MERLO S.P.A.
INDUSTRIA METALMECCANICA
12020 - S. Defendente di Cervasca (CN) - ITALY
Tel. +39 0171614111 - Fax +39 0171614100
www.merlo.com - info@merlo.com

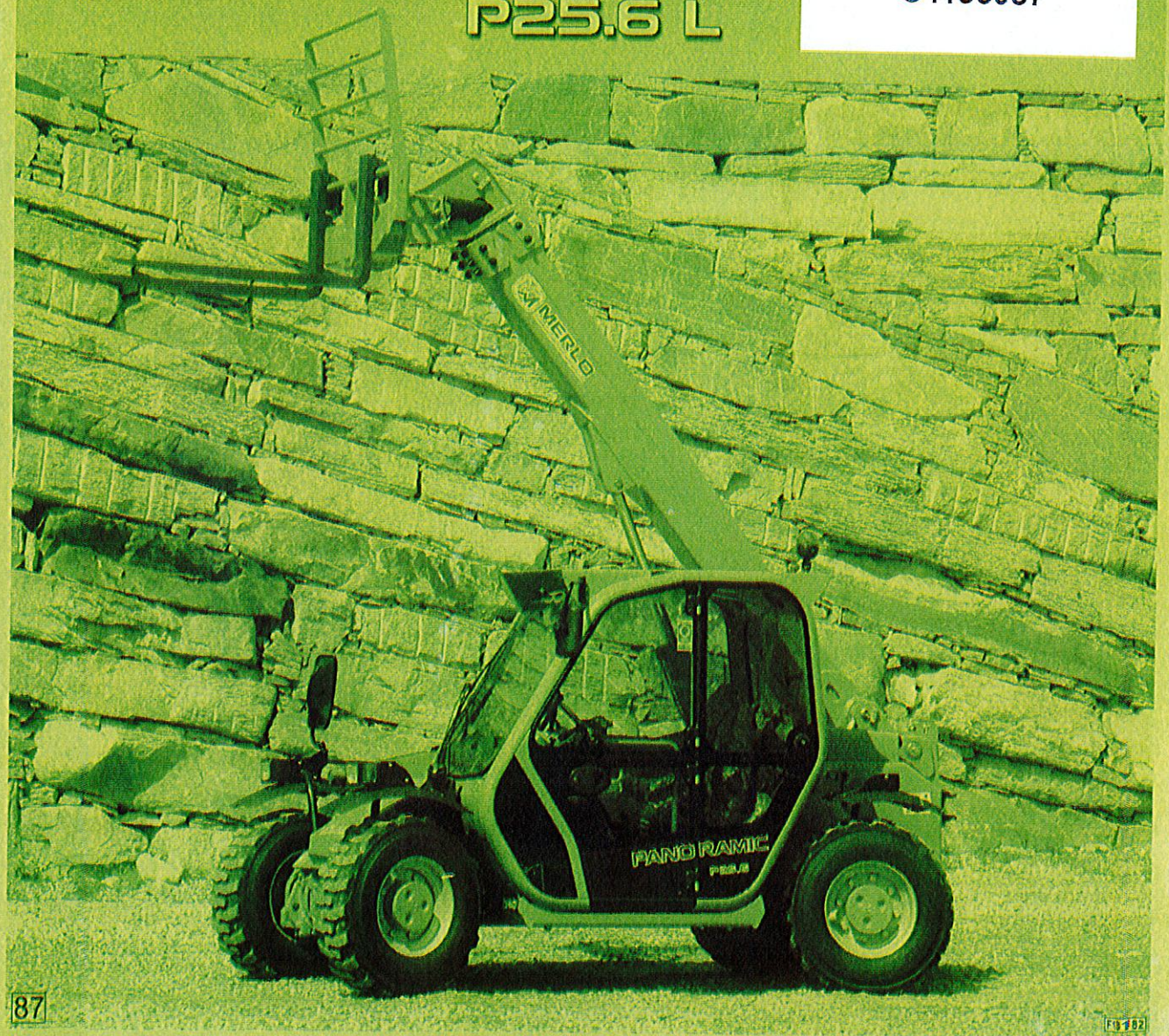
OPERATION AND MAINTENANCE HANDBOOK

VARIABLE REACH TRUCK

PANORAMIC

P25.6
P25.6 L

P25.6
C4156087



87

WARNING!
OPERATING THIS PRODUCT WITHOUT REFERENCE TO THE INSTRUCTION HANDBOOK
RISKS DEATHOR SERIOUS INJURY TO THE DRIVER AND SURROUNDING PERSONNEL

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

PAN25-06 (AU)

VALID FROM SAV C348216

INDEX

WORK ENVIRONMENT

The machine manufactured by Merlo S.p.a., are designed to be used within the following environmental temperature ranges:

- minimum temperature: - 20°C (-4 °F)
- maximum temperature: + 40°C (100°F)

Special applications may be provided upon request for particularly cold or hot environments.
A single fire extinguisher should be fitted on the machine when the workplace does not have external fire extinguishing equipment and the risk of fires exists.
Always take the atmospheric and climatic conditions of the workplace into account.
The machine is supplied with a leaflet stating the maximum permissible wind under normal operating conditions. Before using the machine read the table showing the Beaufort scale to estimate wind strengths, so that you can check whether there are the right conditions to ensure safety when working at a certain height.
Please note that the maximum permissible value is 12.5 m/s (28 mhp) (level 6 on the "Beaufort scale").

Merlo machines are fitted for outdoor use.
When using them in closed, underground environments or in places where a risk of explosion exists, special equipment can be fitted on the machine. These shall be defined when ordering the machine and its attachments.

FIRST COMMISSIONING OR RECOMMISSIONING AFTER A LONG SHUTDOWN

Before operating the machine for the first time, or after a long shutdown, the following operations shall be carried out:

- check that the machine is not damaged
- check that the mechanic parts of the machine are in prime condition, and not rusted
- check both the engine coolant level and the coolant level for the service hydraulic system
- check the tire wear level
- check that the lights and the electrical equipment work correctly
- check for any oil leaks from the unions or the pipes of the hydraulic system
- check both the battery electrolyte level and the battery charge
- check that all protection devices are in their correct positions
- thoroughly grease all the mobile parts of the machine

MACHINE GARAGING

If the machine needs to be shut down for a prolonged period of time, it shall be garaged in a place where it is not exposed to atmospheric agents, and it shall be protected to avoid any damages.
Before being garaged, the machine shall be cleaned down and all its mechanical parts shall be properly lubricated to prevent rusting.
Check that the temperature in the garage ranges between 0°C (32°F) and 50°C (120°F). For temperatures below 0°C (32°F), but not below -29°C (-20°F), check the density of the antifreeze in the engine cooling system. The main operations to be carried out before garaging the machine for a prolonged period of time are listed below. Please follow these instructions:

- clean down the whole machine.
- perform a general visual inspection of the machine, so that you can identify any structural damage and/or deep abrasions on painted surfaces.
- perform a general visual inspection of the machine, so that you can check whether all safety plates and stickers are in place and in prime condition. Replace the damaged or illegible plates and/or stickers with new ones, to be ordered from the Merlo Technical Support Service.
- lubricate and grease all mechanical parts, as well as all the pins exposed to the air.
- garage the machine in a sheltered place, and park it on a flat, compact surface.
- apply the parking brake.
- take the engine start key out of the dashboard, lock the cab door and store the key in a safe place.

TYRES

Only use tyres approved by Merlo S.p.a.
If tyres are deteriorated or show excessive wear, they must be replaced with new tyres with the same characteristics.
Fit tyres suited to the surface of work - several types of tyres exist (for agricultural or industrial use, sandy terrains etc.). If needed, or in case of abnormal wear, contact your dealer.
Do not fit polyurethane-filled or fluid-filled tyres if not explicitely authorised by Merlo S.p.a.

WARNING! The list of authorised tyres which may be fitted to your machine is provided in the paragraph FEATURES AND PERFORMANCES in the TECHNICAL DATA section.

If it is necessary to replace one type of tyre with another model (included in the list of authorised tyres), first contact Merlo's Technical Support service since replacing the tyres may also require replacement of the electronic control unit managing safety and load tables.

SAFETY AND ACCIDENT PREVENTION MEASURES

IMPORTANT!

To prevent any conditions of risk, avoid accidents and injuries, minimize failures and improve the functionality and the durability of your machine, always operate your machine correctly, obey the rules described in the following sections of this paragraph, and take all the necessary precautions while working.

Merlo S.p.A. denies liability for any damage, accident or injury if the code of conduct described in the following sections of this paragraph is not applied:

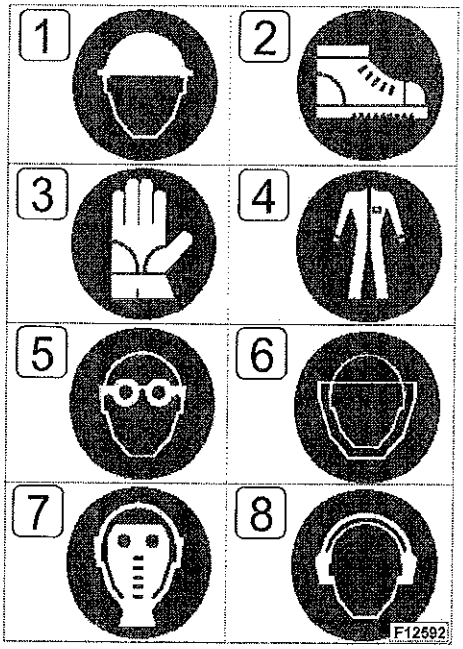
• CONDITIONS FOR A SAFE USE OF YOUR MACHINE

- the machine is not intended for use in sectors other than the one it was designed for; any use other than the one specified by the manufacturer shall be considered improper.
- the machine shall be used by only one operator, sitting in the driver's cab.
- the machine shall only be used by authorized, skilled personnel. The operator shall read and understand all the instructions provided in this operator's manual, be sufficiently trained on the correct use of the machine, and hold a driving licence. Should the operator have any doubts on either the use of the machine or the interpretation of the manual, he/she shall contact the Manufacturer.
- to drive the machine from one spot to another, the operator shall sit correctly in the driver's seat; if this is not the case, the system will automatically lock the hydrostatic transmission.
- never operate the machine if you feel tired or sick, or if you are under the effect of alcohol, prescription drugs or illicit drugs.
- if you need to work either under poor visibility conditions or at night, always switch on the working lights available on your machine. As an alternative, you can install a proper external lighting system in the area you are working in.
- any arbitrary changes made to your machine shall exempt Merlo S.p.A. from any liability for any damages or injuries to the operator, third parties or property.
- inspect your machine very carefully before setting it at work.
- if you stop your machine on sloping ground, place wheel chocks (if present) under its wheels.
- avoid operating you machine on a muddy, sandy or soft ground.
- never use the controls or the pipes on the machine as holds; these components are mobile and cannot offer a stable grip.
- check tire inflation pressure at regular intervals, and make sure that it corresponds to the pressure value shown on the rim, which has been determined based on the kind of soil the machine is supposed to be operated on.
- never use your machine to transport people or animals.
- never use your machine to lift people or animals.
- always refer to the load diagram of your machine, which defines the maximum load capacity depending on the extension of the telescopic boom.
- never leave your machine unattended while the engine is still running or when loads are hanging from the telescopic boom.
- before getting off the machine and before carrying out any maintenance operations, apply the parking brake, switch off the engine and take the engine start key out of the dashboard.
- always fasten your seat belt while driving your machine from one spot to another on a site.

• PERSONAL PROTECTION SYSTEMS

- the personnel shall use both safety devices and personal protection devices during machine operation, servicing and maintenance. Machine operators shall avoid wearing jewellery or loose clothes that may get caught in machine parts or gears.
- if you usually work in particularly dusty or dry environments, you are advised to inspect the filters of the cab ventilation system periodically and to wear proper protection devices for you respiratory tract, such as dust masks or masks equipped with filters.
- some individual protection devices are shown here by way of example only. Such devices should be used by telehandler operators while working on and servicing their machines, as described in this chapter and in chapter "ROUTINE MAINTENANCE":

  - Head protection helmet (fig. 1)
  - Safety shoes (fig. 2)
  - Safety gloves (fig. 3)
  - Safety overalls (fig. 4)
  - Safety goggles (fig. 5)
  - Safety face mask (fig. 6)
  - Respiratory mask (fig. 7)
  - Earmuffs (fig. 8)



- such devices shall be made available by either the employer or the foreman, based on their risk assessment.

• MACHINE-PRODUCED VIBRATIONS

Your machine has been designed and built in compliance with international ergonometric standards.
The vibrations sent by the machine to the upper limbs of the operator's body are irrelevant, as the machine operation does not require a lengthy contact of upper limbs with vibrating parts. In any case, the value of such vibrations does not exceed 2.5 m/sec² Vibrations sent from the machine to the operator's body are less than 0.5 m/sec² (RMS).

• ELECTROMAGNETIC INTERFERENCE

This machine complies with Directive 2004/108/CE on electromagnetic interference which may arise between some electronic device on the vehicle and further external devices.
Make sure that all extra electric devices fitted on the machine comply with such standard and that they do not produce any interference with the vehicle on-board devices.
Also, make sure they are all labelled with the specific "CE" marking.

• NOISE

AIRBORNE NOISE

This machine is compliant with Directive 2000/14/EC on "noise emission in the environment of equipment for use outdoors".
The sound power level of your machine is determined based on measurements carried out on an identical machine in accordance with measurement methods of airborne noise generated by "combustion-engine driven counterbalanced lift trucks", whose validity applies at the time of publication of this manual.

The following table shows the sound power level (Lwa) measured:

TYPE OF MEASUREMENT	SOUND PRESSURE LEVEL
Guaranteed sound power level (Lwa)	104 dB(A)

During equipment operation, higher noise levels may be measured due to particular working conditions, the surrounding environment and additional noise sources.

NOTE!

The guaranteed sound power level (Lwa) is also shown on a sticker applied on the inside of the cab window.

NOISE INSIDE THE CAB

Noise at the operator's ear is measured in compliance with EN 12053 standards for the "Determination of emission sound pressure level at operator's position".
The emission sound pressure level of your machine is determined based on measurements carried out on an identical machine in accordance with the measurement methods described in the aforementioned standards, whose validity applies at the time of publication of this manual.

The following table shows the sound pressure level measured inside the cab (LpAZ)

TYPE OF MEASUREMENT	SOUND PRESSURE LEVEL
Sound power level (LpAZ)	77 dB

Sound pressure uncertainty KpA is equal to 2 dB.
The operating cycle during measurement is as follows:

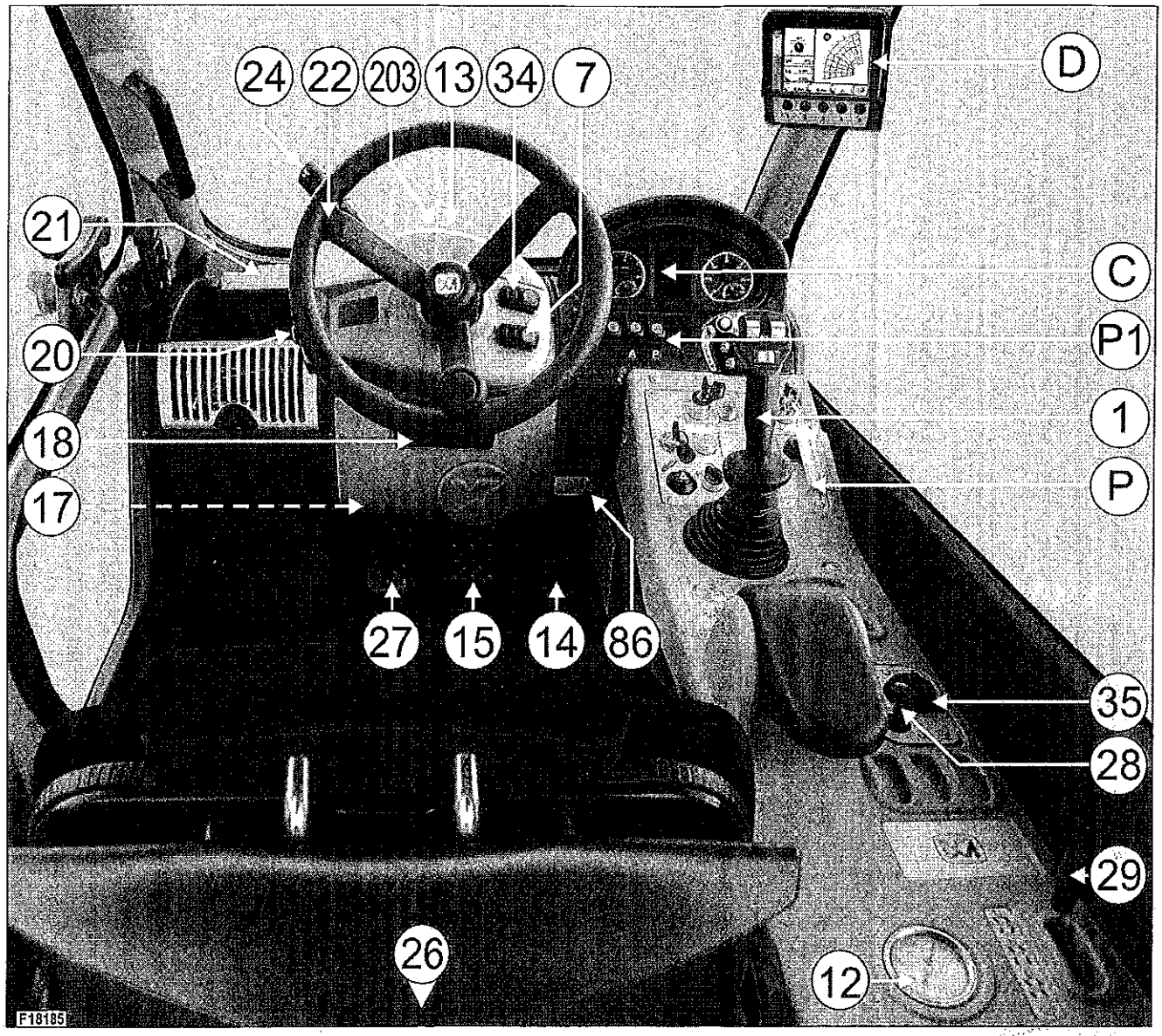
- LIFTING (a=0.18)
- IDLING (b=0.58)
- PULLING (c=0.24)

Reference items a, b, and c are coefficients proportional to time of use.
During equipment operation, higher noise levels may be measured due to particular working conditions, the surrounding environment and additional noise sources.

END OF CHAPTER

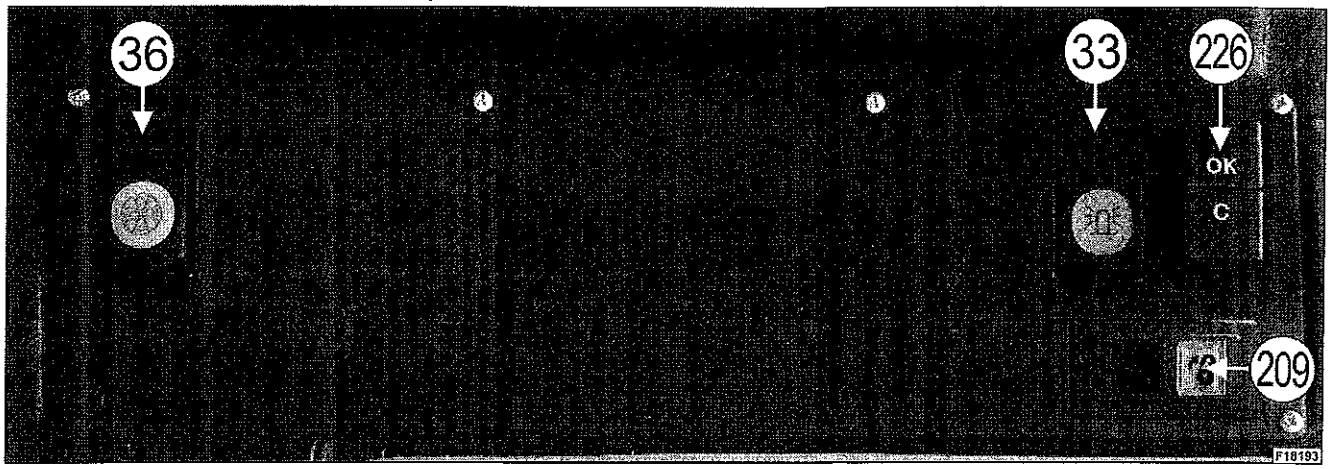
INDEX

CAB INTERIOR KEY WORD



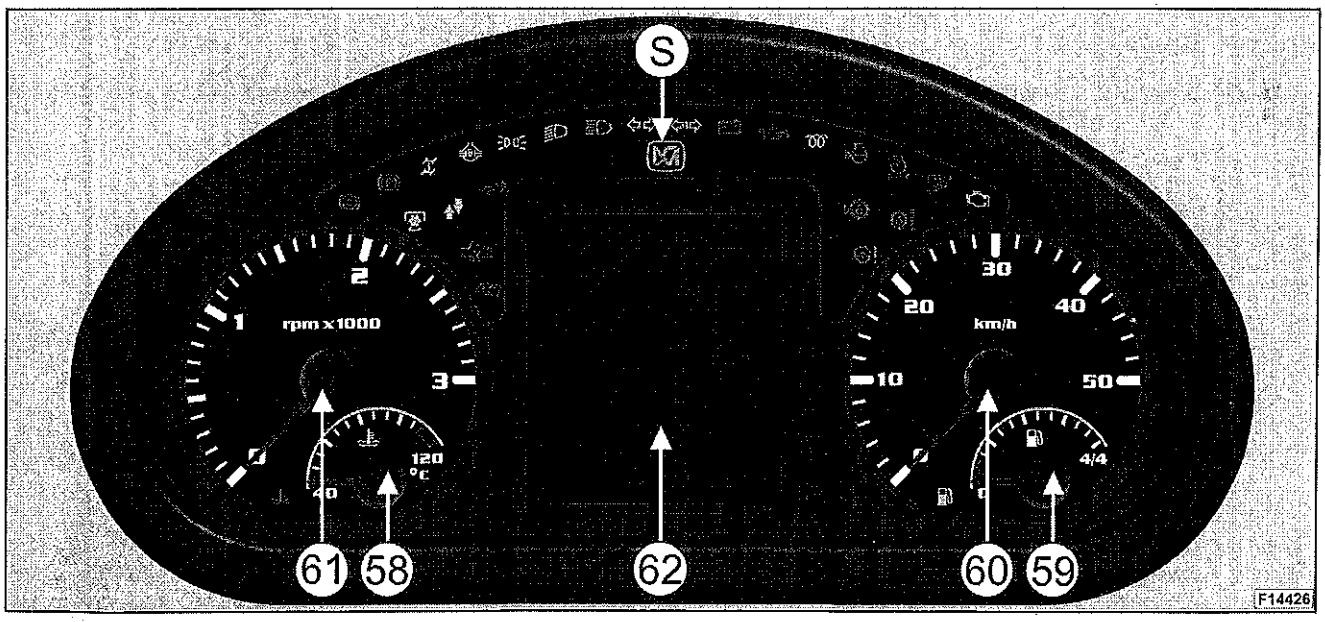
REF.	DESCRIPTION	REF.	DESCRIPTION
1	Telescopic boom control joystick and driving direction buttons	26	Lever for air suction selection either inside/outside the cab
7	Rear windscreen-wiper switch	27	Driving speed adjustment pedal
12	Hydrostatic transmission or hydraulic system oil pressure gauge	28	Emergency pump for the release of the parking brake
13	Spirit level	29	Steering selection lever
14	Accelerator pedal	34	Front windscreen wiper and screen-washer switch
15	Brake pedal	35	Heating cock
17	Steering wheel position locking lever	86	Hand accelerator
18	Air vent	203	Activation of temporary bypass switch
20	Driving direction buttons	C	Dashboard
21	Safety instruction and load diagram container	D	Display of the dynamic attachment control
22	Steering wheel	P - P1	Control panels
24	Parking lights switch/ low beam lights / Direction indicators / head lights / Horn		

(P1) CONTROL PANEL KEY WORDS



REF.	DESCRIPTION
33	Cab roof indicator switch
36	Fan switch for cab heating
209	Indicator lamp showing that button (U) on the joystick is pressed (joystick enable button)
226	Adjustment buttons for instrument panel settings (C)

DASHBOARD KEY WORDS (C)



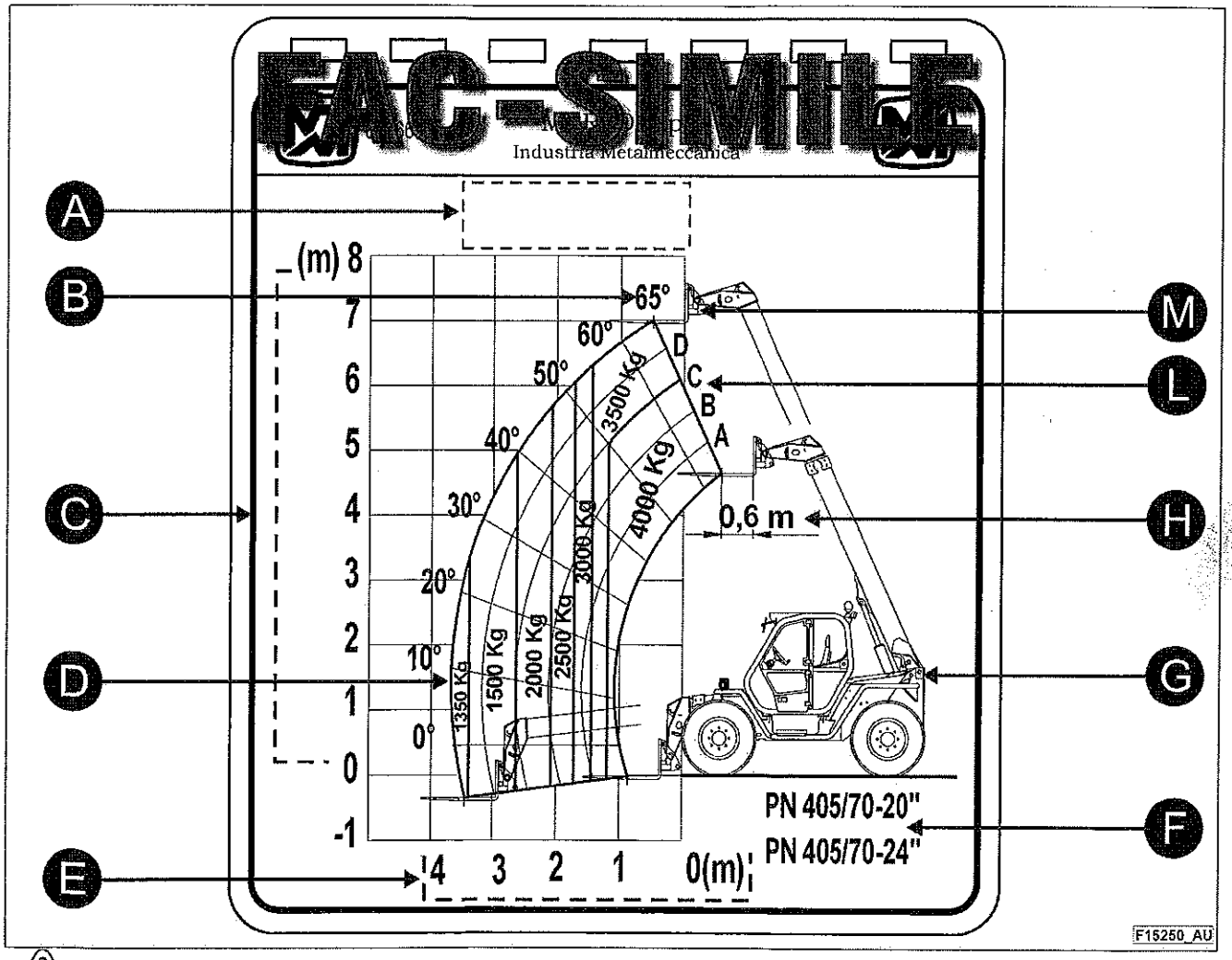
REF.	DESCRIPTION
58	Cooling liquid thermometer
59	Fuel level indicator
60	Speedometer
61	Engine RPM indicator
62	LCD display - Hour counter / Clock
S	Warning lights

LOAD CHART

The load charts available on your machine and provided in this manual show the various load capacity ranges of your machine, when equipped with standard forks. The centre of gravity of the load being transported is calculated 600 mm from the fork heel Should you use other attachments instead of the standard forks, please refer to the load charts contained in the document holder in the cab and described in chapter "ATTACHMENTS" of this manual.

An example of how to read the load charts is provided below for the sake of clarity:

- A) Name of the machine shown in the load chart
- B) Indication of whether the machine is on stabilizers or on tyres
- C) Indication of the telescopic boom lift angle
- D) Indication of the telescopic boom lift height
- E) Indication of the load capacity ranges of the machine
- F) Indication of the telescopic boom extension length
- G) Rough drawing of the machine
- H) Indication of the centre of gravity of the load lifted on the forks
- L) Indication of the letters identifying the telescopic boom extension
- M) Drawing of the attachment installed on the carriage (the forks in this case)



ATTENTION! The load diagram for the machine on tyres refers to a machine that is standing still, with its wheels aligned to the chassis and positioned on a sufficiently even and solid ground.

WARNING! The list of authorised tyres which may be fitted to your machine is provided in the paragraph FEATURES AND PERFORMANCES in the TECHNICAL DATA section.

If it is necessary to replace one type of tyre with another model (included in the list of authorised tyres), first contact Merlo's Technical Support service since replacing the tyres may also require replacement of the electronic control unit managing safety and load tables.

PERFORMANCE AND FEATURES

The tables shown show data relative to a machine in it's base/standard configuration.
Merlo Spa reserves the right to modify or amend machines/specifications without prior notification.

WEIGHT (kg)
MEASUREMENT CONDITIONS • Machine in a basic configuration, without any attachments and variations • Machine equipped with standard tyres • Standard forks installed on the carriage • Operator NOT in the cab • Diesel oil tank empty
4750 (kg)

PERFORMANCE			
Maximum load (kg)	Lift height (mm)	Maximum forward reach (mm)	Speed (Km/h) 1st gear - 2nd gear
2500	5900	3260	0-35(GOODEAR ; SUPERKING) 0-40 (MITAS)

ENGINE
Type KUBOTA V3307-DI-T-E3 / Turbo InterCooler / direct injection / water cooling Power : 55,4 kW – (75 HP) at 2600rpm Emission : low emission (EURO 3)

CABIN
In compliance with ISO 3449 (FOPS) and ISO 3471 (ROPS) standards Mechanical joystick with ON-OFF button control of two movements

STEERING
Four drive/steer wheels with automatic wheel synchronisation 3 steering modes : normal, all wheel, crab

TRANSMISSION
Hydrostatic with hydraulic control

HYDRAULIC SYSTEM
Hydraulic system with gear pump

ELECTRICS
12 V 100 Ah battery 850 A-EN complete with manual battery isolator

CAPACITIES (litres or dm^3)
Hydraulic system: 70
Fuel: 70
Hydrostatic oil 12
Engine oil: 11,2
Coolant: 6,2

• CAB TYPE-APPROVAL PLATE GRCF01

Metal plate GRCF01 is applied inside the cab, on the electric box cover behind the driver's seat. This plate shows the cab type-approval data in compliance with the following international standards:

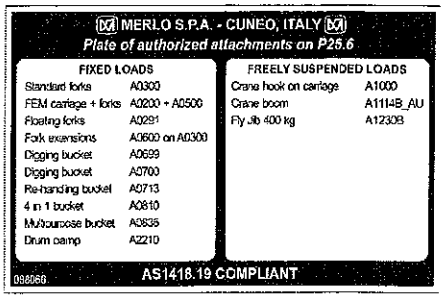
- ISO 3449: Falling object protective structures (FOPS)
- ISO 3471: Rollover protective structures (ROPS)

For further information please refer to paragraph "EC CONFORMITY", chapter "INTRODUCTION".

• AUTHORIZED ATTACHMENTS PLATE

(088066)

The authorized attachments plate is applied in the front left part of the cab and provides the list of authorized attachments for your machine.



TIGHTENING TORQUES FOR ISO METRIC THREADS

The tightening torque "Ma" of either a screw or a nut is the moment of a force required to put the screw under a certain initial tension. The tightening torque value is used to adjust the dynamometric wrench, as well as to prevent the screw from breaking due to fatigue. The following table shows the tightening torques "Ma" related to the external diameters of screws having metric threads. These are just indicative values, because the exact values depend on both the friction and the machining conditions of the screw supporting surfaces.

NOTE! This table refers to tightening applied slowly and with torque wrenches.

