



| 028 3760 0640

| mark@mdemachinery.com

| www.mdemachinery.com

INSTRUCTION MANUAL AND PARTS CATALOGUE FOR

MDE SX1650 GRAPPLE SAW

CONTENT

Certificate.....	3
Safety instructions.....	4-7
Operation.....	7-9
Maintenance.....	10-12
Hydraulic safety.....	13
Specification (Grapple only).....	14
Grapple Saw features.....	15
Parts drawings.....	16-17
Warning stickers.....	18
Service Record.....	19-20



EU CERTIFICATE OF CONFORMITY

CONFORMING TO EC Machinery Directive 2006/42 EC

We:

MDE Machinery
110 Seagahan Road
Collone
Co. Armagh
BT60 2BJ



declare in sole responsibility, that the products

Type: SX GRAPPLE

to which this certificate applies, conforms to the basic safety
and health requirements of the EC Machinery Directive 2006/42 EC,

and the Transposed Harmonised Standards:

BS EN 1553 (2000)

A handwritten signature in black ink, appearing to read 'DBL' with a stylized flourish at the end.

Mark Belford

Managing Director

SAFETY INSTRUCTIONS

IMPORTANT - READ BEFORE USE

This manual is provided to assist you in getting the best results from your machine and ensure that you do so safely. If you have any queries about the use of the machine contact your dealer before use. Please keep this manual for future reference.

INTENDED USE

The SX Grapple **Saw** was designed for cutting trees. We recommend the following application areas while taking the technical threshold values of the relevant machine size into account (see specification table):

- Safely removing trees in short sections
- Harvesting trunk material
- Processing previously felled trees lying on the ground.

FUNDAMENTAL PRECAUTIONS

On delivery, your dealer gave you an explanation of the operation and maintenance of this MDE SX Grapple. Please read and understand these operating instructions before operating the machine for the first time. It is essential that you observe all safety instructions.

Incorrect use or mishandling of the machine can endanger:

- Life and Limb of the operator, other persons or animals within the vicinity of the machine.
- The machine and other material assets of the owner or third persons.
- The performance of the machine.

Anyone who is involved in the commissioning, operation or maintenance of the Excavator Grapple must read and understand these instructions very carefully and observe them at all times.

NEVER DISTRACT ANYONE WHO IS USING A MACHINE.

AUTHORISED OPERATORS

Youths under the age of 16 must not operate this implement. The owner of the machine must provide the operator with the operating instructions and make sure they have read and understood them. Only then may the machine be put into operation.

The owner must ensure that only authorised persons operate/work on this machine. He is responsible for keeping any third persons or animals out of the working area of the machine.

THE OPERATOR MUST BE FULLY TRAINED BEFORE USING THE IMPLEMENT. A SAFE DISTANCE OF AT LEAST 100M MUST BE OBSERVED BY ANYONE WITHIN THE VICINITY OF THE SX GRAPPLE.

GENERAL SAFETY AND ACCIDENT PREVENTION REGULATIONS

Ensure the implement is correctly and securely attached to the operating vehicle. Only use genuine MDE pins.

Always use the correct mounting bracket and ensure that it is fitted by a trained and competent operator who has been approved by your MDE dealer. It is recommended to use an MDE interface plate for optimum performance.

NEVER attach to a excavator which would be rendered unstable when the implement is operated at its full capacity. Take note of the maximum load permissible on excavator.

Take extra care when operating machinery on sloping ground. NEVER operate on ground where there is a risk of the tractor becoming unstable.

When the unit is stationary always ensure it is lowered to the ground.

When detaching the implement from the excavator always ensure that it is stable and safely positioned on a level surface.

The attaching and detaching of the implement must be carried out by only one operator.

There should not be any other people in the vicinity of the implement or in the excavator.

Before operation make yourself familiar with all elements and controls of the machine as well as their functions.

Before operation inspect the area around you. Keep children away. All visitors and unauthorised persons should be kept well away from work area at all times.

