



SIMULATION EXAMPLE

WHEEL LOADER <20t

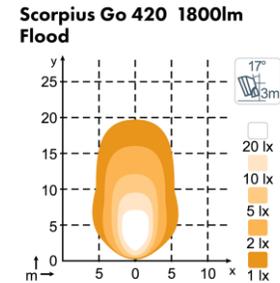
THREE SIMULATION SET UPS

- 1. ORIGINAL SET UP: HALOGEN LIGHTS 1000 lm**
- 2. NORDIC LIGHTS UPGRADE PACKAGE 1: BASIC**
- 3. NORDIC LIGHTS UPGRADE PACKAGE 2: PROFESSIONAL**

NORDIC LIGHTS

UPGRADE PACKAGE 1 - BASIC

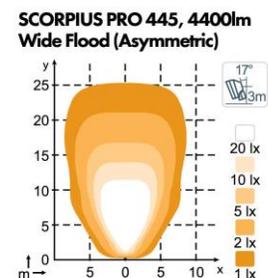
6 PCS
SCORPIUS GO 420
FLOOD



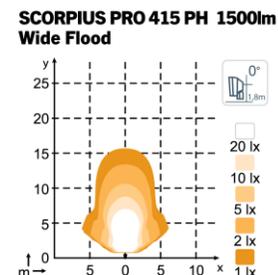
NORDIC LIGHTS

UPGRADE PACKAGE 2 - PROFESSIONAL

6 PCS
SCORPIUS PRO 445
WIDEFLOOD ASYMMETRIC



2 PCS
SCORPIUS PRO 415
WIDEFLOOD



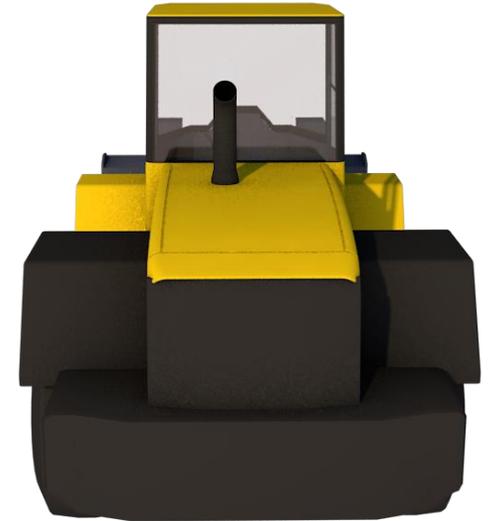
POS 5

EQUIPMENT INFO

This simulation can be used as a guideline for the bucket wheel loader around the size of:

WEIGHT 15 000 to 20 000 kg

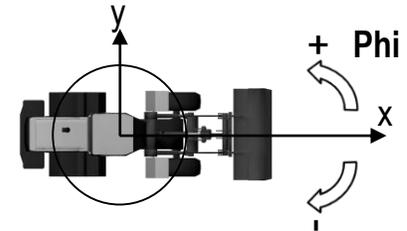
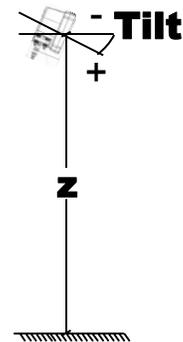
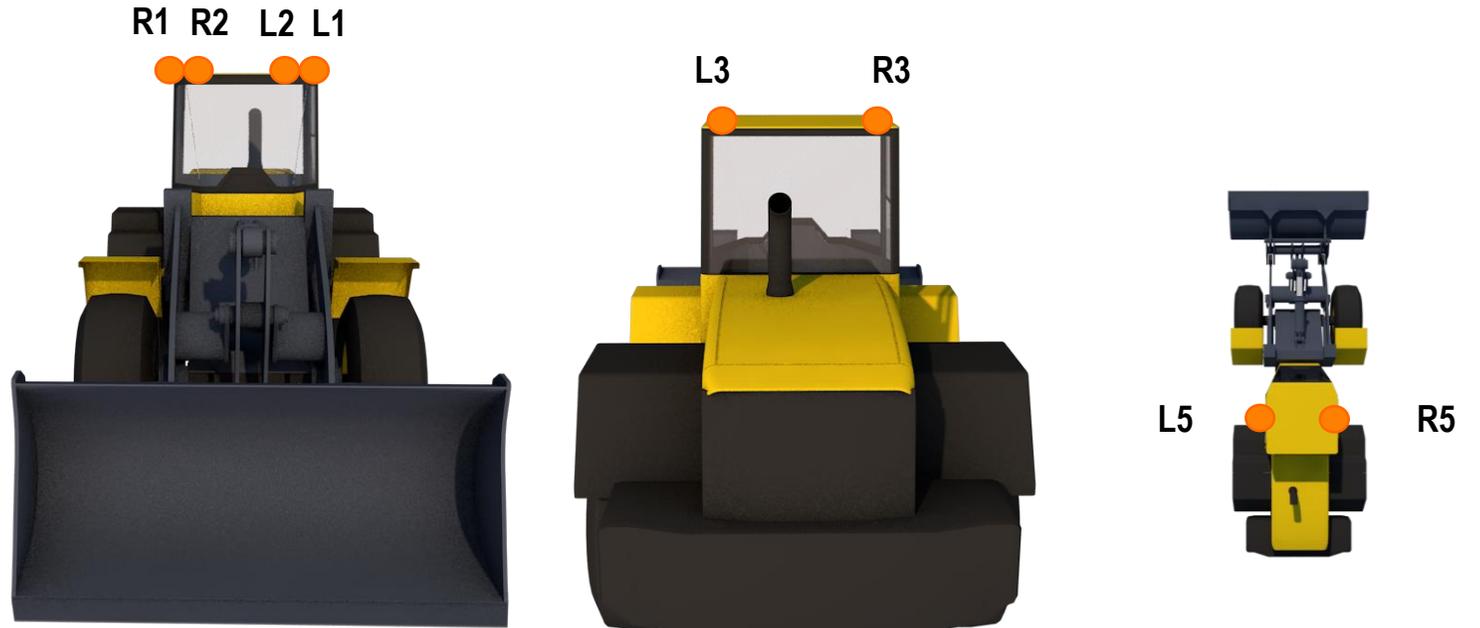
HEIGHT 3000-3500 mm