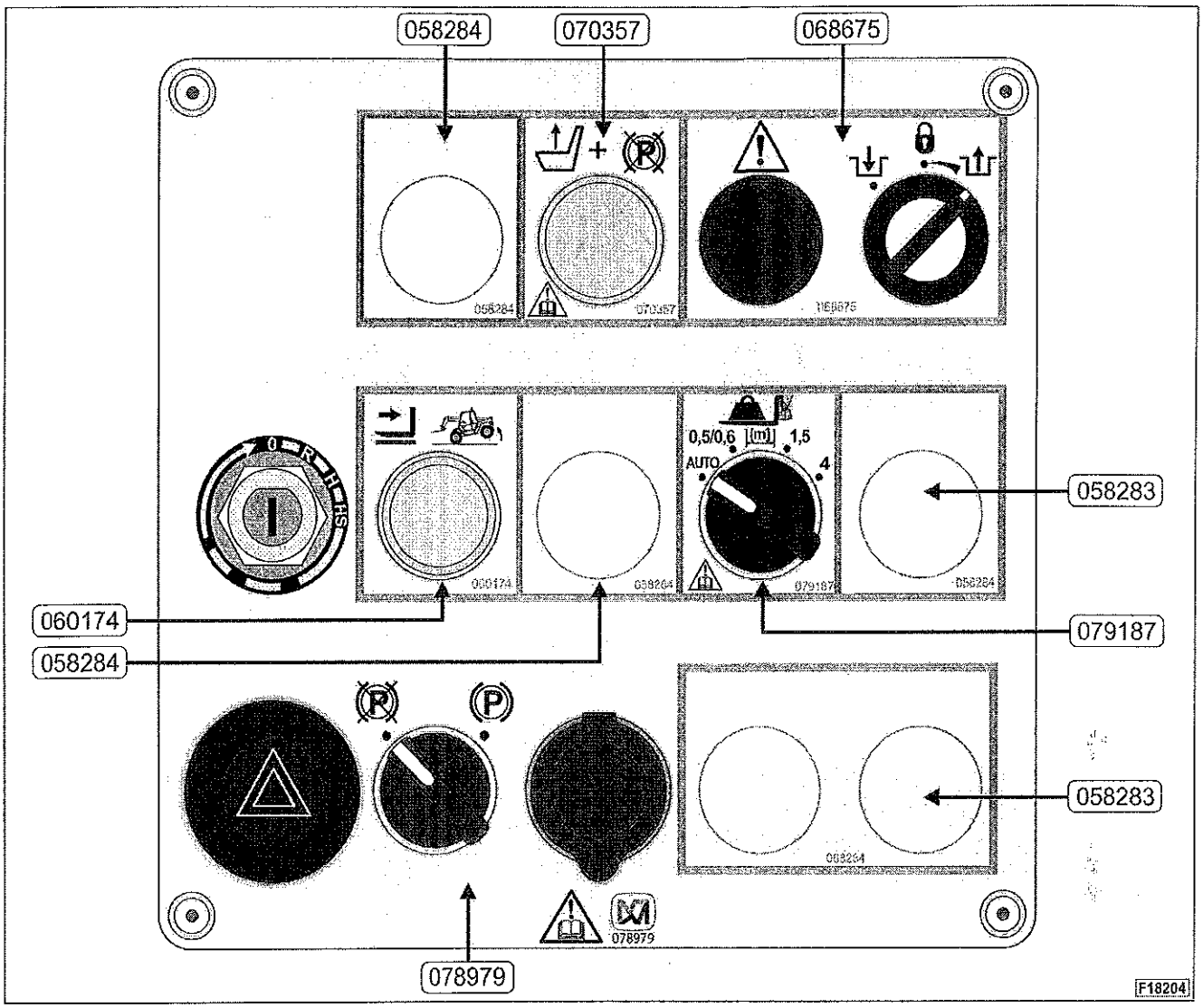
SIZE OF BOLT		TYPE OF BOLT								
		8.8			10.9			12.9		
		Nm	lbft	Kgm	Nm	lbft	Kgm	Nm	lbft	Kgm
COARSE PITCH	M3 x 0,5	1,8	1	0,18	2,6	2	0,27	3	2	0,31
	M4 x 0,7	3,1	2	0,32	4,5	3	0,46	5,3	4	0,54
	M5 x 0,8	6,1	4	0,62	8,9	7	0,91	10,4	8	1,06
	M6 x 1	10,4	8	1,06	15,3	11	1,56	17,9	13	1,82
	M7 x 1	17,2	13	1,75	25	18	2,55	30	22	3,06
	M8 x 1,25	25	18	2,55	37	27	3,77	44	33	4,49
	M10 x 1,5	50	37	5,1	73	54	7,44	86	63	8,77
	M12 x 1,75	86	63	8,77	127	94	12,95	148	109	15,09
	M14 x 2	137	101	13,97	201	148	20,49	235	173	23,96
	M16 x 2	214	158	21,81	314	232	32,01	368	272	37,51
	M18 x 2,5	306	226	31,19	435	321	44,34	509	376	51,89
	M20 x 2,5	432	319	44,04	615	454	62,69	719	531	73,29
	M22 x 2,5	592	437	60,35	843	622	85,93	987	728	100,61
	M24 x 3	744	549	75,84	1060	782	108,05	1240	915	126,4
	M27 x 3	1100	812	112,13	1570	1159	160,04	1840	1358	187,56
	M30 x 3,5	1500	1107	152,91	2130	1572	217,13	2500	1845	254,84
FINE PICHT	M8 x 1	27	20	2,75	40	30	4,08	47	35	4,79
	M10 x 1,25	53	39	5,4	78	58	7,95	91	67	9,28
	M12 x 1,25	95	70	9,68	139	103	14,17	163	120	16,62
	M14 x 1,5	150	111	15,29	220	162	22,43	257	190	26,2
	M16 x 1,5	229	169	23,34	336	248	34,25	393	290	40,06
	M18 x 1,5	345	255	35,17	491	362	50,05	575	424	58,61
	M20 x 1,5	482	356	49,13	687	507	70,03	804	593	81,96
	M22 x 1,5	654	483	66,67	932	688	95,01	1090	804	111,11
	M24 x 2	814	601	82,98	1160	856	118,25	1360	1004	138,63
	M27 x 2	1200	886	122,32	1700	1255	173,29	1990	1469	202,85
	M30 x 2	1670	1232	170,23	2370	1749	241,59	2780	2052	283,38

Nm = Newton-meter / lbft = pound - foot / kgm = kilogram - meter

END OF CHAPTER

INDEX

• STICKERS OF CONTROL PANEL (P)



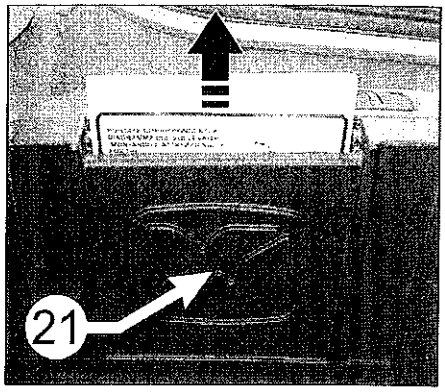
LEAFLETS IN THE CAB

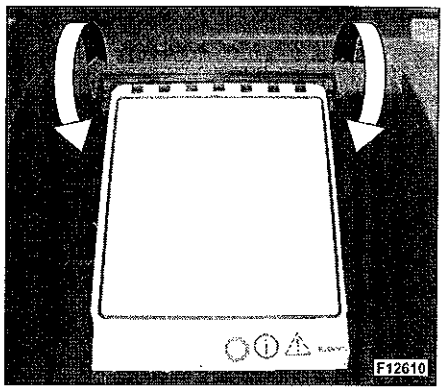
The leaflets that provide information on your machine are contained in glove compartment (21) to the side of the steering wheel. These leaflets provide the operator with the main safety and operating instructions, which serve as a quick reference guide.

Always keep these leaflets in good condition. Should they be damaged, replace them with new ones, to be ordered from Merlo Technical Support Service.

To consult the leaflets in the cab, grab their protruding part, then lift it and rotate it towards you as shown in the picture (for further information please refer to paragraph "LOAD CHART HOLDER AND SAFETY INSTRUCTION CONTAINER", chapter "CONTROLS AND INSTRUMENTS").

This paragraph lists all the leaflets available on your standard machine; should you purchase any optional equipment, the corresponding leaflets will be made available in compartment (21).





064205 **MERLO S.p.A.** Industria Metalmeccanica

DRIVING ON PUBLIC ROADS

Always follow national road traffic regulations.

Position front and rear wheels in line with the sides of the truck.

Select front wheel only steering mode.

Ensure that the telescope boom is in the position shown in the instruction handbook and that no attachment can foul the front wheels.

Select the hydraulic isolation position with the key provided.

Operate the flashing beacon.

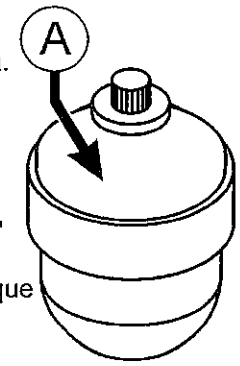
Release the parking brake before moving off.

Never transport any load when travelling on the public roads.

The circulation on public road of the machine is allowed only with forks removed or bucket attached and with the attachments specified in the road circulation documents.

053484 **MERLO S.p.A.** Industria Metalmeccanica

ATTENZIONE: IMPIANTO IN PRESSIONE
WARNING: PRESSURISED VESSEL
ATTENTION: SYSTEME SOUS PRESSION
ACHTUNG: SYSTEM STEHT UNTER DRUCK
ATENCIÓN: INSTALACIÓN BAJO PRESIÓN



- Non operare sugli accumulatori "A" presenti nel circuito idraulico. Rivolgersi al Servizio di Assistenza Tecnica.
- Do not operate on accumulators "A" present in the hydraulic circuit. Contact the Technical Assistance Service.
- Ne pas intervenir sur les accumulateurs "A" se trouvant dans le circuit hydraulique. S'adresser au Service d'Assistance Technique
- Keine Eingriffe auf den Akkumulatoren "A" im Hydraulikkreislauf vornehmen. Wenden Sie sich an den Technischen Kundendienst.
- No intervenir en los acumuladores "A" del circuito hidráulico. Ponerse en contacto con el Servicio de Asistencia Técnica.

MERLO S.p.A.
Industria Metalmeccanica
055364

BEAUFORT WIND SCALE

FORCE	DESCRITION	SPEED [m/sec]	OBSERVED EFFECTS
0	CALM	0 - 0,2	Smoke rises vertically
1	LIGHT AIR	0,3 - 1,5	Smoke drifts; leaves barely move
2	LIGHT BREEZE	1,6 - 3,3	Leaves rustle; wind can be felt
3	GENTLE BREEZE	3,4 - 5,4	Leaves and twigs move; debris and dust raised from ground
4	MODERATE BREEZE	5,5 - 7,9	Small branches move; debris and dust raised from ground
5	FRESH BREEZE	8 - 10,7	Small trees sway and large branches in motion; dust clouds raised
6	STRONG BREEZE	10,8 - 13,8	Large branches continuously move; wind whistles; difficulty using and umbrella
7	MODERATE GALE	13,9 - 17,1	Large trees sway; difficulty walking

MERLO S.p.A.
Industria Metalmeccanica
041635

LUBRICANTS

Application	ESSO	MOBIL	SHELL	Q8 OILS	Notes
Hydraulic system and hydrostatic transmission	HYDRO HVI 46 UNIVIS N46	DTE 15 M	TELLUS T 46	Q8 HANDEL-46	Viscosity at 40°C =46cst. Iso 3448 =46
Oil for gear box, differential, hub reduction	ESSO GEAR OIL GX 80W/90	MOBILUBE HD 80W-90	SPIRAX HD	Q8 T 55 80W-90	SAE 80W-90 MIL-L-2105C
Diesel engine oil	10W40				ACEA E3/E5/E7
Braking system oil	BRAKE FLUID SUPER	MOBIL BRAKE FLUID	BRAKE FLUID DOT 4	—	comply with FM VSS 116 DOT 4

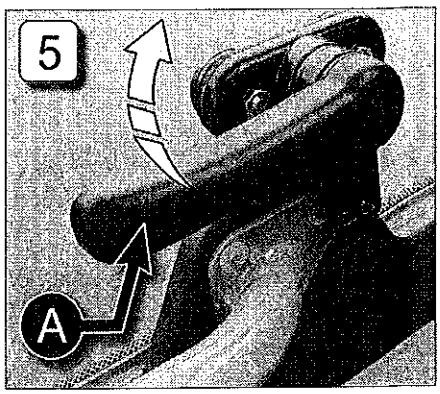
CAUTION !
DIFFERENT BRAND OIL CANNOT BE MIXED.
Oil transportation and trade must be subject to European and local laws in force. Customers are kindly requested to act for their supply following the mentioned rules. For check and replacement operations refer to the information in the instruction handbook.

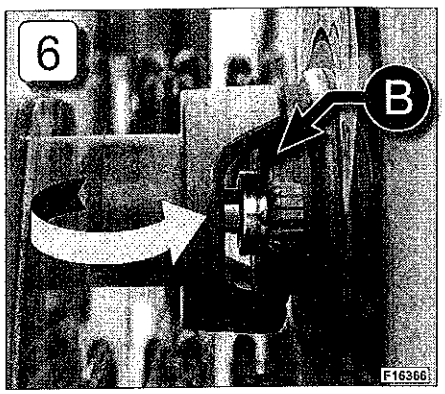
INDEX

• OPENING THE DOOR UPPER PART

To open the upper part of the door, proceed as follows:

- rotate handle "A" upwards (direction indicated by the arrow) (fig.5)
- completely open the upper part of the door and hook it to the appropriate external device "B" (fig.6)



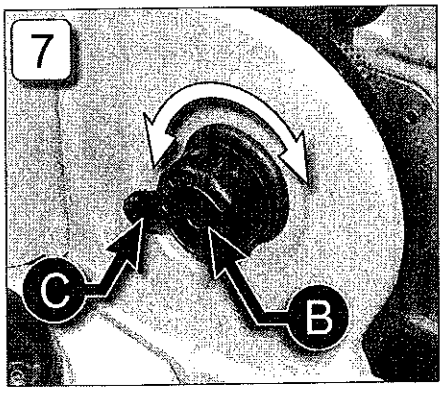


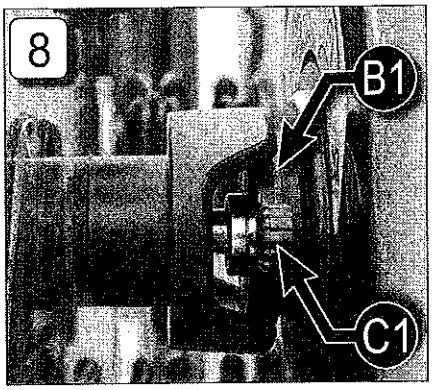
WARNING! Please remember that the lower part of the door must be closed both during transfers with the machine and when working.

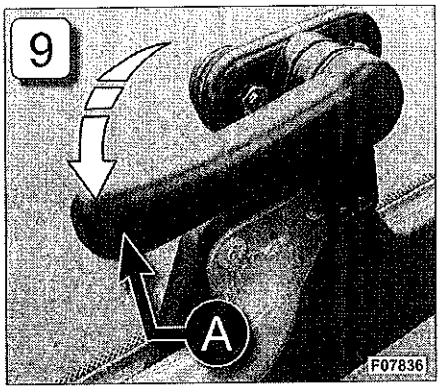
• CLOSING THE DOOR UPPER PART

To close the upper part of the door, proceed as follows:

- from the inside of the cab, release stop "B" by acting on its tongue "C" (fig.7)
- from the outside of the cab, release stop "B1" by acting on its tongue "C1" (fig.8)
- completely close the upper part of the door and lock it into position by rotating handle "A" downwards (in the direction shown by the arrow) (fig.9)







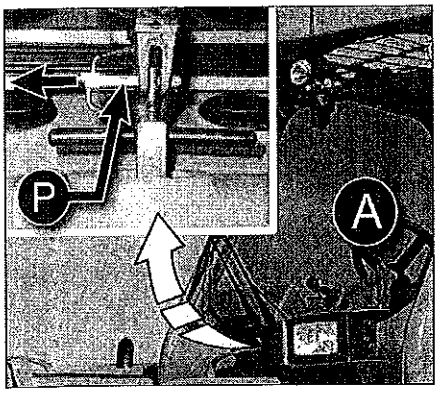
WARNING! Before starting operating with the machine, the operator must ensure that the upper part of the door cannot accidentally open.

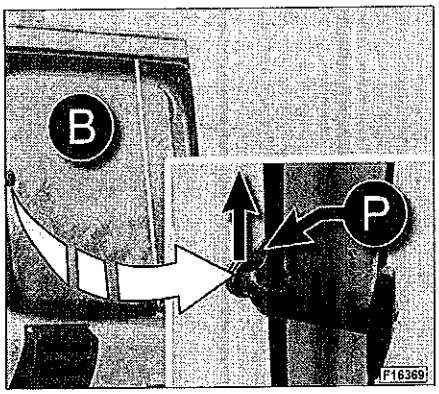
• EXIT FROM THE CAB IN CASE OF AN EMERGENCY

If it is not possible to leave the vehicle using the cab door, it is necessary to use the emergency exit:

FRONT WINDOW (A)

- Remove the fixing pivot "P" by pulling in direction indicated
- Fling the front window "A" open then go out of the cab very cautiously.



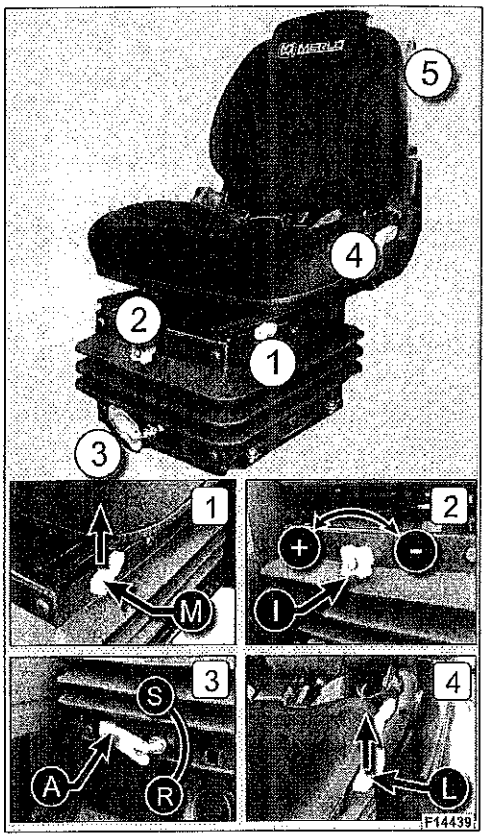


REAR WINDOW (B)

- Remove the fixing pivot "P" by pulling in direction indicated
- Fling the rear window "B" open then go out of the cab very cautiously.

STANDARD SEAT

The instructions for the proper use of the driver's seat, described in this paragraph, refer to the standard model mounted on your machine. If your machine is equipped with a seat different from the standard one, please refer to the relevant instructions in Chapter "OPTIONAL EXTRA".



SEAT SHIFT (1)
Lift lever "M", slide the seat forwards or backwards to obtain the required position and release the lever.

HEIGHT ADJUSTMENT (2)
Sit on the seat and use knob "I" to adjust to the required height; turn the knob to direction "+" to raise the seat or in direction "-" to lower it.

SUSPENSION ADJUSTMENT (3)
To adjust the seat suspension use handle "A" located at the front side of the seat frame. Sit on the seat and turn the handle until just the right degree of suspension is achieved for one's weight.
(direction "R" to tighten the suspension, direction "S" to slacken the suspension)

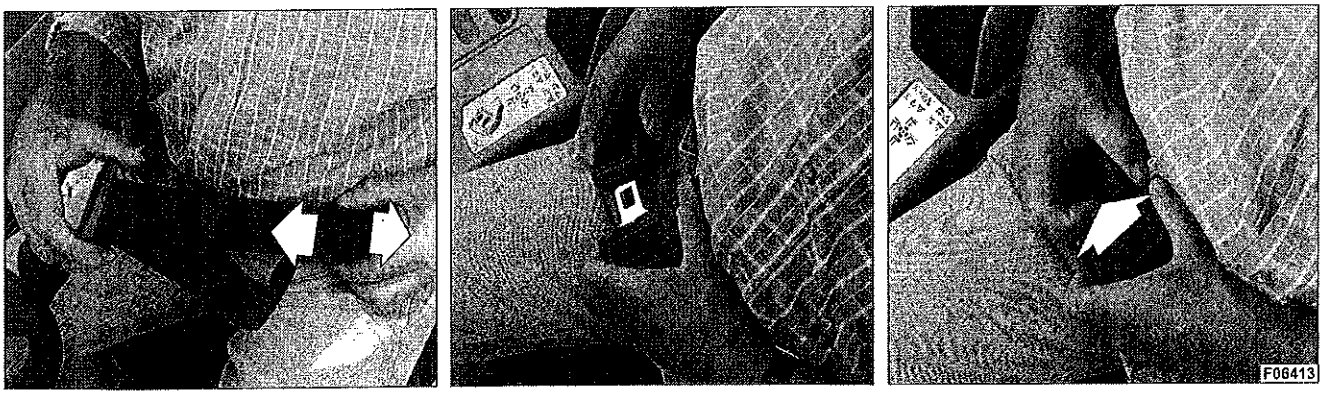
BACK ADJUSTMENT (4)
Sit with your back firmly against the seat back. Lift lever "L" upwards to position the back to the required angle.

DOCUMENT HOLDER POCKET (5)
Located behind the seat for holding the machine documentation and small objects.

WARNING! It is forbidden and it is extremely dangerous to adjust the driver's seat while the vehicle is moving. Position the driver's seat so that the driver can easily reach the vehicle controls. Always keep the "INSTRUCTION HANDBOOK FOR OPERATING AND MAINTENANCE" in the document holder pocket (5).

SAFETY BELT

Seat correctly in the driving seat and check that the safety belt is not kinked. Fasten correctly the safety belt as shown in the picture.



ADJUSTMENT **LOCKING** **RELEASE**

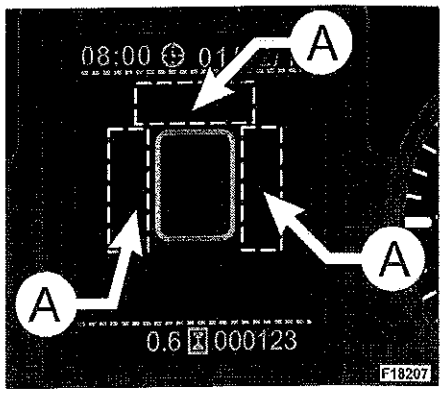
WARNING ! Before operating the machine always fasten the seat belt and close the lower part of the door whether machine is stationary or moving..
Adjust the safety belt so that it lays on your hips and not on your stomach.

REF.	DESCRIPTION
44	**Battery charging** With the engine running, the alternator cannot charge the battery correctly.
45	**Engine oil pressure** Insufficient oil pressure in the engine. This warning light illuminates above 1,000 rpm with low engine oil pressure. In this condition stop the engine immediately and fill up oil. Start the engine again, and see if the warning light switches off. If the problem persists, please contact the Merlo Technical Support Service.
46	**Brake oil level** Insufficient brake oil level. Stop your machine and search for the cause of the problem. Fill up specific oil.
47	**Engine air filter clogged** The engine air intake filter is clogged. Clean the filter. Replace it if necessary.
48	**Hydrostatic transmission oil level** Insufficient oil level in the hydrostatic transmission. Stop your machine and search for the cause of the problem. Fill up specific oil.
49	**Hydrostatic transmission oil temperature** High oil temperature in the hydrostatic transmission. Stop your machine and search for the cause of the problem.
50	**Low-beam headlights** Low-beam headlights on. Obey the highway code of the country you are driving in.
51	**High-beam headlights** High-beam headlights on. Obey the highway code of the country you are driving in.
52	**Blinkers** Blinkers are on in an intermittent mode.
53	**Glow plug pre-heat indicator** Preheating of spark plugs for cold engine start
54	**Front overturn prevention system** The front overturn prevention system is activated, and all controls are disabled.
55	**Crab steering** Crab steering is engaged; proceed with particular caution during transfers.
56	**Chassis side-shift** (not applicable to this model)
57	**Parking brake** When the drive direction selector is in a neutral position, the parking brake is applied. If this malfunction is shown even after the parking brake is released, this means that pressure in the system has dropped below the minimum allowable value (about 18 bar).
87	**Engine malfunction** (not applicable to this model)
88	**Differential locking device** The differential locking device (available as an option) is engaged.
93	**Engine coolant temperature** The engine coolant temperature is too high. Switch off the engine and let it cool down. Check the coolant level inside the expansion tank.
96	**Tail lights** Tail lights on. Obey the highway code of the country you are driving in.
103	**Rear PTO** (not applicable to this model)
108	**Fuel reserve indicator** Low fuel level in the tank. Fill up.
132	**Coolant level** Fill up the engine cooling system with the engine coolant prescribed by the engine manual.
133	**Water in the diesel oil** (not applicable to this model)
205	**Direction indicators failure for agricultural trailer** (available as an option)
206	**Break in the rope for telescopic boom extension** (not applicable to this model)
207	**Merlo Service reminder** (not applicable to this model)
208	**Malfunction of the hydraulic steering system** (not applicable to this model)

WARNING!

For further information on the dashboard light indicators, refer to chapter "OPERATING INSTRUCTIONS".

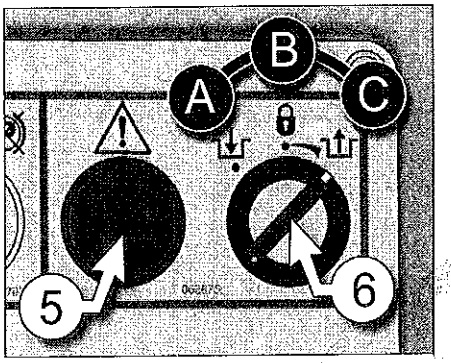
• malfunction display



Any malfunction detected in the machine is made known to the operator by switching on the corresponding control indicator in fields (A) of the LCD display (62).
For some of these malfunctions the corresponding warning lights in the upper part of the instrument panel switch on too. In such cases, please follow the instructions provided in the table in paragraph "WARNING LIGHTS ON THE INSTRUMENT PANEL".
The following table shows all possible malfunctions that can be displayed:

WARNING LIGHT	FAULT DESCRIPTION	SWITCH ON MODE	AUDIBLE ALARM
	Engine coolant level Function corresponding to warning light (132)	Flashing	Intermittent
	Engine coolant temperature Function corresponding to warning light (93)	Steady	No
	Hydrostatic transmission oil temperature Function corresponding to warning light (49)	Steady	No
	Hydrostatic transmission oil level Function corresponding to warning light (48)	Steady	No
	Brake oil level Function corresponding to warning light (46)	Steady	No
	Parking brake alarm With the engine running and the parking brake applied, the forward/reverse drive is selected.	Flashing	Intermittent
	Front overturn prevention system control Function corresponding to warning light (54)	Steady	No

CONTROL PANEL (P) DESCRIPTION



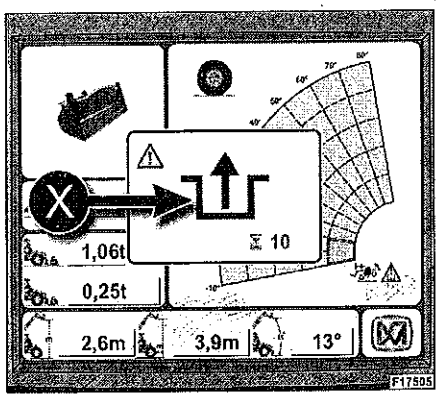
• WORKING MODE SELECTOR (6)

On delivery this key can be found in the Operators Manual wallet, in the back of the seat. It is important to understand its use, before using this key:

A) Movements enabled.
Personnel or material lifting. The machine can be used as a lifting device (installing the forks, the fly jib, etc.). The key must be removed.

B) Road travel.
All controls of the hydraulic circuit are disabled with the exception of the steering. This function should be used to prevent any accidental operation of controls during road travel.
When this operating mode is selected, the system switches off display (D) in the cab.

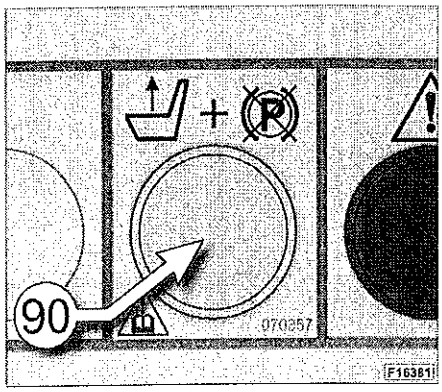
C) Emergency movements (control with a spring return to the "B" position)
The "C" position of selector (6) gives you all necessary movements to restore transportability conditions in case of failure of one of the safety devices.
In the time span when emergency movements are enabled warning light (209) on control panel "P1" switches on in a steady mode, red warning light (5) con control panel "P" switches on in an intermittent mode, while the audible alarm remains off.
The safety device bypass function can be enabled in any configuration or operating condition of your machine



NOTE! To enable the emergency controls on your machine you need to turn selector (6) to position 'C' and hold it in that position. Then you have 10 seconds to carry out all necessary manoeuvres to restore safe operating conditions. This function is shown on display (D) in the cab with information window 'X', containing the 'emergency movements' symbol and a timer with a count-down feature.

After these 10 seconds the system disables all emergency movements and automatically re-enables the overturn prevention system on your machine. To be allotted another 10 seconds you need to release selector (6) and then repeat the command.

• LOCK OUT OF THE HYDROSTATIC TRANSMISSION (90)



Should the operator decide to get off the cab while the engine is still running and the parking brake is not applied, the machine automatically enters a safe mode, and locks out the hydrostatic transmission.
In order to use the hydrostatic transmission again to move the machine forward/backward, the operator shall sit correctly in the driver's seat in the cab.
Should the operator decide to get off the cab while the diesel engine is still running and the drive direction selector (20) is in position "F" or "R", the selector (20) shall be shifted to neutral position "N" first and then in the desired direction to restore the normal operation of the hydrostatic transmission.
Should the operator forget to apply the parking brake before getting off the cab, a yellow intermittent light (90) will inform him/her of his/her oversight.

NOTE! For a safe and correct use of your machine, please note that before getting off the cab you need to:

- ***shift the drive direction selector (20) to neutral position "N"***
- ***apply the parking brake (37)***
- ***switch off the diesel engine of your machine***
- ***get off the cab and close the cab door.***

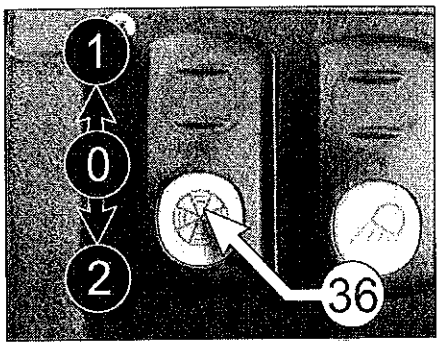
The automatic lockout of the hydrostatic transmission described in this paragraph is to be considered an exception to the rule.

CONTROL PANEL (P1) DESCRIPTION

• HEATER (35)

HEATER CONTROL KNOB (ITEM 35)

A = increase temperature
C = decrease temperature



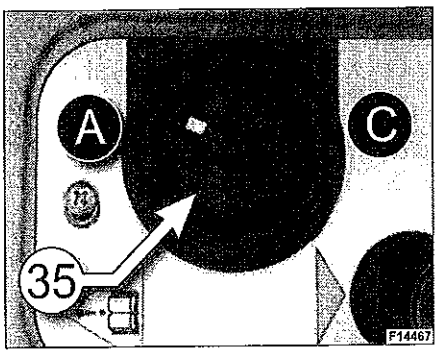
CAB HEATING FAN SWITCH (REF. 36)

The switch has three positions:

0 fan off
1 fan on, at speed 1
2 fan on, at speed 2

CAUTION!

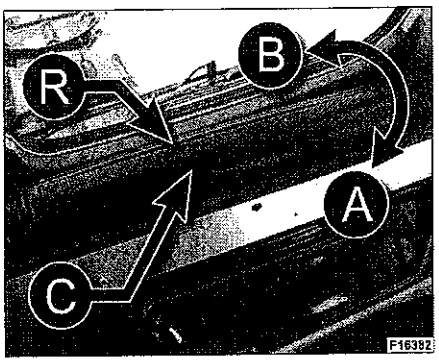
Never place any objects behind the seat which may obstruct the air inlet of the ventilation system.



SELECTION OF THE AIR SUCTION FROM INSIDE/OUTSIDE THE CAB

To select the air suction mode, operate on the relevant control reference "R", placed behind the seat, as follows:

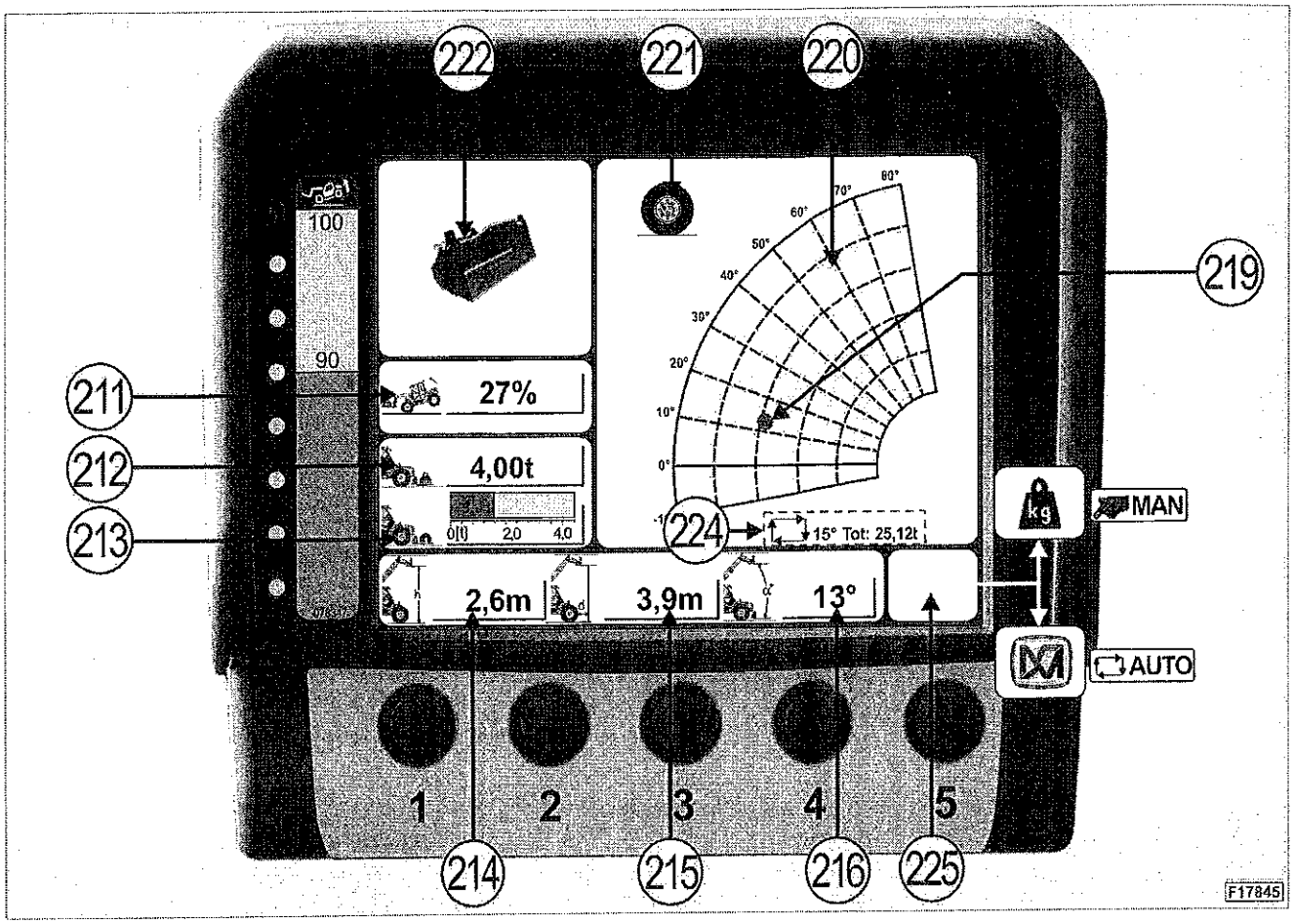
- lever in "A" position (suction grid "C" not visible): air suction from the outside of the cab
- lever in "B" position (suction grid "C" visible): air suction from the inside of the cab (recirculation)



WARNING!

Do not put any object that could obstruct the air inlet of the ventilation system "C" behind the seat.

