



OPERATOR MANNUAL

**ESCORTS
HD-85 DGBR**

ESCORTS LTD. – CONSTRUCTION EQUIPMENT



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CONGRATULATIONS

You have invested in the best equipment of its class in the market today.

This ESCORTS HD-85 is a versatile machine. For doing the jobs safely and efficiently you need to know this machine very well.

This operation and maintenance manual provides detailed instructions on the machine controls and maintenance procedures. It will also tell you about the safe operation and safety features of the machine.

The care you give to your ESCORTS HD-85 will greatly determine your satisfaction with its performance and service life. We urge a careful study of this operation and maintenance manual to provide you with a thorough understanding of your new equipment before operating, as well as suggestions for proper and safe operation and maintenance of the machine.

Always keep this operation and maintenance manual in your machine's cabin. Keep it in good condition. Do not operate the machine unless the operation and maintenance manual is in your machine and you have read it thoroughly.

Should you require any further assistance please contact your authorized ECE dealer.

ECE maintains an ongoing product improvement Policy, some of the photographs shown in this manual may vary in some details.



FOREWARD

Congratulations! We welcome you in the family of **ESCORTS CONSTRUCTIONS EQUIPMENT**. You are now the proud owner of ESCORTS HD-85 TANDEM ROLLER.

This manual provides operating techniques to help you obtain efficient and dependable use from your ESCORTS HD-85 TANDEM ROLLER. In the interest of the operating staff and the TANDEM VIBRATORY ROLLER it is recommended to go through the manual before utilizing this machine. If at any stage, you have a service problem with your ROLLER, contact the nearest ESCORTS CONSTRUCTION EQUIPMENT's dealer or ESCORTS CONSTRUCTION EQUIPMENT, Faridabad, Service Deptt. Or ECE BUSINESS CENTRES who have trained and specialized Engineers, and genuine spare parts to assist you in the shortest possible time.

The instruction given herein will enable the operating staff to accomplish what the equipment is designed for and to gain maximum trouble free operation and long life. Every effort has been made to make this manual precise and simple.

In accordance with ESCORTS CONSTRUCTION EQUIPMENT. Policy of constant product improvements, the company reserves the right to change the procedures, material, specifications, dimensions or design refer to in this manual at anytime and without prior notice.

ESCORTS CONSTRUCTION EQUIPMENT Strongly advised to use Genuine spare parts to get the best results and to maintain the original quality built into the ROLLER. If you are in doubt on any point please seek the advice of the nearest ECE representative or dealer. Should you need any further information please write to:

GENERAL MANAGER (CUSTOMER SUPPORT)

ESCORTS CONSTRUCTION EQUIPMENT
PLOT NO 219, SECTOR – 58,
BALLABGARH, DISTT FARIDABAD
HARYANA – 121004.

PH: 0129 2306300

FAX: 0129 2306400



WARNING

STUDY THE OPERATION AND MAINTENANCE INSTRUCTION MANUAL THOROUGHLY BEFORE STARTING, OPERATING MAINTAINING OR SERVICING THIS ROLLER.



WARRANTY POLICY

Subject to adherence to the company policies/rules/operators manual. Escorts Construction Equipments (hereinafter called "ECE"), warrants that each new ECE Equipment distributed in India by ECE and sold by an authorized ECE dealer will be free (under normal use and service) from any defects in material and workmanship at the time of manufacture SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

(1) Qualification:

To qualify for this warranty:

(Equipment owner has to get the machine installed immediately after it reaches site and the installation coupon signed by the Service Engineer attending the machine)

(a) The ECE Equipment must serviced by ECE authorized dealer/ ECE Representative.

(b) All scheduled services as specified in the service coupon Booklet must be performed at the specified time period through ECE authorized dealer. In the event, any service is missed, by the customer the warranty on the machine is liable to be ceased. All reports should be kept by the dealership.

(2) Term:

The term of the warranty shall be Twelve (12) months or 1,000 Hours (whichever occurs first) from the date of delivery of the m/c to the first owner only - for the purpose of calculation the date of Installation to be taken into consideration provided that in no manner the gap between the delivery of the Equipment and Installation should not be more than 10 days, else the date of delivery will be taken for calculation of warranty period.

(3) ECE's Warranty Obligation:

(a) If any defect(s) is found in an ECE Equipment within the term stipulated above, and ECE acknowledges that such defect(s) is attributable to faulty matter or workmanship. ECE's only obligation is to repair or replace at its sole discretion any such defective part or equivalent at no cost to the owner for parts or labour, The owner is responsible for any repair or replacements which are not covered by this warranty.

(b) The company's/seller's liability will be limited to the repair/replacement of the defective parts and will not cover any direct or indirect losses suffered on this account and no claim for consequential damages will be entertained.

(c) Consequently allied equipment including tyres, electrical equipment including battery, fuel injection equipment, etc. and other component/tools not manufacturer by the manufacturer is covered only by the standard warranty of the manufacturer of such allied equipment through sold or operated with the manufacturer's machinery.

(4) Limitation

This warranty shall not apply to:

(a) The replacement of normal wear and Tear parts including without limitation, bulbs, battery, Tyres and lubes, Fan belts, Water hoses, filters, wiper blades, brushes, contact points, fuses, cable and all rubber parts.

(b) Any Equipment which has been used for competition racing or for purposes other than what it was designed for.