Under NO circumstances should anyone, authorised or otherwise attempt to use the grab as a means of personal transport. It is designed as a specialist purpose excavator grab implement and is unsuitable for the safe transportation of passengers. NEVER allow anyone especially children to travel anywhere between the excavator and implement.

Any attempt to overload the machine will risk life and limb of the operator and immediately invalidate warranty.

To avoid personal injury keep hands and limbs well away from the moving parts.

ENSURE that the operator is aware of the overhang when the implement is mounted on the front of the excavator.

Always keep the grab and load as low as possible to maximise stability.

NEVER attempt to move the implement manually.

During overhead work, fragments or blocks of material can fall. Make sure that the machine on which the attachment is installed has the necessary protections for performing this type of work and has an FOPS cabin (Fig. 2.2.1). It is mandatory to check that all safety devices of operating machine must be activated. Base machine (excavator) should have appropriate guarding/armoured glass.

Use the appropriate individual protection devices (gloves, goggles, hard hat, and safety shoes) during both work and maintenance.

Do not use the attachment if it is not working properly.

The unloading of material always should be parallel and near to the ground.

Never perform hasty or makeshift repairs that could compromise the good operation of the attachment. In the case of doubt, always request service by specialised personnel.

It is forbidden to perform checks and/or replace parts during work. Unless expressly specified by this manual, avoid repairing or adjusting the attachment (or parts of it) during work, in order to avoid being hooked by moving parts.

The attachment can only be used after checking alignment with all specification of the operating machine, particularly the stability, and properly installed.

The operator, before leaving the operating machine control, must stop the attachment in safety condition.

The arms must be moved safely, with controlled movements.

Do not bring the operating machine closer than 20 meters from aerial power lines under voltage.

Do not make any adaptations or changes that the manufacturer has not previously agreed to and approved in writing.

Do not operate under the attachment if not safety supported.

Do not operate with the attachment and operating machine on closed area without proper ventilation.

The operator never use drugs or alcohol.

Only allowed to use the attachment when there are: properly ambient condition (enough light; low wind; without snow load), stable ground, operating area is totally free and guaranteed the operator visibility from the machine.

Do not remove safety devices or protective guards.

It is absolutely prohibited for anyone to use the attachment for any purpose other than that expressly allowed and documented. The attachment must always be used in the manner and at the times and places required by good practice and in conformity with the current laws of every country, even if there are no laws regulating the sector in the country of use.

PUTTING INTO OPERATION

Warn persons in its vicinity that the attachment is going into operation.

Check all the safety systems.

Check the protections and signage. Before putting the attachment in operation, it is necessary to perform a series of checks and controls to prevent errors or accidents while putting it in operation. In case of problems, it's necessary to solve it immediately.

Check that the attachment has not been damaged during mounting;

Check the condition and tightening torque of related fixing bolts;

Carefully check the integrity of the hydraulic hoses, valves and various components;

Check that all moving parts are moving freely.

Check that the hydraulic connections are tight to prevent dangerous leaks.

In case of working on public area the end user must be check the correspondence of system (operating machine & attachment) to the local compliance.

Putting the SX Grapple Saw into service for the first time

After correct installation has been followed, and operator is in the cabin with all personnel at a safe distance. Begin operating vehicle engine at idle with low flow and low pressure, open and close all functions starting with grapple and saw. Make sure all functions are working correctly, and ensure that all air is out of the hydraulic circuit. Inspect SX Grapple for defects and oil leaks. When operator is back in the cabin with all personnel at a safe distance, set the operating vehicle to working RPM flow and pressures, test all functions starting with the grapple and then the saw. Reinspect the SX Grapple Saw for any defects or oil leaks.

OPERATING CYCLE FOR CUTTING

First of all check that the material to be cut does not exceed the load capacity of the attachment and the lifting capacity of operating machine. In order to avoid problems of instability operate with the load closer to the operating machine.

Activate all the safety devices provided on the operating machine checking the functionality.