The main screen shows the following information:

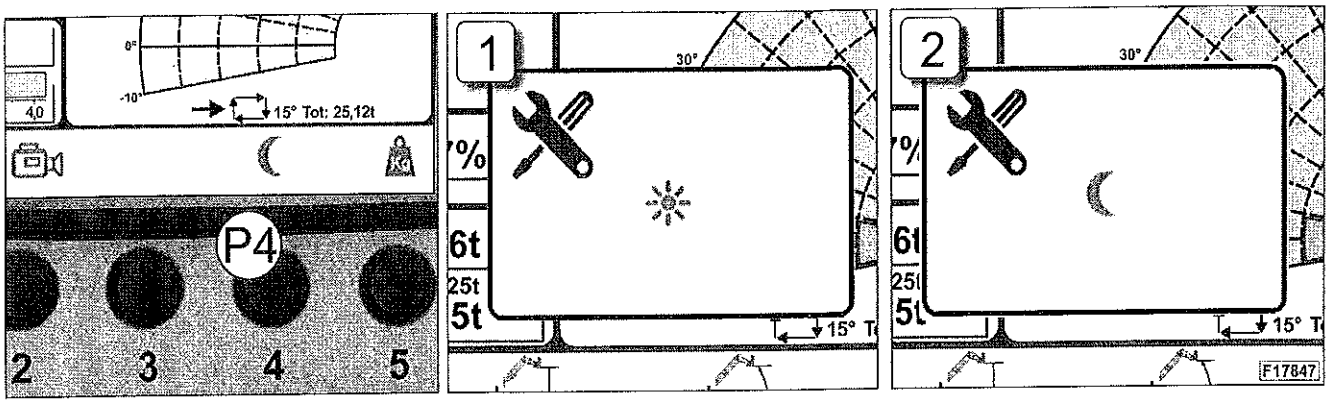


REF.	DESCRIPTION
211	Percentage longitudinal stability limit
212	Maximum liftable load in the spot where the telescopic boom is (this value depends on the attachment)
213	Bar graph indicating the load effectively lifted in relation to the equipment installed
214	Height of the load from the ground (expressed in metres)
215	Distance between the external limit of the tyres (or of stabilizers, if available) (expressed in metres)
216	Telescopic boom lift angle (expressed in degrees)
219	Coloured indicator (green, amber, red) showing the position of the load being lifted on the carriage
220	Dynamic load chart depending either on the attachment installed on the machine (automatic identification) or on the position of selector (204) (manual identification)
221	'Machine on tyres' indication
222	Image of the attachment installed on the machine and automatically identified by the system
224	Information on the weighing: operating mode, lift angle set by the operator, total weighing
225	In the MAN WEIGHING mode: manual weighing – In the AUTO WEIGHING mode: no command

• SELECTION OF THE DAYTIME/NIGHT MODE FOR DISPLAY ILLUMINATION (BUTTON P4)

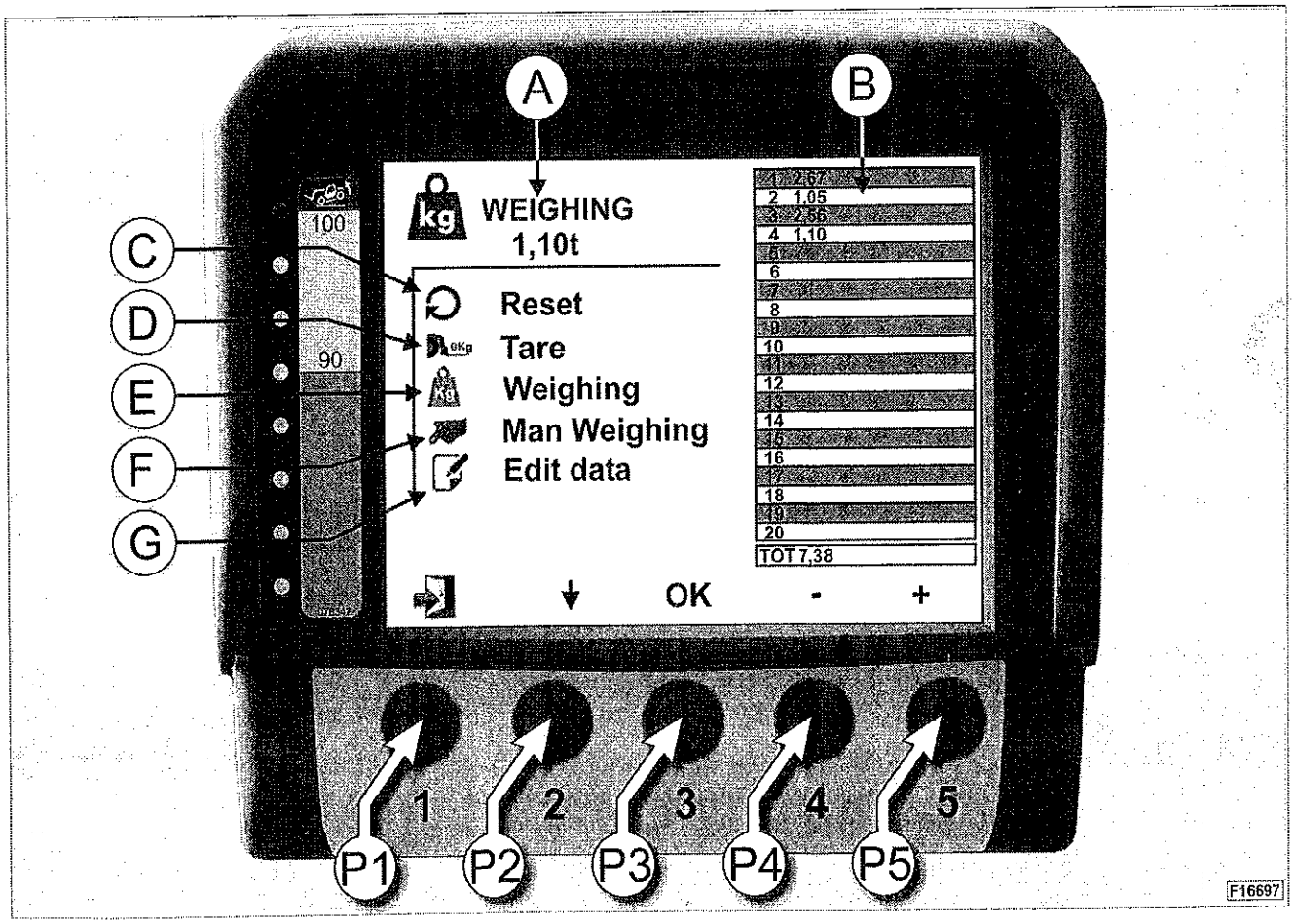
Carry out the following operations to select either the daytime or the night mode for the illumination of display (D):

- activate the menu bar
- press button (P4) to change over from the daytime mode to the night mode for the illumination of display (D) and vice versa. The system informs the operator about the selected mode by displaying either window '1' (daytime mode) or '2' (night mode) in the middle of display (D).



• WEIGHING SCREEN (BUTTON P5)

From the main screen, activate the menu bar, then press button (P5) to enter the weighing screen, where the following information is shown:



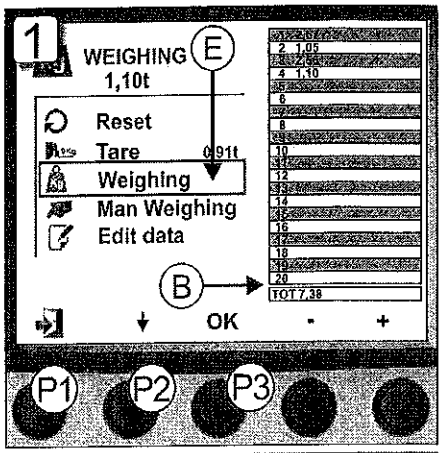
4) MANUAL WEIGHING (E)

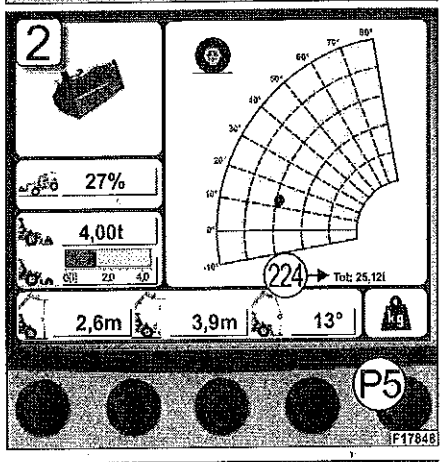
Use this control to manually weigh the load being lifted on the attachment. The data measured by the system are shown in table 'B', from cell number 1 to cell number 20. After 20 weighings all the values scroll up, and the next values are displayed at the bottom of the table. The total at the bottom of table 'B' is always the sum of all weighings, including the ones which are not displayed.

To carry out the manual weighing procedure you need to scroll the weighing screen with button (P2) until you select 'WEIGHING'. Then press (P3) to confirm. A tone confirms that the weighing procedure was successfully completed, and the system stores the value in table 'B'.
To know the sum total of all weighings please refer to the figure next to the 'TOT' inscription, which is shown in the bottom row of the table; this total increases up to a maximum of 9999.99 t. (Fig. 1)

Press button (P1) to go back to the main screen.

You can also carry out a manual weighing procedure from the main screen by pressing button (P5); a tone confirms that the weighing procedure was successfully completed, and the system stores the value. On the main screen you can also see the total of the weighings, whose value is shown under the load chart in field (224). The manual weighing procedure can be carried out from the main screen only if you have previously selected the 'MAN WEIGHING' item on the weighing screen. (Fig. 2)





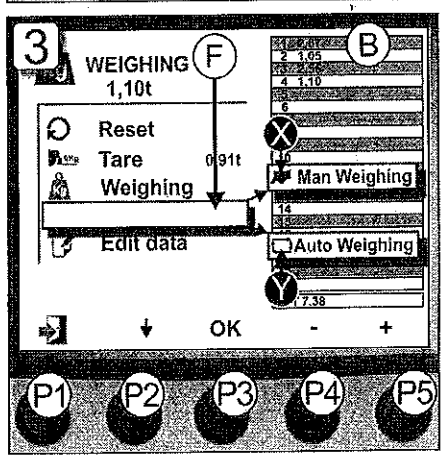
5) WEIGHING MODES (F)

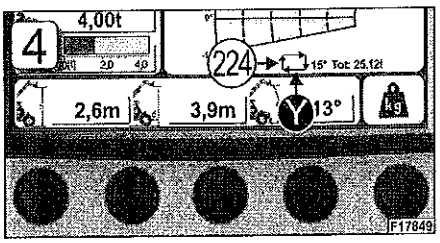
Use this control to set the weighing mode:

1) MANUAL
2) AUTOMATIC

Is the manual mode selected, symbol 'X' appears with the 'MAN WEIGHING' inscription next to it. Is the automatic mode selected, the 'Y' symbol appears with the 'AUTO WEIGHING' inscription next to it. For the manual weighing procedure please refer to the instructions provided in the previous step (MANUAL WEIGHING 'E'), while for the automatic weighing please refer to the following instructions.

Scroll the weighing screen with button (P2) until you select 'AUTO WEIGHING', then press button (P3) to confirm. Now you can set a boom lift angle beyond which the system automatically carries out a weighing. Such angle should be set using buttons P4 (decrease) and P5 (increase), and should range between 0° and 70°. Once these functions are set you need to press button (P1) and to go back to the MAIN SCREEN, because the automatic weighing does not work in the WEIGHING SCREEN (Fig. 3).





To confirm that the system was correctly set in the automatic mode, field (224) on the main screen shows the 'Y' symbol and the value you selected for the boom lift angle (in degrees).
In this way, whenever the telescopic boom is lifted beyond the angle you selected, the system carries out an automatic weighing (emitting the corresponding tone), and stores the value in table 'B'. The sum total of the weighings is always shown on the main screen, under the load chart and next to the 'TOT' inscription (Fig. 4).

In order to have a new automatic weighing available you need to lower the telescopic boom until it is 5° below the value you set for the lift angle; if not, when you raise the telescopic boom again, the system will not carry out any automatic weighing.

• SELF-IDENTIFICATION OF AN ATTACHMENT (selector (204) in the AUTO position)

When an attachment equipped with a self-identification sensor is installed on the carriage, you need to shift selector (204) to the "AUTO" position; in this case the system automatically determines the appropriate working chart for the machine/attachment combination, thus calculating the correct stability index, the maximum load capacity and the safe working area. Then the icon of the identified attachment (a bucket in this case) appears in field (222) (Fig. 3).

When an attachment equipped with a self-identification sensor is installed on the carriage but selector (204) is not shifted to the "AUTO" position, the following activates:

- red indicator of the LED graphic bar (210)
- red indicator (219) showing the position of the load on the dynamic load chart
- warning light (54) on instrument panel (C)
- audible alarm in the cab

In this case the system locks machine controls immediately and window "X" appears in the middle of display (D) prompting you to turn selector (204) to the "AUTO" position (Fig. 4).

WARNING!

The attachment self-identification system is disabled if operating mode selector (6) is in the "B" position (road travel). In this case you need to turn selector (6) to the "A" position (movements enabled).

If the self-identification system works correctly but there is no graphic representation of the attachment installed on the carriage, the machine signals it by showing the corresponding symbol in field (222) of display (D) in the cab (Fig. 5).

For a better comprehension of both the self-identification system and the manual selection of attachments a table is provided, listing all graphic representations shown in field (222) of display (D), together with their description.

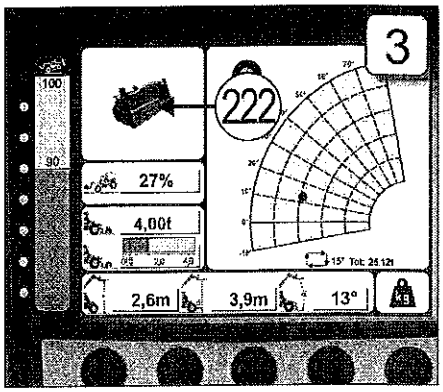
• MANUAL SELECTION OF AN ATTACHMENT (selector (204) in the 0.5/0.6 or 1.5 or 4 position)

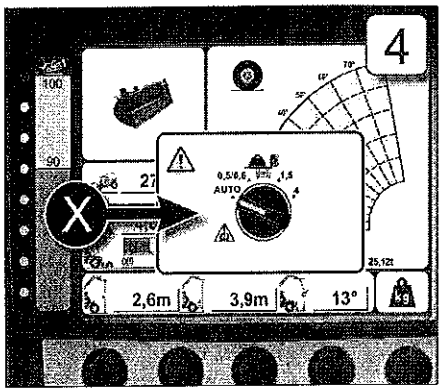
When either an attachment not equipped with a self-identification sensor is installed on the carriage or an error/malfunctioning occurs in the system, you need to manually select the category the attachment belongs to by operating selector (204) as follows (Fig. 6):

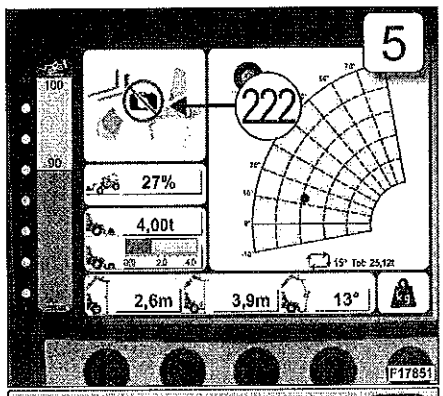
- turn selector (204) to the "A" position (0.5/0.6) when attachments are installed whose centre of gravity is between 0.5 and 0.6 metres ahead of the carriage
- turn selector (204) to the "B" position (1.5) when attachments are installed whose centre of gravity is within 1.5 metres ahead of the carriage
- turn selector (204) to the "C" position (4) when attachments are installed whose centre of gravity is within 4 metres ahead of the carriage

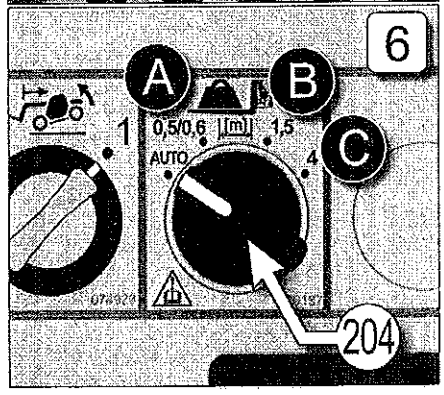
In this way the machine gets ready to be used with the selected attachment based on attachment category, determining the work chart and calculating the correct stability index, the maximum load capacity and the safe working area. Field (222) shows the graphic representation of the position of selector (204) (Fig. 7)

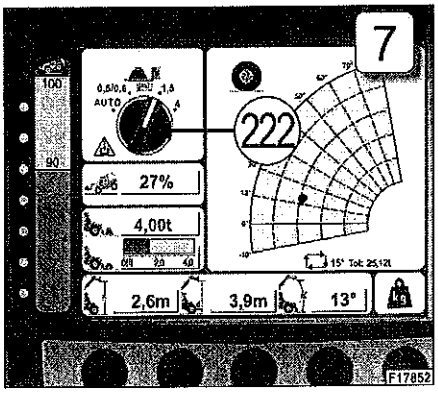
If the selector (204) is turned to the AUTO position and an attachment not equipped with a self-identification sensor is installed on the carriage, or an error/malfunctioning occurs in the system, the system automatically activates the work chart corresponding to the "C" position (centre of gravity of the load placed 4 metres ahead of the carriage).

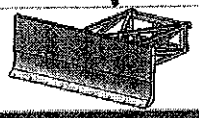
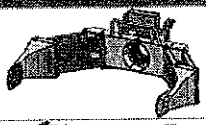
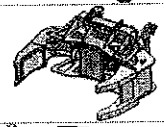
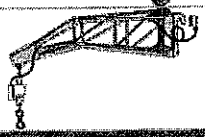
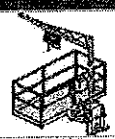
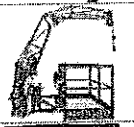
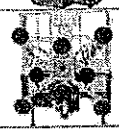
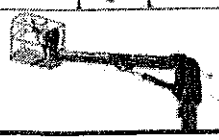




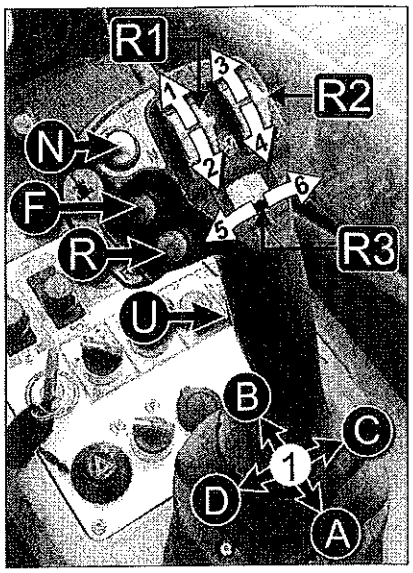


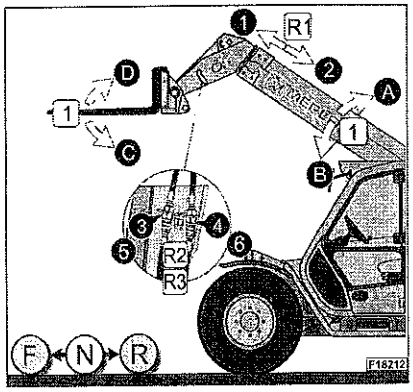




	The LOOSE MATERIAL BUCKET / REHANDLING BUCKET / DIGGING BUCKET attachment, installed on the machine, was correctly identified by the system.
	The CARRIAGE-MOUNTED WINCH attachment installed on the machine was correctly identified by the system.
	The PUSHING BLADE attachment installed on the machine was correctly identified by the system.
Attachments whose centre of load gravity is 1.5 metres from the machine carriage (position "B" of selector 204)	
	The WHEEL MANIPULATOR attachment installed on the machine was correctly identified by the system.
	The CONCRETE MIXING BUCKET attachment installed on the machine was correctly identified by the system.
	The ROUND-BALE HANDLER attachment installed on the machine was correctly identified by the system.
	The FRONT CLAMPS attachment installed on the machine was correctly identified by the system.
	The REDUCED-HEIGHT CRANE ARM / TELESCOPIC CRANE ARM attachment, installed on the machine, was correctly identified by the system.
	The FLY JIB / FLY JIB WITH WINCH attachment, installed on the machine, was correctly identified by the system.
Attachments whose centre of load gravity is 4 metres from the machine carriage (position "C" of selector 204)	
	The MINI TOWER JIB attachment installed on the machine was correctly identified by the system.
	The TUNNEL RIB HANDLER attachment installed on the machine was correctly identified by the system.
Attachments that cannot be used with the dynamic load control system in the event of malfunctioning, faults or absence of the self-recognition sensor	
	The SLEWING HOIST attachment installed on the machine was correctly identified by the system.
	The COUNTER-CARRIAGE MOUNTED HOIST attachment installed on the machine was correctly identified by the system.
	The FIXED PLATFORM / TRILATERAL PLATFORM / TRILATERAL EXTENSIBLE PLATFORM attachment, installed on the machine, was correctly identified by the system.
	The PANEL HANDLING PLATFORM attachment installed on the machine was correctly identified by the system.
	The SPACE 11 attachment installed on the machine was correctly identified by the system.

TELESCOPIC BOOM CONTROL JOYSTICK AND SELECTION OF THE DRIVE DIRECTION (1)





Your machine is equipped with a single-lever joystick (1) that allows you to control the 4 main movements of the telescopic boom, to select the drive direction (forward/reverse) of the machine and activate the second equipment hydraulic function.The controls provided on the joystick are:

• RAISING / LOWERING OF THE TELESCOPIC BOOM
(move the joystick forwards or backwards)

A = raising of the telescopic boom
B = lowering of the telescopic boom

• UPWARD / DOWNWARD ROTATION OF THE FORKS
(move the joystick to the left or right)

C = downward tilt of the forks
D = upward tilt of the forks

• EXTENSION / RETRACTION OF THE TELESCOPIC BOOM
(use thumb wheel R1)

1 = extension of the telescopic boom
2 = retraction of the telescopic boom

• OPERATION OF ATTACHMENTS FITTED ON THE CARRIAGE (AUX 1)
(use thumb wheel R2)

3 = uncoupling/control of attachment
4 = control of attachment

• OPERATION OF ATTACHMENTS FITTED ON THE CARRIAGE (AUX 2)
(use thumb wheel R3)

5 = control of attachment
6 = control of attachment

• SELECTION OF FOWARD / REVERSE DRIVE
(use buttons F, R, N)

- TELESCOPIC BOOM CONTROLS

The speed at which the movement is performed is proportional to:

- the tilt angle of the joystick (the further the joystick is moved, the faster the movement)
- the rotation of thumb wheels "R1", and "R2" (the further the wheel is rotated, the faster the movement)
- the rotation speed of the diesel engine (the higher the engine rpm, the faster the movement).

The movement stops automatically when the joystick or the respective thumb wheel is released. The possibility of combining the movements depends on the load conditions.
- SELECTION OF THE DRIVE DIRECTION (FORWARD / NEUTRAL / REVERSE)

The joystick (1) mounts buttons for selection of the drive direction (forward / neutral /reverse).

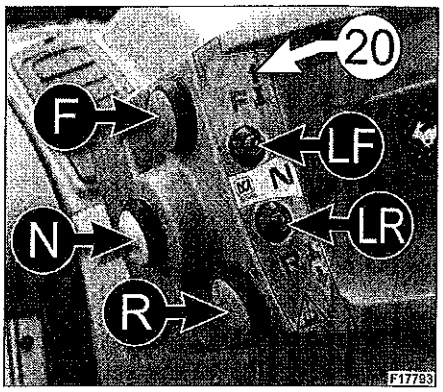
• Button F: forward drive selection
When forward drive is selected, the indicator light (LF) located next to the steering column is steadily illuminated.

• Button N: neutral selection
When neutral is selected, both indicator lights (LF and LR) are extinguished. The machine does not move when the accelerator is pressed.

• Button R: reverse drive selection
When reverse drive is selected, the indicator light (LR) located next to the steering column is steadily illuminated.

The (F,N,R) buttons on the joystick have the same identical functions as the (F,N,R) buttons located on the forward/revers drive selector next to the steering column and both may be used (for example, you can select forward drive by pressing the "F" button on the joystick and subsequently press the "N" button on the forward/reverse drive selector (20) to select neutral, and so on...).
Fore further information on the safe operation of this control, please refer to the instructions in the paragraph "FORWARD/ REVERSE DRIVE SELECTOR (20)" in this chapter.

FORWARD / REVERSE DRIVE SELECTOR (20)



The drive direction (forward/reverse) of the machine can be selected in two ways:

1) by pressing the buttons (F,N,R) located on the joystick (1) (see paragraph "TELESCOPIC BOOM AND DRIVE DIRECTION CONTROL JOYSTICK" in this chapter)

2) by pressing the buttons (F,N,R) on the drive selector (20) located next to the steering column

The (F,N,R) buttons located on the forward/reverse drive selector have the same identical functions as the (F,N,R) buttons on the joystick (1) and both may be used to select the drive direction (for example, you can select forward drive by pressing the "F" button on the joystick (1) and subsequently press the "N" button on the forward reverse drive selector (20) to select neutral, and so on...).

The operation of the (F,N,R) buttons located on the forward/reverse drive selector (20) next to the steering column is as follows:

- Button F: forward drive selection
  When forward drive is selected, the indicator light (LF) located next to the steering column is steadily illuminated.

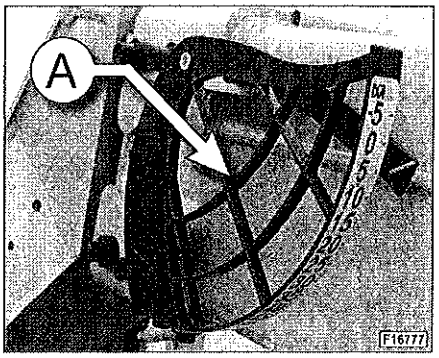
- Button N: neutral selection
  When neutral is selected, both indicator lights (LF and LR) are extinguished. The machine does not move when the accelerator is pressed.

- Button R: reverse drive selection
  When reverse drive is selected, the indicator light (LR) located next to the steering column is steadily illuminated.

CAUTION! It is only possible to change the drive direction when the machine is travelling in first gear (slow travel). Do not change the drive direction when the machine is in second gear (fast travel).

When reverse drive is selected, the reverse alarm system will be activated automatically and an intermittent audible warning signal will sound.

ANGLE INDICATOR ON THE TELESCOPIC BOOM



Indicator "A" measures the telescopic boom vertical inclination. This value is useful to find the position of the transported load on the related load chart.

STEERING MODE (29)

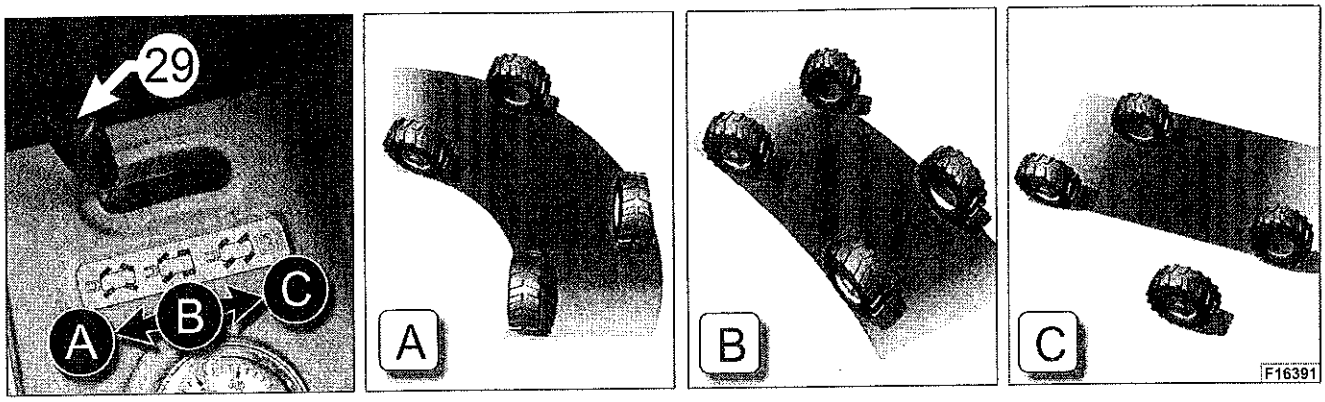
The machine is fitted with a system which allows the operator to select one of three steering modes:

A) Steering with corrected turn angle
Use this mode to obtain a narrower steering angle.

B) Front axle steering
Use this mode when executing transfers on public roads.

C) Crab steering
Use this mode to move the machine laterally without losing the longitudinal alignment.

The desired steering mode must be selected while the machine is standing still, with all wheels aligned to the chassis. In order to correct a misalignement between the front wheels and the rear wheels, bring the steering wheel to its end stop on one side for a few seconds, then repeat on the other side.



WARNING! Such correction can only be carried out when in "corrected turn angle" or "crab" mode, even if the misalignment occurred while using the front axle steering mode.

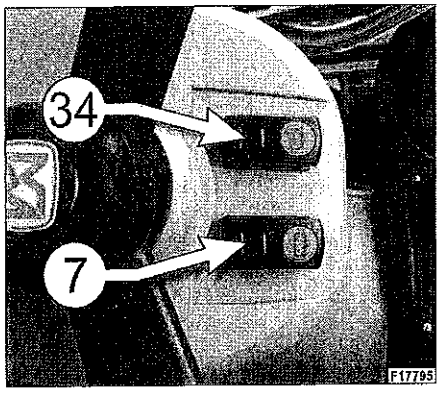
WINDSCREEN WIPERS AND WINDSHIELD WASHER (34), (7)

FRONT WINDSCREEN WIPER & WASHER SWITCH (34)

Two-positions switch: the first tripping operates the front windscreen wiper, the second operates the front and the rear windshield washer.

REAR WINDSCREEN WIPER (7)

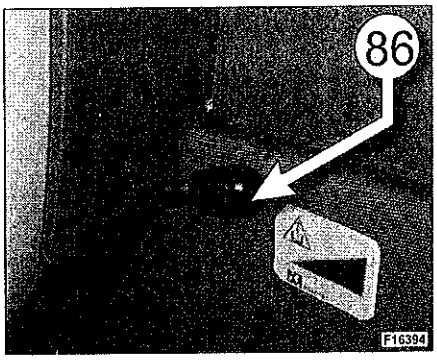
Press button (7) to engage the rear windscreen wiper.



HAND ACCELERATOR (86)

This lever (86) permits the manual regulation of the diesel engine rpm.
By operating the pedal it is however always possible to reach the maximum rpm; on pedal release the engine returns to the set rpm.

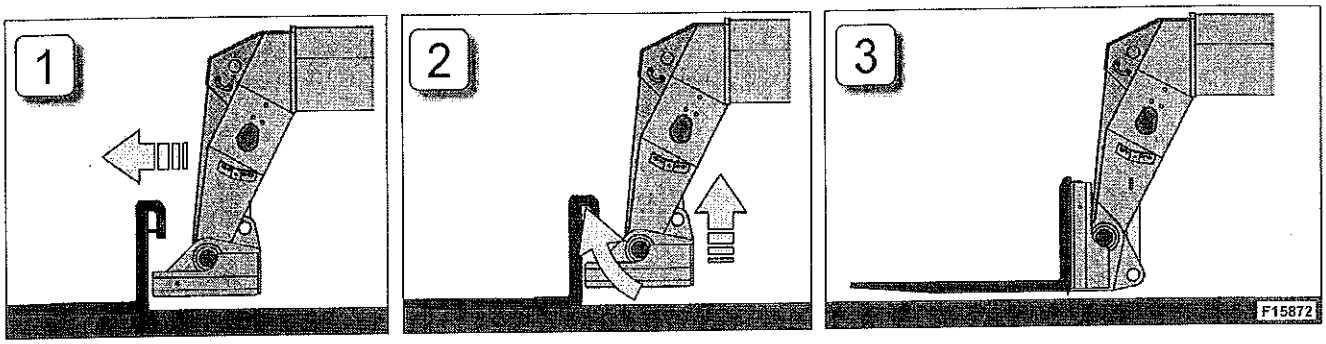
WARNING!
The use of this control is prohibited when driving on the road.



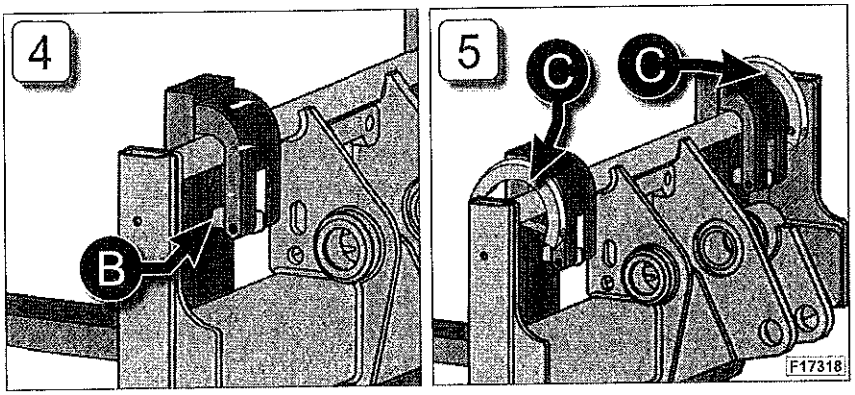
INDEX

• INSTRUCTIONS FOR INSTALLING STANDARD FORKS

- place the forks on compact, level ground
- shift the drive direction selector to the neutral position ("N") and apply the parking brake
- rotate the carriage downwards, so as to bring it parallel to the ground
- extend the telescopic boom, so as to draw near the fork couplings (Fig.1)
- raise the telescopic boom, while at the same time rotating the carriage upwards, until the forks are correctly coupled. During this operation, the carriage automatically lifts safety pin "B" of the forks (Fig. 2 and 3).

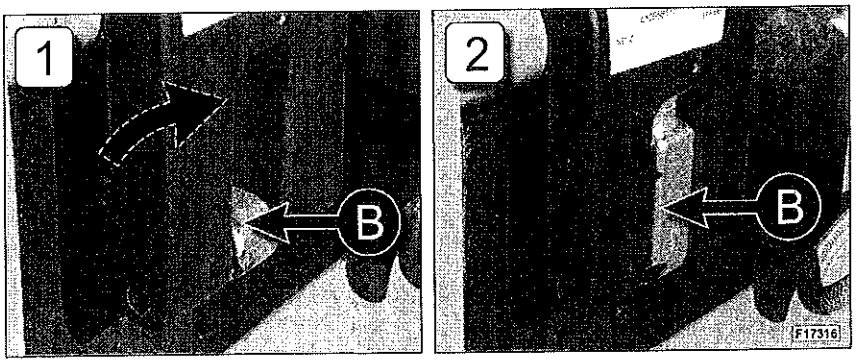


- check that safety pin "B" engages correctly, and goes back to a horizontal position once the forks are coupled; this prevents the forks from accidentally uncoupling. Never use the forks if pin "B" is not back to its safe position (Fig. 4).
- insert locking brackets "C" so as to prevent the forks from sliding sideways (Fig. 5).



REMOVAL OF STANDARD FORKS

Proceed as follows to remove the standard forks from the carriage correctly and safely:



- these operations should be carried out by a single operator
- always use the personal protection devices described in paragraph 'SAFETY AND ACCIDENT PREVENTION REGULATIONS', chapter 'INTRODUCTION'
- lower the forks to the ground, and check that they are correctly resting on a flat, compact surface
- climb off the driver's cab
- lift pin 'B' from its safe position (Fig. 1) to a released position (Fig. 2), and check that it is kept in a lifted position
- climb into the cab again and carry out the fork removal operations with extreme caution. Perform the operations described in paragraph 'STANDARD FORK INSTALLATION' in reversed order.