- (c) Any repairs or replacement required as a result of accidents Intentional or Unintentional.
- (d) Any defects caused by misuse, negligence, abnormal use or insufficient care.
- (e) Any Equipment which has been modified or altered, including without limitation, the Installation of performance accessories
- (f) Any Equipment which has not been operated and maintained in accordance with the instructions in the ECE Operator's Manual,
- (g) Any Equipment which has been assembled, disassembled, adjusted or repaired by a person other than an ECE authorized Representatives.
- (h) Insignificant defects which do not affect the function of the Equipment including without limitation, sound, vibration and fluid seep.
- (i) Warranty of the m/c will be rejected if the Hour meter of the m/c found altered purposely.
- (j) The Warranty will not cover any damages caused while the equipment is in storage or under transit during the period of the warranty.

(5) Extent of Warranty:

This warranty is the only written warranty given by ECE for ECE Equipments and no ECE employee, dealer or its employee is authorized to alter this warranty in any manner and no ECE employee, dealer or agent or employee is authorized to make any oral commitment for warranty on ECE's behalf. ECE reserves the right to add any improvements or change the design of any model at any time with no obligation to make the same changes on previously sold Equipment

(6) Warranty Service and owner's Responsibility

- 1 To obtain warranty service, it is customer responsibility to inform the nearest service dealer or ECE office -
 - i) If the m/c is going to attend the m/c hours before the date of service due as per the days schedule provided by ECE.
 - ii) If the m/c has been shifted from one place to another
- 2 It shall be obligatory on the part of the buyer to use only genuine ECE spare parts, recommended hydraulic oil, transmission oil, grease and lubricants, etc. Further, it shall also be obligatory to assemble parts in accordance with the guidelines given by the company/seller. Non-conformance of the above shall automatically and irrevocably void the warranty.
- 3 Customer can get the Paid services directly from the dealer by paying the nominal service charges after expiry of the warranty services.
- 4 Arrange oils etc as required for the service due along with the Filters etc. at customer's cost.
- 5 Provide the transportation facility for getting the heavy parts from dealer premises if required for replacement under warranty.
- 6 Customer to keep the service Coupon booklet as proof that the services being carried out.
- 7 Customer to certify the maintenance job was carried out as per the service coupon /Operator manual provided by the ECE representative
- 8 To provide the service coupon booklet to ECE representative whenever requesting service inspections or free services.
- 9 If the service coupon booklet lost or misplaced - consult nearest dealer and get duplicate booklet on payment, reasonable charges.



AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the highway, are caused by the failure of some individual to follow simple and fundamental safety rules or precautions. For this reason most accidents can be prevented by recognizing the real cause and doing something about it before accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A CAREFUL OPERATOR IS THE BEST INSURANCE AGAINST AN ACCIDENT. THE COMPLETE OBSERVANCE OF THE SIMPLE RULE WOULD PREVENT MANY THOUSAND SERIOUS INJURIES EACH OTHER.

THAT RULE IS:

NEVER ATTEMPT TO CLEAN, OIL OR ADJUST A MACHINE WHILE IT IS IN MOTION.

...NATIONAL SAFETY COUNCIL



ESCORTS HD-85

TECHNICAL DETAILS

1.1 Technical Data

Weights

Operating Weight Total	9,300 Kg
Axle Load front	4,650 Kg
Axle load rear	4,650 Kg
Static linear load, Front	27.6 Kg/cm
Static linear load, Rear	27.6 Kg/cm

Vibration

Direct hydrostatic vibrator drive to both drums	Front/Rear
Frequency	0-33/50 Hz
Nominal/amplitude	1.0/0.4 mm
Total compaction force	225/245 kN
Working width	1,680 mm
Turning circle radius external/internal	6,200/4,550 mm
Drum diameter	1,200 mm

Capacities

Fuel tank	155.00 Ltr
Engine (for oil change)	10.00 Ltr
Oil tank hydraulic system	120 Ltr
Drum (each)	10.00 Ltr
Water tank sprinkling for front and rear drum	700.00 Ltr

Engine

Escorts Diesel Engine, 4 stroke, 4 cylinder, water-cooled	Type
E4.286TCI	
Rating according to ISO 3046 at 2,300 rpm	54.5 KW/74 HP



TECHNICAL DETAILS

ESCORTS HD-85

Electrical System

Operating voltage 12 V

Battery 1 No. 12 Volt/180 Ah

Transmission

Hydrostatic transmission, infinitely Variable, single lever all-wheel drive to both drums

Speed.....0-9.5 KM/h

Climbing ability with vibration up to.....30%

Climbing ability without vibration up to45%

Vibration

Direct hydrostatic transmission, infinitely variable frequency adjustment.

Stage 1: Frequency/amplitude (High) max. 33Hz/1 mm

Stage 2: Frequency/amplitude (Low) max. **50Hz/0.4 mm**

Steering

Hydrostatic power-assisted steering using an articulated reciprocating compensation 10° upwards and downwards.

Service Brake

During use, the machine is braked by the hydrostatic transmission. Wear-free braking.

Emergency Stop Brake

By means of hydrostatic transmission and spring-Loaded, disc brakes.