Operate with slow movements and only after having reached full confidence with the attachment operating machine especially when working on sloping ground.

Reach with the operating machine the working area.

Inspect to ensure the tree is in sound condition (not rotten or dead) and strong enough to be held firmly so that it can be lowered to the ground safely after cutting.

The SX Grapple Saw should never be used for cutting dead or rotten trees.

Make sure that nobody is in the range of action of the operating machine and attachment or, in any case, in the danger area.

Ensure that there is no foreign objects at the trunk base that may damage the saw during the cutting phase, and ensure the full visibility of the entire working area for safe operation.

Bring the attachment with arms open to the tree to be cut. Check the proper alignment of the tree with the vertical axis of the attachment, eventually adjust it with the articulations available for improving the grip.

It's necessary to make more cuts starting from the top, cutting the tree in sections.

Close the grapple to take a grip of the tree you're looking to cut.

Operate the hydraulic control of the main line to activate the saw bar and cut the tree. Arise in the condition that the load cannot reach the operating machine.

If you cannot complete the cutting operation, it is necessary to repeat the cut.

Now the cutting cycle is completed and it's necessary to start the dumping phases.

As first, fix store area for the material ensuring the necessary safety conditions without hindering the work area of the operating machine, for the subsequent phases of work that will follow.

With the articulation of the operating machine work equipment put the trunk in parallel to the ground.

Place the trunk as much as possible closer to the ground, ensuring the minimum distance for the articulation of the grapples, in order to avoid conditions of instability of the operating machine during the dumping phase.

PROBLEMS DURING CUTTING

Problem	Cause	Solution
Guide bar does not retract into the saw unit	Cut material has dropped	<p>Start the cutting process and tilt the saw unit down.</p> <ol style="list-style-type: none"> 1. Starting the cutting process -> with gripper/saw switching activated, apply pressure to line A until the guide bar is fully extended. 2. Tilt the saw unit down -> with gripper/saw switching activated, apply pressure to line B until the saw unit is tilted down. 3. Stop applying pressure. <p>The guide bar retracts into the saw unit</p>
	Guide bar retraction defective	Check guide bar retraction
Guide bar trapped	The trunk has tipped and trapped the guide bar.	<p>If the guide bar is trapped in the trunk, follow these steps to try to remove the guide bar from the trunk.</p> <ol style="list-style-type: none"> 1. Preload the machine upwards and towards by actuating the kinematics. 2. Carefully tilt the machine to the left by actuating the Tiltator. Once the cutting kerf has opened up, the guide bar retracts in to the saw unit again

STOP

First of all it is mandatory to put in place safety conditions before the attachment is stopped. The attachment is stopped by simply leaving the controls of the relative hydraulic distributors in their rest positions. Under normal conditions, if the controls are not activated, the attachment does not perform any movements. Before leaving the operating machine it is necessary to stop the engine. Attachment is safely set onto the ground

TAKING OUT OF SERVICE

On the occasion of long periods of inactivity, it is necessary to close all articulations and then disconnect the hydraulic power from the attachment.

Check that all parts are intact, and all bolts are right tightening torque, in case of trouble it is necessary to repair.

Clean the attachment removing all residual material in order to avoid rust problem.

Spray a protective product on the attachment in order to avoid rust and seizure problems. Grease all articulation.

Recover the attachment in safety condition; in covered area with low humidity..

WASTE DISPOSAL

The user is responsible for the correct disposal of the waste produced by the attachment in conformity with the current law in the country of use. Lubricants and replaced parts must be disposed of in conformity with the current law in the country of use of the attachment.

MAINTENANCE

As a rule, disengage the driving system and stop the engine prior to carrying out maintenance, servicing, cleaning or repair work. ALWAYS remove the ignition key.

Prop the machine with appropriate supports before carrying out any maintenance work. The manufacturer will not be responsible for any damages or injuries caused by unauthorised repair, alterations or mishandling of the product.

Wear protective clothing during maintenance.



