ANDERSON INNOVATIONS

USER INSTRUCTIONS

ES 200

Self Propelled Scraper

Patent # 10294683, 10774550
Other Patents Pending

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1 SAFETY

1.1 Manual

This manual guarantees the safe and efficient use of the ES 200 "machine" . This manual is part of the machine and must always be kept near the machine and be accessible for the operating personnel at all times.

The operating personnel have to have carefully read and understood this manual before any work begins. Prerequisite for safe working is compliance with all the safety and handling instructions in this manual.

Furthermore, this machine is to be used in compliance with all local regulations and the general safety requirements set forth by the Ocupational Saftey and Health Administration.

Illustrations in this manual are for the purpose of explanation and may differ from the actual design of the machine.

When passing the machine on to third parties this manual must be included.

All of the instructions and technical specifications in this manual have been written in compliance with current technical norms and regulations together with our many years of knowledge and experience.

In the following cases the manufacturer does not accept any liability:

Non-compliance with these instructions
Improper use
Operation by untrained personnel
Unauthorized modifications
Technical modifications
Use of unauthorized replacement parts

1.2 Explanations of symbols and instructions

Safety instructions in this manual are marked by symbols. Instructions are introduced by signal words which express the scale of the hazard.

It is essential that these instructions are adhered to and the machine is operated with caution to avoid accidents, injuries and material damage.

WARNING!
Indicates a potentially dangerous situation which if not avoided can lead to death or serious injuries.

CAUTION!
Indicates a potentially dangerous situation which if not avoided can lead to minor or light injuries.

PROHIBITION!
Indicates an immediate dangerous situation which if not avoided can lead to death or serious injuries.

Safe Practices
Emphasizes tips and recommendations as well as information for efficient and failure-free operation.

1 SAFETY

1.3 Intended use

The machine is used for the removal of all sorts of floor-coverings for example PVC, linoleum, carpets, rubber floors as well as tiles, coatings, adhesives and parquet flooring.

The machine is NOT to be used to pull things or for non flooring related demolition work.

Any use beyond the intended use or other types of use is considered misuse.

WARNING! Danger due to misuse!
Misuse can lead to dangerous situations.

- Operation outside the specified limit values of the technical data.
- Bypassing or overriding of safety installations.
- Remodeling, refitting or changing the construction or individual parts with the intention to alter the area of application or use of the machine.
- Use of the machine when not in perfect mechanical condition.
- Use of the machine in potentially explosive areas.

Claims of any sort of damages following improper use:

1.4 Owner's obligations

The owner is a person who operates the machine for personal, commercial or economic use or leaves it to a third person for use/application and during its use carries the legal responsibility for the protection of the user, personnel or a third person. The machine is used in the commercial sector. The owner of the machine is therefore obliged to comply with the legal responsibilities for health and safety.

The local regulations of the place of use as well as accident prevention measures of the local trade association must be adhered to.
It applies in particular that the owner:

- is informed about current health and safety regulations.
- determines during a risk assessment additional hazards which occur through specific working conditions on the operating site of the machine.
- implements in a job control statement the necessary compliance requirements for the operation of the machine on the operating site.
- regularly examines during the entire operating time that the operating instructions comply with the current status of regulations.
- that the operating instructions-if necessary- are adjusted to new regulations, standards and conditions of use.
- clearly regulates the responsibilities for the installation, operation, maintenance and cleaning of the machine.
- ensures that all staff working near or with the machine have read and understood the operating instructions. Furthermore he or she has to train all personnel in regular intervals and inform them about possible hazards.

Additionally the owner is responsible for:
- safe operating condition of the machine.
- the servicing of the machine in the recommended maintenance intervals.
- the regular inspection of all safety installations ensuring that they are complete and in working order.

1.5 Operating personnel

QUALIFICATION
The different tasks described in this manual request various qualifications from the persons dealing with the machine.

WARNING! Danger for persons with insufficient qualifications!
Insufficiently qualified persons can not judge the risks when operating the machine and put themselves and others at risk of serious injuries or death.
- All work must only be performed by qualified personnel.
- Insufficiently qualified persons must be kept away from the operating area.

In this manual the necessary qualifications for the persons and the different tasks are listed:

OPERATOR:
the operator has been instructed by the owner and been given the assigned tasks and has been informed about the possible hazards in case of improper behavior. Tasks which go beyond regular operation tasks can only be executed by the operator if listed in this manual and have been explicitly authorized by the owner.