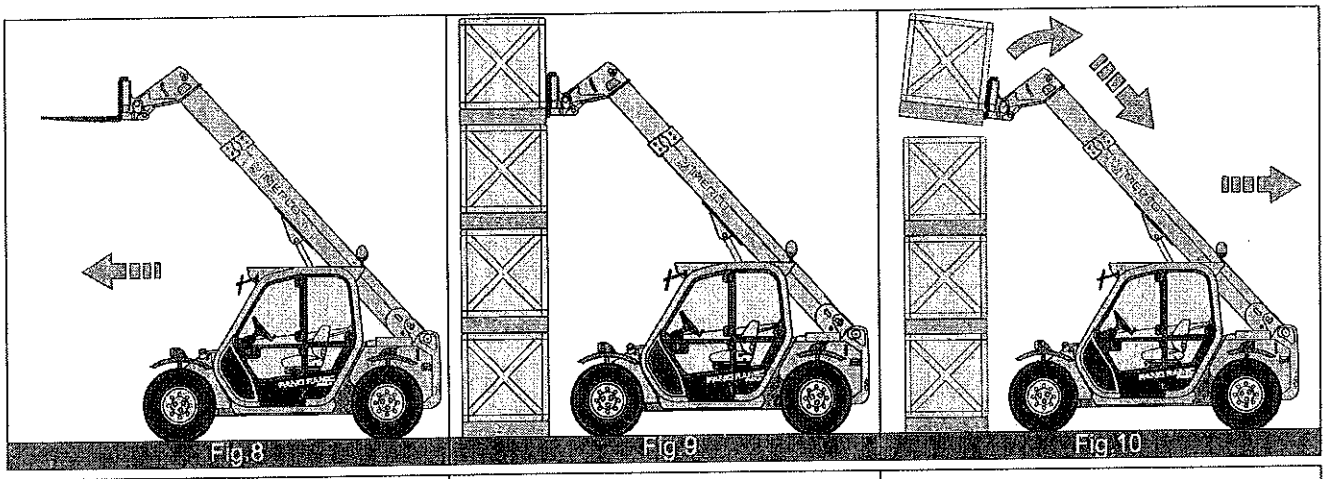
WARNING!

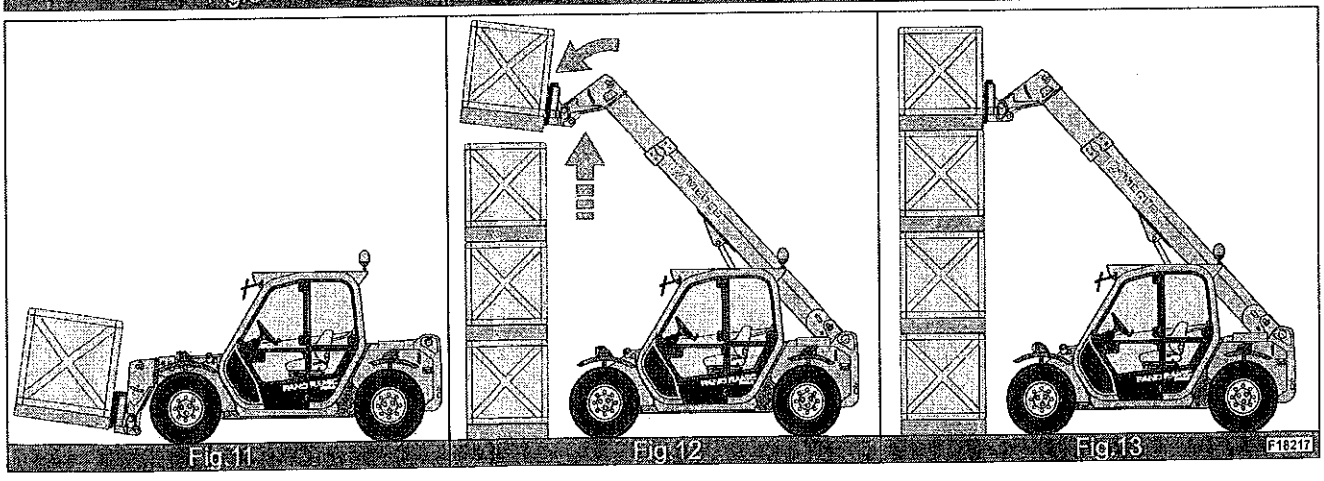
Manoeuvring loads suspended on cables, chains, slings or other is prohibited if the machine is not equipped with the Merlo attachment specific to such a use (hook on forks, hook on carriage, crane boom, fly jib etc...)

When using compatible and homolgated Merlo attachments always refer to the relevant load chart present in the holder provided in the cab.

If operations with the platform must be carried out near overhead electricity cables, the person in charge must ask whoever manages the cables and the area's health and safety authorities for the minimum safety distance from the cables, so that all necessary precautions for avoiding accident risks can be taken.

- bring the forks into a horizontal position and approach the load with care, lifting and extending the telescopic boom the minimum possible or, if necessary, slowly advancing the machine (Fig.8)
- position the forks under the load taking care that they insert easily (Fig.9)
- shift the direction control (20) into position "N"
- lift the load a few centimeters and tilt the carriage upwards (Fig.10)
- if possible, slowly and carefully reverse the machine then lower and retract the telescopic boom to bring the load into the transportation position (Fig.11)
- bring the machine, in the transport position, into the area where the load is to be placed
- lift and extend the telescopic boom until the load is above the stack; if necessary advance the machine with care. (Fig.12)
- shift the direction control (20) into position "N"
- bring the forks into a horizontal position and correctly place the load on top of the stack, lowering and retracting the telescopic boom (Fig.13). Reverse the machine in order to retract the forks

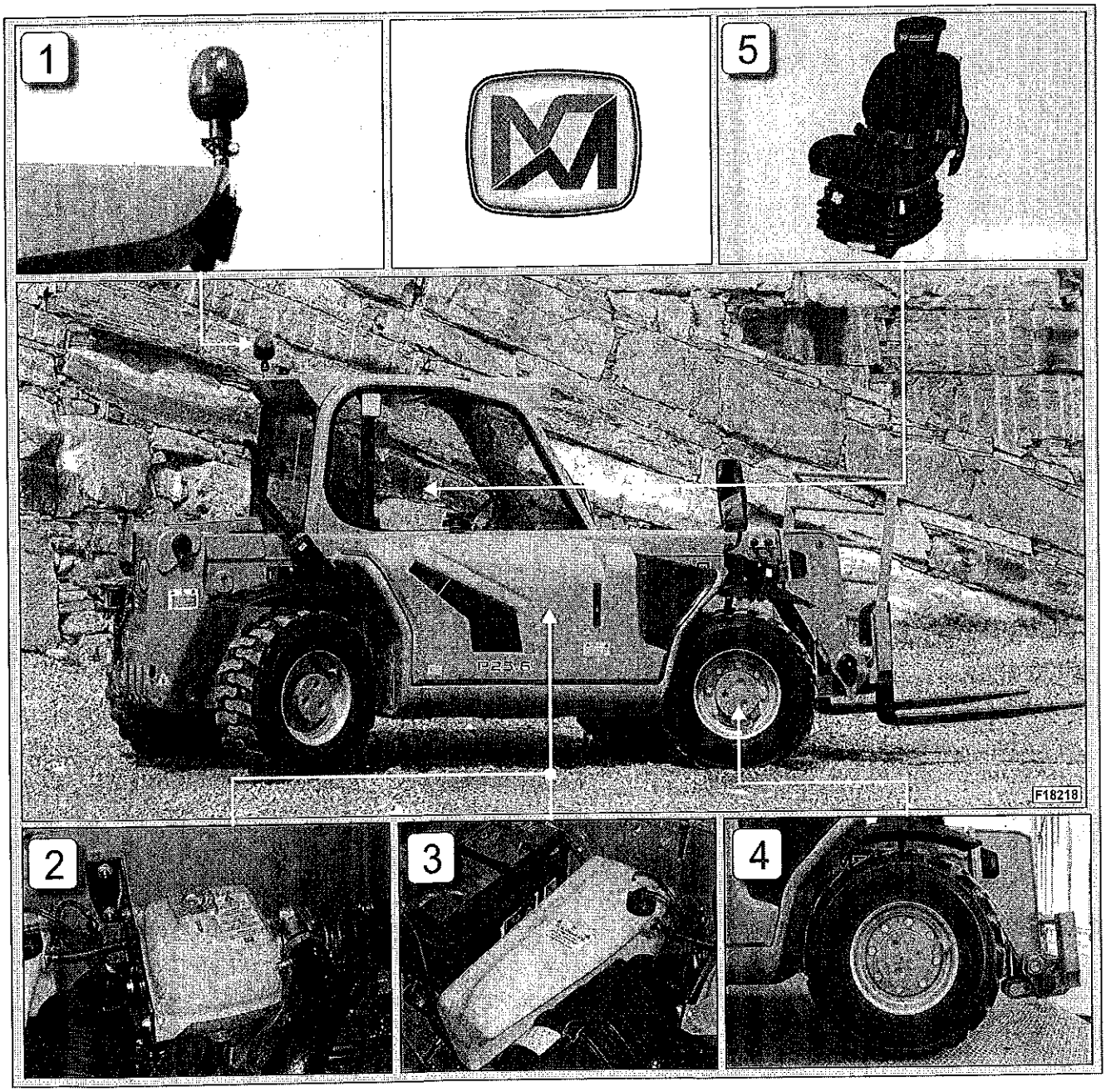




• GENERAL CHECKS BEFORE STARTING THE ENGINE

Carry out the following checks every day (before using the vehicle):

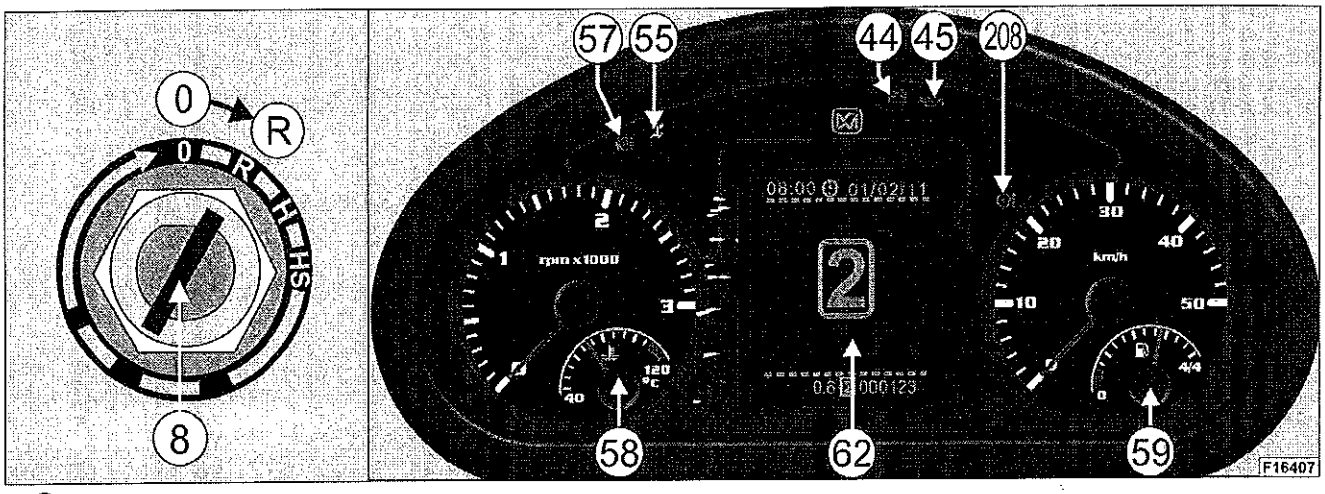
- keep all machine parts in due order and clean.
- inspect the exterior of the machine at the end to check that no screws or bolts are loose or missing and that there are no leakages of hydraulic oil
- roof rotating flashing beacon (figure 1)
- water level in the radiator (figure 2)
- hydrostatic transmission oil level (figure 3)
- tyre pressure and condition (figure 4)
- presence, function and good condition of the safety belt (figure 5)
- regulate the seat to ensure that all the driver controls can be conveniently reached.
- regulate the rear view mirrors to ensure good visibility from the driver's seat.
- check the correct opening and closure of the upper part of the driver's cab door.



• TURNING ON THE INSTRUMENT PANEL

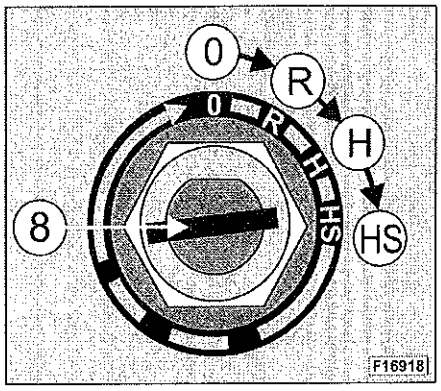
Per accendere il quadro di comando della macchina ruotare la chiave d'avviamento (8) in posizione "R".
All the warning lights and indicators on the instrument panel illuminate for a short time (GENERAL CHECK function), then all but the following switch off:

44 - battery charge warning light
45 - engine oil pressure warning light
55 - crab steering warning light
57 - parking brake warning light
58 - engine coolant thermometer
59 - fuel level indicator
62 - LCD display
208 - steering system pressure warning light



WARNING ! Should the indicators fail to function as indicated, immediately switch off the engine. If the crab steering warning light (55) is lit, use the appropriate lever to reset normal conditions.

• ENGINE START



Before starting the engine, check that:

- parking brake (37) is applied
- drive direction control (20) is in neutral position "N".

Then turn engine start key (8) as follows:

- turn engine start key (8) to position "R" to turn on the instrument panel
- turn engine start key (8) to position "HS" to start the diesel engine; when the engine is running, release key (8), which automatically turns to position "R" again.

At temperatures of under -5°C (23 °F), it necessary to use the thermo-starter to start up the engine:

- position the key to "R" position
- turn the key in position "H" (indicator (53) will light up) and hold it in this position for approx. 15 seconds.
- Return the key to position "HS" and start the engine

IMPORTANT! Should the engine fail to start after 20 seconds, release engine start key (8). Wait 2 minutes before trying to start the engine again, so as to let the starter cool down.

With the engine running, check that:

- all the warning lights on the instrument panel but the parking brake warning light (57) switch off
- both the engine rpm indicator (61) and the hour counter/odometer (62) start working

INSTRUCTIONS FOR DRIVING YOUR MACHINE ON THE ROAD

WARNING! Observe the laws in force.

The circulation on public road of the machine is allowed only in compliance and fittings reported in the road circulation documents. Lock the working tools with the special locking devices and install any prescribed protective devices.

The transport of loads on public roads is strictly forbidden.

You are reminded that the circulation of the machine on public roads with forks mounted is forbidden.

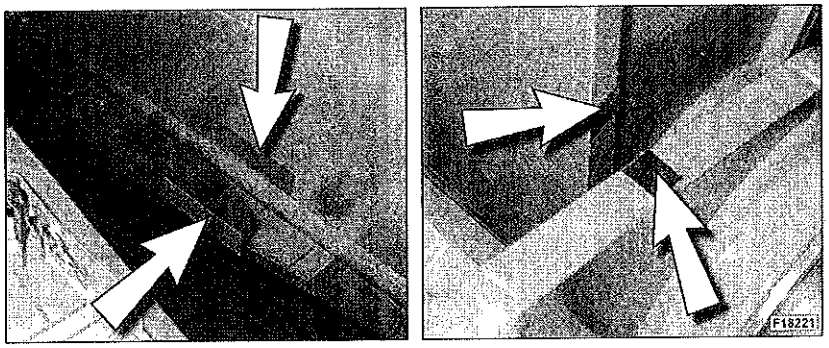
Before driving your machine on the road you need to:

- make sure that the tyres are inflated to the correct pressure (as shown on the sticker applied on the rim), and that they are in perfect condition for use
- make sure that all visual and acoustic alarms are clean, in working order, and in perfect condition for use
- make sure that all the windows and the rear-view mirrors of your machine are clean, and that the latter ones are correctly adjusted
- make sure that the flashlight on the roof is correctly installed and in working order
- make sure that the fuel tank is full enough
- align the wheels with the chassis and select front-axle steering
- fully retract the telescopic boom, then lower it until the red stripe applied on the cab window (to the operator's right) is aligned with the red stripe applied on the telescopic boom
- make sure that the tool-holder carriage is perpendicular to the ground: the carriage is in the correct position if the red stripe on the carriage is aligned with the one on the boom head (see corresponding paragraph)
- turn operating mode selector key (6) to position "B" (the controls of the hydraulic system are disabled)
- switch on the rotary flashlight, and make sure it works by daylight too
- switch on the low-beam headlights (if this is prescribed by the local highway code)
- close the cab door

• BOOM POSITIONING FOR ROAD CIRCULATION

For road circulation you have to completely retract the telescopic boom, then lower it till the red line and the ref. point on the chassis (A) are aligned.

Check also that the carriage is perpendicular to the ground: the correct position is given by the alignment between the two red lines (B) on the carriage and on the boom head.

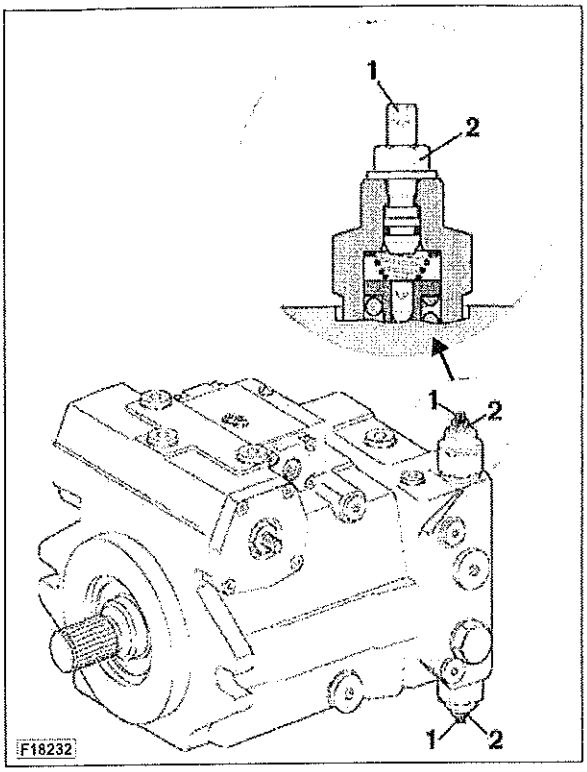


• GRADEABILITY

Gradeability and pick and carry information is shown in the load charts of your machine, and depend on work conditions and on the type of attachment installed.
Constantly monitor machine operating slope with the 2 spirit levels available in the driver's cab. Use precision level 'Y' for slight slopes (<5°), and main level 'X' for steep slopes (>5°). For further information on the spirit levels installed in the driver's cab please refer to paragraph 'LATERAL AND LONGITUDINAL SLOPE INDICATORS'.

Once you have identified the pressure relief valve you need to bypass, proceed as follows:

- loosen check nut "2" (with a 13 mm wrench) which locks in place the dowel of the pressure relief valve you need to bypass (depending on the direction in which you need to tow your machine).
- while holding the check nut steady, screw dowel "1" clockwise (with a 4 mm Allen wrench) until the force required for screwing increases significantly (contact between the dowel end and the valve slider); once this condition is met, keep on screwing clockwise by another 1.5 turns (bypass opening is actuated).
- tighten check nut "2" by rotating it clockwise with a torque of 22 Nm (Fig. 3)



CAUTION! While towing your machine, always keep speed below 2 kph and move your machine just enough to leave the danger area. In any case, never tow your machine for longer than 100 metres.

Towing your machine either at a higher speed or for a longer distance may overheat the hydrostatic motor, with a consequent damage to pistons.

While towing your machine, the components described in this paragraph may overheat. Always wear protective clothing!

When you finish towing your machine, disable the bypass function by carrying out the operations described above in reversed order:

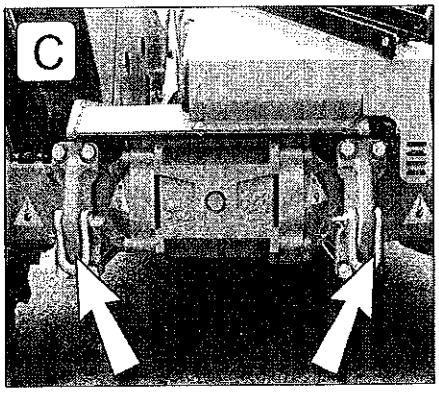
- loosen check nut "2" (with a 13 mm wrench)
- unscrew dowel "1" completely (with a 4 mm Allen wrench), by rotating it counter-clockwise up to the end of its thread
- tighten check nut "2" by rotating it clockwise with a torque of 22 Nm

NOTE! When you restart the engine after towing your machine, first drain the hydrostatic transmission system as described in paragraph "EVERY 1500 HOURS - HYDROSTATIC TRANSMISSION OIL", chapter "ROUTINE MAINTENANCE".

• HOW TO ANCHOR YOUR MACHINE

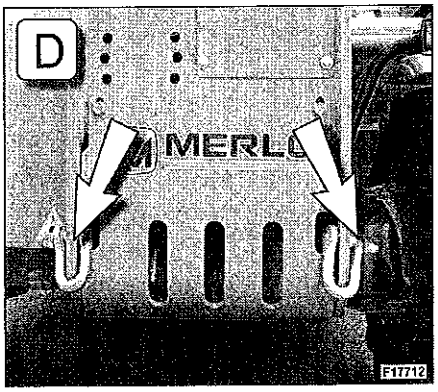
Use the anchoring points shown below to anchor your machine (e.g. to lock it in place on a trailer for transport):

C) front anchoring points
D) rear anchoring points



PREPARING YOUR MACHINE FOR BEING ANCHORED

- install proper shackles in each of the indicated points
- tie either ropes or chains to the shackles, and check that they don't come into contact with machine surfaces



• LIFTING THE MACHINE

- Disassemble the vehicle attachments
- Assemble suitable clevis in each of the shown points
- Lower and completely retrieve the vehicle boom
- Clamp the ropes to the previously assembled clevis.

The vehicle total weight is written on the identification label outside the cab. Keep in mind that each clevis and its rope must have a min. lift capacity more than 2/3 of the vehicle total weight. The attachments must be lifted separately from the vehicle and following the instructions of the pertaining chapter in this handbook or in the enclosed booklets.

WARNING ! Check that ropes, clevis and lifting devices are in good condition and that their lift capacity is sufficient for the weight to be handled.

VISIBILITY

The truck is fitted with visibility aids which the operator must avail himself/herself of in order to safely operate the truck and the handling of loads. Such visibility aids are:

- left-side rear-view mirror
- right-side rear-view mirror


Left-side rear-view mirror

Right-side rear-view mirror

MAIN SAFETY RULES AND WARNINGS

Before operating the truck carefully check the working area to ensure the absence of people or obstructions in the operating range of the truck. Before operating the truck check that all visibility aids are present and in good condition. If the visibility aids are damaged or incomplete remove the machine from use and inform the management.

IMPORTANT! In no circumstances operate the truck with any visibility aids missing or damaged.

In case any of the visibility aids have become misaligned (e.g. as a result of a collision or other incident), follow the procedures described in the "VISIBILITY AIDS MAINTENANCE" to check and, if necessary, realign the devices.
When operating the truck, continually monitor the working area to make sure that no personnel enter the working zone.

IMPORTANT! Always sit in the correct driving position to operate the truck.

To sit correctly in the driving position ensures sufficient direct visibility to safely operate the truck and to avoid contacts with personnel or obstructions. If a suspended load or the resulting boom geometry creates a substantial blockage, consider alternative carrying means (e.g. palletised load).

WARNING! The operator is advised against using the truck with the boom raised at an angle so as to have the upper face of the forks at a height of 1000mm ± 50 mm from the ground with the boom fully retracted because it creates substantial masking of the operator's visibility to the right side of the truck.

Use the telescopic boom facility of the truck for loading or unloading instead of moving the truck with the boom in this position.
If it's necessary to work with the boom raised at an angle so as to have the upper face of the forks at a height of 1000mm ± 50 mm from the ground with the boom fully retracted:

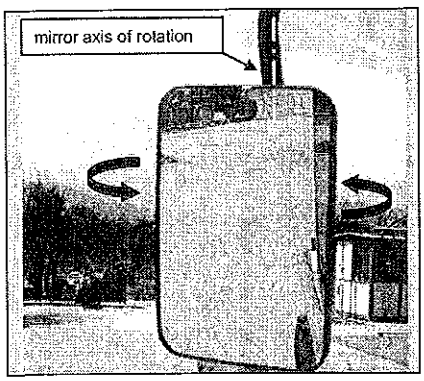
- before operating the truck be sure that no personnel are in the working zone. If possible, mark-off the working area using cones or other barriers to exclude personnel and vehicles from it;
- operate with extreme caution.

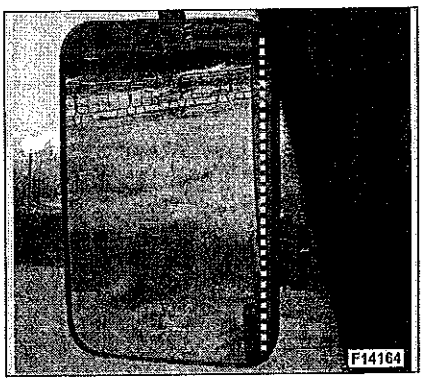
Check - and if necessary realign - the visibility aids periodically as described and scheduled in the "VISIBILITY AIDS MAINTENANCE" section.

IMPORTANT! Modifications of the truck may affect the operator's visibility.

VISIBILITY AIDS POSITIONING

Before operating the truck for the first time, or following a long downtime period, perform the visibility aids positioning procedures as described in the following sections.
To correctly adjust the mirrors position, a second person (the "adjuster") will be required to make the adjustments, following the instructions received by the operator in the cab.
All procedures should be performed with the engine off and the boom fully retracted and lowered.





SUSPENDED LOADS

WARNING! When handling a suspended load with the boom raised at an angle so as to have the upper face of the forks at a height of about 2200mm ± 50 mm from the ground, the rear part of the truck and the boom position may reduce visibility to the rear and right-side of the truck.

In this case, travel slowly and refer to the right-side rear-view mirror to ensure visibility to the right-side of the truck. If the suspended load or the resulting boom geometry creates a substantial blockage, consider alternative carrying means (e.g. palletised load).

WARNING! When handling a suspended load with the boom raised at an angle so as to have the upper face of the forks at a height of about 2200mm ± 50 mm from the ground, the boom position and the rear part of the truck may reduce long-range visibility to the front right-side of the truck.

In this case, travel slowly and pay particular attention to the front right-side when steering to the right.

REVERSE TRAVEL CONDITION

WARNING! When travelling in reverse, the rear part of the truck partially masks visibility to the rear.

In this case, travel slowly and carefully monitor by direct visibility the rear of the truck paying particular attention to the rear right-side of the truck assisted by the right-side rear-view mirrors if necessary.

TRAILER LOADING OR UNLOADING

WARNING! When using the truck with the boom raised at an angle so as to have the upper face of the forks at a height of about 1000mm ± 50 mm from the ground with the boom fully retracted, the boom creates substantial masking of the operator's visibility to the right side of the truck.

It is advised against moving the truck with the boom in this position. Use the telescopic boom facility of the truck for loading or unloading.

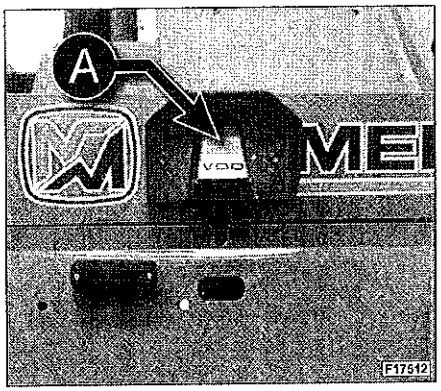
REARVIEW CAMERA

Your machine is equipped with a rearview camera 'A' to make backup manoeuvres easier. It can be switched on in 2 different ways:

1) manually: press button 'P2' on display (D) in the driver's cab until the channel connected to the rearview camera is switched on.
2) automatically: turn drive direction selector (20) to the 'R' position. The rearview camera automatically switches on.

The rearview camera can be switched off:

1) manually: press button 'P1' on display (D) in the driver's cab .
2) automatically: turn drive direction selector (20) to either the 'N' or the 'F' position.



INDEX

- if you need to carry out maintenance operations underneath the machine, use either a pit or an auto lift having proper features. For the total weight of the machine please refer to the identification plate applied on the outside of the cab.
- if you need to raise the telescopic boom to carry out maintenance operations, equip the working area with external supports which can support the telescopic boom and prevent it from being lowered accidentally. For this purpose connect a sling to a suitable hoisting device having a minimum load capacity of 2,000 kg. (4,400 lb)
- if you need to lift the machine from the ground to carry out maintenance operations, use a suitable lifting device which complies with safety rules; the coupling points on the machine are shown by a yellow triangular sticker.
- before carrying out any maintenance operations on either a tire or a rim, deflate the tire completely.
- while inflating tires, never stand in front of the tire sidewall; place yourself sideways.
- never make welds on the rim if the wheel is still mounted on the machine, since this may lead to either an explosion or a fire.
- avoid any prolonged, repeated contact between your skin and fuels, lubricants or other fluids, since this may cause skin disorders or other syndromes.
- never ingest fuels, lubricants, or other fluids.
- during filter cleaning or replacement, make sure that the room is properly ventilated, in order to prevent toxic fumes from accumulating.
- never make welds in enclosed rooms which are not properly ventilated.
- never make welds on painted surfaces. Remove the paint with suitable products first, then wash the surfaces and let them dry.
- be careful when removing caps from tanks, radiators, or cylinders: turn them cautiously to relieve any residual pressure.
- stay out of the way during draining operations, and always wear protection goggles. Slowly unscrew the draining screw by a few turns to let either the condensate or the fluid come out.
- relieve pressure from circuits before carrying out maintenance operations.
- never try to identify leaks of pressurized fluids with your bare hands.

MECHANICAL RETAINER FOR THE LIFT CYLINDER

If you need to carry out maintenance work on your machine with the boom raised, first you have to apply mechanical retainer 'A' supplied with your machine.
When in its home position, this retainer is placed on the front left mudguard.

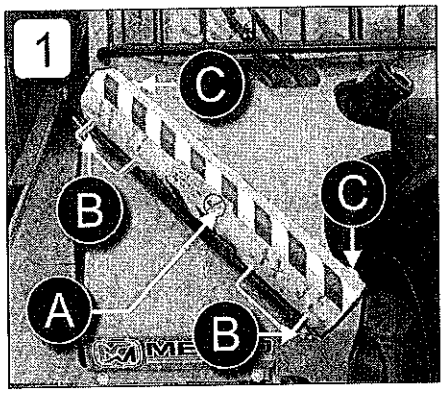
To remove the mechanical retainer from its home position carry out the following operations (picture 1)

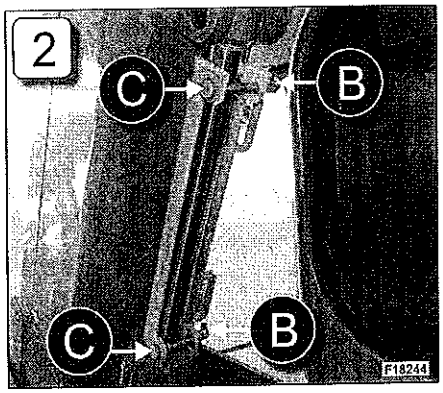
- remove split pins 'B'
- remove pins 'C'
- pick up mechanical retainer 'A' from its handles

To apply the mechanical retainer on the lift cylinder, follow the instructions below:

- fully raise the telescopic boom of your machine
- place mechanical retainer 'A' around the lift cylinder, as shown in picture 2
- insert fastening pins 'C'
- insert split pins 'B'

After completing all maintenance operations, put the mechanical retainer back to its home position by carrying out the operations above in reversed order.





FUEL AND LUBRICANTS

Please follow these descriptions in order to know type of fuel, oils and greases to be used on your machine.

• DIESEL FUEL

For further details consult the manual of the relative engine.

- FUEL STORAGE

Carefully observe the following rules to correctly store the fuel:

- Store the diesel fuel in clean containers, away from direct sunlight and in a protected area.
- Before refuelling the machine, eliminate any dirt, water or sediment in the deposit tanks, as these may obstruct filters, the injection pump or injectors. This is particularly needed if diesel is stored for a long period of time.
- Do not use antifreeze to extract water from diesel
- Do not rely only on the pre-filter found on the machine to completely eliminate water from the diesel fuel.

MECHANICAL GROUPS OIL					
	ESSO	MOBIL	SHELL	Q8 OILS	SPECIFICATIONS
DIFFERENTIALS REDUCTION HUB	ESSO GEAR OIL GX 80W/90	MOBILUBE HD 80W-90	SPIRAX HD	Q8 T 55 80W-90	SAE 80W-90 MIL-L-2105C

• OILS CHART - for use of the machine in Arctic temperatures (-15°C, + 30°C) (4°F, 86°F)

For different brands of oil, ensure that they have characteristics equal to the above ESSO products.
Should you wish to change the product brand, the system must be flushed clean of the original fill product.
In case of use of oils of different characteristics, any clain will be automatically refused.

ENGINE OIL	
ENGINE	Refer to the relative engine handbook.
COOLANT	COLOR: RED -50%- TEMPERATURE UP TO -38°C

HYDRALUIC CIRCUIT OIL		
HYDRAULIC HYDROSTATIC TRANSMISSION	ESSO UNIVIS N32	Hydraulic oil with viscosity at 40°C = 34,9 c St
		High viscosity index ISO 3448 = 32

BRAKING CIRCUIT OIL					
	ESSO	MOBIL	SHELL	Q8 OILS	SPECIFICATIONS
BRAKING CIRCUIT	BRAKE FLUID SUPER	MOBIL BRAKE FLUID	BRAKE FLUID DOT 4	_____	In conformity FM VSS 116 DOT 4

MECHANICAL GROUPS OIL					
	ESSO	MOBIL	SHELL	Q8 OILS	SPECIFICATIONS
DIFFERENTIALS REDUCTION HUB	ESSO GEAR OIL GX 80W/90	MOBILUBE HD 80W-90	SPIRAX HD	Q8 T 55 80W-90	SAE 80W-90 MIL-L-2105C

• GREASES CHART - for use of the machine in normal temperatures (0°C, + 40°C) (32°F, 100°F)

APPLICATIONS	PRODUCT	NOTES
Pivot pins, greased joints Boom sliding pads (Internal) Plunger for quick uncoupling of attachments	SPECIAL GREASE ROLOIL TIV SPECIAL-MERLO	
Boom sliding pads (external)	SPECIAL GREASE ROLOIL ULTRAGREASE SPECIAL-MERLO	
Service brake caliper piston seals	PBR Rubber grease (Repco brake group)	Vegetal

IMPORTANT! "ROLOIL SPECIAL-MERLO" greases have been designed and manufactured especially for Merlo machines. Therefore, to ensure maximum reliability and efficiency of your machine, always use these products only, which shall be ordered from Merlo Technical Support Service.