LAMP POSITIONS

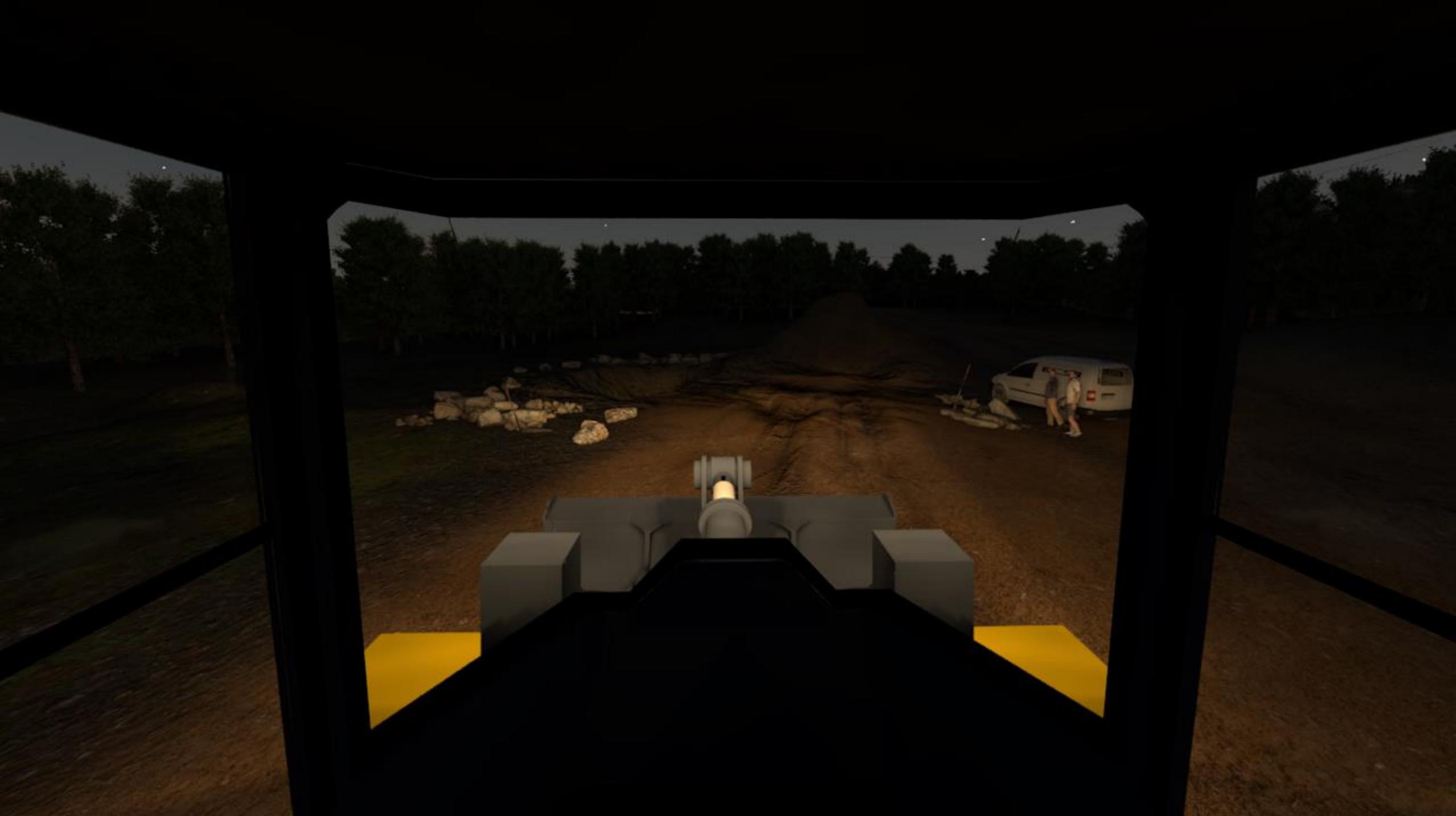
	Lamp L1	Lamp L2	Lamp L3	Lamp L4	Lamp L5 (Only In Professional Set Up)
x	0.20 m	0.20 m	-1.20 m	-3.35 m	-0.50 m
y	0.50 m	0.40 m	0.50 m	0.40 m	0.50 m
z	3.30 m	3.30 m	3.35 m	1.70 m	3.35 m
Tilt	10°	10°	15°	0°	3°
Phi	20°	0°	140°	180°	75°

	Lamp R1	Lamp R2	Lamp R3	Lamp R4	Lamp L5 (Only In Professional Set Up)
x	0.20 m	0.20 m	-1.20 m	-3.35 m	-0.50 m
y	-0.50 m	-0.40 m	-0.50 m	-0.40 m	-0.50 m
z	3.30 m	3.30 m	3.35 m	1.70 m	3.35 m
Tilt	10°	10°	15°	0°	3°
Phi	-20°	0°	-140°	-180°	75°