TRAINED PERSONS
have been instructed by the owner and been given the assigned tasks and have been informed about the possible hazards in case of improper behavior.

QUALIFIED PERSONNEL
Qualified personnel is able to carry out assigned tasks and recognize and avoid independently possible hazards given their specialist training, knowledge and experience as well as their knowledge of relevant norms and regulations.

MANUFACTURER
Certain work can only be carried out by trained personnel of the manufacturer. Other personnel are not authorized to carry out this work. Please contact customer service for required work.

UNAUTHORIZED PERSONS
WARNING! Danger for unauthorized persons in the operating area!

– Unauthorized persons have to be kept away from the operating area.
– If in doubt remove persons from the operating area.
– Interrupt the work as long as unauthorized persons are in the operating area.

INSTRUCTION
The owner of the machine must regularly instruct all personnel. For better documentation an instruction protocol with the following minimum content has to be kept:
- date, content of the instruction
- name of the instructor
- signatures of the instructed and instructor

1 SAFETY

1.6 Personal protective equipment

When operating the machine personal protective equipment must be worn in order to minimize health hazards.

The following protective clothing must be worn by anybody in the operating area.

Protective work clothing.
Wear appropriate work clothing! Work clothing should fit tightly and loose garments should be avoided since they can get caught in the machine.

Protective gloves
Protective gloves to protect your hands when changing blades.

Ear protection + Protective goggles
Ear protection offers you protection from hearing damage through noise. Protective goggles protect your eyes from flying debris.

Safety shoes
Safety shoes protect your feet from bruising and from sharp objects and from slipping on slippery ground.

Respirator mask
Regular and prolonged exposure to dust can lead to chronic and debilitating lung disorders. When working for a long time or on dusty ground a minimum of a NIOSH N95 dust mask has to be worn to protect your respiratory tract from dust and from small particles.

1.7 Signage

WARNING! Danger with illegible signage!
With time labels and signage can become dirty or illegible so that hazards can not be recognized and necessary instructions adhered to. This causes an increased risk of injury.

- Keep all safety, warning and operating instructions always in legible condition.
- Damaged labels or signage must be replaced immediately.

The following symbols and signs can be found in the operating area.
They refer to the immediate area where they have been placed.

WARNINGS
sharp blade,
Wear protective gloves when changing blades

COMMANDMENTS
Read and understand the user instructions
Wear ear protection and safety goggles
Wear appropriate work clothes
Wear safety shoes

1.8 Safety installations

WARNING! Danger through defective safety installations!
Defective or disabled safety installations can cause severe injuries and death.
- Before work can start all safety installations have to be inspected to see whether they are functioning properly and have been correctly installed.
- Never disable safety methods or override them.
- Make sure that all safety methods are always accessible.

1 SAFETY

1.9 Occupational safety and special risks

The following paragraph explains residual risks which might be present even if the machine is used correctly.

To reduce the risk for persons and material damages and to avoid dangerous situations the listed safety information in this paragraph and in the remaining manual has to be adhered to.

Improper use

WARNING! Danger through improper use!

Make sure:
– Only use machine when in good operating condition.
  Broken parts must be repaired or replaced immediately.
– Modifications to the machine are not permitted and can impair safety.
– Before regular maintenance, cleaning and repairs the power must be switched off and secured against unintentional start-up.
– Never override, remove or switch off safety devices.
– All work on the machine and/or its electrical components must be carried out by trained personnel.
– Repair or maintenance work must only be carried out when the machine is switched off. The machine must be secured against unintentional start-up.

Axis movements

WARNING! Danger of struck by injury!
Collision of persons with the machine or its tools can lead to severe injury.

Make sure:
– Unauthorized persons in the operating area are strictly prohibited!
– Safety installations and/or functions must not be switched off or overridden.
- Do not hold any body parts between moving components.
- Blades must only be changed when the machine is idle, secure, and disconnected from power.
- Wear personal protective equipment in the operating area.
- Assistants must always keep a safety distance of a minimum radius of 3 feet from the machine.

Removed materials

WARNING! Injuries through removed materials!
The removed floor-covering can fracture causing debris to fly around or be thrown around unexpectedly and cause serious injury or damage to the surrounding area

Make sure:
- Wear face protection or fully closed and tight fitting goggles, protective clothing, protective gloves and safety shoes.
- Seek medical attention immediately if particles have entered your eyes.
- Assistants must always keep a safety distance of a minimum radius of 3 feet from the machine.
- Use protective coverings on delicate surfaces near the work area

1.9 Occupational safety and special risks

Sharp edges and sharp corners

CAUTION! Danger of injury from sharp edges and sharp corners!
Sharp edges and sharp corners can scratch and cut into your skin.