• GREASES CHART - for use of the machine in Arctic temperatures (-15°C, + 30°C) (4°F, 86°F)

APPLICATIONS	PRODUCT	NOTES
Pivot pins and greased joints	ESSO type CAZAR K2	Calcium, Penetration A.S.T.M.: 280 mm/10

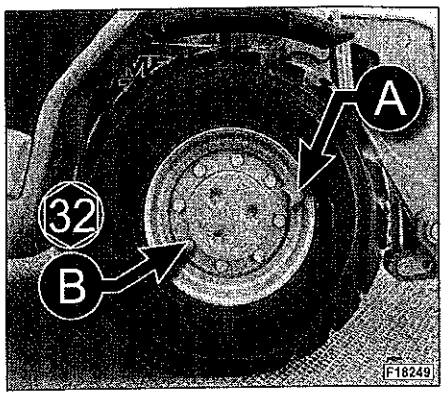
For different brands of grease ensure they have properties equal to and are compatible with the above products.

TYRES AND WHEEL COLUMNS

Check the tyre pressure with a a pressure gauge and, if needed, inflate them through valve "A".

The correct tyre inflation pressure is indicated on the sticker on the inside of the wheel rim.

Check the correct tightening of the "B" wheel columns. If needed, tighten the columns to a torque of 28 Kgm (280 Nm).



• SCHEDULED MAINTENANCE AFTER THE FIRST 50 HOURS

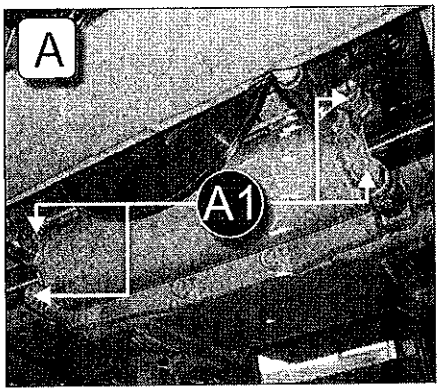
NUTS AND BOLTS OF THE STEERING COMPONENTS

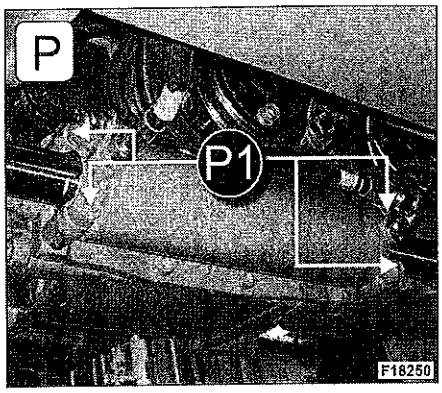
FRONT BRIDGE (A)

Tighten to torque 30 kgm (220 lbft / 295 Nm) screws "A1" fastening the jack to the bridge (4 screws).

REAR BRIDGE (P)

Tighten to torque screws "P1" fastening the jack to the bridge (4 screws).

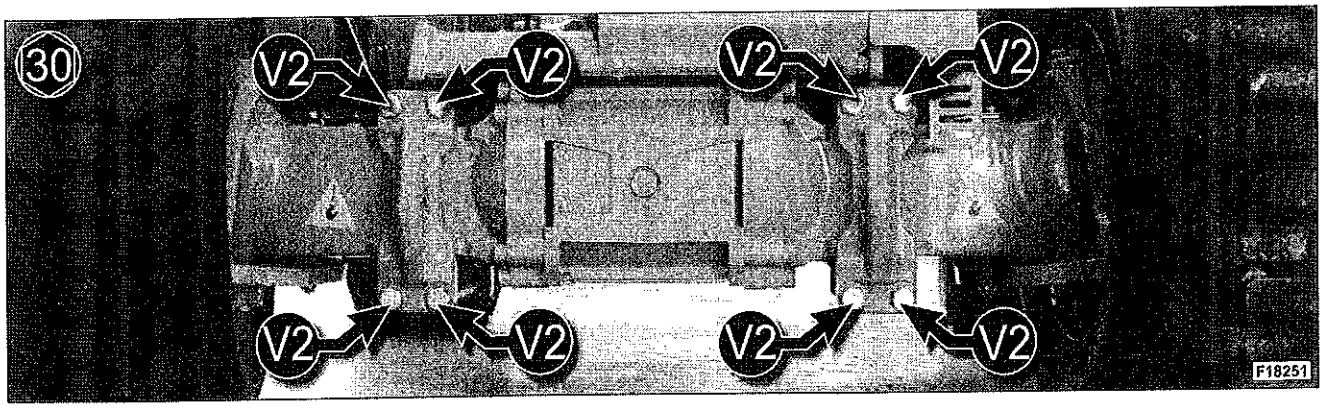




NUTS AND BOLTS FASTENING THE BRIDGES TO THE FRAME

FRONT BRIDGE (A)

Tighten to a torque of 45 Kgm (440 Nm) (325 lbft) the 8 "V2" screws which fasten the front bridge to the frame.

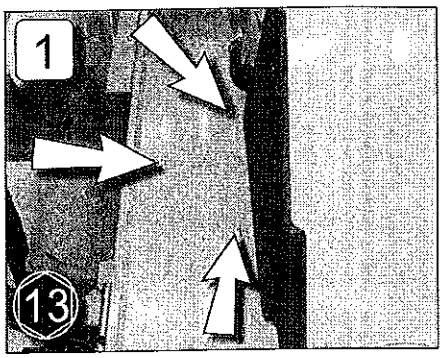


COVERS

Before carrying out some routine maintenance operations on your machine, you are required to either remove or open the following covers:

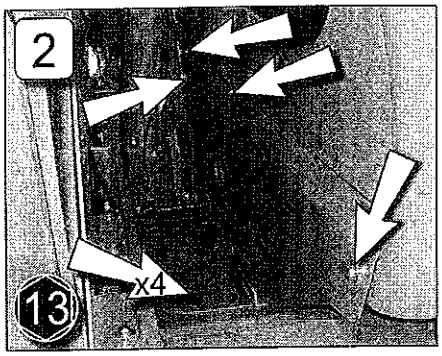
- COVER 1

Inside COVER 1, which is placed next to the fuel tank, there are some components of the front differential, of the front Cardan joint, and of the braking system. To remove COVER 1, use a proper spanner to unscrew the 3 screws shown in the picture.



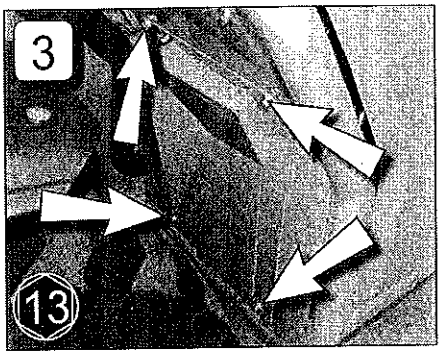
- COVER 2

Inside COVER 2, which is placed on the side of the driver's cab (towards the middle of the machine), there are the hoses and fittings of the hydraulic system. To remove COVER 2, use a proper spanner to unscrew the 8 screws shown in the picture.



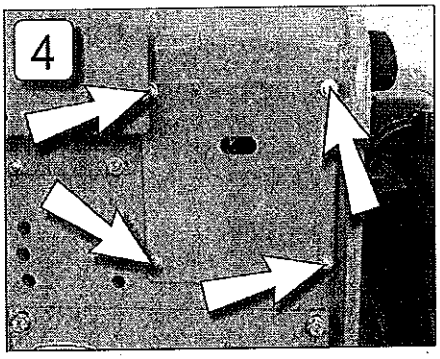
- COVER 3

Inside COVER 3, which is placed in the rear right mudguard of the machine, there are some components of the hydrostatic pump. To remove COVER 3, use a proper spanner to unscrew the 4 screws shown in the picture.



- COVER 4

Inside COVER 4, which is placed in the rear part of the machine, there are the components of the telescopic boom (sliding pads, extension cylinder lock valve, etc.). To remove COVER 4, use a proper spanner to unscrew the 4 screws shown in the picture.



- COVER 5

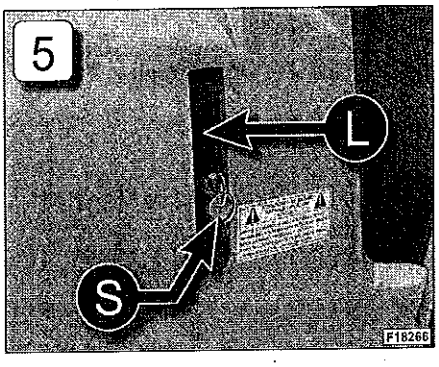
Inside COVER 5 (engine bonnet) there is the diesel engine of the machine, with all its components (filters, cups, radiator, battery, intake pipes, pumps, etc.). Proceed as follows to open COVER 5:

- use key "S" supplied to unlock the engine bonnet
- pull lever "L" towards yourself
- lift the bonnet completely until it automatically stays open

The bonnet is held open by a gas strut placed inside the engine compartment.

Proceed as follows to close COVER 5:

- lower the bonnet completely
- push lever "L" towards the machine
- use key "S" supplied to lock the engine bonnet



WARNING!

NEVER open the bonnet while the engine is running.

WARNING!

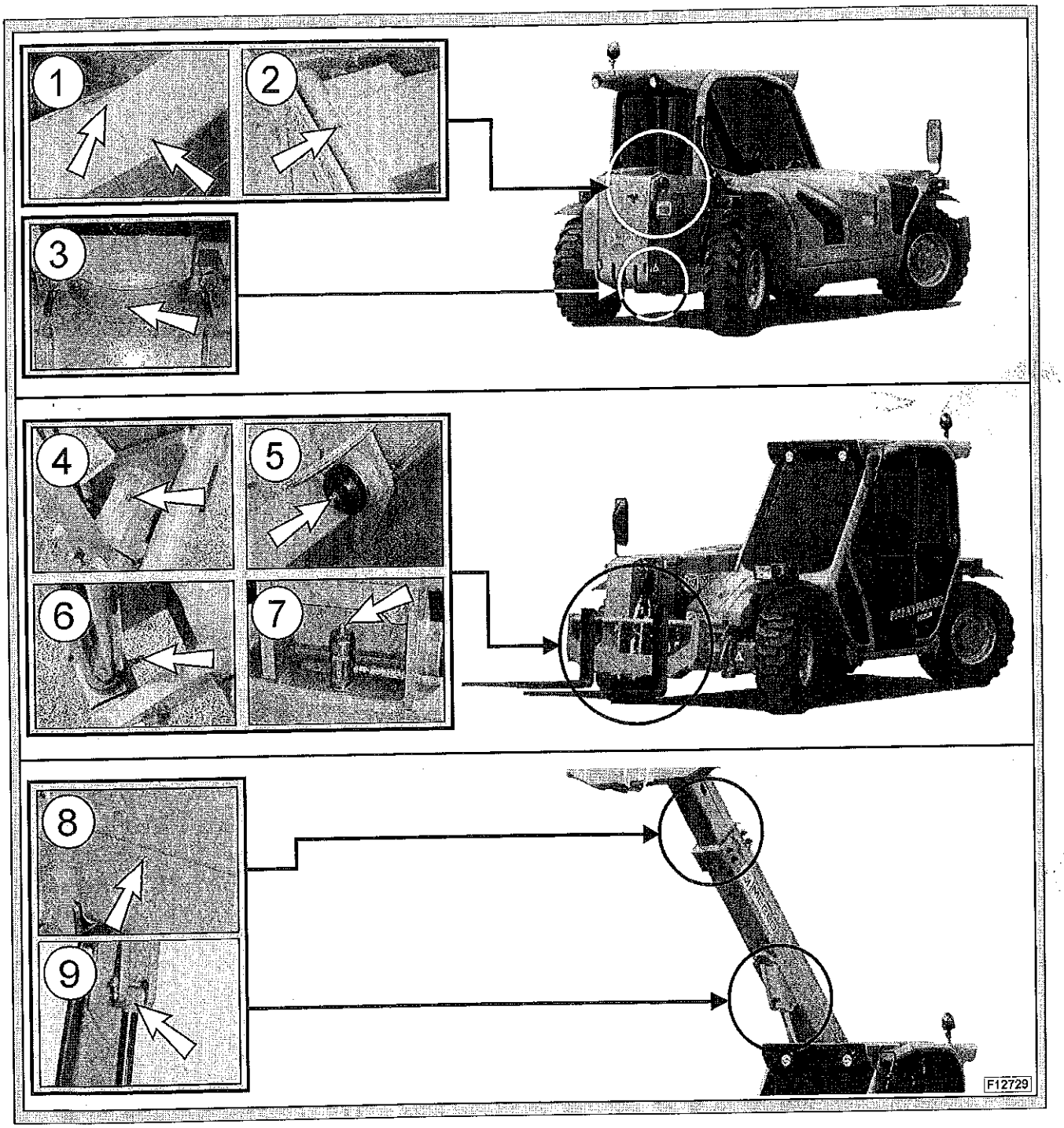
To avoid the engine bonnet opening and to prevent moving or hot parts from accidentally coming into contact with non-authorised personnel, the security keylock on the engine bonnet must be locked.

NB!

Keep the "S" key together with the engine ignition key (8).

GREASING POINTS ON YOUR MACHINE

This paragraph shows all the greasing points on your machine that feature a greasing nipple. Some of these points (marked with symbol *) are described in the planned maintenance schedule, because they require more detailed explanations.
For the kind of grease to be used, please refer to paragraph "FUELS AND LUBRICANTS" in this chapter.



PART	GREASING INTERVALS	DESCRIPTION
1	Every 50 hours *	Grease the (inner) sliding pads of the telescopic boom
2	Every 1000 hours	Grease the telescopic boom pivot
3	Every 1000 hours	Grease the oscillating articulation joint of the rear axle
4 - 5	Every 1000 hours	Grease the carriage coupling
6	Every 1000 hours	Grease the carriage rotation cylinder
7	Every 50 hours *	Grease the hydraulic piston for attachment quick release
8	Every 1000 hours *	Grease the guide conduit of the hoses inside the telescopic boom
9	Every 1000 hours	Grease the articulated joint of the telescopic boom lift cylinder
10 - 11	Every 50 hours *	Grease the coupling of the wheel reduction hub
12	Every 50 hours *	Grease the axle shaft support bearings
13	Every 500 hours *	Grease the Cardan joint spiders
14	Every 500 hours *	Grease the grooved profiles of the Cardan joints

* These operations are described in the paragraphs devoted to periodic maintenance

MERLO PERIODIC MAINTENANCE PROGRAMME

This paragraph gives the periodic maintenance schedule that must be carried out on the machine, scrupulously respecting the established intervals. In the event of use in particularly harsh conditions, maintenance must be carried out at shorter intervals The machine maintenance schedule is based on:

- working time bands (every 10 hours, 50 hours, 500 hours, 1000 hours, 1500 hours)
- working periods (daily, weekly, every 6 months, every 12 months, every 18 months)

The time bands and periodic intervals are combined as follows:

1) EVERY 10 HOURS OR DAILY
2) EVERY 50 HOURS OR WEEKLY
3) EVERY 500 HOURS OR 6 MONTHS
4) EVERY 1000 HOURS OR 12 MONTHS
5) EVERY 1500 HOURS OR 18 MONTHS

The operator must perform routine machine maintenance considering which of the 2 situations (hourly or periodic) occurs first. All the maintenance operations must be performed cyclically. At each maintenance interval, perform also the operations described in the previous intervals: for example every 1000 hours perform also the maintenance contemplated at 500, 50 and 10 hours. The 5 scheduled maintenance intervals, summed up in the following table, will then be analysed individually in the subsequent paragraphs.

CAUTION!

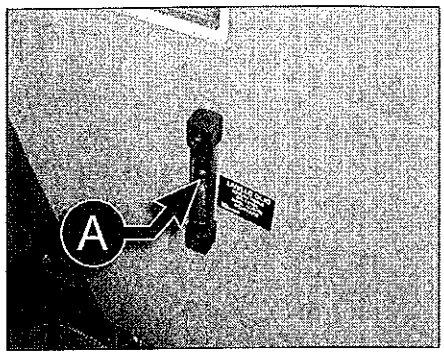
- ***Maintenance of your machine must be performed by qualified and competent personnel.***
- ***To perform maintenance operations correctly, position the machine on a flat, solid surface.***
- ***Before performing maintenance make sure that the diesel engine is turned off and that the battery cut-off switch (if present) is in OFF position***
- ***To know which oils and greases to use for machine maintenance, refer to the paragraph "FUELS AND LUBRICANTS" in this chapter and to the OILS TABLE in the chapter "CONTROL STICKERS - LEAFLETS IN CAB". The grease nipples not mentioned in the maintenance table are to be greased periodically every 1000 HOURS or 12 MONTHS depending on the actual conditions of use of the machine.***
- ***Always use original spare parts approved by Merlo S.p.a.***
- ***To know the times and the maintenance jobs to be done on the diesel engine, always refer to the engine manual supplied with the machine.***
- ***It is advisable to make a note of the date when maintenance is carried out so as to perform the operations regularly.***

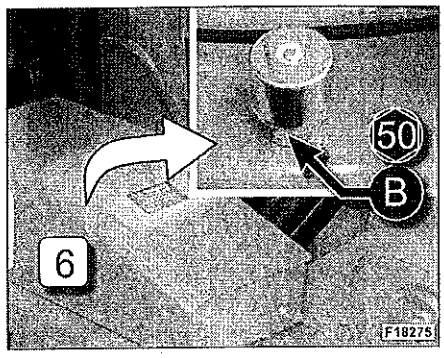
DAILY OR EVERY 10 HOURS

• HYDRAULIC OIL

To check the hydraulic oil level it is necessary to:

- place the machine on a perfectly even ground
- lower and retract the telescopic boom completely
- switch off the Diesel engine
- check indicator "A" to ensure that the hydraulic oil level reaches up to about 5 mm from the upper edge of the inspection window
- if necessary, remove COVER 6 (see paragraph "COVERS" in this chapter), remove the filler cap (B), and fill up oil (see also "OIL TABLE" in chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN")





NOTE! To ensure the machine's optimum performance, regularly check oil level in the hydraulic system, and top up oil if necessary.

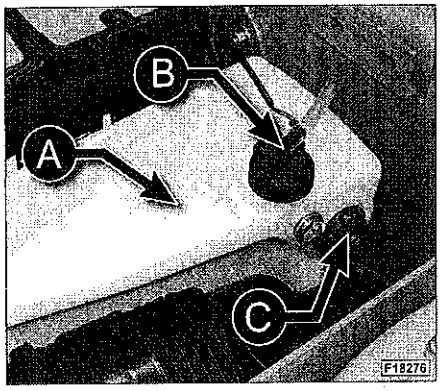
• HYDROSTATIC TRANSMISSION OIL

Check the level of the hydrostatic transmission oil present in plastic tank "A".

WARNING! Do not remove cap "B" unless engine is cold. Then turn the cap slowly to it's stop. Release all pressure before you fully remove cap.

The hydrostatic oil level must be visible within the glass "C", that is close to the filling cap.
If the level is low, top up specific oil (see also "OIL TABLE" in chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN").

Put in place and tighten cap "B" and check for any leak in the system.

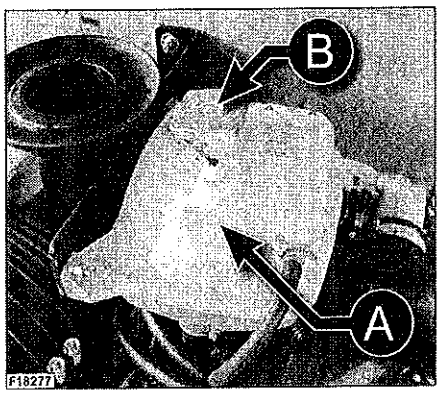


• COOLING SYSTEM

Check the engine coolant level.

WARNING !! Do not remove cap "B" unless engine is cold. Then turn the cap slowly to stop. Release all pressure before you remove cap. For further informations, refer to the relative engine workshop manual.

The level of the coolant, present in the expansion tank "A", shall be included in the range "MIN" ÷ "MAX" shown on the label. If the engine coolant level is low, top up with a coolant available on the market. Tighten the filler cap and check the cooling system for loose connections and leaks.



• TIRES AND STUDS BOLTS

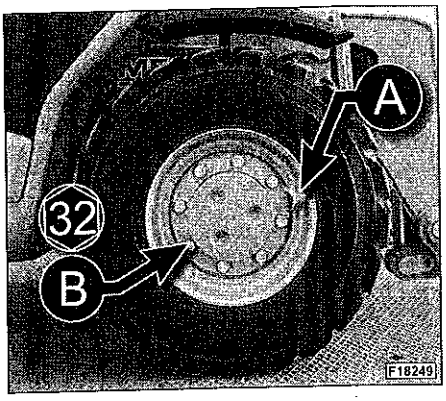
Check that wheel studs are tighten and tires are properly inflated. Daily inspect tires for damages or excessive wear.

If the detected friction material thickness is less than 2 mm (1/12 in), pads must be replaced .

WARNING! The maintenance and replacement of brake pads must be carried out by skilled and competent personnel. Contact Merlo Technical Support Service.

• TYRES AND WHEEL STUDS

Check tyre pressures with an accurate gauge,"A" = inflating valve.
Check studs (B), tighten to 28 Kgm (280 Nm).



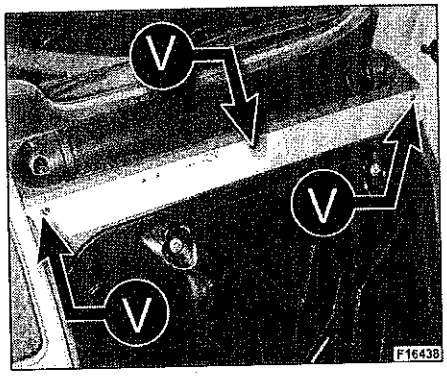
WARNING !

The tyres which can be used on the machine are those indicated in the Merlo List and/or in the machine registration document (if provided).

• CAB VENTILATION SYSTEM FILTER

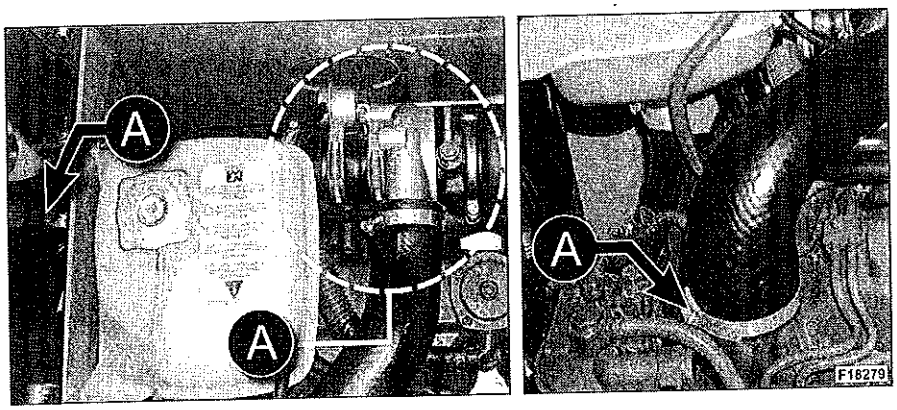
To check its cartrdidge, follow the instructions below:

- Unscrew fastening screws "V"
- Extract the cab ventilation filter
- Clean the filter using a jet of compressed air
- Check the filter wear condition and, if needed, replace it with a new filter with the same features



• AIR INTAKE HOSES

Tighten all hose clamps (A) and check conditions of hoses and ducting.

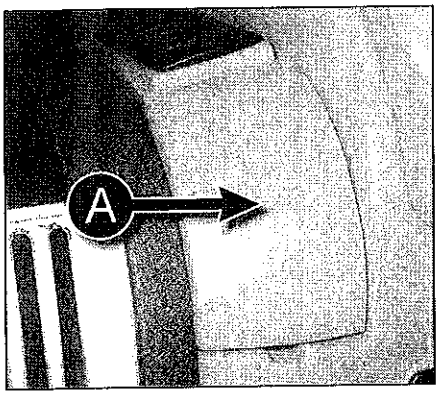


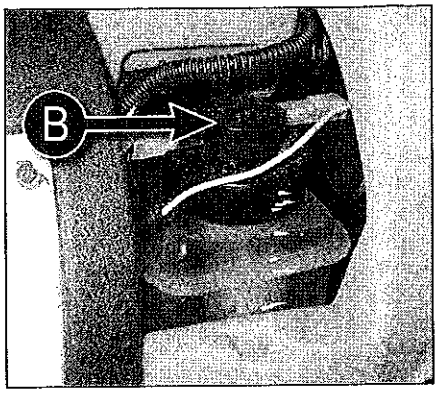
• BRAKE FLUID

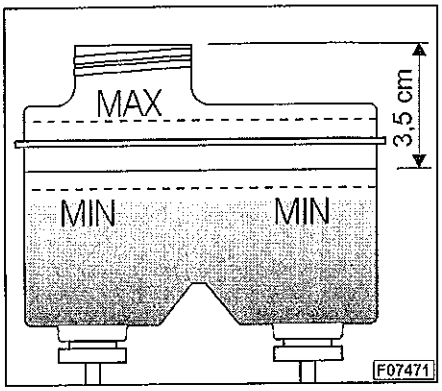
To check the brake oil level:

- Place the machine on a perfectly levelled surface
- Stop the diesel engine
- Remove housing "A"
- Remove cap "B" from the control tank.

The oil level must be about 3.5 cm (1 3/8 in) from the upper brim of the tank. A slight decrease in the level is due to the normal wear of brake pads.
Such level shall never be less than the minimum "MIN"; if needed, fill up to the indicated level, without going over the maximum level ("MAX"). For information on the type of brake oil to use, refer to paragraph "OIL TABLE" in chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN".





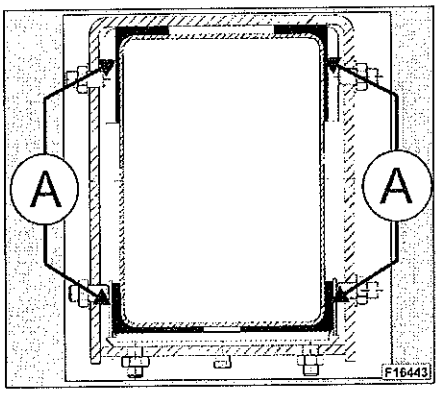


WARNING ! Significant lowering of fluid level is due to system leakages. Ask for skilled personnel to check it. Be careful when filling up the appropriate tank with brake oil, as the liquid is particularly toxic and could ruin painted or plastic surfaces.

• SLIDING PADS OF THE TELESCOPIC BOOM (OUTER PADS)

Perform the following checks on all the outer sliding pads of each boom:

1 - visual inspection of outer sliding pads to check for wear
2 - visual inspection of outer sliding pads to check for wear uniformity
3 - visual inspection of the boom surface to check for any indentations due to the sliding of outer sliding pads
4 - visual inspection of outer sliding pads to check for any burr or large shavings (plastic powder is accepted)



Should either condition "1" or "2" be met, please contact Merlo Technical Support Service.
Should either condition "3" or "4" be met, please proceed as follows:

- remove grease from the telescopic boom surface
- adjust the telescopic boom as described in the paragraph "GENERAL MAINTENANCE"
- apply a layer of boom-specific grease by Merlo, as described in paragraph "OUTER SLIDING PADS OF THE TELESCOPIC BOOM"

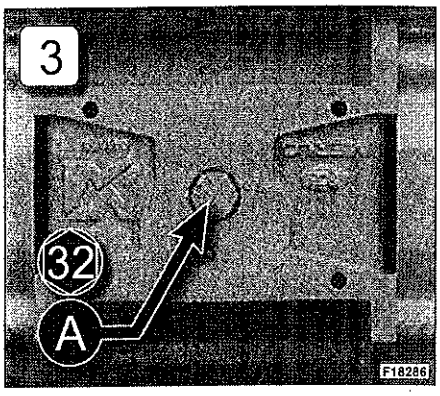
Should the problem persist, please contact Merlo Technical Support Service for a repair.

NOTE! While extending and retracting the telescopic boom, some paint might be removed from the areas where the outer pads of the telescopic boom slide. This is to be considered absolutely normal, and it does not interfere with the correct operation of the telescopic boom.

• FRONT AND REAR DIFFERENTIALS OIL

Carry out the following operations to properly check the oil of the front and rear differentials:

FRONT AXLE (3)

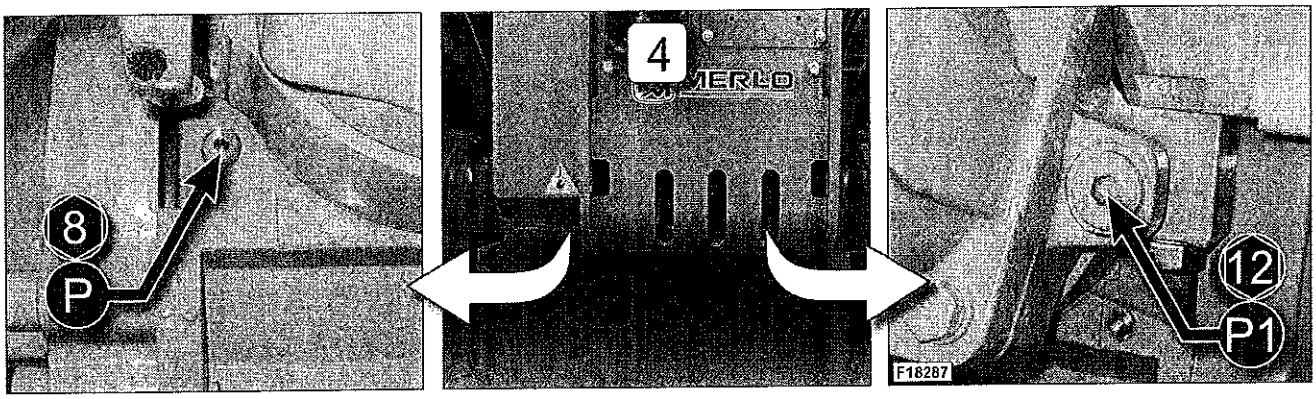


- Remove cap (A)
- Check that differential oil reaches up to the hole edge.
- If needed, fill up with specific oil (see the "OIL TABLE" in chapter "CONTROL STICKERS - LEAFLETS IN THE CAB")
- Reinstall caps (A) and tighten them.

REAR AXLE (4)

• (P) = level plug
• (P1) = filling cap

- Remove caps (P) and (P1); to access the caps (P) and (P1) on rear axle, you need to remove COVER 8 first (see paragraph "COVERS" in this chapter).
- Check that the differential oil reaches the edge of the hole (P)
- If needed, fill up with specific oil from the hole (P1) (see the "OIL TABLE" in chapter "CONTROL STICKERS - LEAFLETS IN THE CAB")
- Reinstall caps (P) and (P1) and tighten them.



• CAP SCREWS AND BOLTS

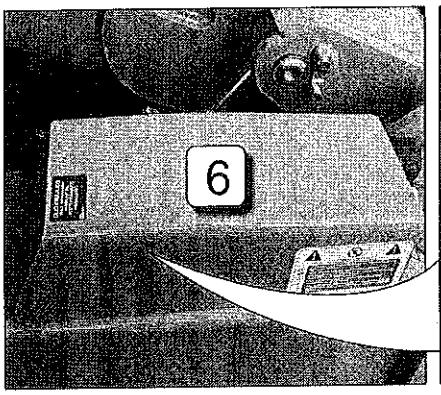
Check for tightness. See torque chart in this manual (section MACHINE TECHNICAL SPECIFICATIONS). In the paragraph BREAK IN PERIOD you can find the instructions for the bolts and nuts check of some vehicle parts.

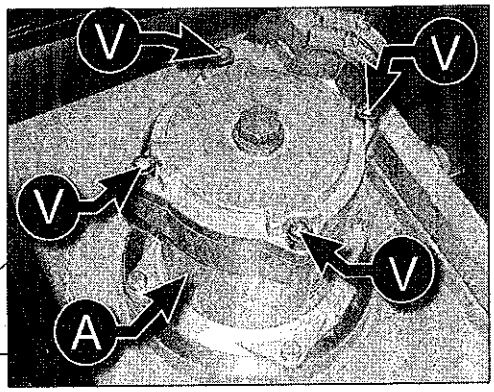
• HYDRAULIC OIL FILTER ON RETURN LINE

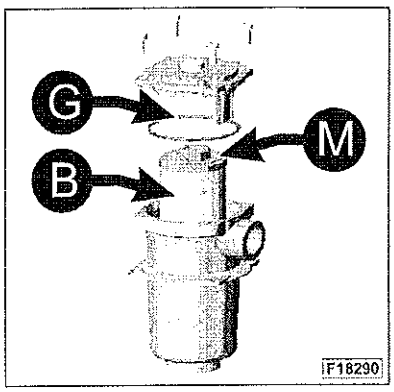
Hydraulic oil return filter "A" is located in the CARTER 6

To carry out the replacement procedure, please follow the instructions below:

- unscrew the 4 screws "V" which fasten the filter cap
- remove the cap assembly and its gasket "G"
- remove filter "B" by lifting it with handle "M"
- replace filter "B"
- reinstall all components without damaging gaskets
- reinstall the filter cap by tightening the 4 fastening screws







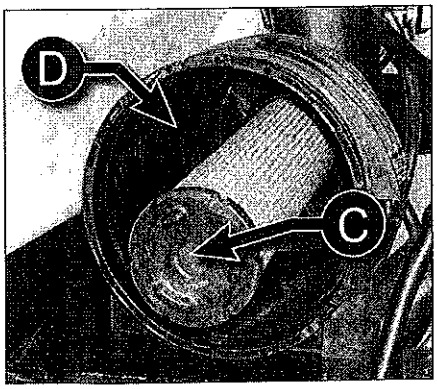
• AIR CLEANER

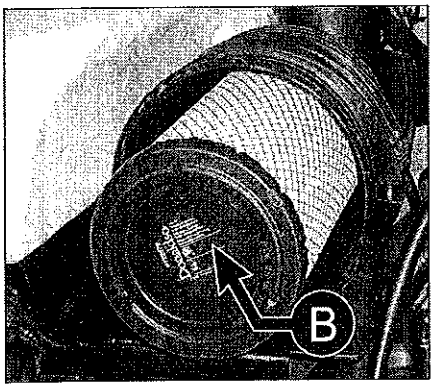
A) cover - B) filter cartridge - C) safety cartridge - D) filter body

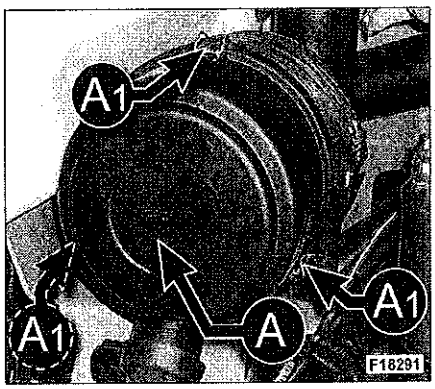
Replace the filter cartridge "B" and the safety cartridge "C".