Maintain product with care. Check periodically for damage that would affect the safe operation of the implement.

Only use original MDE replacement parts to replace worn parts.

ALWAYS ensure all warning stickers are kept clean and in good condition.

Regularly check the bolts at the hinge points and tighten if necessary.

Regularly lubricate the hydraulic cylinder and hinges using clean grease.

Cover the chromed area of the hydraulic cylinder with a layer of grease during prolonged periods of inactivity.;

The maintenance required for this attachment is divided into:

1. Regular
2. Scheduled
3. Extraordinary

They include operations relative to lubrication, cleaning, adjustment, replacement, inspection, tightening, etc. In performing maintenance and/or repairs, it is a good idea to follow these recommendations:

Before beginning work, display a card, "ATTACHMENT BEING MAINTAINED" in a visible position;

Do not use solvents or inflammable materials;

Take care not to spill lubricants on the ambient;

When accessing parts of the attachment, use suitable means for the operations to be performed;

Do not operate under the attachment if not safety supported.

When finished working, correctly replace and attach all the protections that were removed and/or opened;

Carefully clean individual components with an appropriate degreaser and without using compressed air (which just moves dirt around);

Determine the frequency of maintenance based on the specific need in relation to the production cycle of the attachment;

Before putting the attachment in operation every day, the operator should visually check the general state of its components and request maintenance if he notices strange noises or anomalous situations;

Check that the mechanical parts are always well lubricated (only those components that need lubrication).

When performing cleaning, mounting, dismounting, maintenance and transport, take care to place the attachment in a condition of perfect stability.



HYDRAULIC SAFETY

All regulation, maintenance, repair or cleaning must be performed with the engine stopped and the attachment stably supported on the ground and no residual hydraulic pressure. The residual hydraulic pressure must be discharged by activating the opening and closing controls of the attachment several times with the motor stopped and depressurizing the oil tank. The intervention must be marked on the card in the cabin.

For the hydraulic connections, only and exclusively use hydraulic hoses and fittings conforming to the SAEJ517 or DIN20066 standards for the specified pressures. Failure to observe the above could compromise the safety of the attachment.

Always check the integrity of the hoses to make sure they have not been damaged. If so, have them replaced immediately. Search for leaks using small pieces of paper or cardboard and never with your fingers to avoid possible subcutaneous injections of oil under pressure. The oil can reach very high temperatures. Before performing any service on external surfaces, wait for them to completely cool.

CAUTION The hydraulic system is under high pressure.

Ensure that only high-pressure hoses are used to connect supply to the attachments hydraulic cylinder. Check hoses regularly and renew any that are damaged or worn. Hydraulic supply must not exceed what is recommended in the specification table in this document.

Before working on the hydraulics lower the grab, release the pressure from the system and stop the excavator engine.

When connecting hydraulic rams make sure that the hydraulic hoses are coupled correctly. Pressure should be released from the system both on the excavator and on the implement side prior to coupling the hoses to the tractor hydraulics.

CAUTION Hydraulic oil forced out under pressure can break the skin and cause severe injury. In the event of a hydraulic oil leak stop the excavator flow immediately. **DO NOT PUT HANDS NEAR A LEAKING PIPE.**

In hydraulic fluid power systems, power is transmitted and controlled through liquid under pressure within an enclosed circuit. Solid particle contaminant is always present in the hydraulic fluid, and the amount needs to be determined because the contaminant may cause serious problems. The operating machine must have clean hydraulic in-line filters. These in-line filters prevent contaminants from entering sensitive hydraulic components such as valves, cylinders and motors.

To ensure the attachment and operating machine are kept free from solid particle contaminant, all auxiliary lines powering the attachment must have clean in-line filters. Keeping the hydraulic fluid clean is extremely important for performance and hydraulic oil should be inspected regularly.

