platform
☐	☐	5. Emergency lowering system

3. MEWP GENERAL CONDITION

OK	NO	
☐	☐	1. Chassis
☐	☐	2. Slewing ring
☐	☐	3. Booms
☐	☐	4. Work platform
☐	☐	5. Outriggers
☐	☐	6. Transport position
☐	☐	7. Hydraulic system
☐	☐	8. Electric system

4. TEST USE / LOADING

OK	NO	
		Load _____ kg
☐	☐	1. Movements
☐	☐	2. Controls
☐	☐	3. Symbols
☐	☐	4. Emergency stop
☐	☐	5. Safety lmt switches
☐	☐	6. Sound signal

5. REPAIRS

☐	☐	1. Welding
☐	☐	2. Other repairs
☐	☐	3. Test loading

DEFECTS AND NOTES:

_____
_____
_____
_____
_____
_____
_____
_____
_____

Observed defects / faults repaired: (day/mo./yr) ____ / ____ 20____ Signature _____
Name, printed _____

ATTACH-MENTS: ☐ Notes continue on back of page
☐ Other document(s) _____ (no. of pieces)

Distrib.: MEWP owner
Operating manual
Inspector

MEWP INSPECTION RECORD

(Complete record thoroughly. Keep it with the MEWP for at least two years.)

REINSPECTION (= regular maintenance check) Date ____ / _____ 20____
(day) (month) (yr)

Inspection site _____ Inspector _____

Address _____ Name, printed _____

BASIC INFORMATION ABOUT THE MEWP

Manufacturer KESLA OYJ Model and type SCANLIFT SL190

Importer / Distributor _____ Serial no. / Yr. of manufacture _____

Owner _____ Address _____

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S ☐ Scissor FM ☐ Fixed mast TM ☐ Telescope mast
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HT ☒ Hydraul. turning HE ☐ Hydraul. extending M ☐ Mechanical NO ☐ No outriggers

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Operating manual
Inspector

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Inspection site _____ Inspector _____

Address _____ Name, printed _____

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DEFECTS AND NOTES:

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_____
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_____
_____
_____

Observed defects / faults repaired: (day/mo./yr) ___ / ____ 20____ Signature _____
Name, printed _____

ATTACHMENTS: ☐ Notes continue on back of page
☐ Other document(s) _____ (no. of pieces)

Distrib.: MEWP owner
Operating manual
Inspector

TERMS OF WARRANTY

Kesla Oyj provides a manufacturer's warranty for its mobile elevating work platforms (MEWPs) for a period of twelve (12) months from date of delivery to the actual user or purchaser, but not more than 18 months from the time the MEWP leaves the manufacturer.

The warranty covers any defects in the machine or equipment due to poor raw materials, structural failures, or faulty workmanship. Under the terms of the warranty we will replace any such defective part of the machine or equipment with a new part or with one reconditioned by the guarantor. The part or machine (as mutually decided by the parties) will first be delivered at the manufacturer's expense to the manufacturer or to a service facility authorised by the manufacturer.

The warranty does not apply to any faults or defects arising from normal wear and tear, negligence, or improper operation, faulty installation, or incorrect or inadequate maintenance. The manufacturer assumes no liability for economic loss or other damage incurred by persons or property due to product failure.

The warranty shall be invalidated if any repairs to the warranted product have been made by someone other than the manufacturer or a service facility authorised by the manufacturer, or if the pre-set pressure settings have been altered. The warranty shall be invalidated if alterations have been made to the warranted product or any functions have been added to it without the manufacturer's written permission.

The warranty will apply provided that the enclosed Deed of Transfer is returned to the manufacturer within fourteen (14) days of the date of delivery.

A warranty claim must be submitted to the guarantor without delay, within fourteen (14) days at most of the appearance of the fault.

The warranty will not continue when the product is transferred to a third party unless a separate agreement has been concluded.

COMPENSATION APPLICATION

KESLA OYJ
Metsolantie 2
59800 KESÄLAHTI
FINLAND
Tel. int. +358-13-682841
Fax int. +358-13-6828100

Owner or holder of MEWP
Mailing address _____ Tel. _____
Model and serial number of MEWP _____
MEWP delivered _____
Model and serial number of engine _____
DESCRIPTION OF DAMAGE AND ITS CAUSE _____

_____

_____

_____

SPARE PART NUMBER AND DESCRIPTION OF PART WHICH CAUSED DAMAGE _____
MANNER OF MEWP USE (e.g. rental) _____

_____

NO. OF MEWP OPERATING HOURS WHEN DAMAGE OCCURRED _____
Damage date (day/mo./yr.) _____ Repair date (day/mo./yr.) _____
Repaired by _____ Job no. _____
Damaged parts returned to Kesla Oyj _____ Shipment date _____
Method of shipment _____ Station of origin _____
Freight bill no. _____
The damaged parts are originals ☐ Delivered as spare parts ☐
New parts delivered, packing list no. _____
Number and date of invoice: _____
/ _____ 200 _____ Signature _____
Attachments: _____