Make sure:
- Be careful when working near sharp edges and sharp corners.
- Wear protective gloves when in doubt.

Cutting tools (knifes/blades)

CAUTION! Danger of injury through improper use of tools!
Improper use of tools can cause bruising and cuts.

Make sure:
- Use tools carefully and as intended.
- Consider the weight of tools in transport.
- Wear protective gloves and safety shoes.

Working environment

CAUTION! Avoid dangerous conditions!

Do not operate machine in rain, extreme humidity, wet areas or in explosive environments (gaseous vapors, dust or flammable materials). Remove materials and debris which can be ignited by sparks.

Keep your working area clean and well lit.
Untidy and dark working areas increase the danger of accidents.

Keep spectators away from the working area.
Children and spectators must keep a safe distance from the working area in order not to distract the operator and not to come in contact with the machine. The operator must always be aware of who is nearby.

Protect other persons in the working area.
Provide safety screens and protective shields to protect others from the movement of the machine and debris.

Always be aware of the position of your coworkers when the machine is in operation. Close off working area.
Personnel in proximity must never be in front or behind the running machine. Non-compliance can lead to serious injuries or death.

Keep working area clean and tidy! Unsecured, scattered components and tools are a potential source for accidents

1.9 Occupational safety and special risks

Start-up and operation

WARNING! Danger of injury through improper start-up and operation Improper start-up and operation can lead to personal injury or material damage.

Make sure:
– Start-up and operation can only be executed by sufficiently trained personnel, authorized and instructed by the owner of the machine.
– Before work commences all safety installations have to be inspected to check whether they are functioning properly and have been correctly installed.
– Keep working area tidy and clean! Unsecured, scattered components and tools are a potential source for accidents

WARNING! Non-stop work; Incorrect handle height, vibrations and machine movements cause pain and fatigue

Make sure:
- Take regular breaks

Maintenance and troubleshooting

WARNING! Danger of injury through improper maintenance and troubleshooting! Improper maintenance and troubleshooting can lead to severe personal injury and material damage.

Make sure:
– Any maintenance work and troubleshooting must only be carried out by sufficiently qualified and instructed personnel.
– Secure machine from unintentional start-up.
– Provide sufficient space before starting maintenance work.
– Keep working area clean and tidy! Unsecured, scattered components and tools are a potential source for accidents.

When components need to be replaced:
- Contact manufacturer or authorized representative.

1.9 Occupational safety and special risks

ELECTRICAL CONNECTIONS / ELECTRICAL COMPONENTS

WARNING! Risk of death due to electric current!

Only connect the machine to a power source that matches the the rating plate. Check before startup.

Only connect the machine to an approved power cable and outlet. Cables / extention cords must be at least 12AWG with molded plugs having ground lugs not exceeding 50ft. Using the machine with cables of insufficient gauge and / or excessive length may result in poor performance, overload, tripped breakers and personal injury or property damage.

Have electrical equipment such as breakers, power cord, extension cables checked by an authorized electrician. If the circuit breaker trips or trips repeatedly, it is a sign of a problem. Never use equipment on unprotected circuits.

Never work with a damaged cable or plug. Worn or damaged cables or plugs should be replaced by an electrician or authorized service personnel.

Do not use the machine if the cable is damaged. Do not pull on the cable to move the machine. Using the machine with a damaged cable can cause an electric shock.

Never remove or make unusable a ground lug from machine or cords. Using the machine in a non-grounded circuit may result in electrocution. Consult an electrician if the grounding wire is missing or if you believe that the circuit does not have adequate grounding.

The machine may only be operated on circuits with a residual current device.

When working on the machine always unplug the power plug!
Maintenance, replacement or adjustment of the hydraulic fluid or components may result in personal injury to the operator and / or bystanders when the machine is plugged into the electrical outlet.

Work on electrical components of the machine may only be carried out by a qualified electrician.

Keep the cable away from the lower part of the machine so that the blade does not come into contact with it. Always keep the cable raised above the machine.

Driving over or damaging the cable with the machine may result in electric shock.