CARTRIDGE INSTALLATION

- Insert safety cartridge "C" inside filter body "D", and push it towards the inside
- Insert filter cartridge "B", and push it towards the inside of the filter body
- Close filter cover "A" with locking devices "A1"







EVERY 1000 HOURS OR EVERY 12 MONTHS

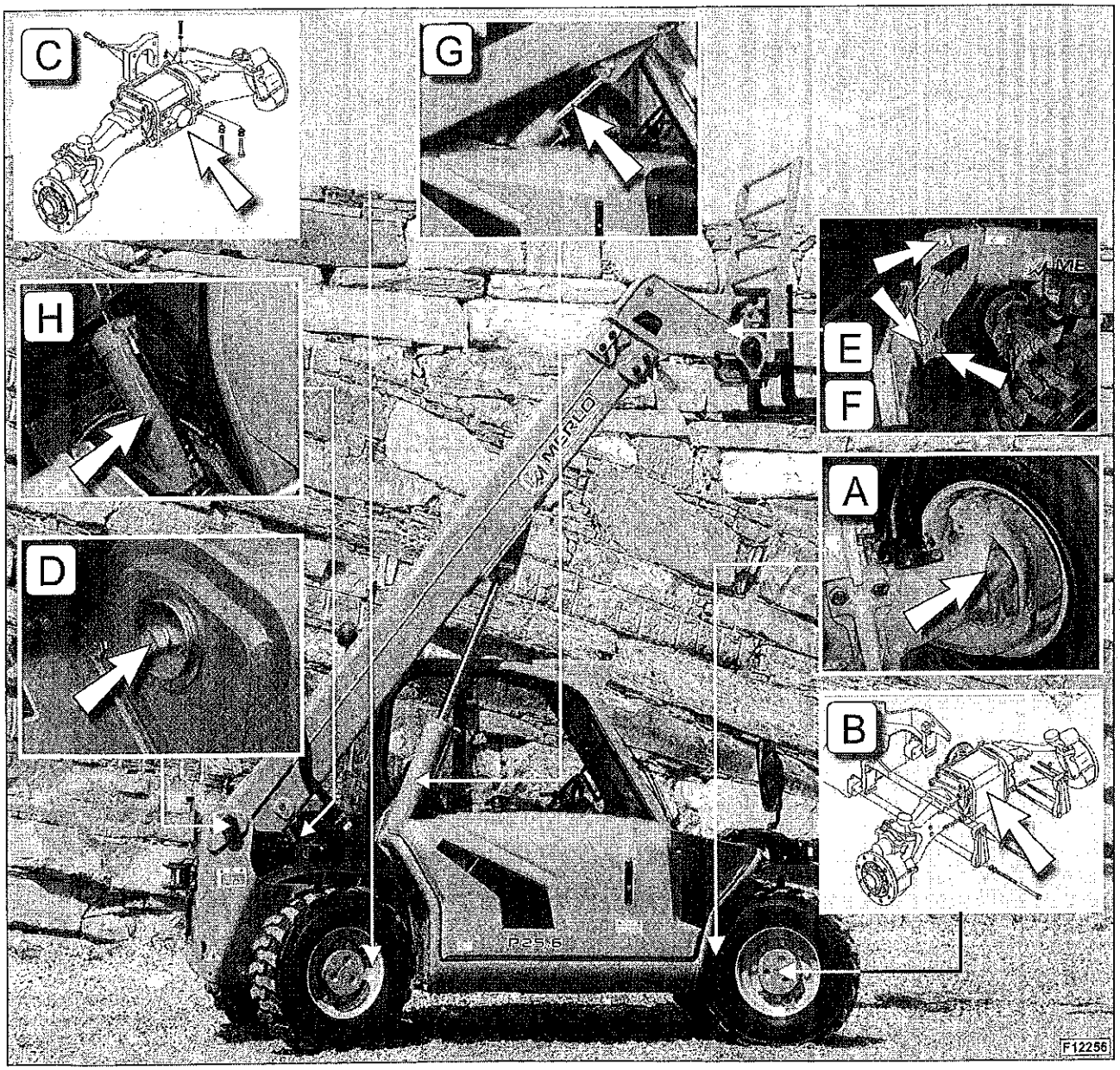
• ARTICULATED JOINTS

Check the existing play on the articulated joints of the indicated components. If the play is more than 1 mm, replace the related bushings.
Lubricate the articulated joints of the indicated components which do not have a greaser.

A) Wheel reducers - B) Front bridge - C) Rear bridge - D) Boom - E) Carriage - F) Fork jack
G) Lifting jack - H) Compensation jack

WARNING!

If you need to use your machine in particularly difficult situations (dusty or muddy environments, etc.), or if you use your machine every day in a continuous way for several hours a day, you need to grease the parts shown in the table either EVERY 50 HOURS or WEEKLY.



EVERY 1500 HOURS

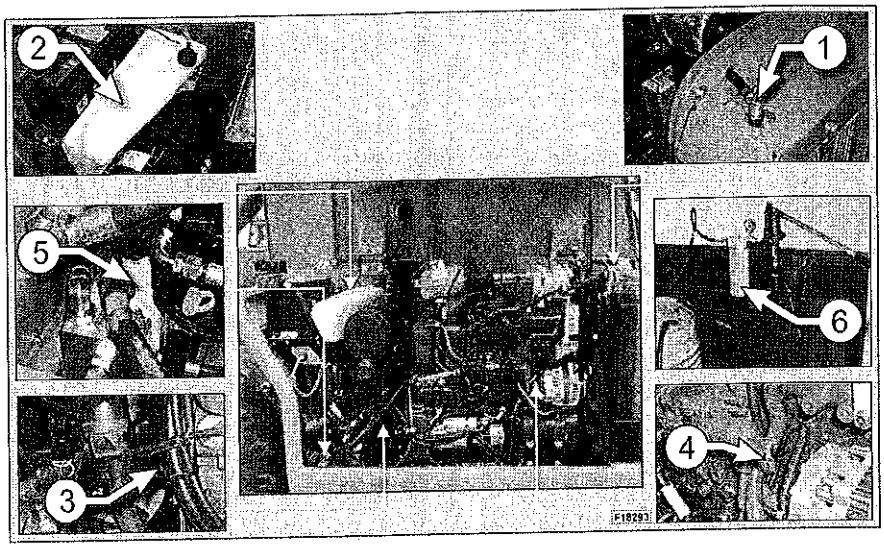
• HYDROSTATIC TRANSMISSION OIL

To properly carry out the hydrostatic transmission oil replacement, follow the instructions below:

1) Radiator
2) Tank
3) Hydrostatic pump
4) Fuel electro-pump
5) Hydrostatic transmission filter
6) Hand pump

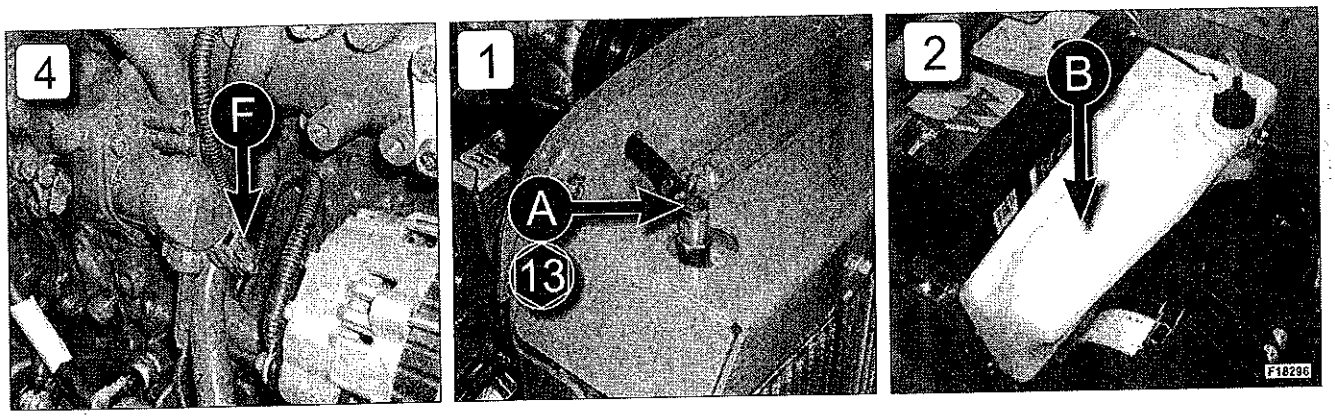
The overall system capacity is 12 l.

WARNING! Only use the hydrostatic oil shown in the OIL TABLE of chapter STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN.

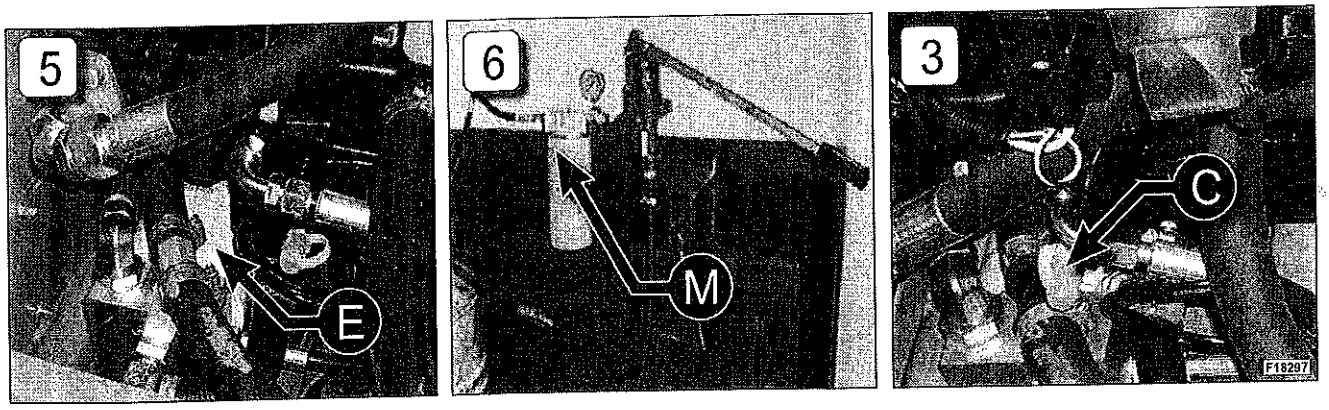


OIL CHANGE

- with the engine running, disconnect contact "F" of the injection pump and wait for the engine to switch off.
- screw out the caps of both radiator "A" and hydrostatic oil tank "B"



- remove filter "E" and drain oil into a container; to carry out this operation use a chain or band extractor.
- install a new filter "E" for the hydrostatic transmission
- Fill the system exclusively with specific hydraulic oil, which shall be filtered through a 10-micron filter and supplied at a pressure of about 2.5 bar (36 psi).
- For this purpose use a hand pump "M" as shown in the picture (6). Pour oil into the hydrostatic pump through filler cap "C", or by using a pressure tube (connection: M16x2), until the tank is completely full
- Close radiator cap "A" as soon as oil starts coming out and close tank cap "B"
- Remove the hand pump from the pressure tube and close cap "C"



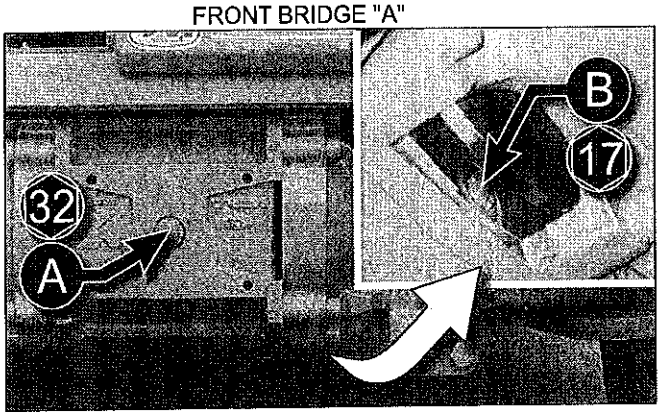
• FRONT AND REAR DIFFERENTIALS OIL

To properly carry out the differential oil replacement, follow the instructions below:

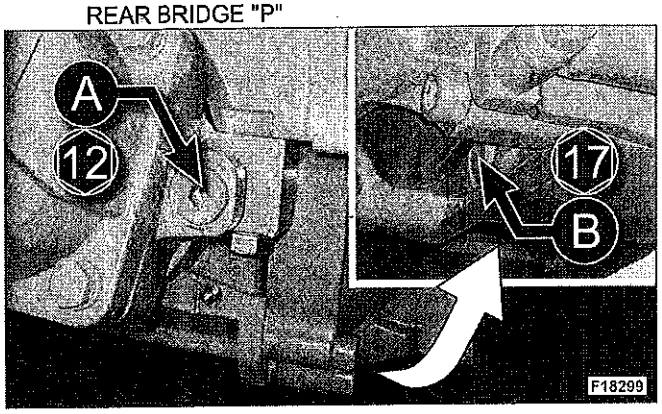
- Stop the machine diesel engine
- Operate on one differential at a time
- Remove filling cap "A"
- Remove discharge cap "B" and collect the differential oil into an appropriate container
- Close back discharge cap "B"
- Pour some new differential oil through filling cap "A" until it starts flowing out; only use the differential oil indicated in the "OIL TABLE" in chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN". Close back filling cap "A".

The system total capacity is 5,1 litres for front axle and 4,4 for rear axle.

FRONT BRIDGE "A"

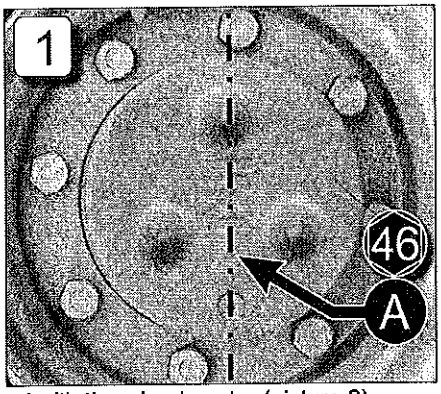


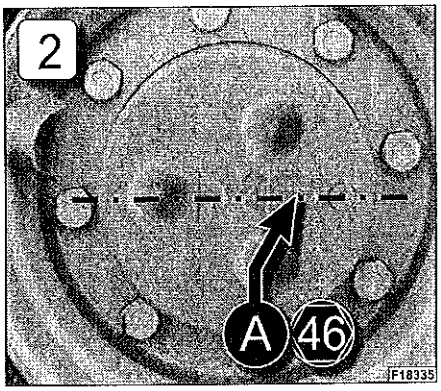
REAR BRIDGE "P"



• REDUCTION HUB OIL

To perform the reduction hub oil change correctly, please follow the instructions below.





- work on one reduction hub at a time
- place the machine in such a way that the level plug "A" is facing downwards (picture 1)
- remove level plug "A" and drain reduction hub oil into a proper container
- reinstall level plug "A"
- place the machine in such a way that the level plug "A" is vertically aligned with the wheel centre (picture 2)
- remove level plug "A"
- pour new reduction hub oil through filler cap "A", until it comes out; only use the reduction hub oil shown in the "OIL TABLE" of chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN"
- close level plug "A"

Repeat the same operations for the other reduction hubs too.

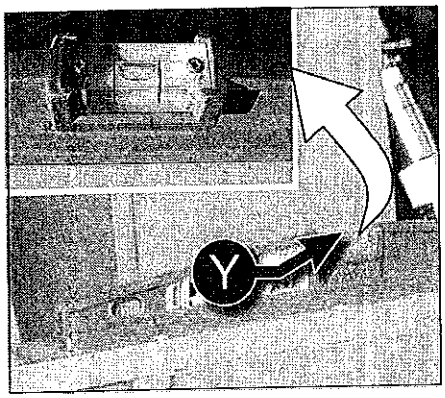
The overall system capacity is 0,8 l (0,83 quart)

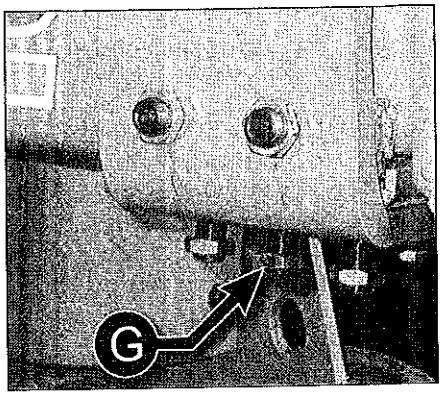
• BRAKE FLUID

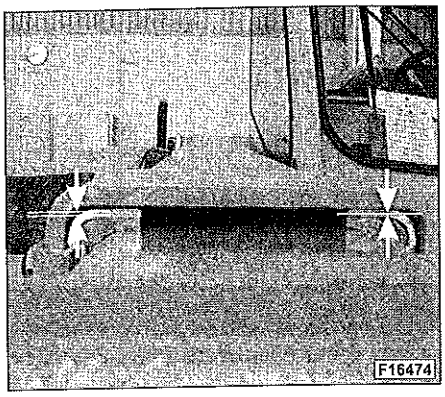
Drain fluid and refill, system bleeding must be carried out by skilled personnel.

The overall system capacity is 300 ml (10 fl oz)

After having adjusted the sliding runners of the boom it is possible that there will not be symmetrical play between the runners themselves and the upper part of the boom as shown in the photo.

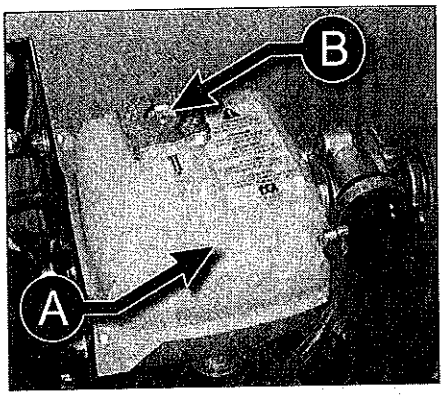






• COOLING SYSTEM

If you need to replace the engine cooling liquid, proceed as follows:



DISCHARGE OF THE COOLING SYSTEM

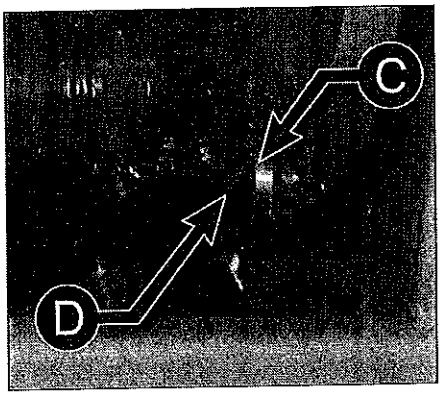
- Place the machine on a flat surface
- Stop the diesel engine and let it cool off
- Using a strong piece of cloth, loosen pressurised cap "B" and release the system pressure.

WARNING!

Never remove the pressurised filling cap "B" if the diesel engine is still hot, as the cooling liquid, still under pressure, could flow out in a dangerous manner.

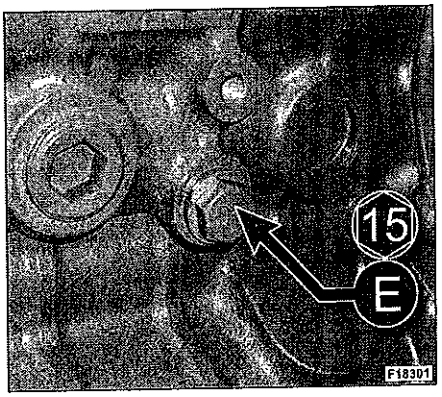
Also, make sure that, during the system discharge/filling phases, the cooling liquid does not get in contact with any body part. Always refer to the information on the used product label.

To use the machine in maximum safety conditions, always use the supplied pressurised cap. If this is lost or damaged, contact Merlo Technical Support Service and request it as a spare part.



- remove clamp "C" and disconnect duct "D" from the radiator
- remove drain plug "E" of the engine block located in the inner part of the engine compartment.
- drain the system completely
- check the duct and clamp wear level; if necessary, replace them (it is advisable to perform a visual inspection of both ducts and clamps every 500 hours to check for any sign of wear)
- if necessary, rinse the system with clean water mixed with a detergent

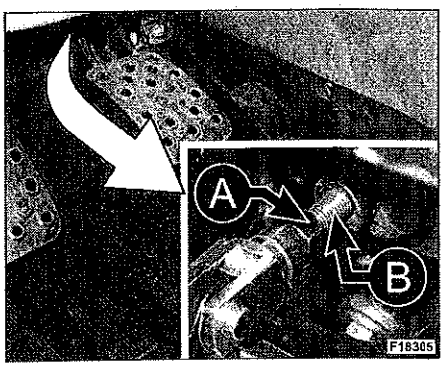
FILLING UP OF THE COOLING SYSTEM



- close drain plug "E" of the engine block
- put in place duct "D" and tighten its clamp "C"
- slowly fill the cooling system (use the coolant shown in the engine manual) until the coolant is visible inside expansion tank "A"
- the level inside expansion tank "A" shall fall within the "MIN" and "MAX" marks shown on the indicator plate
- close the expansion tank with its pressurized cap
- start the Diesel engine and let it run for a few minutes
- check for any leak in the system
- check that the coolant level always falls within the two marks shown on the sticker applied on the expansion tank; if this is not the case, fill up coolant

NOTE! For further information, refer to the attached engine manual.

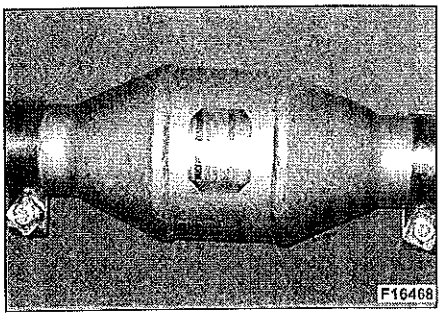
• BRAKE PEDAL ADJUSTMENT



It is necessary to adjust slack if the brake pedal is moving excessively; in order to solve the problem, carry out the following operations:

- loosen nut "A".
- either screw or unscrew dowel screw "B" depending on the kind of adjustment you want to perform, so that a maximum allowance of 1 mm can be obtained
- lock nut "A" on the fork while holding the dowel screw still.

• CATALYTIC EXHAUST (upon request)



In case of excessive smoking from the exhaust, the necessary operations on the engine must be carried out.

If the trouble has last for a long period of time, the catalytic exhaust must be removed from the machine and internally cleaned through a simple immersion in hot soaped water.
It must be then carefully rinsed and dried. Avoid the use of detergents or solvents.

In any case the cleaning must be carried out at intervals of not less then 200 hours.

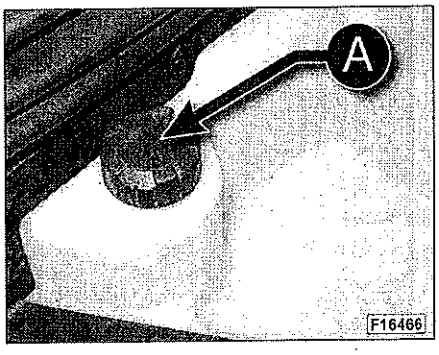
• VEHICLE AND ATTACHMENTS CLEANING

WARNING ! All the described operations have to be carried out with the engine off (it is advisable to take the starting key off from the dashboard).

To clean correctly keep to the following instructions:

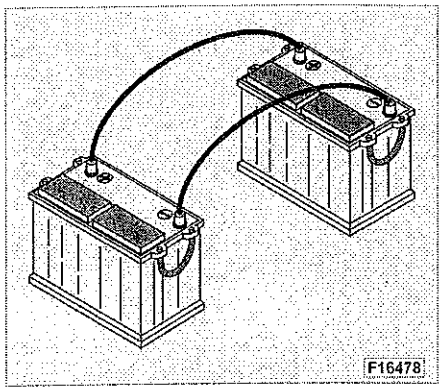
- wear the suitable protective means (gloves, masks, glasses, overalls, etc.)
- do not use inflammable liquids and acids or products which could chemically attack the vehicle parts
- do not clean moving or overheated parts.
- to clean the inside of the cab you can use the same products used for cars. Pay particular attention to taking off dust, grease or other from the vehicle controls.
- to clean the outside of the vehicle and the engine, it is advisable to use a washer, keeping in mind the following:
  - make sure that all filler caps (of the radiator, of the oil tank for both the hydraulic system and the hydrostatic transmission, of the fuel tank) are tightened correctly, and check that the handle of the battery cut-out switch is in the "ON" position (for further information please refer to chapter "ELECTRICAL EQUIPMENT")
  - do not work if water pressure and temperature are higher, respectively, than 100 bar (1440 psi) and 80° C (175°F)
  - keep the washing nozzle at not less than 20 cm (8 in) from the surface you want to wash
  - do not insist with the jet on only one point but wash with wide movements.
  - take care not to turn the jet directly on plates, in order not to damage them
- After the washing, carefully dry the glasses and the rear-view mirror.

• WINDSCREEN WASHER LIQUID TANK



Fill tank "A" situated inside the cab with the specific liquid available on the market.

• HOW TO START ENGINE WHEN BATTERY IS DOWN

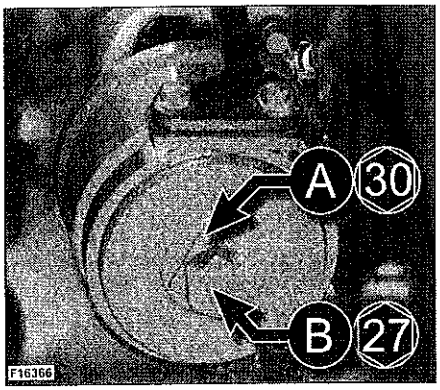


CAUTION! Before working on the battery, carefully read the instructions found in paragraph "BATTERY" and in chapter "ELECTRIC SYSTEM". Check polarity before connecting the cables. Avoid any contact between the two cables.

Should you start the engine with the battery down, act as follows:

1) Take an emergency battery having the same characteristics and two cables.
2) Connect the cable to the (+) and (-) of the battery inside the machine and, then, to the correspondent (+) and (-) of the emergency battery.
3) Start the engine and disconnect the cables.

• EMERGENCY PUMP FAILS TO RELEASE PARKING BRAKE



Shouldn't it be possible to release the parking brake using the emergency pump, act as follows (see paragraph "TOWING OF THE MACHINE" in the section "OPERATING INSTRUCTIONS"):

- chock the wheels to lock the machine in place
- hold the brake caliper chamber (A) still
- fully loosen the adjusting screw (B)

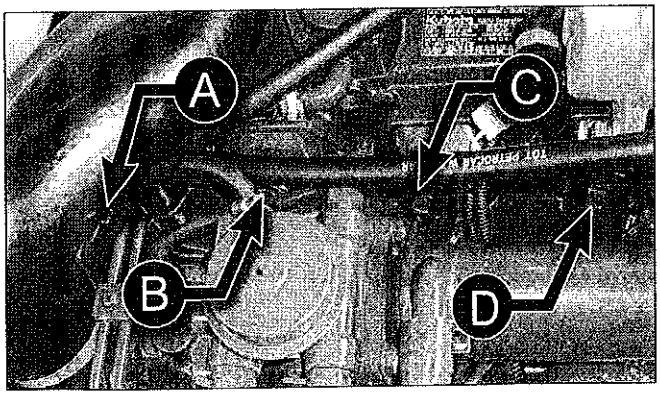
Before restarting the vehicle tighten the adjusting screw and check the system correct working.

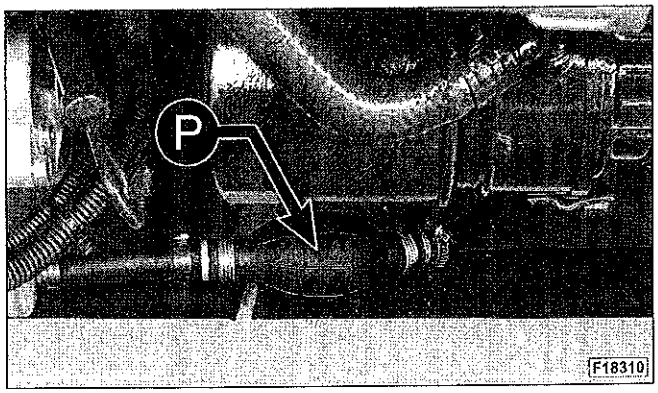
• BLEEDING OF THE MOTOR FEEDING SYSTEM

The bleeding of the feeding system is necessary to remove the air present into the system when you are run out of fuel.

Once you have refuelled up the tank, carry out the following operations:

- loosen unions "A", "B", "C" and "D"
- activate manually the pump "P" until fuel without air comes out from unions.
- tighten unions "A", "B", "C" and "D"
- go on pressing the pump "P" and, in the meantime, start the motor by turning the ignition key (8) present in the cab.





END OF CHAPTER

INDEX

SOUND-VISUAL ALARMS AND MOVEMENT BLOCKING MECHANISM OF THE ANTI-TIPPING SYSTEM

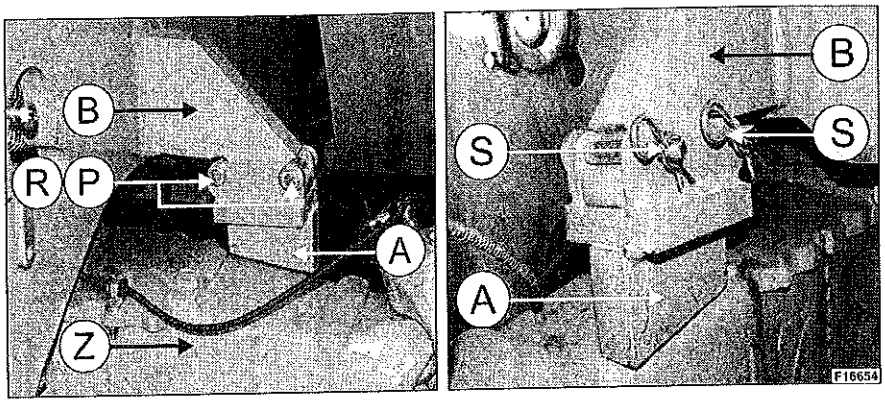
Your machine is fitted with two micro-switches (one on the right rear axle shaft shaft and one on the left rear axle shaft) which control the anti-tipping system. Carry out the safety check on both rear axle shafts, proceeding as follows:

WARNING!! When carrying out the following operations, it will necessary to step out of the driver's cabin. Always switch off the engine before leaving the driver's seat.

It is recommended to use a medium load equal to about 2/3 of the maximum load.

1) Operate on a solid level ground
2) Mount the forks on the machine
3) Mount the travel limit support "A" on bracket "B" located above the right rear axle shaft shaft and lock it into the right position.

Follow these instructions to mount the travel limit support "A":

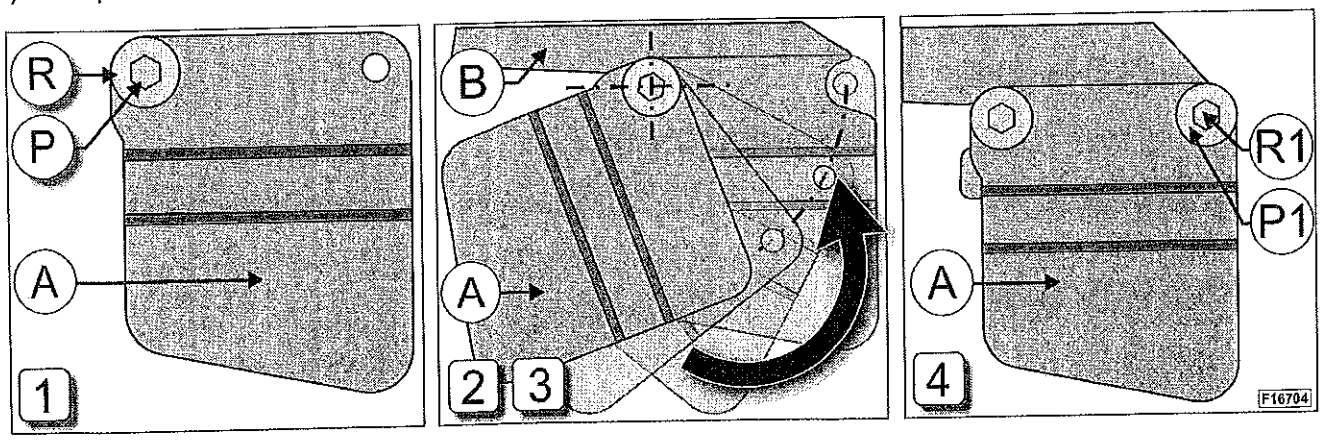


NOMENCLATURE

REF.	DESCRIPTION
A	Travel limit support
B	Travel limit support mounting bracket
P	Retainer pin
R	Washer
S	Locking pin
Z	Rear axle shaft

The following instructions refer to the mounting of the travel limit support "A" onto the bracket located on the right rear side of the machine.

a) Insert washer "R" and pin "P" on the left side of the travel limit support "A" (Fig.1)
b) Lock pin "P" on the rear side with the provided "S" pin
c) Insert the left side of the travel limit support "A" inside the left hole on bracket "B" (Fig.2)
d) Rotate the travel limit support "A" anticlockwise until it stops (Fig.3)
e) Insert washer "R1" and pin "P1" on the right side of the travel limit support "A" (Fig.4)
f) Lock pin "P1" on the rear side with the provided "S" pin

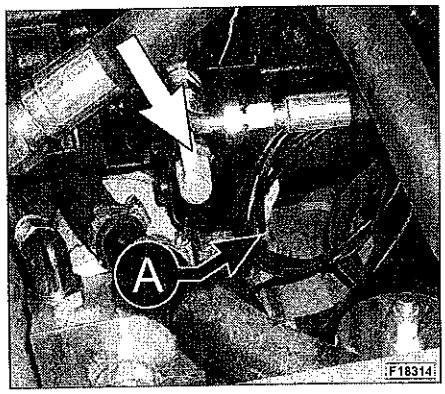


POWER STEERING PRESSURE CALIBRATION

- Stop the engine and take away the key from the board.
- Connect the small hose, coming from the gauge, to the pump pressure plug (as for the checking of the HYDRAULIC OIL SYSTEM PRESSURE).
- Start the engine.
- Keep the transmission in neutral position.
- Accelerate up to 1800 r.p.m..
- Steer up to lock to left or right direction and, while keeping the unit steered, read the pressure from the gauge in the cab.
- The pressure must be over 180 bar (180 kg/cm²).

HYDRAULIC SYSTEM OIL PRESSURE

- Stop the engine and take away the key from the board.
- Connect the small hose in the engine compartment to the "A" pressure plug.
- Start the engine.
- Retract the boom.
- Accelerate up to 2400 r.p.m., while keeping the boom retract command operating.
- Check on the gauge in the cab that the pressure is between 205 and 215 Bar.

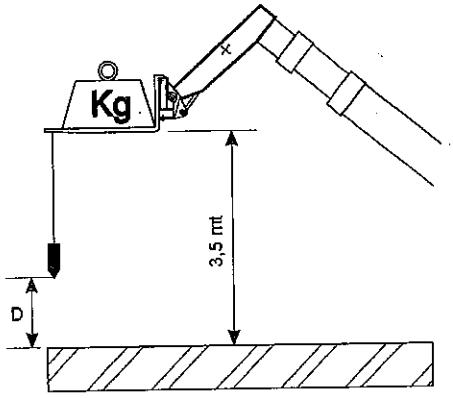


WARNING ! In case the gauge indicates a pressure value different from the forecasted one, please ask for assistance from qualified Merlo Service personnel.

When the checking of the pressure is ended, disconnect the small hose from the pump and rearrange it in the engine compartment.

RAMS' STOP VALVES

- Start the engine. Take a load, using the forks, with a weight of at least 2/3 of the machine's maximum capacity.
- Hook up to the forks end a plumb line with a lenght of about 3 meters.
- Stabilize the machine (if the machine is equipped with stabilizers)
- Lift the boom up to an height of about 3,5 meters.
- Extract the boom for about 0,5 meters.
- Stop the engine and operate the distribution levers as to lower the boom and to rotate the forks downward.
- Release the levers
- Measure the distance "D" between the end of the plumb line and the ground.
- Lock the cab and wait for about 30'.
- Repeat the measurement.