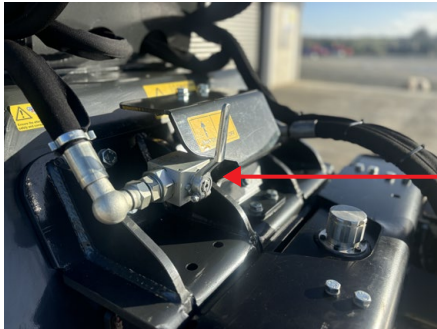
SX 1650 GRAPPLE SPECIFICATION

SX1650	
SPECIFICATION	
Excavator Size (tonne)	20 - 35
Excavator Size (lbs)	44,092 - 77,161
Weight (kilogram/lbs)	1500 / 3,306
Teeth thickness (mm/inch)	40 / 1 5/8
Grapple opening (mm/inch)	2,200 / 86 5/8
Grapple closing (mm/inch)	120 / 4 3/4
Oil Pressure (Bar)	200 - 250
Hydraulic Flow (Litre)	80 - 100
Hydraulic Flow (US gallon)	21.13 - 26.41
OPTIONS	
360° rotator	✓
Two way hitch	✓
Saw cassette	✓
OPERATING VEHICLE	
Excavator	✓
Skid Steer	✗
Telehandler	✗
Mini Loader	✗
Crane	✓

SX1650 Grapple Saw Option



For saw specification please refer to Hultdins SuperSaw Manual



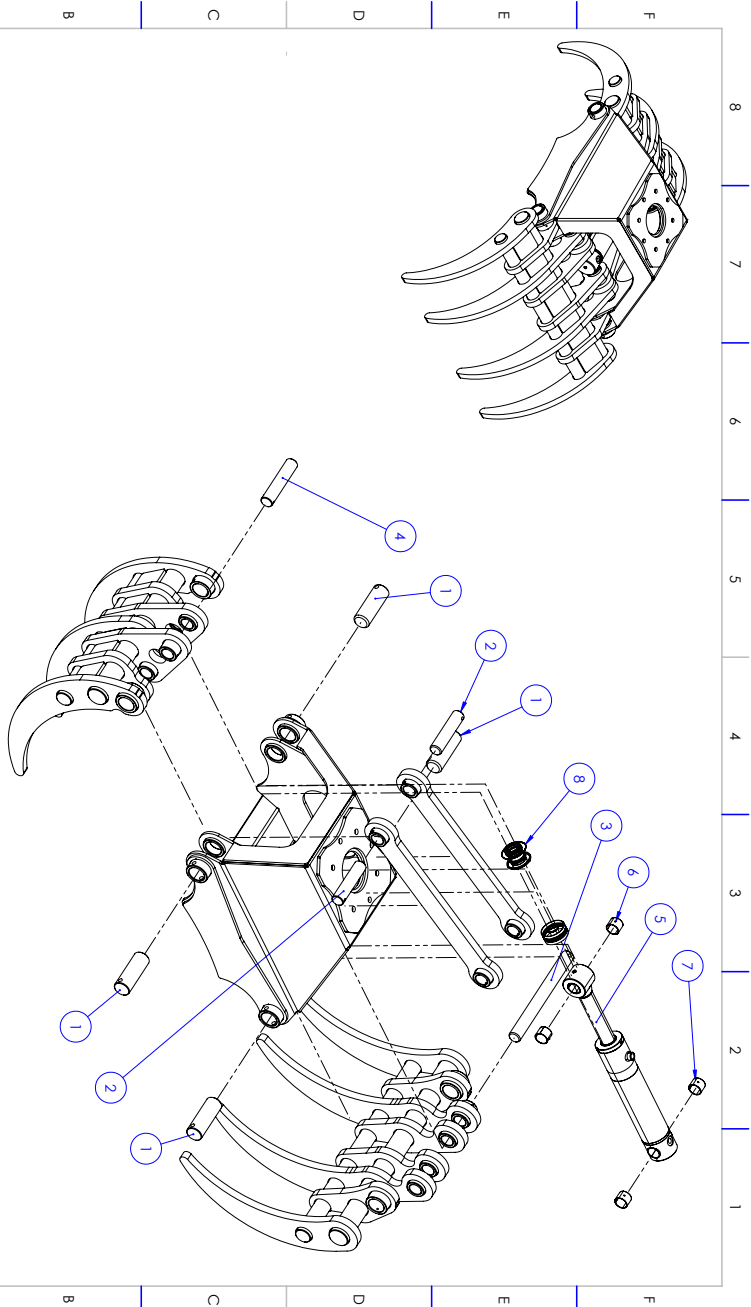
Isolater Switch (To isolate saw)