The machine is only suitable for indoor use. Risk of electric shock. Do not expose the machine to water or rain.

2 PRODUCT INFORMATION

2.1 Technical Description

SPECIAL FEATURES

A powerful motor combined with a highly efficient hydraulic drive system produces excellent performace at an extremely low noise level.

The ES 200 is self-propelled (forward and reverse) with variable speed.

The six position adjustable handle enables ergonomic operation depending on body size or preferred working position.

Weights can be removed easily for transportation at reduced net weight of the machine.

2.2 Technical Specifications

Dimensions

Width - 16.5"

Length - 29"

Height - 42.5"

Weight - 262 lbs

Electrical connection - NEMA 5-15P

Motor HP - 1.5

Voltage - 115 VAC

FLA - 11.8 Amp

Speed - 68 FPM

Noise emissions	Standstill / operation
Sound pressure at the ear of the operator	78 dB(A) / 70 dB(A)

Hand-arm vibrations. 32.1 Ft/S²

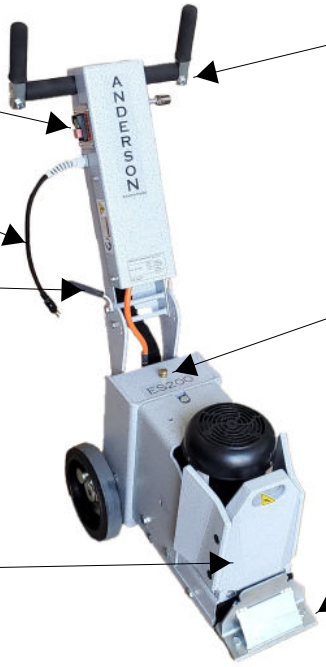
The vibration emission value and sound pressure may differ from the indicated value during the actual use of the machine, depending on the manner in which the machine is used.

Take a break after a maximum of 120 minutes of work to avoid injury from prolonged exposure to vibration.

2.3 Scope of delivery

- **17mm wrench for changing blades**

2.4 Controls and equipment



ON / OFF switch

Power connection

Handle angle adjustment
Adjust the angle to six different positions.

Front weight

Grip angle adjustment

Hydraulic tank Breather

Cutting head /blade holder
easy and quick replacement of the removal tools by the clamping

Operating lever
Hydraulic drive control, push for forward pull for reverse, adjust handle position with bolt at bottom

Tool wrench
handy on the machine for fast tool change.

Drive wheels
industrial wheels with freewheel function

Kick plate

Wheel pin
Install when machine is powered, remove for easy movement to and from the work site

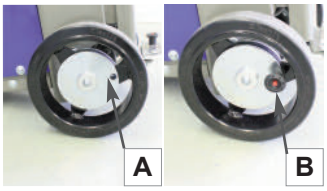
3 TRANSPORT

3.1 Freewheel function

To use the driving force of the machine (forward and reverse), the wheels must be locked before starting work.

A — To lock, line up the wholes in the drive hub and wheel then insert the pin fully. Check to make sure the pin is locked in the wheel.

B — The pin is removed by depressing the red button then pulling out of the wheel.



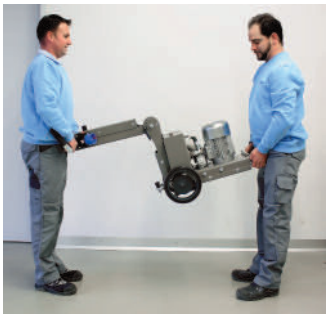
Always remove all weights and blades before attempting to load or unloading by hand.

Machine can be lifted by 2 people if you can not drive the machine or have no ramp available.

3.2 Lifting

ATTENTION! machine weight
Always use 2 or more people to lift or carry the machine

Remove the weights -> see 4.4
Adjustment of the carrying position-> see 4.2



3.3 Loading/ unloading

USING RAMPS:

- Ramps can be dangerous to use
- Make sure ramp is rated to hold machine and operator
- Ramp must be secured so it cannot slip off on the high side
- Be sure ramp is free of debris and is not slippery
- Drive the machine up and down ramp under power when possible
- If using a ramp with machine in the freewheel configuration the operator should pull the machine up the ramp and lower it down staying on the high side of the ramp , this reduces the possibility of injury should the machine get away from the opperator on the ramp.