The difference between the two measurements must not be over 25 mm, in case the difference is over 25 mm request the MERLO service assistance.

PARKING BRAKE

- Start the engine and shift to the 2nd speed.
- Check that the speed has been shifted by running the machine for a short stretch.
- Apply the parking brake.
- Keeping applied the brake pedal, shift the gear to forward position and accelerate up to 1600 r.p.m..
- Slowly release the brake pedal.
- If the machine does not move, accelerate up to the maximum r.p.m. The machine must stay still.

INDEX

ATTACHMENTS

This section of the handbook is about one range of MERLO attachments which can be assembled on the vehicles described in this handbook. These attachments can be coupled and released using the locking hydraulic system control from the cab.
The procedures to make a.m. operations are described in the handbook. For forks fixing/removal refer to the relevant paragraph.
Carefully read the given information before handling, assembling, using or removing any attachment.
The attachments which need more instructions about their use will be described one by one in a leaflet attached to this handbook.
The attachment is designed and built following Merlo specifications. In order to avoid accidents and to ensure good performance, the attachment must not be changed from that approved by Merlo S.p.A. and it must not be used for any purpose other than that for whick it is intended by design.

WARNING! Do not handle, assemble, use or remove any attachment not described in this handbook (or in the leaflet attached) until pertaining instructions have been received, read and understood. The attachments can be assembled and used only on vehicles for which they have been requested.

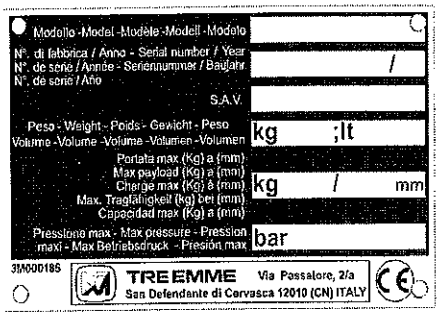
MERLO S.p.A. is not responsible for the use of attachments not produced by them or whose assembly on the base vehicle has not been explicitly approved.

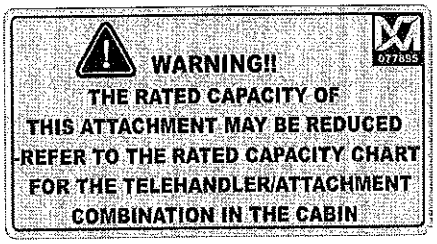
ATTACHMENT IDENTIFICATION PLATE

All the attachments manufactured by Merlo feature an identification plate, which provides you with the following data:

1) Attachment model
2) Manufacturing number
3) Attachment weight
4) Maximum load capacity
5) Maximum operating pressure

Should you need to order any spare parts, please provide the Manufacturer with the data marked with numbers "1" and "2" above.




WARNING!!
077895
THE RATED CAPACITY OF
THIS ATTACHMENT MAY BE REDUCED
-REFER TO THE RATED CAPACITY CHART
FOR THE TELEHANDLER/ATTACHMENT
COMBINATION IN THE CABIN

Each attachment is provided with a warning plate showing the correct use of the machine/attachment combination.

ATTACHMENT MAINTENANCE

In order to use the attachment safely and efficiently, you must service it regularly, strictly following the instructions of this handbook (or in the attached leaflet). Do not use the attachment until the servicing and the necessary repairs have been made.

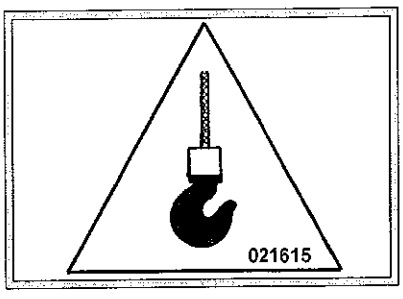
DAILY OR EVERY 10 HOURS:

- Inspect the basket in order to check that it is clean and there are no damaged or missing parts
- Check correct hinge pins clamping and their locks
- Check there are no oil leaks

CAUTION! The servicing has to be made by skilled and competent personnel. For interventions on parts which are not part of the normal servicing, please refer a MERLO service centre.

ATTACHMENT HANDLING

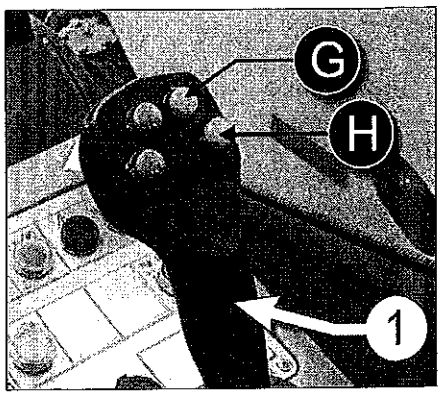
To lift the attachment, use the hitching points shown by the reference plate (see figure). Pay particular attention to any notes and remarks regarding handling. The total weight of the attachment is shown on its identification plate.

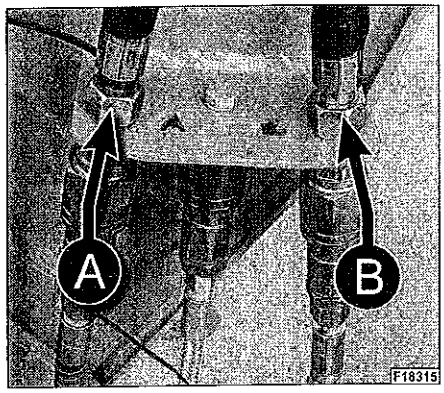


WARNING ! During attachments handling make sure that all other personnel are clear of the area.

Check that ropes, clevis and lifting devices are in good condition and that their lift capacity is sufficient for the weight to be handled.

CONTROL OF HYYDRAULICALLY FUNCTIONING ATTACHMENTS





In order to find out the maximum operating pressure of an attachments, it is necessary to look at its control label. To control the hydraulic attachment use the right roller of the joystick (1) as follows:

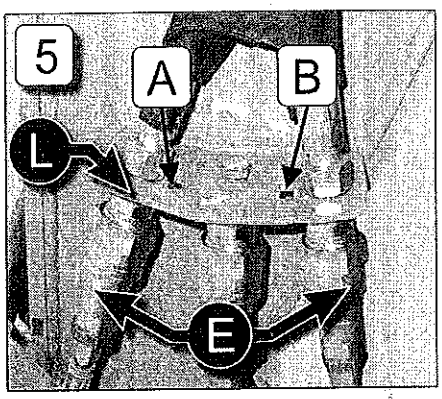
- press button "3" to deliver oil to hydraulic hose [A] on the boom head (for opening claw hooks, clamshell buckets, doors/hatches; lowering winch-type hooks; etc.)
- press button "4" to deliver oil to hydraulic hose [B] on the boom head (for closing claw hooks, clamshell buckets, doors/hatches; raising winch-type hooks; etc.)

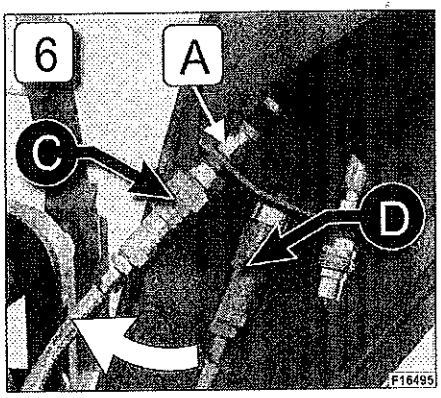
Manoeuvres of other types will be described in the instructions relevant to the attahment.

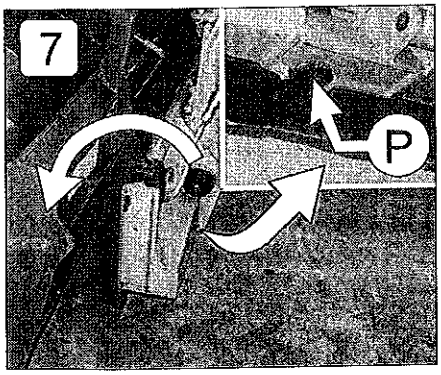
DISMANTLING OF ATTACHMENTS WITH QUICK COUPLING

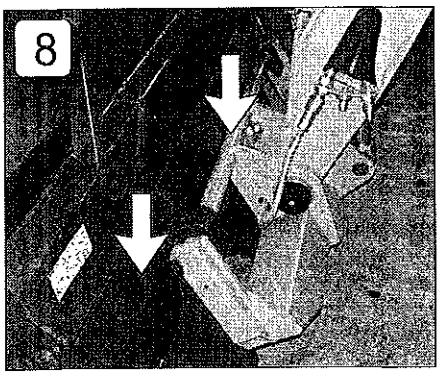
To remove a quick-coupling attachment from the carriage, please refer to the following instructions:

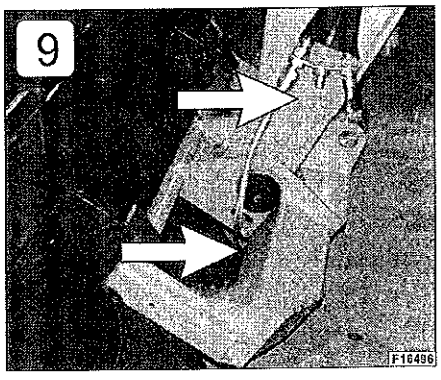
- we've chosen a standard loader as an example to illustrate the operations required for the removal of a quick-coupling attachment; the following operations apply to any attachment manufactured by Merlo that is equipped with the same coupling system.
- read and make sure to understand all the instructions regarding the attachment you purchased, which are provided either in the following paragraphs or in the attached manual. Pay particular attention to safety warnings and to any notes on how to install and handle the attachment.
- make sure that the attachment rests on compact, flat ground.
- apply the parking brake, shift both the gearbox selector (19) and the drive direction control (20) to position "N".
- if you need to remove attachments that feature hydraulic functions, disconnect hoses "E" from quick couplings [A] and [B] placed on metal sheet "L" (Fig. 5).
- disconnect hose "C", which feeds quick-coupling cylinder "P", from home position coupling "D", then connect it to quick coupling [A] (Fig. 6).
- lower the telescopic boom of your machine, so as to rest the attachment on the ground
- activate the control to lift the quick-coupling piston "P" (see paragraph "CONTROL JOYSTICK", chapter "CONTROLS AND INSTRUMENTS"), while at the same time rotating the carriage downwards, so as to uncouple the attachment (Fig. 7)
- release button on the control joystick
- if necessary, slightly lower the telescopic boom, so as to release the attachment (Fig. 8)
- retract the telescopic boom, and cautiously back up (Fig. 9)











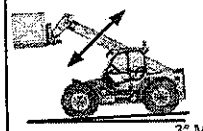
WARNING! During dismantling operations clear the surrounding area of all people. Check using the charts in the cab that the load limits of the machine with respect to the different positions of the boom have not been exceeded. Never try to release the attachment by forcing it against the ground.

P25.6 Load Chart - Fork carriages

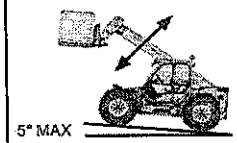
MERLO

Lifting (Stationary)

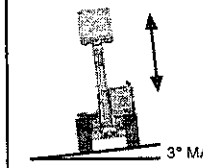
With rated load on forks



With rated load on forks

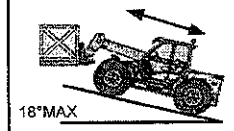


With rated load on forks

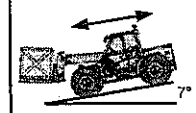


Pick & Carry (Travelling)

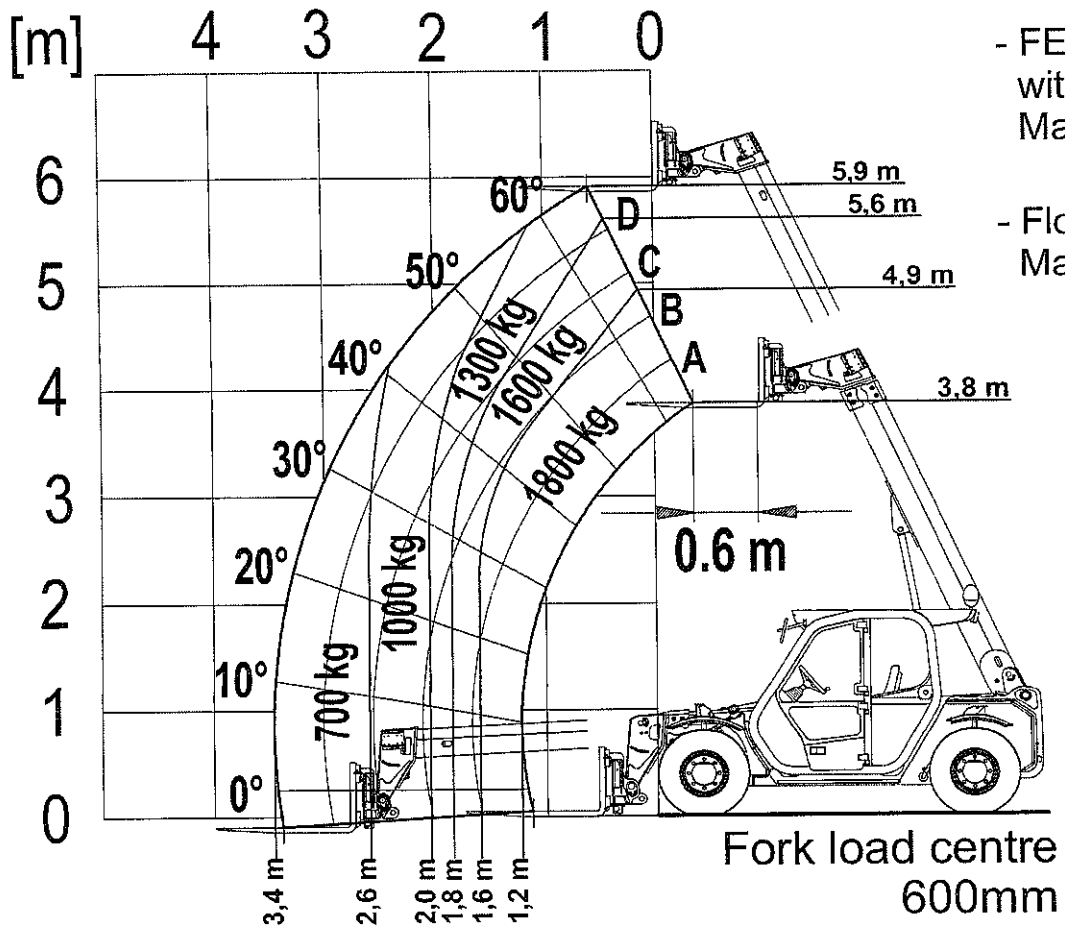
With rated load on forks



With rated load on forks



With rated load on forks

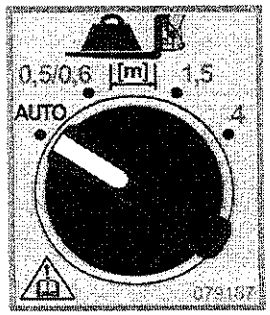


Fork load centre
600mm

- FEM Carriage REF.No A0200
  with FEM III fork REF.No A0500
  Maximum cap. 1800 kg

- Floating forks carriage REF.No A0291
  Maximum cap. 1800 kg

On models with M-CDC:



Standard used
AS1418.19

WARNING Load charts are different for each attachment fitted to the telehandler. Please ensure the attachment part number is ashown above.

Pick and Carry information
1. Travel speed with rated load 0.4 m/s (walking speed)
2. Boom fully retracted
   Rated load no more than 300mm above the ground
3. In-Service wind speed 10 m/s - 36 km/h
4. Ground conditions
   Solid surfaces for both lifting and travelling.
   Slope ratings listed in diagrams on the left for both configurations.

SAFE USE INFORMATION

Tyre manufacturer	Mitas
Tyre size	12.0/75-18 12 pr
Tyre pressure	400 kPa (58 psi)

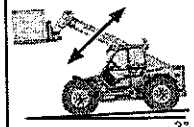
Chart Number	
085413	
Revision Date	
A	Febr. 2013

P25.6 Load Chart - Crane hook on carriage

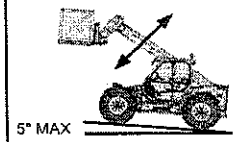
MERLO

Lifting (Stationary)

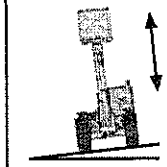
With rated load on hook



With rated load on hook

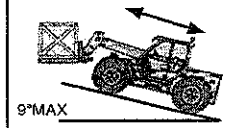


With rated load on hook

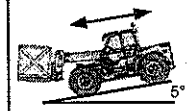


Pick & Carry (Travelling)

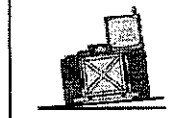
With rated load on hook

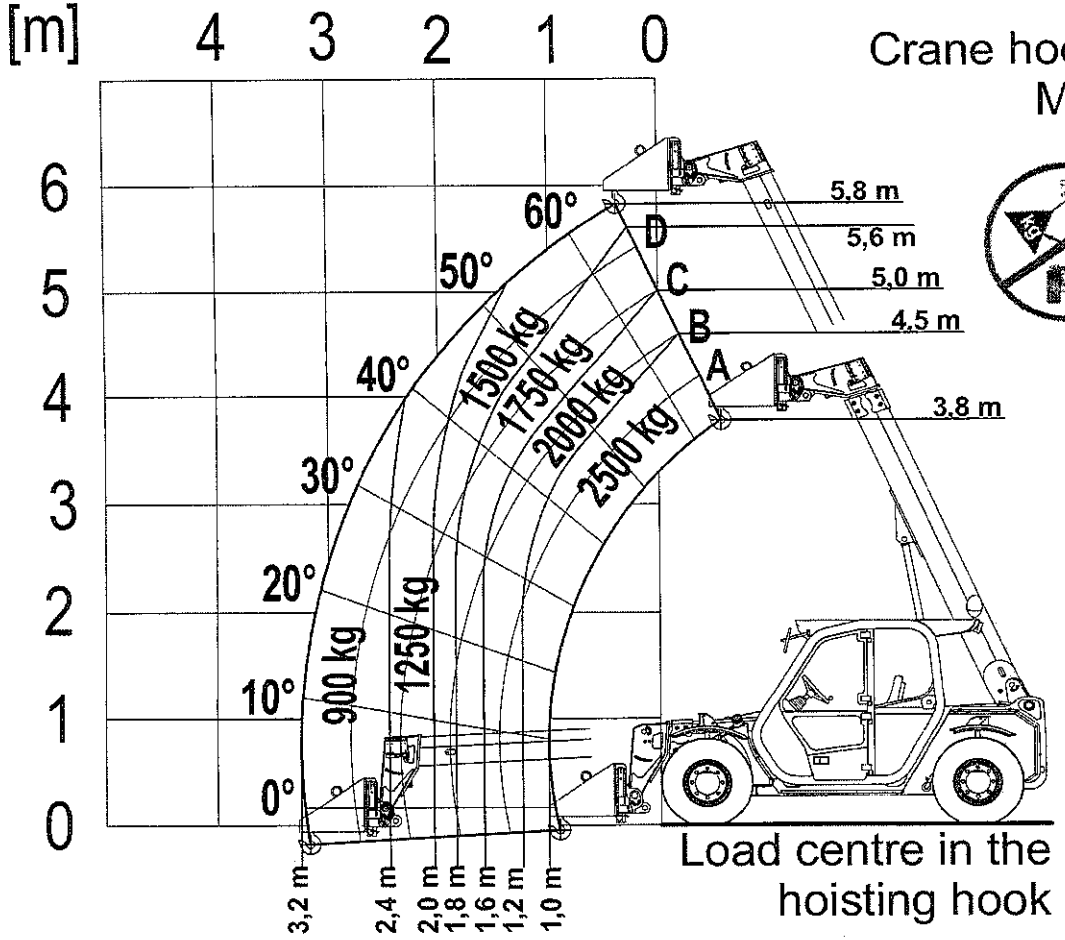


With rated load on hook



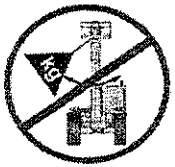
With rated load on hook





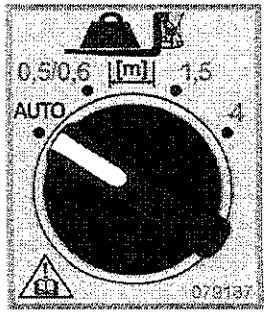
Load centre in the hoisting hook

Crane hook on carriage REF.No A1000
Maximum cap. 2500 kg



WARNING
Always operate with the crane hook perfectly level

On models with M-CDC:



Standard used
AS1418.19

WARNING Load charts are different for each attachment fitted to the telehandler. Please ensure the attachment part number is ashown above.

Pick and Carry information
1. Travel speed with rated load 0.4 m/s (walking speed)
2. Boom fully retracted and boom angle lower than 50°
   Rated load no more than 300mm above the ground
3. In-Service wind speed 10 m/s - 36 km/h
4. Ground conditions
   Solid surfaces for both lifting and travelling.
   Slope ratings listed in diagrams on the left for both configurations.

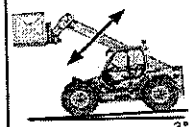
SAFE USE INFORMATION

Tyre manufacturer	Mitas
Tyre size	12.0/75-18 12 pr
Tyre pressure	400 kPa (58 psi)

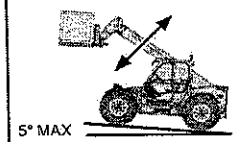
Chart Number	
085416	
Revision Date	
A	Febr. 2013

Lifting (Stationary)

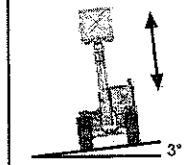
With rated load on hook



With rated load on hook

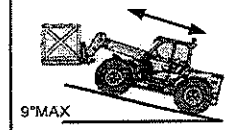


With rated load on hook

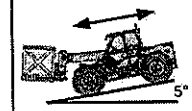


Pick & Carry (Travelling)

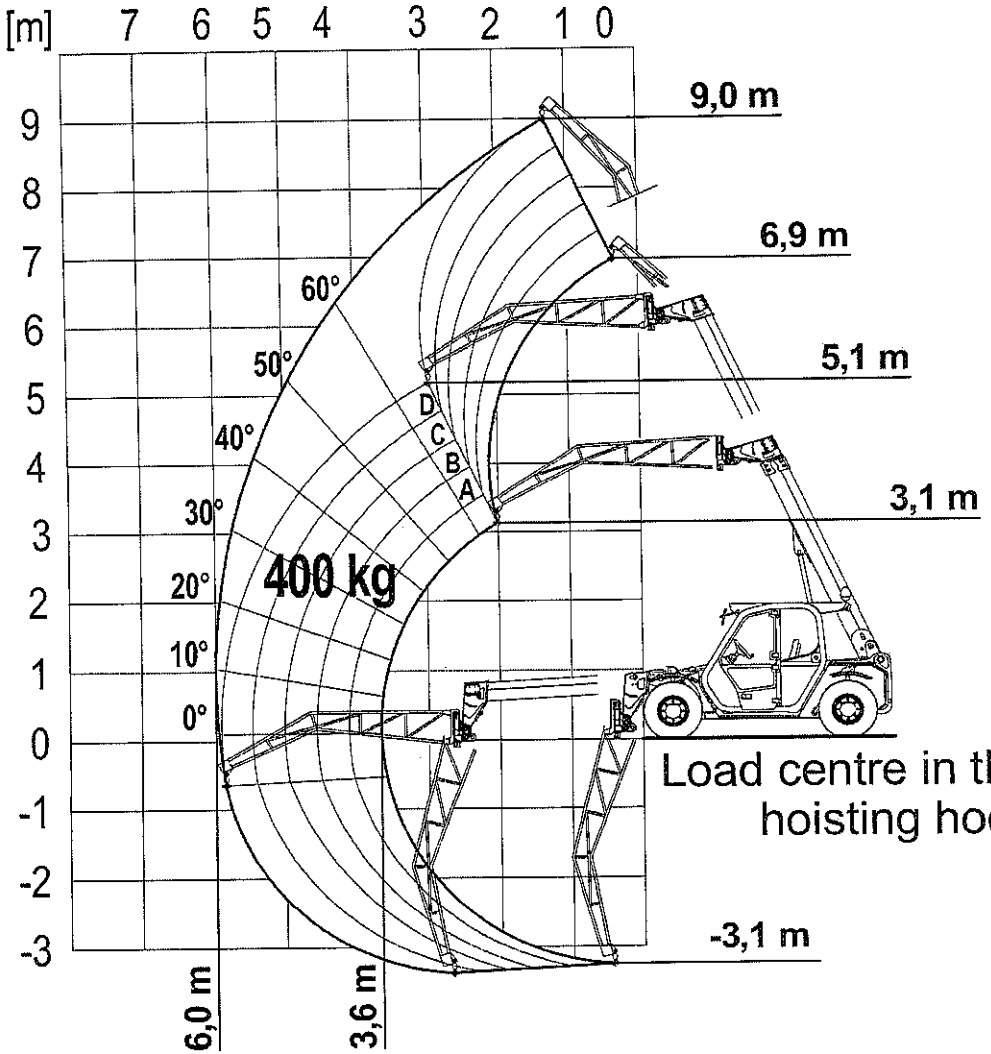
With rated load on hook



With rated load on hook



With rated load on hook

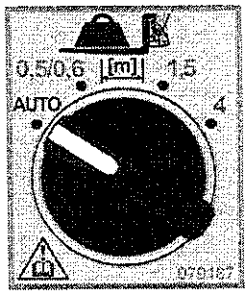


Load centre in the hoisting hook

P25.6 Load Chart Fly Jib

Fly-Jib REF.No A1230B
Maximum cap. 400 kg

On models with M-CDC:



Standard used
AS1418.19

WARNING Load charts are different for each attachment fitted to the telehandler. Please ensure the attachment part number is ashown above.

Pick and Carry information
1. Travel speed with rated load 0.4 m/s (walking speed)
2. Boom fully retracted and boom angle lower than 50°
   Rated load no more than 300mm above the ground
   Horizontal Fly-Jib
3. In-Service wind speed 10 m/s - 36 km/h
4. Ground conditions
   Solid surfaces for both lifting and travelling.
   Slope ratings listed in diagrams on the left for both configurations.

SAFE USE INFORMATION

Tyre manufacturer	Mitas
Tyre size	12.0/75-18 12 pr
Tyre pressure	400 kPa (58 psi)

Chart Number	
085418	
Revision Date	
A	Febr. 2013

VARIANT AND ACCESSORIES

This chapter describes all the available accessories for this vehicle, based on the Merlo official price list.
Before using any accessory mentioned in the present chapter, it is necessary to read and fully understand the instructions on its operation. If the accessory installation or operation is not entirely clear, please contact your dealership or Merlo Technical Support Service.

WARNING!

Only use Merlo S.p.a. approved accessories, homologated for their use on your vehicle.

It is forbidden to use an acessory without reading and understanding its installation and operation instructions.

Should more than one accessory be installed on the machine, the relative controls may be in a position that differs from that indicated in the manual supplied with the machine. In any event please refer to the symbol that appears next to the command itself, so that even if it should be in a different position can be identified by the relative symbol which is described in the manual.

GENERAL INSTRUCTIONS FOR THE USE OF THE MACHINE AS AN AGRICULTURAL TRACTOR (ONLY FOR 25.6)

This paragraph provides general instructions to be followed if your machine is type-approved as an AGRICULTURAL TRACTOR in compliance with Directive 2010/52/EU.

• PROTECTION LEVEL OF THE OPERATORS PROTECTION STRUCTURE

For information on the protection level of the operators protection structure of your machine please refer to the "CAB TYPE-APPROVAL PLATE" in chapter "TECHNICAL DATA OF YOUR MACHINE".

• PREVENTION OF CONTACT WITH HAZARDOUS SUBSTANCES

Prevention level 1 in compliance with the EN 15695-1:2009 standards. Cab not suitable for any use implying contact with hazardous substances.

• HOW TO TOW AN AGRICULTURAL TRACTOR

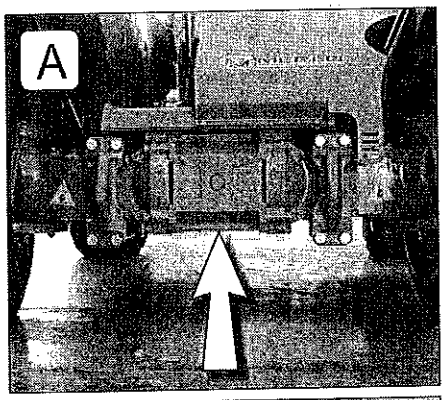
For information on how to tow your machine if it is type-approved as an AGRICULTURAL TRACTOR (Directive 2010/52/EU) please refer to the instructions provided in paragraph "MACHINE TOW", chapter "OPERATING INSTRUCTIONS".

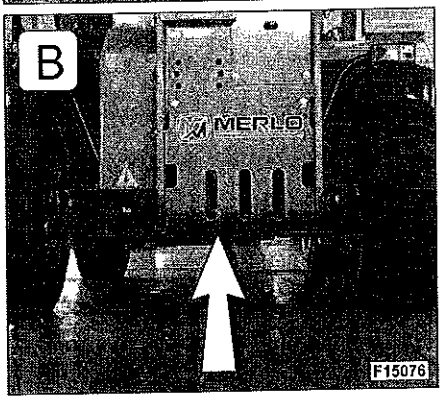
• WHERE TO PLACE HYDRAULIC JACKS

Should you lift your machine to replace a tyre, you can apply hydraulic jacks where shown below:

A) front lifting spot: place your hydraulic jack by the middle part of the front axis of your machine, as shown by the arrow
B) rear lifting spot: place your hydraulic jack by the middle part of the rear axis of your machine, as shown by the arrow

Please refer to the "TABLE FOR THE DETERMINATION OF PERMISSIBLE MASSES, AXLE LOADS AND TYRE LOAD CAPACITIES" in this chapter to identify the kind of hydraulic jack which best suits your needs.





• GENERAL INSTRUCTIONS FOR THE USE OF ATTACHMENTS OR TRAILERS COUPLED TO YOUR MACHINE

Before using your machine with mounted attachments, trailers and interchangeable towed attachments, strictly follow the instructions provided both in the operation and maintenance manual of your machine and in the manuals of the attachments or trailers. Never use your machine with mounted attachments, trailers and interchangeable towed attachments without following said instructions.

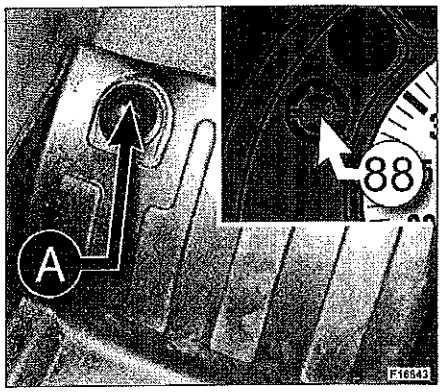
WARNING! Never stand in between the machine and the trailer or towed attachment.

LOCKING OF THE FRONT AND REAR DIFFERENTIAL ELEMENT

It operates by using the button ref. A:

button pressed = differential lock engaged
button released = differential lock free

the warning light lit (ref. 88) indicates that the differential lock is engaged.



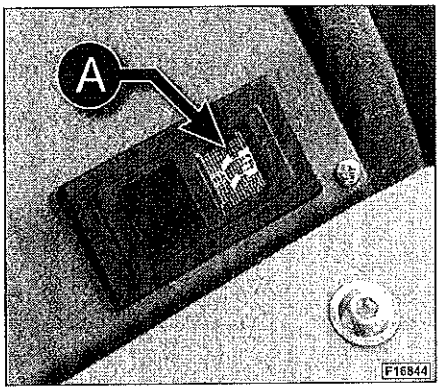
IMPORTANT! On hard surfaces do not operate steering with differential lock engaged.
Let the lock engaged in a fixed way exclusively to operate on the silage.

INDICATOR OF REAR WHEEL CENTERING ON THE MACHINE AXIS

Before carrying out a transfer on public roads, it is mandatory to align the wheels of the rear bridge to the longitudinal axis of the machine by proceeding as follows:

- select corrected steering or crab steering
- carry out the steering manoeuvre until the rear bridge wheels are parallel to the machine axis. The completed alignment is shown by indicator "A" which lights up on control panel "P1".

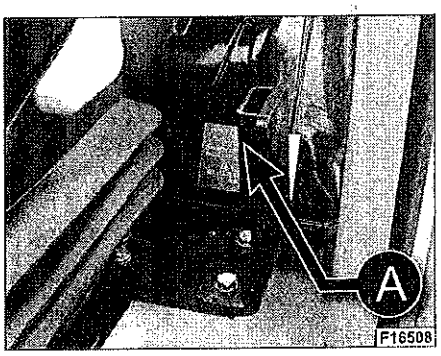
Before carrying out a transfer on public roads, select steering on the front axis (lever 29 in position "B").



SUPPORT BRACKET FOR THE TRAILER SERVICE BRAKE LEVER

The support bracket "A" for the service brake lever is located inside the driver's cabin, beside the driver's seat. If he wishes so, the customer may fit a lever onto this bracket to engage the service brake if the connected trailer does not have a hydraulic or pneumatic braking system.
The use conditions for the trailer service brake are the following:

- Maximum transfer speed: 20 km/h
- Trailer total weight: 5000 kg

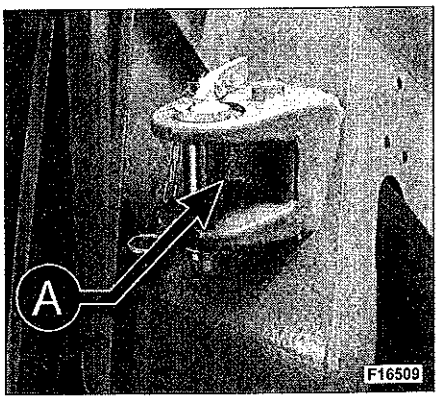


FRONT TOW HOOK

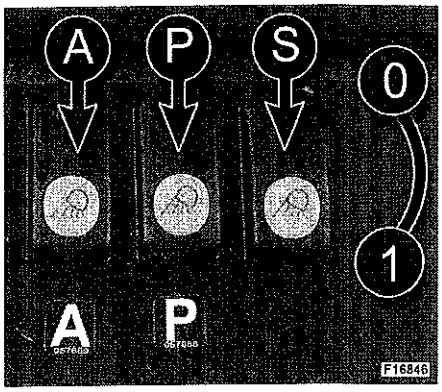
Front tow hook "A" shall only be used for vechicle rescue operations if there is no other way of intervening.
If possible, it is recommended to rely on the dedicate rescue vehicles.

The towing force must be at least 1500 kg.

For further information on the machine towage, refer to paragraph "INSTRUCTIONS FOR DRIVING YOUR MACHINE ON THE ROAD" in chapter OPERATING INSTRUCTIONS.