Sequence valve (To engage saw)

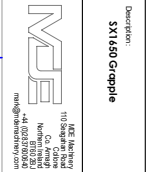
Preset factory setting DO NOT ADJUST

SX1650 Grapple



ITEM NO.	Revision	PART NUMBER	QTY	Description	Material	Part Type	Weight	Finish	Part Number	Material	Part Type	Weight	Finish	Part Number	Material	Part Type	Weight	Finish	Part Number	Material	Part Type	Weight	Finish
1	01	SX1650-QD28-01	4	Pin SX1650	EN24T	Matched	8.8	Zinc Plated															
2	01	SX1650-QD28-01	2	Pin SX1650	EN24T	Matched	5.7	Zinc Plated															
3	01	SX1650-QD30-01	1	Pin SX1650	EN24T	Matched	13.2	Zinc Plated															
4	01	SX1650-QD30-01	1	Pin SX1650	EN24T	Matched	6.8	Zinc Plated															
5	00	HYH-120-001	1	Hydraulic Ram M16.7	EN24T	Purchased	64.8	As Supplied															
6	00	HYH-120-001 Front Bushing	2	HYH-120-001 Front Bushing	Plain Carbon Steel	Purchased	0.1	As Supplied															
7	00	HYH-120-001 Rear Bushing	2	HYH-120-001 Rear Bushing	Plain Carbon Steel	Purchased	0.1	As Supplied															
8	00	HYH-120-001 Seal Kit	1	HYH-120-001 Seal Kit	Butler	Purchased	0.5	As Supplied															

SX1650-QD00-01 MODE ASSEMBLY As Supplied Weight: 1465.5 Kg THIRD ANGLE PROJECTION Drawing Scale: NTS		Drawn by: Martin C Checked: Mark B 1 of 1 11/04/2025
---	--	---



Confidential Document:
This drawing is the property of MDE Machinery and is not to be reproduced, stored, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written consent of MDE Machinery. The information contained herein is confidential and its disclosure to any third party without the prior written consent of MDE Machinery is strictly prohibited.

WARNING STICKERS



INSPECTION / SERVICE RECORD

Work Carried Out	Date	Hours	Completed
Guard Inspection			
Saw Inspection			
Bolts Torqued			
Arm Inspection			
Grease Used			
All Bolts Torqued			
Hydraulic Hose Inspections			
Hydraulic Fitting Inspections			
Visual Check Over			
Notes			

Work Carried Out	Date	Hours	Completed
Guard Inspection			
Saw Inspection			
Bolts Torqued			
Arm Inspection			
Grease Used			
All Bolts Torqued			
Hydraulic Hose Inspections			
Hydraulic Fitting Inspections			
Visual Check Over			
Notes			

INSPECTION / SERVICE RECORD

Work Carried Out	Date	Hours	Completed
Guard Inspection			
Saw Inspection			
Bolts Torqued			
Arm Inspection			
Grease Used			
All Bolts Torqued			
Hydraulic Hose Inspections			
Hydraulic Fitting Inspections			
Visual Check Over			
Notes			

Work Carried Out	Date	Hours	Completed
Guard Inspection			
Saw Inspection			
Bolts Torqued			
Arm Inspection			
Grease Used			
All Bolts Torqued			
Hydraulic Hose Inspections			
Hydraulic Fitting Inspections			
Visual Check Over			
Notes			