3.4 Storage

The machine can be stored in a space-saving manner when out of service or for transport in vehicles

Handle angle set in the storage position
(Handle angle adjustment, see chapter 4.2)

ATTENTION ! Do not lift the machine by the handle
Improper transport can cause damage to the machine and danger of falling. (Proper transport see above)

4 SETUP

4.1 Blade

Choice of blade

The correct blade size and the correct attachment of the blades, according to the respective floor covering or subfloor will provide the best performance of your machine.

The principles described are to achieve optimal work results and to facilitate the user to perform their tasks.

Blade size

For harder jobs it is better to use narrow blades,
for easy jobs you can select wider blades.

Narrow blades can increase production on tough jobs as the machine will have less resistance and faster travel speed compared to using a wider blade.
Start with a narrow blade, switch to a wider blade if the material is coming up easily.

Blade bevel

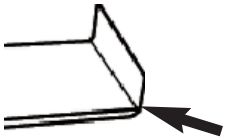
Bevel up blade is for hard substrate like concrete.

Bevel down for wood or soft sub-floors.

Self-scoring blades

When using self-scoring blades for soft floors, pre-scroring the flooring material is unnecessary. Depending on the type of flooring to be removed and the sharpness of the blade, it will be more difficult to control the machine.

Keep the blade and the side wings/edges sharp.



Insert / replace blade

Dull blades reduce the capacity and cutting performance of the machine.
Sharpen or replace the blades as needed.

Remove the power plug

CAUTION ! sharp blade Wear protective gloves

Use supplied extended wrench to keep hand safely away from the edge of the blade. When installing or removing blade never use a short wrench that puts hand in-line with the blade or push toward the cutting edge.

1. Place a block under the front of the machine.
2. Loosen the two bolts with the extended bolt wrench and replace the blade.
   It is not necessary to remove the bolts.

Be sure that the blade is seated against the notch in the cutting head under the blade-holder then tighten, to ensure a secure hold.

4 SETUP

4.2 Handle angle

The handle is adjustable in six positions. The opperator should adjust to the desired working position.

5 Working positions

Far back position is for under desks

Transport position

Disconnect power before adjusting handle!

(A)

Hold both clamping levers
Unscrew the left clamping lever and remove the complete handle bolt (A).

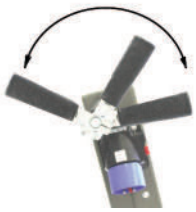
Handle will move freely!
support with your body or by a second person

(B)

Set the handle to the desired position, push in the handle bolt (B) and tighten the clamping lever again.

4.3 Operating lever

The angle of the operating lever can be adjusted to the desired working position.



Release lever clamp with a box end wrench or similar, adjust and tighten again.

Levers should be set to the same position on both sides.

4 SETUP

4.4 Weights

For easier and safer transport, the weights should be removed before lifting.

ATTENTION Weights are heavy
caution when removing and mounting.

To remove the weights on both sides, remove the screws with the wrench (A) and remove the weight by the handle (B).

Remove the weights in the following order:

Remove the front weight

Remove the shroud

5 OPERATION

5.1 Start-up

1. Connect the plug of the extension cord into the socket or pigtail on the handle of the machine.

2. Insert the plug of the extension cable into the socket/ wall power supply.

3. Turn on the machine
   GREEN - Start button
   RED - Stop button

4. You control the machine by operating the lever
   FORWARD -> Press the control lever forwards
   REVERSE -> Pull control lever backwards

If the control levers are released they will go to the center position and the machine will stop

The pressure relief valve is factory set and should not be adjusted.

The hydraulic oil is filled at the factory ready for operation.
Filling / replacing the hydraulic fluid -> see chapter 6 Maintenance

5.2 Safe operation

Clean work area
Loose components or tools lying around are accidents waiting to happen.
Pay attention to tidiness and cleanliness in the work area!

Use proper engineering controls to minimize respirable dust. Equipment such as ducted fans, and negative air machines work well to keep air clean in the work area.

WARNING! Risk of injury!
Avoid collisions
Only use the machine in safe conditions.
Always keep an eye on obstacles, especially when running backwards.

Always hold the power cord away from the machine and clear of the blade so that it does not come into contact with it. Driving over or damaging the electric cable may result in electric shock.

Break / end of work
In order to avoid physical damage, regular breaks must be observed in accordance with the OSHA regulation for Noise and Vibration Safety Regulations.

ATTENTION! risk of injury
immobilize the machine when not in use, by pulling the power plug and removing the blade.