Water Sprinkling

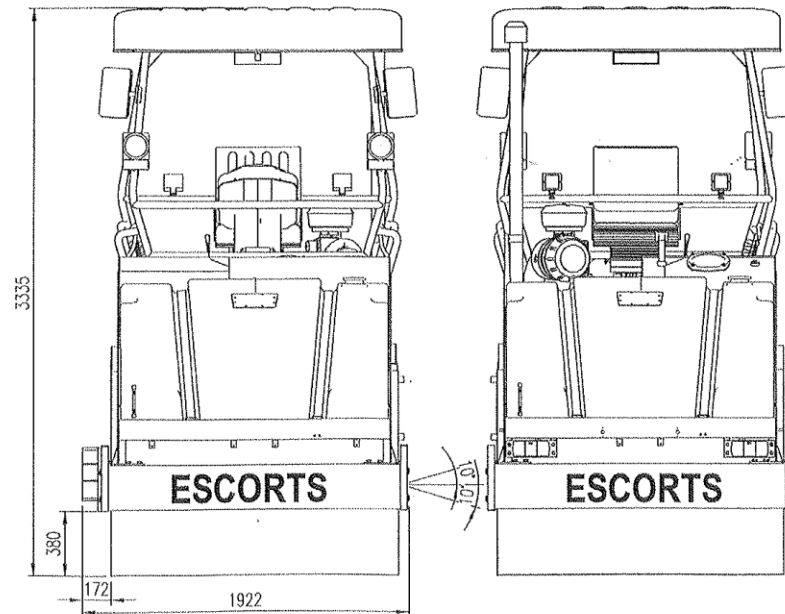
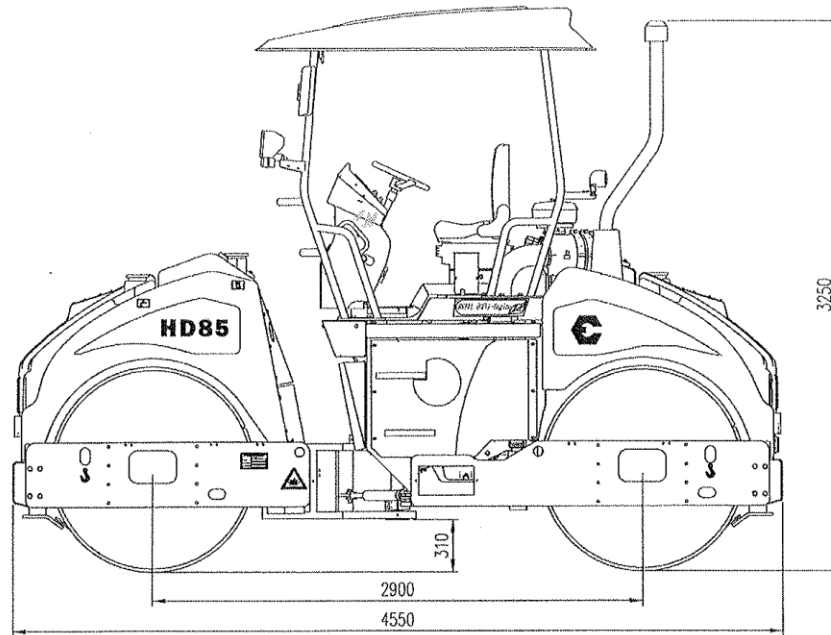
Pressure sprinkling, foot actuation and automatic pause.

Special Equipment

On request, the machine can be equipped with extensive special accessories. Subject to design, weight and dimensional modifications.

TECHNICAL DETAILS

ESCORTS HD-85





ESCORTS HD-85

Do's And Don'ts

- Please do not accelerate the engine after immediate start. Run the engine idle for 2 minutes.
- Do not shut off engine immediately after work. Run the engine idle for 2 minutes.
- Do not run the engine with low engine oil pressure not less than 2 kg/cm at maximum RPM.
- Do not clean air filter (outer) until red band with vacuum indication comes.
- Do not clean safety air filter, only replace as per schedule maintenance.
- Do not run the machine less than **2300** engine rpm during the vibration on Hi/ Low.
- Do not increase travel speed more than **4 to 5** kms during the vibration/ compaction.
- Do not do the vibration during the abnormal noise from the drum assembly.
- Do not change the vibration from Hi to Low or Low to Hi immediately, wait for 5 seconds.
- Do not apply high amplitude after low amplitude during compaction.
- Do not run the water pump for sprinkling with empty water tank or choked water filter.
- Do not run vibration in machine when stand still, it will damage the bearing.
- Drum breather should be cleaned on weekly basis by the operator, it will prevent the leakage from seal and will increase the life of your machine.