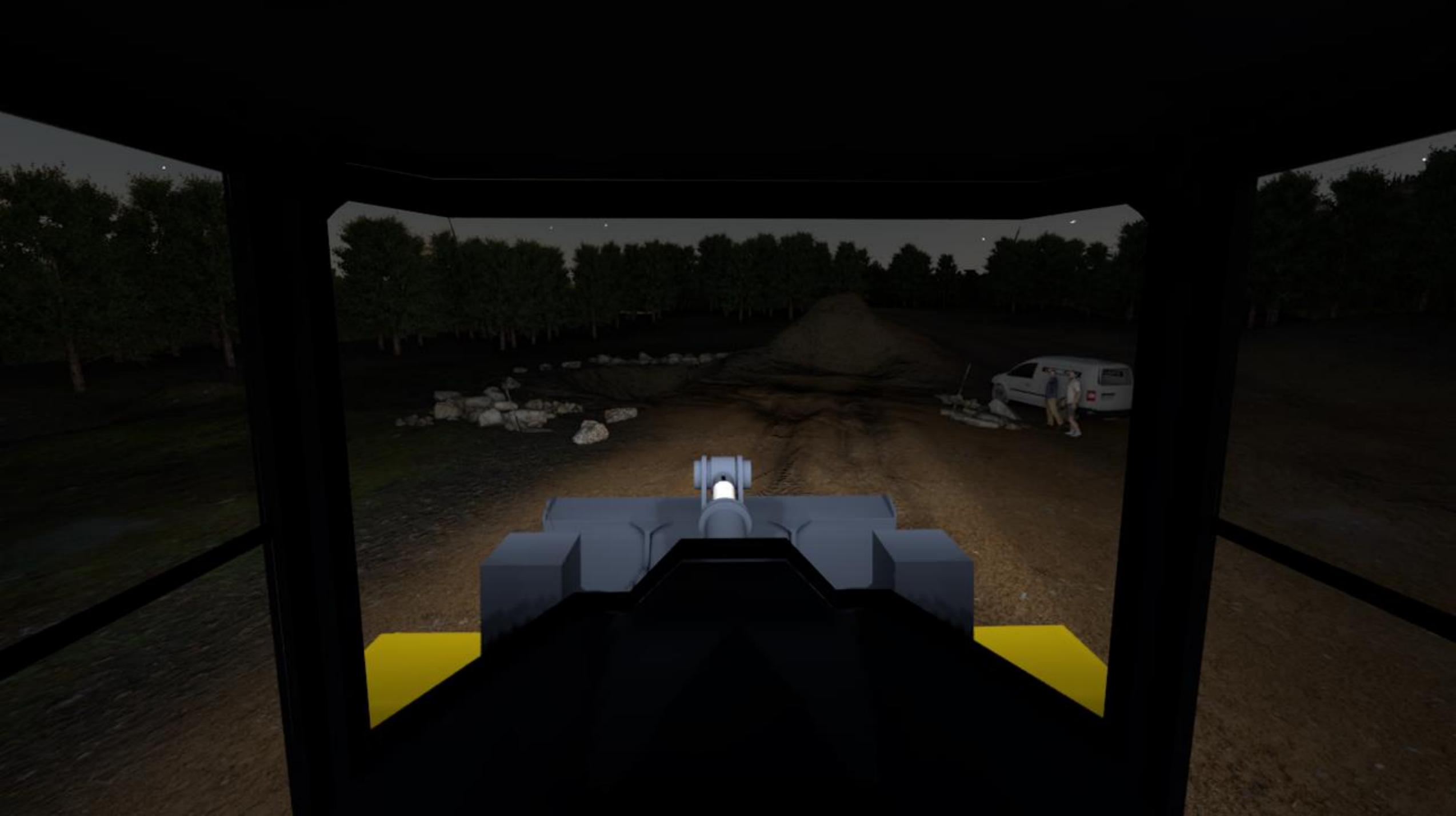
ORIGINAL SETUP
6 PCS HALOGEN LIGHTS 1000 lm