5 OPPERATION

5.3 Removal of floor coverings

VCT tiles

Keep blades sharp! Keep your work area clean and clear of debris.
Always wear eye- and ear- protection when working with the machine.

Wear eye and ear protection when working with the machine!

Never use a blade wider than the size of the tile being removed. If material being removed will not come up clean or the machine jumps out of the work continuously, reduce blade size to a smaller blade until proper blade size is found or use a smaller portion of the blade.

Vinyl-, Rubber, PVC, Direct Glued Carpet

Pre-scored carpet / sheet goods makes machine easier to control, material easier to handle and and blades stay sharper longer. Before starting the machine, cut the flooring into strips approximately the same width as the blade. Then use the machine to take up the strips.

For soft flooring with a strong bond, the self-scoring blade can also be used.

For best results use a stand-up scoring tool

Ceramic tiles

Before removing ceramic tile, tiles will have to be pre-broke with a mallet or large hammer. Everyone in the area must be wearing safety glasses before breaking ceramic tile.

On small random block styles of tile, pre-breaking may not be necessary.

Open an area large enough for machine or blade to fit in, or start from a doorway.

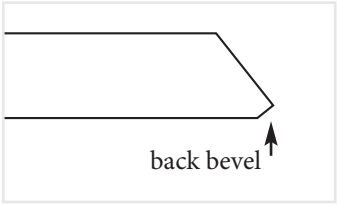
Keep work area clean to keep good wheel contact with floor. Use slow speed and small blades.

6 MAINTENANCE

6.1 Sharpen blades

Dull blades greatly reduce machine performance.
Sharpen or replace the blade if necessary.

Standard blades
When used continuously, the blades develop a back bevel on the edge



The blade is only really sharp,
when the back bevel is completely removed.

- Always wear gloves and safety glasses.
- Grind the blade with a grinding wheel of 120 grit or finer.
- Move the grinder along the edge of the blade and hold the grinder at the correct angle to the blade.
- Grind until the blade is sharp.
- Be careful not to catch the grinding disc on the edge or corner of the blade.

WARNING! Risk of injury!
Blades are sharp. Be extremely careful.

NOTE! Recommendation for optimal use of blades

- Thinner blades are easier to sharpen, but are easier to break.
- Have enough sharp blades for each job so that you do not have to sharpen them during a job.
- It is easier to grind the dull blades on a real work bench or with a belt grinder in the workshop and prepare for the next job.

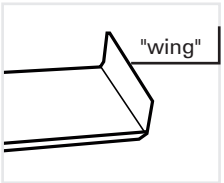
1. To sharpen the blade while mounted to the machine follow these instructions:
   - Keep the blade secured in the machine.
   -Block up front of machine so blade is off the floor and the machine is stable with no risk of falling.
   -Sharpen the blade with a 5" diameter disk with 120 or finer grit.
   - Be careful not to catch disk on edge or corner of blade.
2. A fine tooth file can be used to sharpen some blades but is considerably slower then using a grinder.


bevel down


bevel up


Sharpening with a fine-toothed file

Self-scoring blade
It is important to keep the "wings" of the self-scoring blades sharp. Use a file at the "wing" edge. Sharpen the flat end of the blade exactly as described above.



Blades with carbide tip
To sharpen carbide tips you will need a green silicon carbide grinding wheel.

6 MAINTENANCE

6.2 Maintenance schedule

Perform maintenance outside of hazardous areas. Maintenance work must be carried out with the machine switched off and disconnected from power to prevent accidental start-up of the machine:

- Disconnect the power cord!

Maintenance by the user

Daily before you start work

- Clean the wheels, they need to be free of accumulated debris.
- Checking the wheels for damage, they must have sufficient rubber.
- Check if all safety devices are working and are installed.
- Check for hydraulic oil leaks with the machine off.

WARNING! Risk of injury by hydraulic fluid!
Never visually inspect hydraulic components while the machine is running.
Never feel pressurized hose assemblies to find leaks.
Leaking pressurized hydraulic fluids may develop a mist or
fine spray liquid that squirts or explodes on ignition and is cable of injecting into flesh and causing serious injury.

If hydraulic fluid leaks

- Keep ignition sources away
- With machine off look for the source of the leak

- If the source of a leak cannot be fixed contact the manufacturer or a hydraulic repair shop.
  Replacement of hydraulic oil and oil filter- see chapter 6.3

Recommended Maintenance by the manufacturer

After the first 100 hours of operation replace hydraulic oil and inspect all other components.
then every 500 operating hours or 3 years - according to the checklist

- Replace worn hydraulic lines and fittings
- Inspection of safety equipment
- Replace all safetey and instruction labels
- Inspection of electrical components and connections
- Replace oil and clean oil strainer.