DO'S AND DONT'S



ESCORTS HD-85

General Checkup's

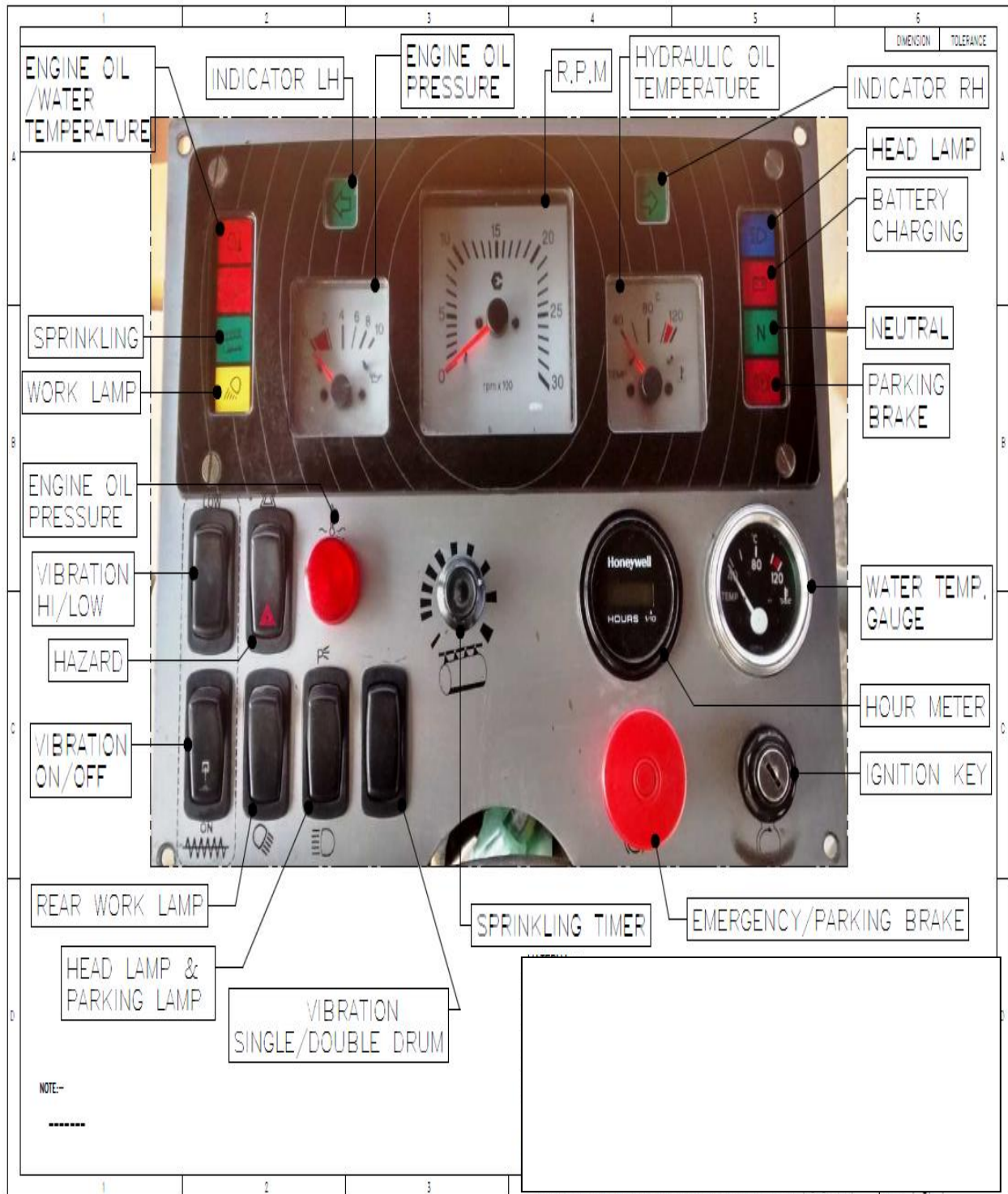
Checks Before Machine Starts

- Engine oil level.
- Blower and Alternator V-Belt.
- Ensure cock of hydraulic tank is open.
- Check hydraulic oil level.
- Machine should be in neutral condition before start.
- Water Level with Radiator/ Reservoir.

Checks After Machine Starts

- Engine oil pressure/ Engine oil Temperature/ Water temperature.
- Battery Charging.
- Engine Rpm minimum and maximum.
- Hydraulic oil temperature.
- Any Leakage/ Engine oil/ Hydraulic oil/ Gear Oil/ Water, etc.

General Checkup's





4. CONTROLS

Before you read these pages, please open up the illustrated panels at the beginning of these instructions. The item no's refer to the description of the individual elements in this chapter. These item no's are given in bracket in the text dealing with operation & maintenance. This operating manual applies for several types within this series. As a consequence, this manual contains descriptions for controls that are not fitted in your machine.

1 Operating hour meter

Registers the operating hours of the running diesel engine. The maintenance work is to be carried out in accordance with the number of operating hours.

2 Engine temperature display

If the temperature of the engine water will rise more than normal.

As soon as the indicator gauge shows more than **100 deg**, please take the following precautions: -

- Stop the machine
- Let the engine run at idle speed
- If the water temperature does not drop noticeably, switch the engine off.
- Determine the cause for the rise in temperature and rectify.

3 Water temperature display - hydraulic system

Normal reading up to 90°C (194° F), if the hydraulic fluid temperature rises above 90°C (194°F)

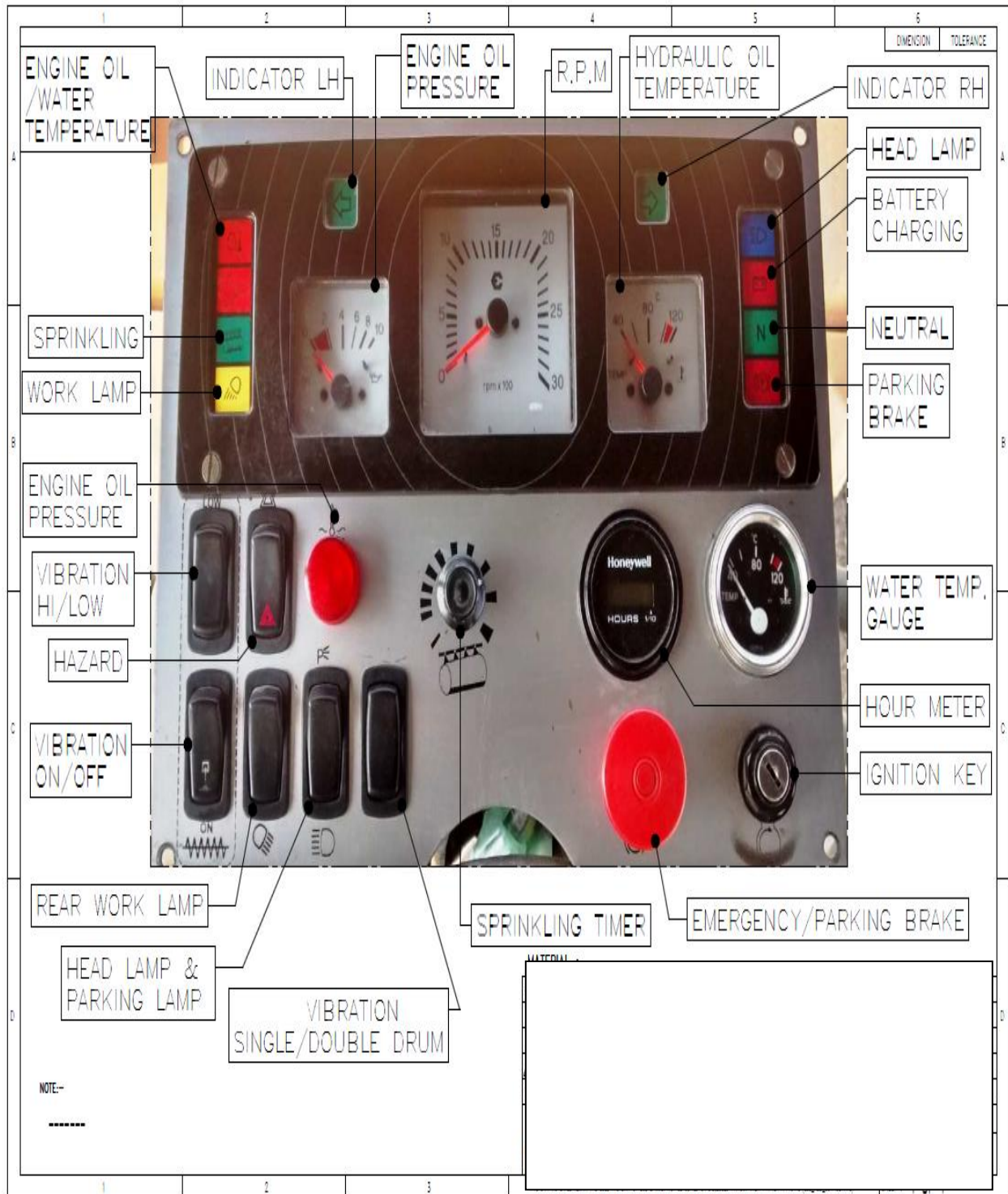
- Stop the machine
- Let the engine run at idle speed.
- If the fluid temperature does not drop noticeably, switch the engine off.
- Determine the cause for the rise in temperature and rectify.