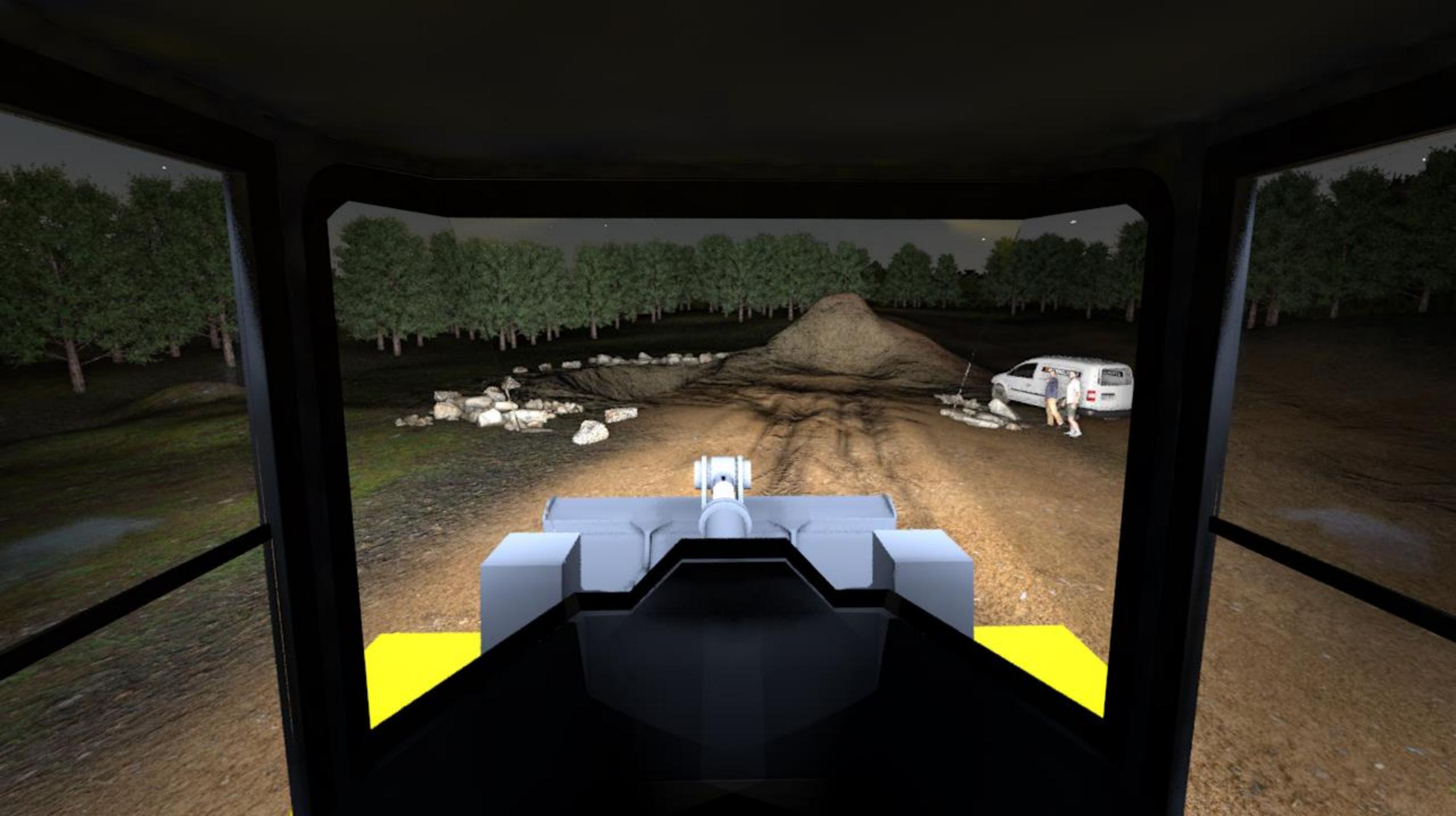
NORDIC LIGHTS
UPGRADE PACKAGE 1 - BASIC



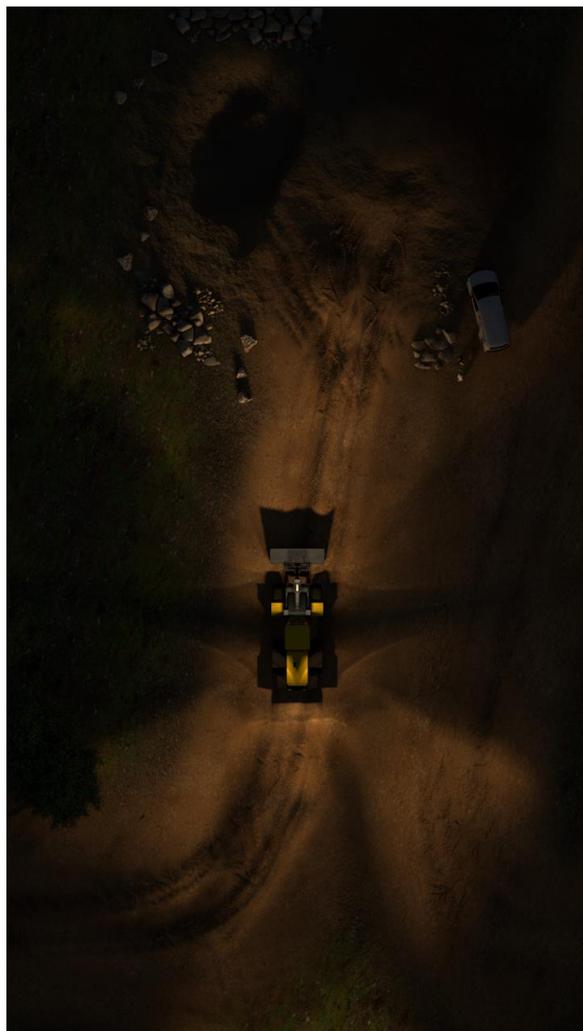


NORDIC LIGHTS
UPGRADE PACKAGE 2 - PROFESSIONAL