USE ONLY ORIGINAL REPLACEMENT PARTS

6.3 Hydraulic oil

Dangers for people and the environment

Hydraulic oils are flammable. Vapors released when exposed to very high temperatures and spray can form explosive mixtures with air.
There is a risk of ignition of oil-soaked clothing.
Frequent or prolonged contact with the products, even through oil-soaked clothing, can cause skin diseases, e.g. inflammation, rash, oil acne. Products exposed to high temperatures may accumulate with hazardous substances. Water pollutant.

Protective measures and rules of conduct

Drain hydraulic fluid into a drip pan, avoid splashing. Do not overfill drip pans and do not use to store other materials.
Keep away from ignition sources, do not smoke. Do not mist lubricants.
Keep container closed and protect from heat.
Keep soaked cloths in non-combustible, closed containers.
Replace cleaning rags regularly.
Mark filled containers, replace defective markings.
Never use food containers or containers to be confused with them.

Hand protection: for long-term use resistant chemical protective gloves
Skin protection: Avoid contact with skin and clothing.

Immediately change soaked clothing and put on only after cleaning. Do not put smeared cloths in the pockets of work clothes. Do not use solvents, thinner, or other harsh chemicals for cleaning hands or body.

Procedures in case of incidents

leak:	After leakage, immediately use an absorbant mat or material to contain the spill. Pickup this contaminated material and dispose in a proper container. Clean the floor thoroughly so there is no slippery surfaces.
fires:	Have a fire extinguisher available for fire class B. Do not extinguish with water. In case of fire, there is a risk of the hydraulic reservoir bursting due to the boiling liquid and expanding vapors.
escape route:	See marking of escape routes and emergency exits

First aid

after skin contact:	Thoroughly wash with soap and water, remove previously soaked clothes.
after eye contact:	Rinse with an open eye and toward the outer eye for ten minutes in running water, visit a eye specialist.
after swallowing:	Do not induce vomiting, consult a doctor.
after penetration of oil:	After penetration of oil under the skin immediately consult medical attention!

Proper disposal

Collect waste in labeled non-combustible containers; Keep waste containers and empty containers closed, empty at the latest at the end of the shift or remove them from the work space.

6 MAINTENANCE

6.3 Replacement of hydraulic oil

Resources

Hydraulc oil Shell Tellus S2 MX 46

Capacity 5 Liter

ATTENTION !
Keep the hydraulic fluid clean and at the specified level. Incompatible fluids can damage the unit or cause serious injury.

Preparation
Wear protective gloves and goggles

Level of hydraulic fluid

The machine is ready for operation when delivered, it is filled with hydraulic oil.
The full level is even with the bottom of the hole.

Check the hydraulic fluid level if there is a leak, damaged or broken hose or loose fitting.

Filling / replacing the hydraulic fluid

To fill up with hydraulic fluid, unscrew the oil level plug at the rear of the tank and fill up to the bottom of the hole.