4 Warning Lamp - Battery Charging

When the electrical system is switched on, the indicator lamp must light up. The indicator lamp goes out after the engine has been started.

If the lamp lights up during use, this indicates a lack of charge current.

CONTROLS



ESCORTS HD-85

5 Warning flasher engine pressure

When the electrical system is switched on and the engine is at a standstill, The warning lamp must flash.

The warning lamp must go out after the engine has started. Flashing during use indicates an inadequate lube oil pressure. The minimum oil pressure is 1.0 bar at idle speed (750-850 rpm). Flashing of the warning lamp when the engine is warm and at idle speed is still permissible, provided the warning lamp goes out when the speed increases.

6 Control Lamp water sprinkling

The control lamp lights up during water sprinkling when the water pump is operating

7 Vibration Switch

The switch is used for vibration control. The extent of switch determines the frequency of the vibrator and the associated amplitude.

Large amplitude.....to the RIGHT

Vibration Off.....CENTRE

Small amplitude.....to the LEFT

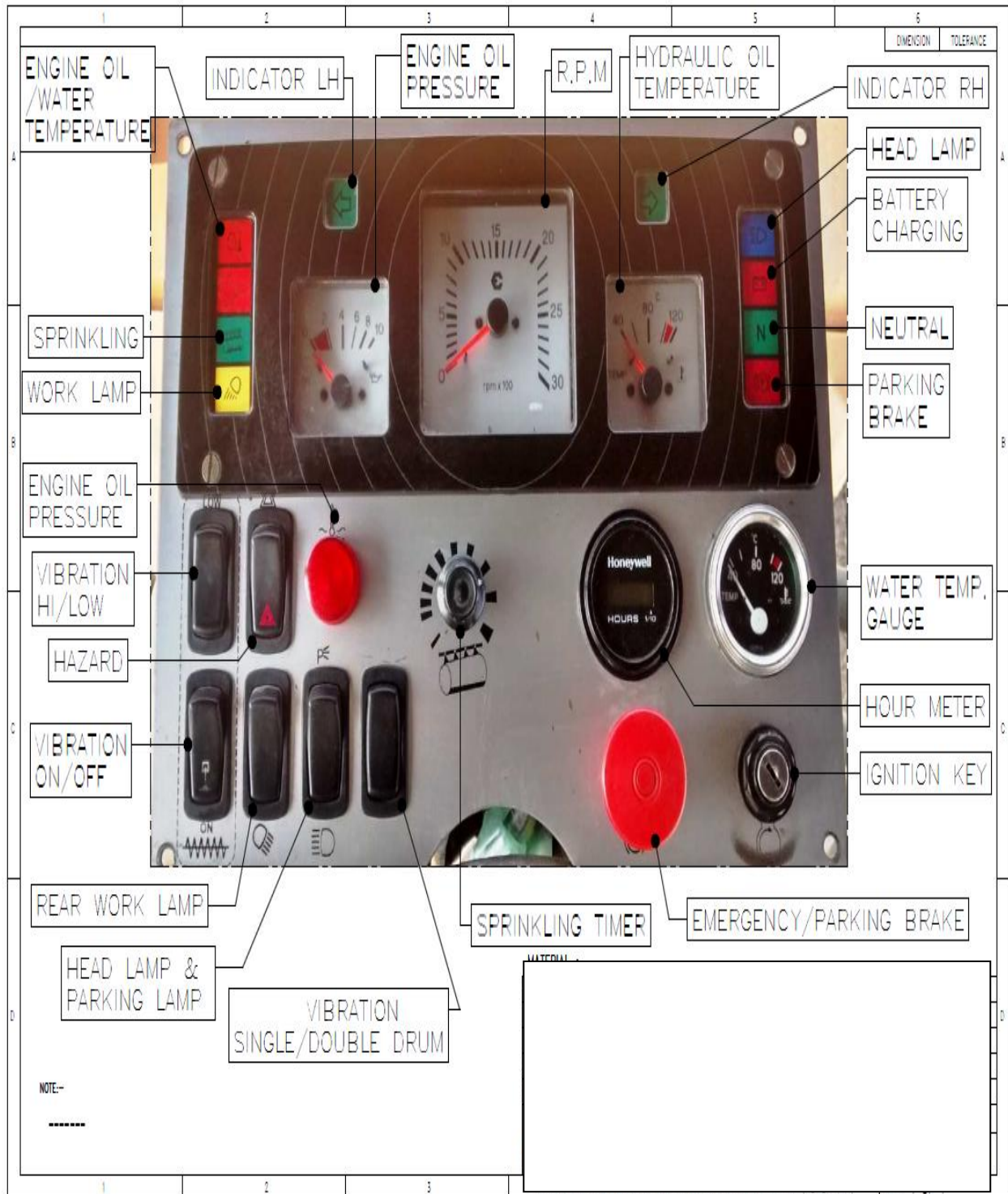


When in the vicinity of buildings, do not switch the vibration ON (danger of collapse).