To be completed by Kesla OYJ

Warranty application arrived:
Takuuhakemus saapunut: _____
Parts arrived ____ _____ _____ Location where parts are stored
Osat saapuneet / _____ 200 _____ Osien säilytyspaikka _____

JUDGMENT
PÄÄTÖS
Warranty application rejected, invoice whole/// Approved costs of labour and spare parts
Takuuanomus hylätty, laskutetaan kaikki ☐ Hyväksytty työkust. ja varaosat _____

_____

Examined
/ _____ 200 _____ Tarkastanut _____

_____ _____ Approved
/ _____ 200 _____ Hyväksynyt _____

KESLA OYJ
Metsolantie 2
FIN-59800 KESÄLAHTI
Tel. +358 (0)13-682841
Fax. +358)013-6828100

DEED OF TRANSFER

Commissioning date: (day/mo./yr.) __ / _____ 200_

SCANLIFT SL 190

Serial number _____ Owner _____

Petrol engine ☐ Street address _____

Diesel engine ☐ Town, post code _____

Accessories _____ _____

_____

_____ Telephone _____

_____

_____ Seller _____

✂ _____

Return to: KESLA OYJ
Metsolantie 2
59800 KESÄLAHTI
FINLAND
Tel. int. +358-13-682841
Fax int. +358-13-6828100

DEED OF TRANSFER

Commissioning date: (day/mo./yr.) _____/_____200_

SCANLIFT SL 190

Serial number _____ Owner _____

Petrol engine ☐ Street address _____

Diesel engine ☐ Town, post code _____

Accessories _____ _____

_____

_____ Telephone _____

_____

_____ Seller _____

WARRANTY

Scanlift SL 190

SERIAL NUMBER _____

SELLER _____

CUSTOMER _____

(day / mo. / yr.) _____/_____ *200*_____

REGISTRATION OF THE KUBOTA ENGINE WARRANTY

To ensure that the Kubota engine warranty starts on the commissioning date of the machine, please complete the below form and forward it by e-mail, post or fax to the address given below.

*Commissioning date: (day / mo. / yr.)*_____/_____ 200____

SCANLIFT SL 190 *ENGINE MODEL* KUBOTA D 905

PRODUCTION NUMBER _____ *SERIALNUMBER* _____

DISTRIBUTOR: _____

CUSTOMER: _____

ADDRESS _____

_____

_____

E-MAIL: _____

Please return to:

KONEKESKO OY
Moottori- ja vaihteistomyynti
Juha Anttonen
PL 54
FIN-01301 VANTAA
Fax: +358 (0)10 5320 625
E-mail: juha.anttonen@kesko.fi

EU DECLARATION OF CONFORMITY FOR MACHINERY

(directive 89/392/EEC)

KESLA OYJ
Metsolantie 2
59800 KESÄLAHTI
FINLAND
Tel. int. +358-13- 682841
Fax int. +358-13- 6828100

herewith declares that the machine released onto the market,

Mobile elevating work platform (MEWP) SL 190,

serial number

meets the provisions of the Machine Directive 98/37/EC, 89/336/EEC as amended, and the accompanying national legislation (State Council Decision on Machine Safety, Vnp 1314/94).

Standard proposal pr En 280 was applied to the designing of the machine.

The following national standards and specifications were applied during the designing of the machine:
SFS 4020, SFS 4023, SFS 4025, SFS 4026, SFS 4300, SFS 4302, DIN 15018 and draft standard pr En 280.

Kesälahti
location

date

signature

Juha Karjalainen, Product Development Manager

name in block letters, title

Directives and standards applied

The fallowing directives and standards were applied in designing the machine:

- EU declaration of conformity: directive 89/37/EC as amended and the national State Council Decision VNp 1314/94.

- CE marking: directive 93/68/EEC.

- Protection against electromagnetic interference as per directive 89/336/EEC.

- The operating manual which accompanied the machine was prepared in accordance with directives 89/392/EEC and 91/368/EEC and standards SFS-EN 292-2 and SFS-EN 414, along with draft standard pr EN 280.

VTT AUTOMATION

EC TYPE-EXAMINATION CERTIFICATE

No AUT 093/524/00

SCANLIFT SL 190
Machine/Equipment

KESLA OYj
Manufacturer / Orderer

Metsolantie 2
56800 KESÄLAHTI
FINLAND
Address

VNp 1314/94 (98/37/EC)
Regulations and standards

AUT45-000640
Research reports

From serial no. 190001 valid until 8.12.2005
Validity

Other conditions and limitations have been presented on the reverse side

Tampere, December 8, 2000
VTT AUTOMATION

Markku Lumme

Jorma Järvenpää

VTT AUTOMATION
Safety Engineering
P.O.Box 1307, FIN-33101 TAMPERE
FINLAND

Notified body no. 0537