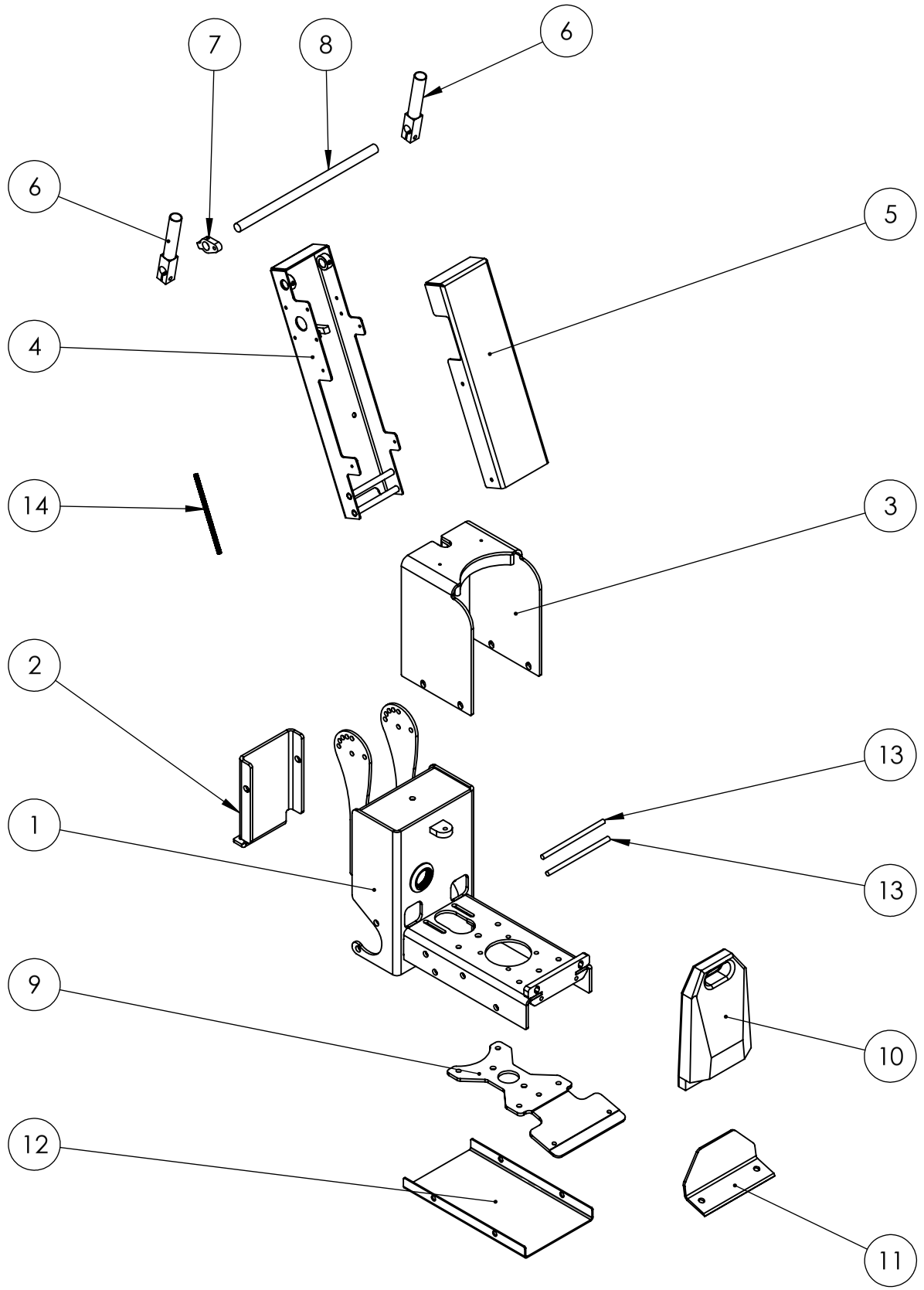
To replace hydraulic fluid, unscrew the oil level plug at the rear of the tank and the breather at the top of the tank. Use a pump to remove the oil from the reservoir.

A drip pan that can hold 5 liters is needed to drain the liquid.

Fill with new oil.

ATTENTION ! Do not overfill.

Reinstall the oil level plug on the rear of the tank and the breather on the top of the tank.



PARTS KIT# 10147

ITEM	PART #	DESCRIPTION	QTY
1	10133	MASTER II FRAME	1
2	10171	KICK PLATE	1
3	10237	SHROUD	1
4	10160	HANDLE LOWER	1
5	10163	HANDLE UPPER	1
6	10158	HAND GRIP	2
7	10168	VALVE CAM	1
8	10159	HANDLE AXLE	1
9	10155	CUTTING HEAD	1
10	10154	CAST WEIGHT	1
11	10204	BLADE CLAMP TALL	1
12	10152	BOTTOM COVER	1
13	10172	HANDLE PIN	2
14	10169	5/16"-24 THREADED ROD	1

ANCILLARY PARTS

PART #	DESCRIPTION	QTY
10145	5/16"-24 ROD END BEARINGS	2
10146	CUTTING HEAD FLANGE BEARING	1
	STRAINER & BUSHING	

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ± 1/32"
ANGULAR: MACH ±.1° BEND ±1.°
TWO PLACE DECIMAL ± .010"
THREE PLACE DECIMAL ± .005"

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	J.A.	4/8/19
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

ANDERSON INNOVATIONS

TITLE:

ES 200 Frame Kit

SIZE	DWG. NO.	REV
B	10147	A

SCALE: 1:24 | WEIGHT: | SHEET 1 OF 1