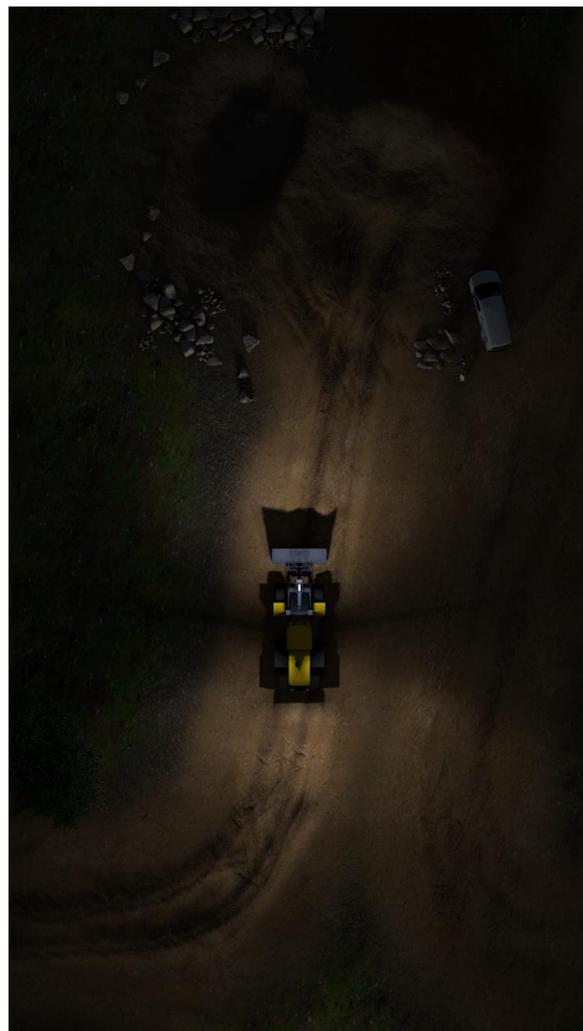




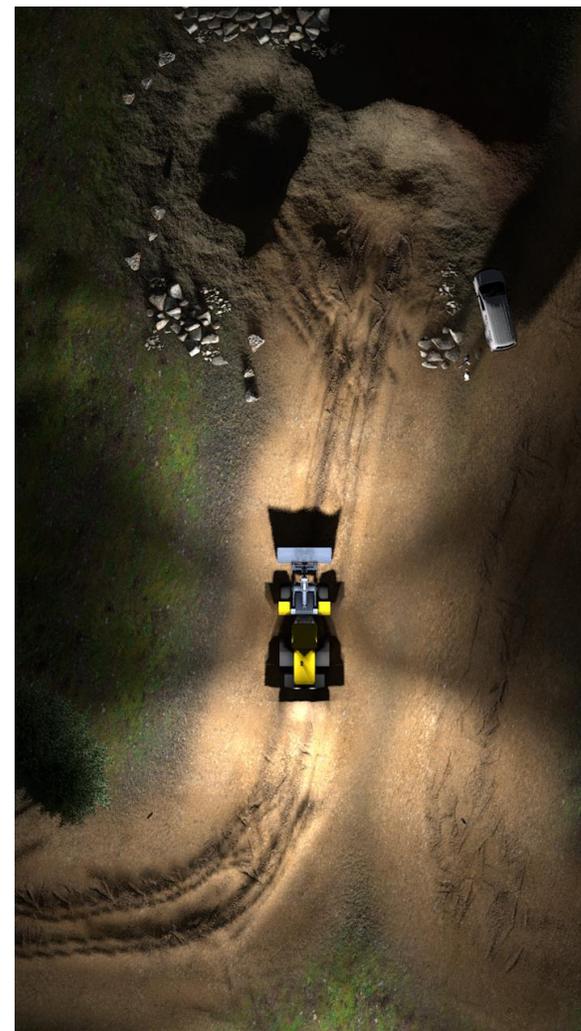
 **COMPARISON**
HALOGEN – NORDIC BASIC – NORDIC PROFESSIONAL