8 RPM Indication Meter

The meter indicates the rpm of the engine when in start condition. At no acceleration 800 rpm will be displayed and at maximum acceleration 2300 will be displayed.

CONTROLS





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9 Lever switch flasher

Direction indicator is equivalent to the direction of rotation of the steering wheel when negotiating curves.

When the direction indicator is actuated, the pilot light of the lever flashes.


10 Hazard Switch

When the switch is actuated, the warning flasher is switched on (switch knob flashes).

OnDOWN

Repeat actuation releases the switch knob and the lamp inside the switch knob goes out.

Off.....UP

 The perfect function of the warning flasher system should be checked prior to starting the machine.

11 Head Lamp Hi Beam Indication

Indication lamp shows the working of light on hi beam.

12 Neutral Indication

This shows that the machine is in neutral condition and can be started. Please start your machine only in neutral condition.

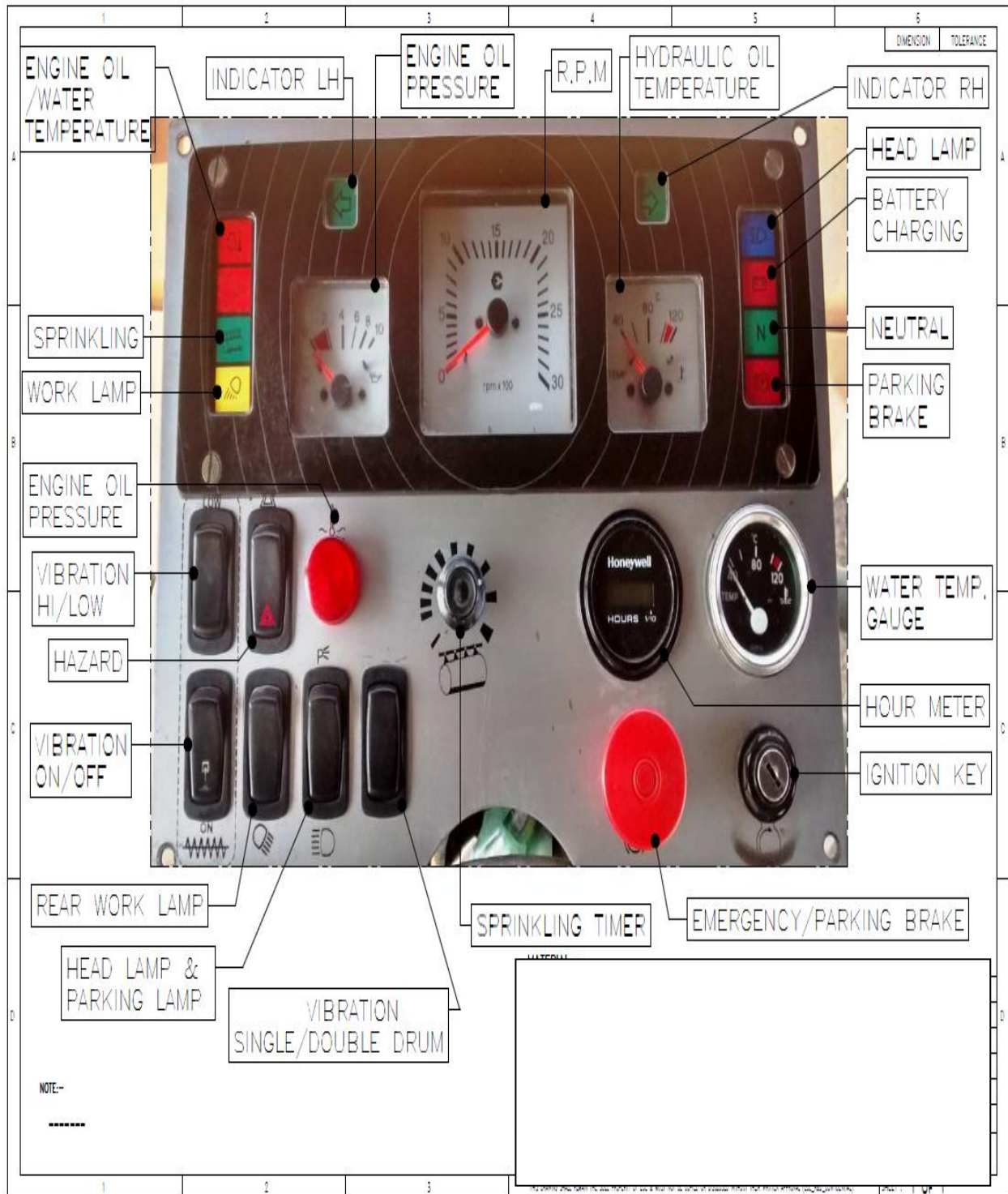
13 Parking Brake Indication

Indication lamp shows that your machine parking brake is applied. Please do not try to travel when indication lamp is on, as it may harm the machine.