WORK LIGHTS



• ON CAB

- Turn the ignition key (8) to position "R" (dial will light up).
- Press button (A) to switch on the front working headlights "A1".
- Press button (P) to switch on the rear working headlights "P1".

• ON TELESCOPIC BOOM

- Turn switch selector "S" in position "1" in order to switch on the additional work lights on boom.
- Turn switch selector "S" in position "0" in order to switch off the additional work lights on boom.

MIXER BUCKET

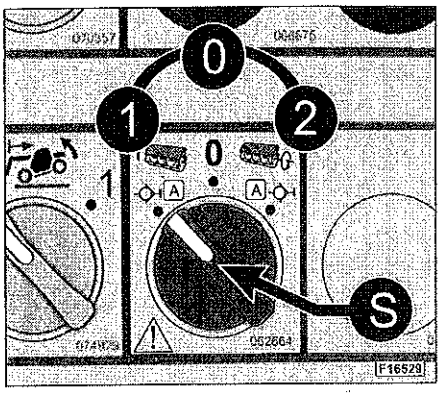
PROPELLER ROTATION

- Rotate switch "S" to position "2"

PROPELLER GUARD OPENING

- Rotate switch "S" to position "1";
- Rotate switch "S" to position "2" when the guard is completely open.

The guard closure occurs in automatic mode by rotating the bucket upwards.



WARNING! The rotation of the propeller with open guard is allowed solely during the loading of the inert materials, manoeuvring from the cab and using the bucket as a loader vane. With switch "S" in position "1", when rotating the bucket upwards, the safety device blocks the propeller rotation. If the machine is left in the condition the oil is liable to overheat.

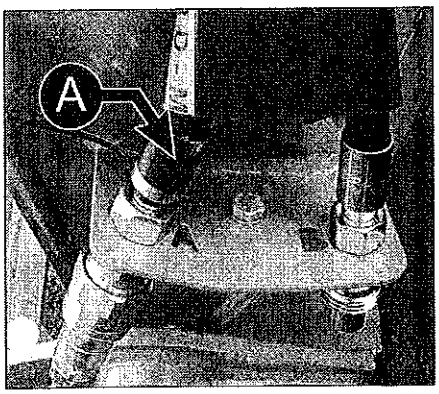
OPENING AND CLOSURE OF THE CONCRETE UNLOADING FLAP

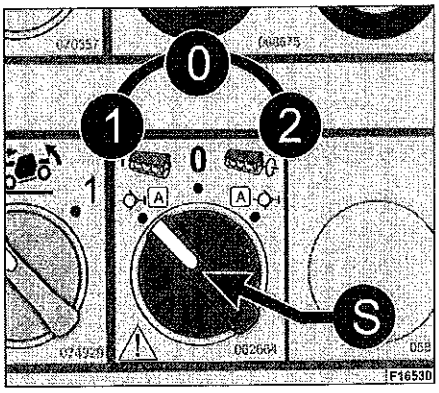
To discharge the concrete:
- Engage the propeller rotation function.
- Engage the unloading function using the radio control supplied (see paragraph relative to the equipment manual)

CONTROL SELECTOR FOR THE CONTINUOUS DELIVERY OF HYDRAULIC OIL

In order to supply with hydraulic oil an attachment connected to the quick couplings on the boom head in a CONTINUOUS manner, operate as follows:

- connect the hydraulic oil delivery conduit to coupling (A), marked with a black band.
- rotate selector (S) to position "1" or "2" to send the hydraulic oil to the quick couplings in a CONTINUOUS MANNER.



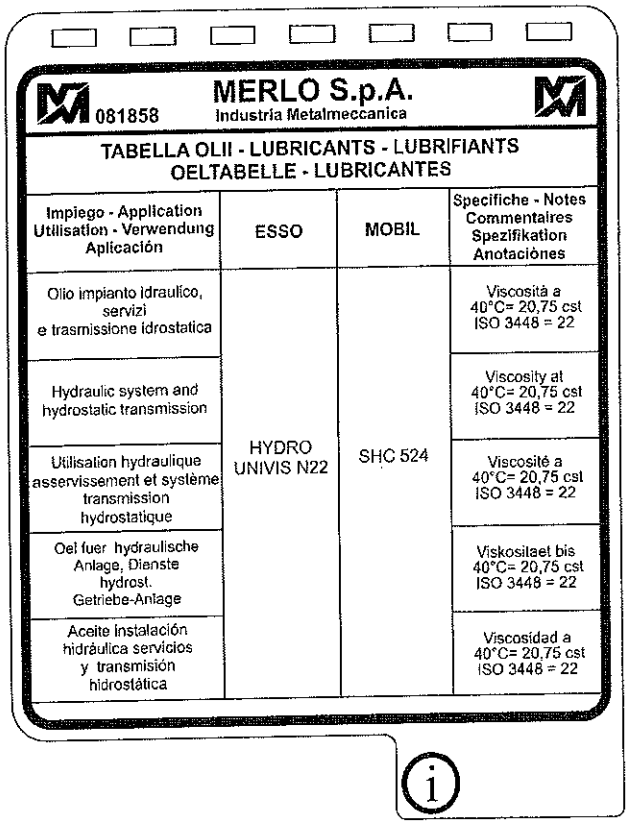


WARNING! Use the controls which enable the continuous delivery of oil to the hydraulic inlets only after correctly connecting the desired attachment to the machine.

The use of attachments which require a CONTINUOUS supply of oil (such as mixers, silo unloaders, etc.) must only last for a short period of time (about ten minutes), so as to prevent the oil in the machine hydraulic system from overheating. MERLO S.p.A. is not responsible for the use of attachments not produced by them or whose assembly on the base vehicle has not been explicitly approved. MERLO S.p.A. declines any responsibility for the construction, operation, safeties and instructions on the correct use of any attachment which it has not certified. Any damage to the machine original parts shall not be recognised.

COLD CLIMATE OIL

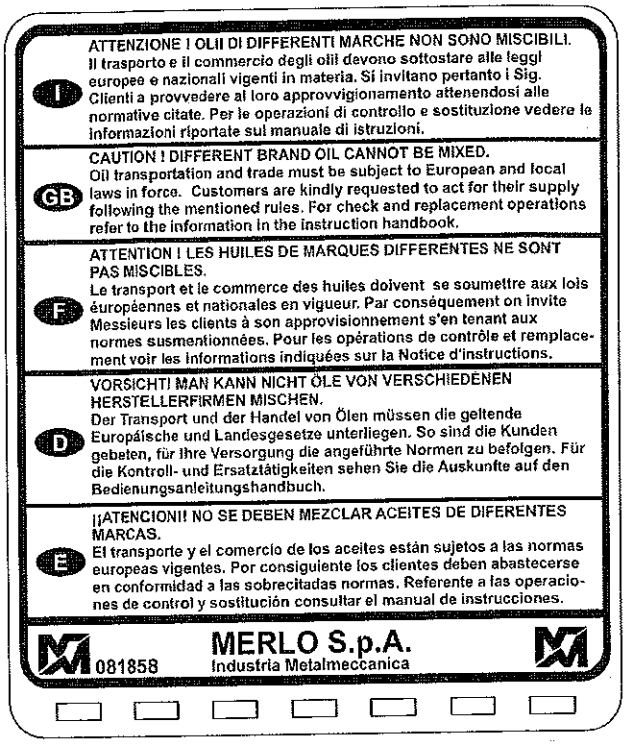
This oil table replaces and supersedes the one found in chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN".



MERLO S.p.A. 081858 Industria Metalmeccanica

TABELLA OLII - LUBRICANTS - LUBRIFIANTS
OELTABELLE - LUBRICANTES

Impiego - Application Utilisation - Verwendung Aplicación	ESSO	MOBIL	Specifiche - Notes Commentaires Spezifikation Anotaciònes
Olio impianto idraulico, servizi e trasmissione idrostatica	HYDRO UNIVIS N22	SHC 524	Viscosità a 40°C= 20,75 cst ISO 3448 = 22
Hydraulic system and hydrostatic transmission			Viscosity at 40°C= 20,75 cst ISO 3448 = 22
Utilisation hydraulique asservissement et système transmission hydrostatique			Viscosité a 40°C= 20,75 cst ISO 3448 = 22
Oel fuer hydraulische Anlage, Dienste hydrost. Getriebe-Anlage			Viskositaet bis 40°C= 20,75 cst ISO 3448 = 22
Aceite instalación hidráulica servicios y transmisión hidrostática			Viscosidad a 40°C= 20,75 cst ISO 3448 = 22



I ATTENZIONE ! OLII DI DIFFERENTI MARCHE NON SONO MISCIBILI.
Il trasporto e il commercio degli olii devono sottostare alle leggi europee e nazionali vigenti in materia. Si invitano pertanto i Sig. Clienti a provvedere al loro approvvigionamento attenendosi alle normative citate. Per le operazioni di controllo e sostituzione vedere le informazioni riportate sul manuale di istruzioni.

GB CAUTION ! DIFFERENT BRAND OIL CANNOT BE MIXED.
Oil transportation and trade must be subject to European and local laws in force. Customers are kindly requested to act for their supply following the mentioned rules. For check and replacement operations refer to the information in the instruction handbook.

F ATTENTION ! LES HUILES DE MARQUES DIFFERENTES NE SONT PAS MISCIBLES.
Le transport et le commerce des huiles doivent se soumettre aux lois européennes et nationales en vigueur. Par conséquement on invite Messieurs les clients à son approvisionnement s'en tenant aux normes susmentionnées. Pour les opérations de contrôle et remplacement voir les informations indiquées sur la Notice d'instructions.

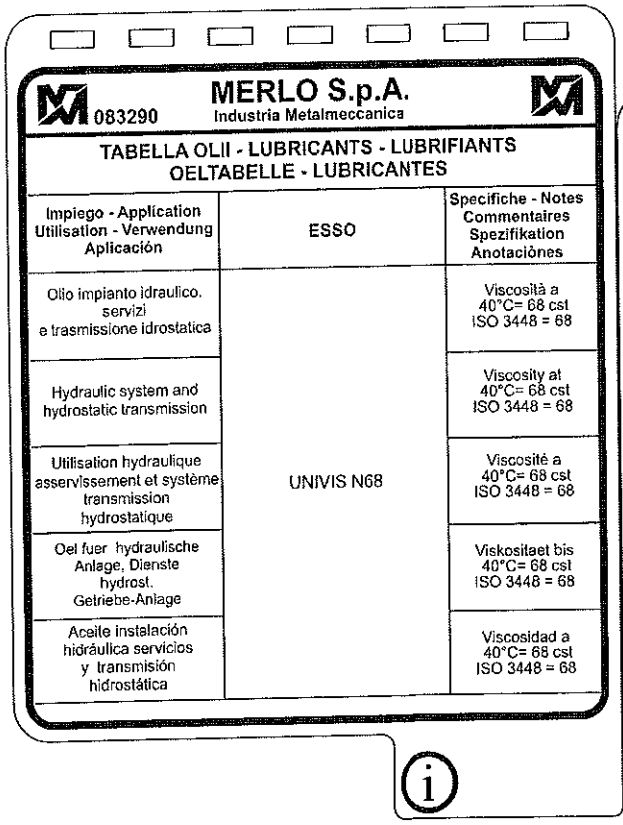
D VORSICHT! MAN KANN NICHT ÖLE VON VERSCHIEDENEN HERSTELLERFIRMEN MISCHEN.
Der Transport und der Handel von Ölen müssen die geltende Europäische und Landesgesetze unterliegen. So sind die Kunden gebeten, für Ihre Versorgung die angeführte Normen zu befolgen. Für die Kontroll- und Ersatztätigkeiten sehen Sie die Auskunfte auf den Bedienungsanleitungshandbuch.

E ¡¡ATENCION!! NO SE DEBEN MEZCLAR ACEITES DE DIFERENTES MARCAS.
El transporte y el comercio de los aceites están sujetos a las normas europeas vigentes. Por consiguiente los clientes deben abastecerse en conformidad a las sobrecitadas normas. Referente a las operaciones de control y sostitución consultar el manual de instrucciones.

MERLO S.p.A. 081858 Industria Metalmeccanica

HOT CLIMATE OIL

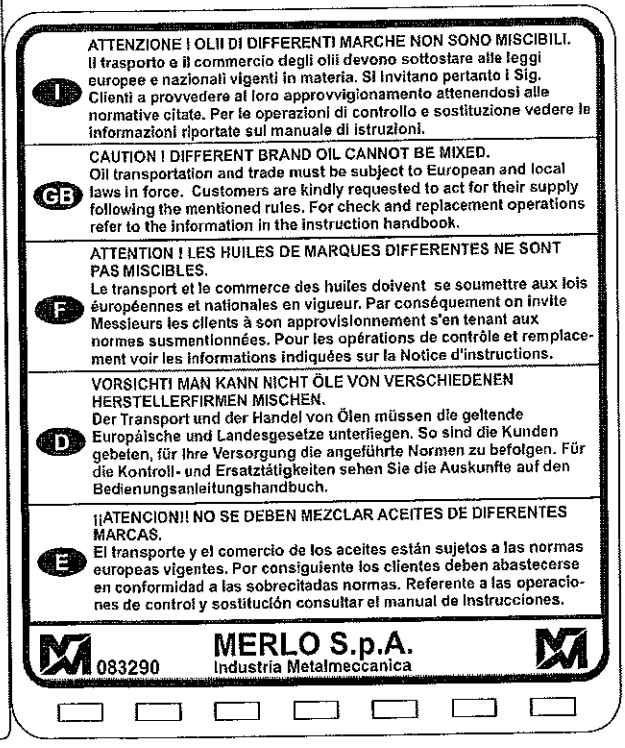
This oil table replaces and supersedes the one found in chapter "STICKERS WITH CONTROL DESCRIPTIONS - LEAFLETS IN THE CABIN".



MERLO S.p.A. 083290 Industria Metalmeccanica

TABELLA OLII - LUBRICANTS - LUBRIFIANTS
OELTABELLE - LUBRICANTES

Impiego - Application Utilisation - Verwendung Aplicación	ESSO	Specifiche - Notes Commentaires Spezifikation Anotaciònes
Olio impianto idraulico. servizi e trasmissione idrostatica	UNIVIS N68	Viscosità a 40°C= 68 cst ISO 3448 = 68
Hydraulic system and hydrostatic transmission		Viscosity at 40°C= 68 cst ISO 3448 = 68
Utilisation hydraulique asservissement et système transmission hydrostatique		Viscosité a 40°C= 68 cst ISO 3448 = 68
Oel fuer hydraulische Anlage, Dienste hydrost. Getriebe-Anlage		Viskositaet bis 40°C= 68 cst ISO 3448 = 68
Aceite instalación hidráulica servicios y transmisión hidrostática		Viscosidad a 40°C= 68 cst ISO 3448 = 68



I ATTENZIONE ! OLII DI DIFFERENTI MARCHE NON SONO MISCIBILI.
Il trasporto e il commercio degli olii devono sottostare alle leggi europee e nazionali vigenti in materia. Si invitano pertanto i Sig. Clienti a provvedere al loro approvvigionamento attenendosi alle normative citate. Per le operazioni di controllo e sostituzione vedere le informazioni riportate sul manuale di istruzioni.

GB CAUTION ! DIFFERENT BRAND OIL CANNOT BE MIXED.
Oil transportation and trade must be subject to European and local laws in force. Customers are kindly requested to act for their supply following the mentioned rules. For check and replacement operations refer to the information in the instruction handbook.

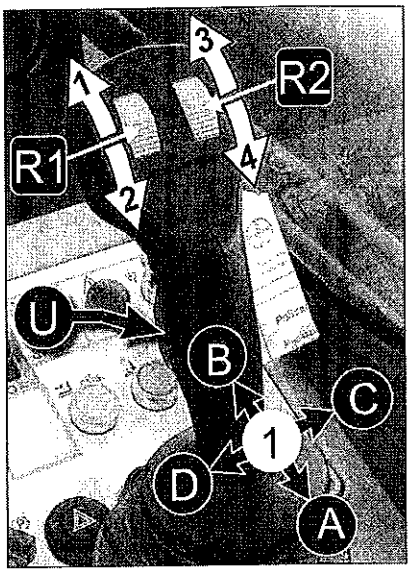
F ATTENTION ! LES HUILES DE MARQUES DIFFERENTES NE SONT PAS MISCIBLES.
Le transport et le commerce des huiles doivent se soumettre aux lois européennes et nationales en vigueur. Par conséquement on invite Messieurs les clients à son approvisionnement s'en tenant aux normes susmentionnées. Pour les opérations de contrôle et remplacement voir les informations indiquées sur la Notice d'instructions.

D VORSICHT! MAN KANN NICHT ÖLE VON VERSCHIEDENEN HERSTELLERFIRMEN MISCHEN.
Der Transport und der Handel von Ölen müssen die geltende Europäische und Landesgesetze unterliegen. So sind die Kunden gebeten, für Ihre Versorgung die angeführte Normen zu befolgen. Für die Kontroll- und Ersatztätigkeiten sehen Sie die Auskunfte auf den Bedienungsanleitungshandbuch.

E ¡¡ATENCION!! NO SE DEBEN MEZCLAR ACEITES DE DIFERENTES MARCAS.
El transporte y el comercio de los aceites están sujetos a las normas europeas vigentes. Por consiguiente los clientes deben abastecerse en conformidad a las sobrecitadas normas. Referente a las operaciones de control y sostitución consultar el manual de instrucciones.

MERLO S.p.A. 083290 Industria Metalmeccanica

JOYSTICK (4 FUNCTION)



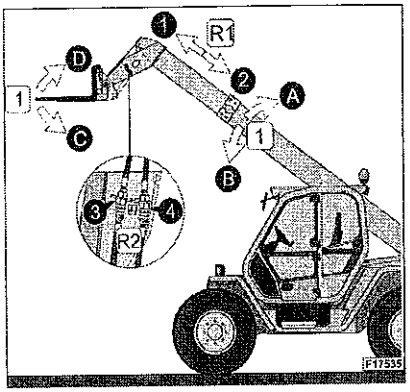
Your machine is equipped with a single-lever joystick (1) that allows you to control the 4 main movements of the machine during operation:

1) RAISING / LOWERING OF THE TELESCOPIC BOOM
2) UPWARD / DOWNWARD ROTATION OF THE FORKS
3) EXTENSION / RETRACTION OF THE TELESCOPIC BOOM
4) OPERATION OF ATTACHMENTS FITTED ON THE CARRIAGE

To control the first two movements shift the joystick both longitudinally and transversally, while for the two remaining movements use control rollers "R1"and "R2".
The speed of the movements to be made is in direct ratio to:

- the tilt angle of the joystick (the wider the angle, the higher the speed of the movement);
- to the control rollers "R1", "R2" rotation (the wider the rotation is, the higher the speed will be)
- the rotation speed of the diesel engine (the higher the engine rpm, the higher the speed of the movement).

The movement stops automatically when you release either the joystick or the roller. Depending on load conditions, it is possible to combine movements.



- JOYSTICK LEVER (1) IN POSITION:

A = raising of the telescopic boom
B = lowering of the telescopic boom
C = downward tilt of the forks
D = upward tilt of the forks

- CONTROL ROLLER "R1"

1 = extension of the telescopic boom
2 = retraction of the telescopic boom

- CONTROL ROLLER "R2"

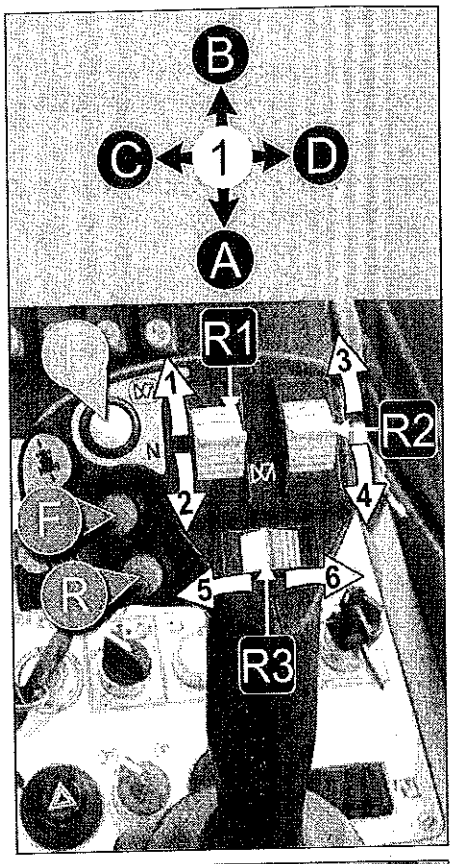
3 = uncoupling/control of attachments
4 = control of attachments

- JOYSTICK ENABLE BUTTON "U"

Press and hold button "U" to enable the controls on joystick (1). Indicator lamp (209) on control panel (P1) illuminates to show the operator that joystick controls are enabled.

WARNING! Before operating the machine, please mark off the area where the machine needs to be operated, in order to keep both people and vehicles away from it.
Should you need to operate the machine near overhead lines, the person in charge of safety shall inquire the minimum safety distance from such lines from the manager of said lines, as well as from the authorities in charge of safety and health in the workplace; in this way all necessary precautions shall be taken and potential accidents shall be prevented. For further information please refer to paragraph "INSTRUCTIONS FOR A CORRECT USE OF THE MACHINE NEAR OVERHEAD LINES" in chapter "OPERATING INSTRUCTIONS".

JOYSTICK (5 FUNCTION) WITH SELECTION OF THE DRIVE DIRECTION



Your machine is equipped with a single-lever joystick (1) that allows you to control the 5 main movements of the telescopic boom and to select the drive direction (forward/reverse) of the machine.
The controls provided on the joystick are:

• RAISING / LOWERING OF THE TELESCOPIC BOOM
(move the joystick forwards or backwards)

• UPWARD / DOWNWARD ROTATION OF THE FORKS
(move the joystick to the left or right)

• EXTENSION / RETRACTION OF THE TELESCOPIC BOOM
(use thumb wheel R1)

• OPERATION OF ATTACHMENTS FITTED ON THE CARRIAGE (AUX)
(use thumb wheel R2)

• OPERATION OF ATTACHMENTS FITTED ON THE CARRIAGE (AUX 1)
(use thumb wheel R3)

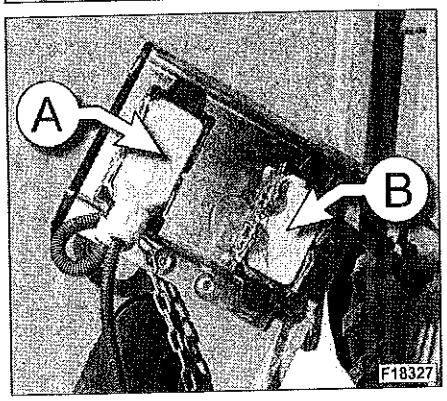
• SELECTION OF FOWARD / REVERSE DRIVE
(use buttons F, R, N)

- TELESCOPIC BOOM CONTROLS

The speed at which the movement is performed is proportional to:

- the tilt angle of the joystick (the further the joystick is moved, the faster the movement)
- the rotation of thumb wheels "R1", "R2", "R3" (the further the wheel is rotated, the faster the movement)
- the rotation speed of the diesel engine (the higher the engine rpm, the faster the movement).

The movement stops automatically when the joystick or the respective thumb wheel is released. The possibility of combining the movements depends on the load conditions.



- JOYSTICK LEVER (1) IN POSITION:

A = raising of the telescopic boom
B = lowering of the telescopic boom
C = downward tilt of the forks
D = upward tilt of the forks

- CONTROL ROLLER "R1"

1 = extension of the telescopic boom
2 = retraction of the telescopic boom

- CONTROL ROLLER "R2"

3 = uncoupling/control of attachments
4 = control of attachments

- CONTROL ROLLER "R3"

5 = control of attachments (AUX 1)
6 = control of attachments (AUX 1)

- JOYSTICK ENABLE BUTTON "U"

Press and hold button "U" to enable the controls on joystick (1). Indicator lamp (209) on control panel (P1) illuminates to show the operator that joystick controls are enabled.

EXTRA-COMFORT PNEUMATIC SEAT GRAMMER

The pneumatic seat Grammer is installed in place of the standard one. Therefore, the following instructions replace those found in chapter "CABIN" of the present operator manual.

WARNING! It is forbidden and it is extremely dangerous to adjust the driver's seat while the vehicle is moving. Position the driver's seat so that the driver can easily reach the vehicle controls.

1) SEAT FORWARD/BACKWARD SLIDING

To regulate the seat horizontal sliding, lift lever "A" and move the seat forwards or backwards until the desired position is reached. Once the seat has been adjusted, release lever "A" and check that the seat is locked into the desired position.

2) BACKREAST ADJUSTMENT

Rest your back on the backrest, then lift lever "B" to incline it as desired. Once the seat has been adjusted, release lever "A" and check that the backrest is locked into the desidered position.

3) LUMBAR ADJUSTMENT

Rotate handle "C" in both directions to adjust the desiderd lumbar support level.

4) SUSPENSION ADJUSTMENT

This pneumatic seat can automatically adjust to the ideal height and suspension level according to your body weight.
To correctly adjust the seat height and suspension, properly sit on the seat, then lift lever "D" for a few seconds; the seat automatically assumes the ideal position.
If the set height is not comfortable, you can still manually use lever "D" to raise or lower the seat.
If, while driving, the seat dampens the roughness of the road by reaching its top or bottom end stop, the system automatically regulates the seat height, so that the maximum driving comfort is always ensured.

5) ACTIVATION OF THE LONGITUDINAL ANTI-SHOCK SYSTEM

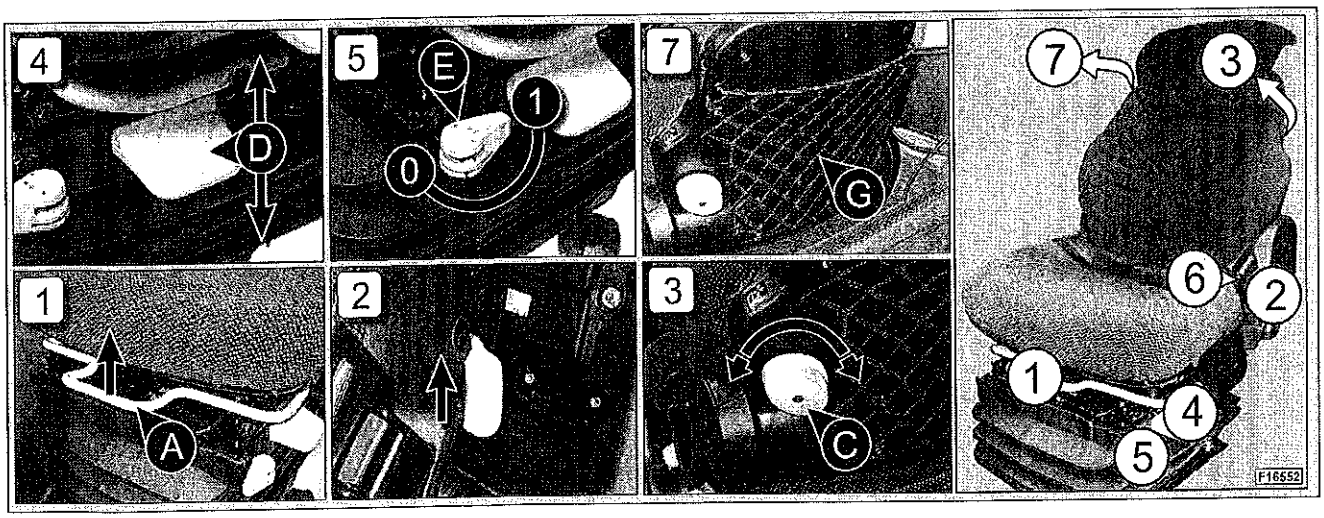
Your pneumatic seat is fitted with a longitudinal anti-shock system which makes driving on roads and working at a building site more comfortable.
Lever "E" is used to activate the anti-shock system: when in position "1" the anti-shock is activated, in position "0" it is disabled.

6) SAFETY BELT

The safety belt use conditions are the same as those found in paragraph "CABIN".

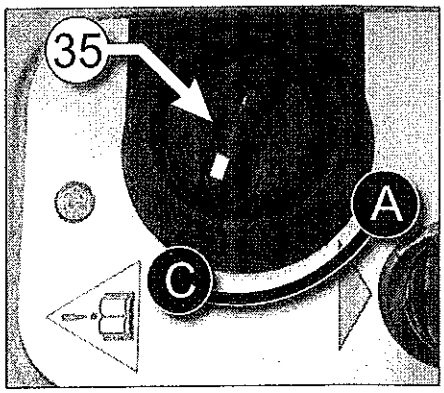
7) DOCUMENT POCKET

Always keep the use and maintenance manual of your vehicle in the document pocket "G", located behind the seat.

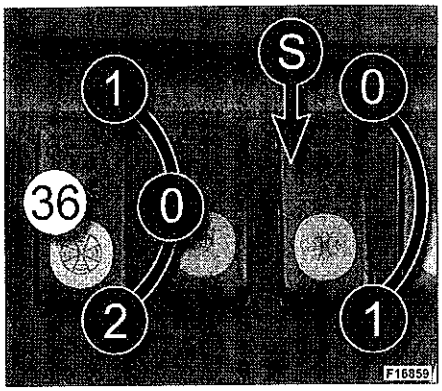


CONDITIONER

To properly cool the temperature of the driver's cabin, follow these instructions.



- Open all the cabin air vents
- After a long stop under the sun, let air into the driver's cabin by leaving all windows open for a few minutes and bringing ventilation control (36) on the second speed (for further information, refer to paragraph "HEATING" in chapter "CONTROLS AND INSTRUMENTS").
- Make sure that heating control (35) in on position "C"; otherwise, rotate the handle so as to close the heating tap.
- To always ensure the air-conditioning maximum reliability and efficiency, it is recommended to regularly clean the condensator. This component is located in the high spoiler under the driver's cabin.
- Should the air-conditioning efficiency deteriorate, have the coolant quantity checked by qualified and skilled personnel.



COMPONENTS

- handle (35) in position "A": heating on
- handle (35) in position "C": heating off

- selector "A" in position "0": air-conditioning off
- selector "A" in position "1": air-conditioning on

- selector (36) in position "0": ventilation off (do not use when selector "A" is on position "1")
- selector (36) in position "1": ventilation on - first speed
- selector (36) in position "2": ventilation on - second speed

OPERATING INSTRUCTIONS

To properly activate air-conditioner "A" follow these instructions:

- Bring handle (35) to position "C"
- Bring selector (36) to position "1" or "2"
- Rotate selector "A" to position "1"

WARNING! Do not activate air-conditioner "A" if the ventilator control (36) is in position "0", as this would dramatically reduce the system performance and may generate ice on the evaporator. Any water leakage under the vehicle is due to the normal discharge of the condensation produced by the air conditioner dehumidifying effect.

END OF CHAPTER

INDEX

REFERENCE	DESCRIPTION
4	Diesel engine
5	Tank for hydrostatic oil
6	Hydrostatic pump, variable delivery type
7	Heat exchanger
9	Hydrostatic motor, variable displacement
60	Filter carrying block
61	Bypass
84	Rams for differential-lock (OPTIONAL)
85	Servo/brake (OPTIONAL)
86	Cartridge filter
88	Themal contact
90	Pressure tube
105	Parking brake caliper
125	Emergency pump
128	Solenoid valve block

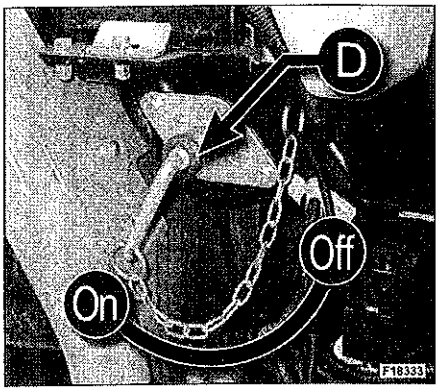
REFERENCE	DESCRIPTION
1	Intake filter
2	Return filter
3	Pump
4	Diesel engine
12	Volume recovery valve
16	Priority valve
17	Hydraulic power steering
18	Steering control valve
19	Steering cylinders
22	Pressure gauge
23	Main control valve
24	Lock valve for the boom extension cylinder
25	Lift cylinder
27	Boom extension cylinder
30	Forks/compensation valve
31	Compensation cylinder
32	Lock valve for fork cylinder
33	Fork cylinder
36	Front quick couplings, Ø 1/2"
42	Quick coupling, Ø 1/2"
66	Solenoid valve for movement release
67	Quick release cylinder
68	Lock valve for the boom extension cylinder
90	Pressure tap
94	Accumulator

127 - P3 (T2) = Reference to part. n° 127 connection P3 (T2) hydrostatic transmission circuit.

END OF CHAPTER

INDEX

MANUAL BATTERY CUT-OFF SWITCH



For greater safety, or when the machine is not set in motion for a prolonged period of time, it is possible to remove power from the electrical equipment of the machine via the manual battery cut-off switch.

1) Follow the instructions below to operate the battery cut-off switch:

- turn battery cut-off switch "D" to position "OFF"
- under these conditions it is no longer possible to start the engine.

2) Follow the instructions below to power the electrical equipment of the machine again:

- turn battery cut-off switch "D" to position "ON"
- under these conditions it is possible to start the engine again.

WARNING! Never use the battery cut-off switch when either the diesel engine is running or the instrument panel is switched on, since severe damage to the electrical equipment and to the instruments of your machine may occur. The battery cut-off switch is not intended as an engine shutdown device, and it shall not be used as such.

For a correct use of this switch, stop the diesel engine first, then take the engine start key out of the instrument panel, wait about 30 seconds and finally rotate selector "D" to "Off".

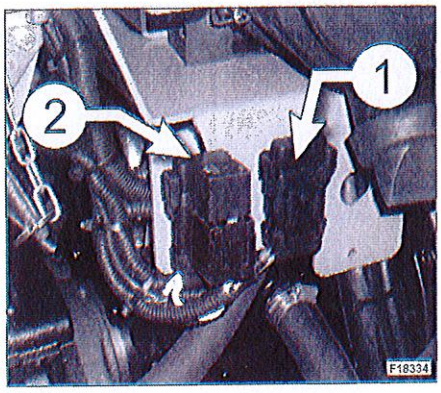
Should the previously described procedure not be followed, serious errors may occur in the electronic control unit.

F25	30A	Fan in the cab
F26	15A	Cab-mounted rear work lights
F27	15A	Cab-mounted front work lights
F28	20A	Cigar lighter, direct power supply from the battery cut-out switch
F29	10A	Engine stop solenoid valves
F30	15A	Power supply to the platform with simplified controls (available as an option)
F31	7,4A	Front left and rear right parking lights
F32	10A	Power supply to optional accessories
F33	10A	Stop lights
F34	7,5A	Front right and rear left parking lights, number plate light
F35	5A	Left blinker of the trailer
F36	5A	Right blinker of the trailer
F37	10A	Stop light of the trailer
F38	7,5	Tail lights of the trailer
F39	10A	Trailer-mounted rotary beacon light
F40	10A	Cab-mounted rotary beacon light

FUSES IN THE ENGINE COMPARTMENT

1) Main fuse (80A)
2) Engine pre-heater fuse (80A)

If optional accessories are ordered, the fuses relating to them are placed next to the main fuse.



END OF CHAPTER

PUBLICATION DATE OF THIS MANUAL: May 2013