Halogen



SCORPIUS GO 420
WIDEFLOOD



SCORPIUS Pro 445
WIDEFLOOD Asymmetric

BENEFITS OF THE UPGRADE PACKAGES

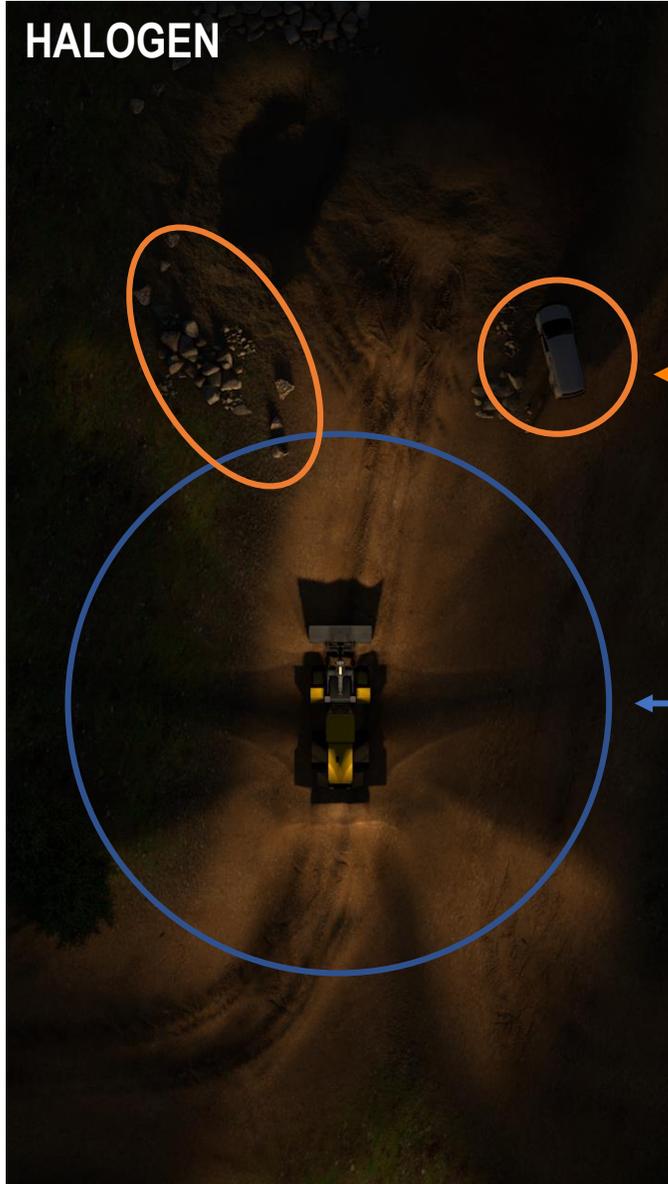
HALOGEN – NORDIC BASIC – NORDIC PROFESSIONAL



		HALOGEN	BASIC	PROFESSIONAL
Mechanical	Lifetime (per light source)	500 h	30000-50000h	30000-50000h
	Durability	Very Low	High	Extremely High
Cost related	Maintenance free	No	Yes	Yes
	Lifetime maintenance cost	Very High	No cost	No cost
	Energy efficiency	Very Low	Very High	Very High
Light related	Physical effect of Colour temperature	Relaxing	Productive	Productive
	Even light distribution without high contrasts	No	Yes	Yes
	Light distribution according to general recommendation on work area	No	Yes	Yes
Workers Safety & Well being	Operators Visual Ergonomics	Fair	Good	Maximum
	Ability to Work Effectively	Fair	Good	Maximum
	Safety for operator & workers near area	Fair	Good	Maximum