14 Emergency Brake Switch

This switch can be used in Parking conditions to keep the machine standstill. Also when machine is in running condition it can be stopped by this switch in case of emergency.

CONTROLS





ESCORTS HD-85

15 switch sidelights

When the switch is actuated, the sidelights are switched on (switch knob lights up).

On.....DOWN

Repeat actuation releases the switch knob and the lamp inside the switch knob goes out

OffUP

16 switch Driving Light

When the switch is actuated, the driving light is switched on (switch knob lights up).

On.....DOWN

Repeat actuation releases the switch knob and the lamp inside the switch knob goes out.

Off.....UP

17 Ignition key electrical system/engine start

The ignition key is used to provide power to the electrical components as well as to start the diesel engine.

Key position 0

Electrical system.....OFF

Key position 1

Electrical system.....ON

Key position 2.....ENGINE START

(Key returns to position 1 after the engine has started)



When the engine is at a standstill and the electrical system is left on for any length of time (key position 1), the battery will be rapidly discharged.

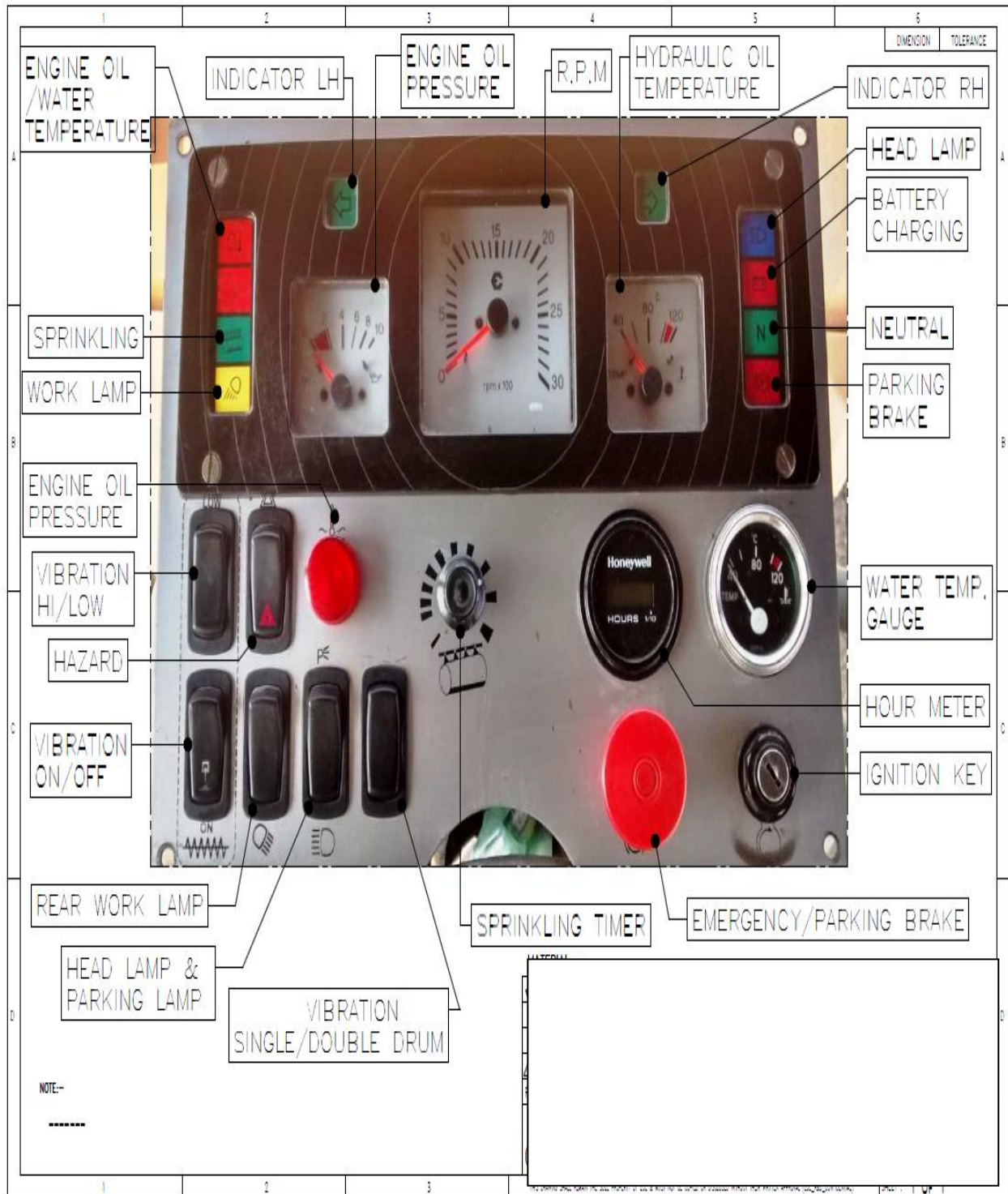
18 Work Lamp Indication

This indication lamp glows when the machine is working with working lamps on.

19 Belt Fail Indication

This indication lamp will glow only in case your engine belt fails or gets damage. A buzzer will also blow at the same time.

CONTROLS



ESCORTS HD-85

20 Interval switch water sprinkling

Automatic water sprinkling is switched on and off with the interval switch. The intervals for the pause times can be infinitely adjusted.