	EXPLANATION
Lifetime of the lamp	How long time light source approximately withstand
Durability	Halogen lamp shock and vibration resistant is very poor. LEDs shock and vibration proof are very high
Maintenance free	LED light source is maintenance free, halogen light source need to be changed approximately after every 500 hours
Lifetime maintenance cost	If equipment is not doing productive work due to maintenance, it will cost lot of money
Energy efficiency	Light / Watt ratio with halogen light is around 20-30 lm/W. LEDs up to 100 lm/W. Less watts is used on lighting leads less power consumption on equipment
Physical effect of Colour temperature	Higher colour temperature is more bluish, which can keep operator active. Colour temperature of halogen lights 3200K and LEDs 5000-5700K
Even light distribution without high contrasts	With LEDs optics can be designed optimally to make the wanted light pattern. Halogen work lights light pattern is narrow with sharp edges between dark and illuminated area.
Light distribution according to general recommendation on work area	Operator can see clearly all over on work field.
Operators Visual Ergonomics	Even and sufficient light level provides optimal visual ergonomics for the operator. This includes no glare, no eye irritation, no eyestrain which can lead to headache
Ability to Work Effectively	Light intensity is high enough to see clearly, work faster and avoid mistakes
Safety for operator & workers near area	Operator can see all the obstacles clearly

HALOGEN

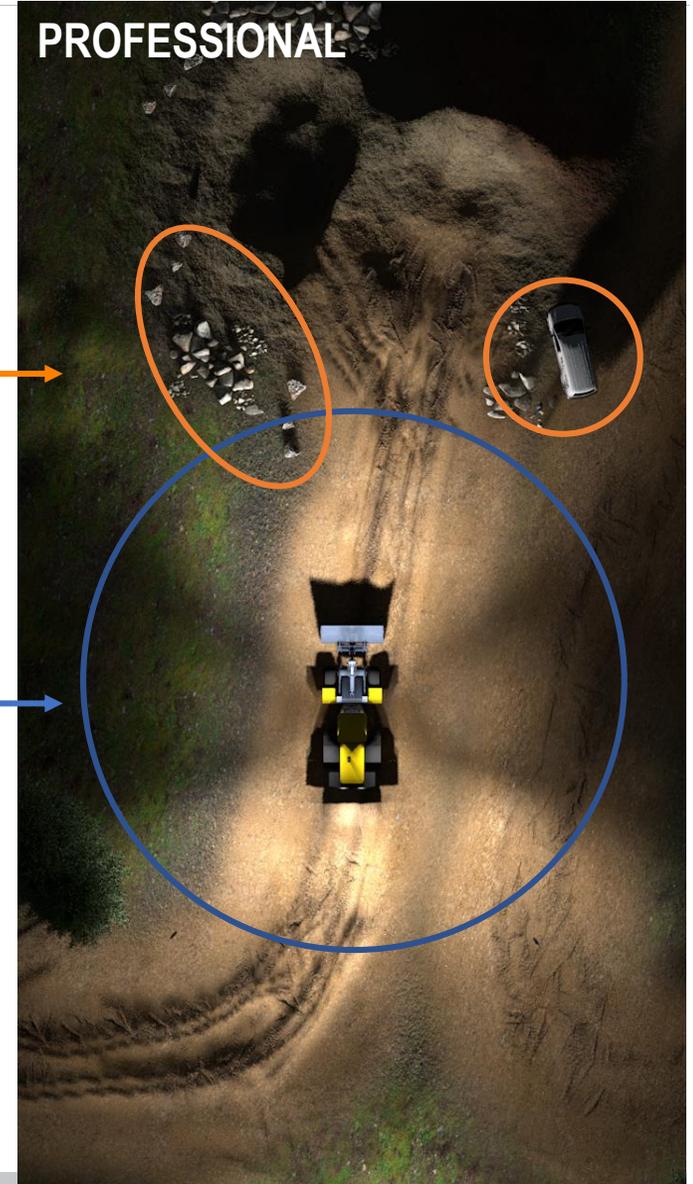


Safety
Obstacles can be seen clearly

Even light distribution

- Operator see clearly all over
- Good for visual ergonomics
- Increase effectiveness

PROFESSIONAL



UPGRADE PACKAGE ORDER INFORMATION

BASIC

SCORPIUS GO 420
FLOOD

Nordic Lights item code: 6 pcs 988-203B



PROFESSIONAL

SCORPIUS PRO 445
WIDEFLOOD ASYMMETRIC
SCORPIUS PRO 415

Nordic Lights item code: 6 pcs 984-703B
2 pcs 989-101B