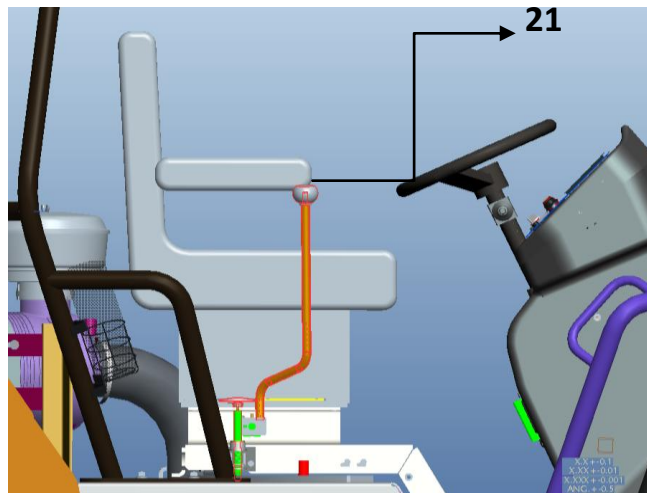
To the right beyond the notch.....ON

longer pause time.....to the Right

Shorter pause time.....to the Left

To the left beyond the notch.....OFF

The sprinkling time always remains the same, irrespective of the switch setting.



21 Drive lever

The drive lever determines the direction of travel and the speed.

Forward travel.....towards the FRONT

Reverse travel.....towards the BACK

Braking / Stopping.....towards the MIDDLE

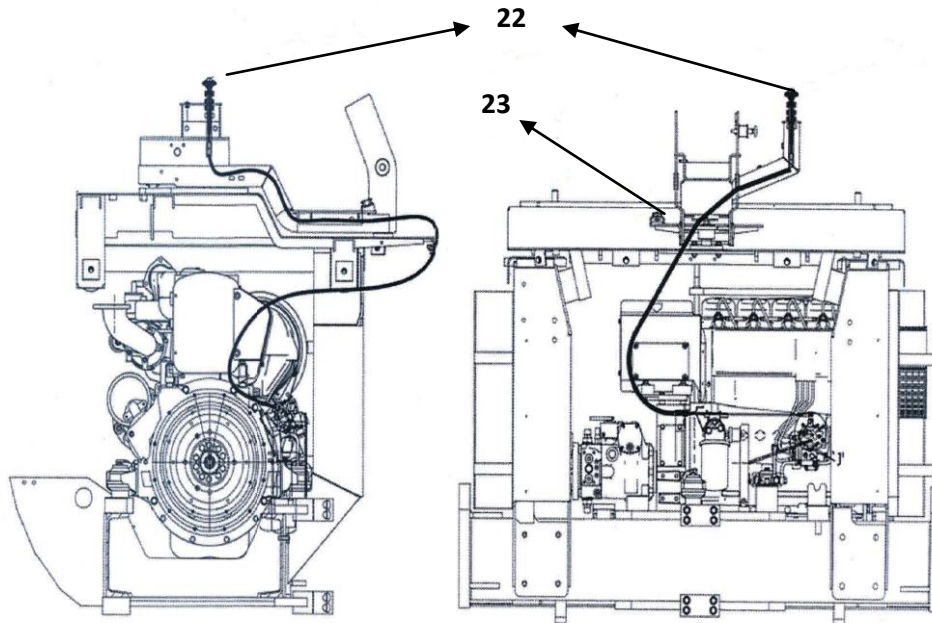
The speed is equivalent to the extent of the lever deflection.

Move the lever uniformly and quickly. When going up or down hill, reduce the speed by means of the drive lever and increase the engine speed.

CONTROLS

ESCORTS HD-85

Accelerator Assy:



22 Engine speed

The Speed of the diesel engine can be infinitely adjusted by means of the adjusting knob, between idle and maximum speed.

Idle speed.....Left

Max. Speed.....Right

23 Foot switch water sprinkling

Sprinkling of the roller drums only takes place whilst the foot switch is actuated.

On.....ACTUATE



Actuation of the foot switch overrules the effect of the interval switch.



CONTROLS
<u>ESCORTS HD-85</u>
<p>24 0-Position Lock</p> <p>The 0–position lock is a safety device. It prevents the unintentional starting of the machine when the diesel engine is started.</p> <p>Position.....ENGAGED</p> <ul style="list-style-type: none">• Diesel engine can be started.• Drive lever locked in the centre position.• EMERGENCY STOP interruption is cancelled.• Position.....DISENGAGED.• Drive lever is free.• Diesel engine cannot be started.
CONTROLS



MACHINE MODEL: HD-85 NEW

Following Parts & Oil are required for carrying out the Warranty Services.

A -	1st. Free Service (45 Days or 100 Hrs.whichever is earlier)				
Sl.No.	Description	Part No.	Qty.		
1	Drum Breather	00200433A	2		
B -	2nd. Free Service (90 Days or 250 Hrs.whichever is earlier)				
Sl.No.	Description	Part No.	Qty.		
1	Hydraulic Filter element	PP11159	1		
C -	3rd. Free Service (180 Days or 500 Hrs.whichever is earlier)				
Sl.No.	Description	Part No.	Qty.		
1	Hydraulic Tank Breather	233327A	1		
2	Strainer	00327522A	1		
3	Drum Breather	00200433A	2		
4	Water Strainer	PP120000A	1		
5	E-Surksha Gear Oil	S3623439200	24 Lit		
C -	4th. Free Service (270 Days or 750 Hrs.whichever is earlier)				
	Will be Checked as per Operator Maintenance Manual Schedule				
D -	5th. Free Service (365 Days or 1000 Hrs.whichever is earlier)				
Sl.No.	Description	Part No.	Qty.		
1	Service Kit	SPD.2415.000	1		
2	Strainer	00327522A	1		
3	Drum Breather	00200433A	2		
4	E-Surksha Gear Oil	S3623439200	20 Lit		
5	E-Surksha Hydraulic Oil	S7303438200	100 Lit		