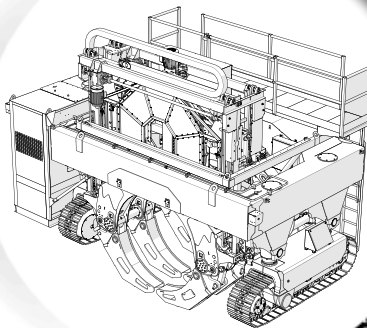


Operator's Manual



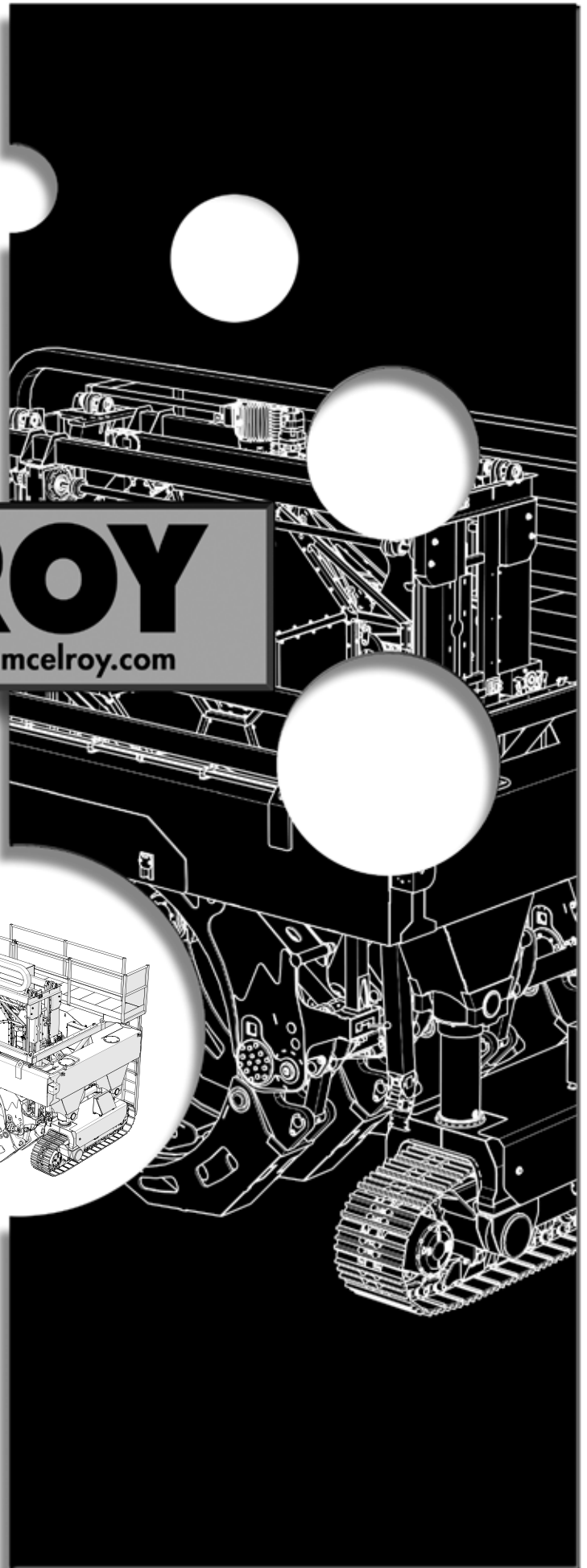
McELROY

www.mcelroy.com



Talon™ 2000

Fusion Machine



WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to
www.P65warnings.ca.gov/diesel.

8163362

This product and other products could be protected by patents or have patents pending. All the latest patent information is available at patent.mcelroy.com

Introduction

Thank You for choosing McElroy

The Talon™ 2000 is a self-propelled vehicle with the unique ability to lift pipe from the ground, position it to be fused and move from joint to joint down the pipeline. It features a quick-action facer and an electric-powered indexer to accurately position the heater and facer into the fusion machine.

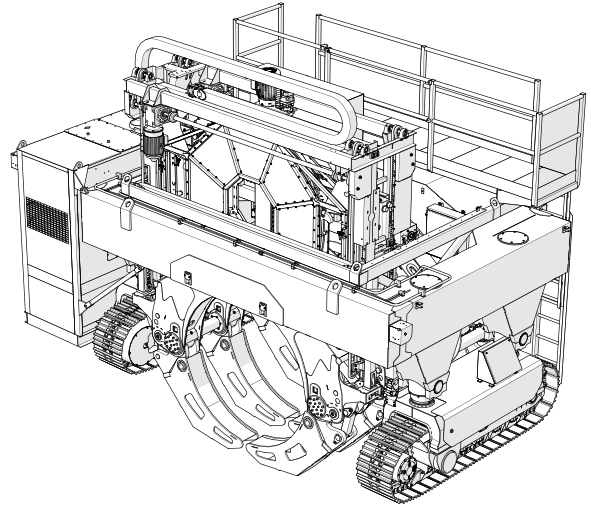
The Talon™ 2000 is capable of fusing pipe sizes from 54" OD to 2000mm OD

When fusing thermoplastic pipe materials, refer to the pipe manufacturer's fusion procedures or appropriate joining standard.

With reasonable care and maintenance, this machine will give years of satisfactory service.

Before operating this machine, please read this manual thoroughly, and keep a copy with the machine for future reference. This manual is to be considered part of your machine.

Always return the manual to the literature compartment.



TX05039-05-04-16

McElroy University

For more than 30 years, McElroy has been the only pipe fusion machine manufacturer to continuously offer advanced training. Course offerings are meant to enhance your efficiency, productivity and safety in the proper use of McElroy machines. McElroy University classes are structured so that the skills learned and the machines used in each class closely match the machines found on pipelining jobsites. We offer training at our facility or yours. Our uniquely qualified McElroy University course instructors offer years of industry experience.

Tuition for each course includes lunches, course materials and a certificate of completion. Online registration, as well as up-to-date course offerings and dates, is available at **www.mcelroy.com/university**

This manual is intended as a guide only and does not take the place of proper training by qualified instructors. The information in this manual is not all inclusive and can not encompass all possible situations that can be encountered during various operations.



MU2-03-13-14

TX04659-03-24-14

Warranty

LIMITED WARRANTY

McElroy Manufacturing, Inc. (McElroy) warrants all products manufactured, sold and repaired by it to be free from defects in materials and workmanship, its obligation under this warranty being limited to repairing or replacing at its factory and new products, within **5 years** after shipment, with the exception of purchased items (such as electronic devices, pumps, switches, etc.), in which case that manufacturer's warranty applies. Warranty applies when returned freight is prepaid and which, upon examination, shall disclose to have been defective. This warranty does not apply to any product or component which has been repaired or altered by anyone other than McElroy or has become damaged due to misuse, negligence or casualty, or has not been operated or maintained according to McElroy's printed instructions and warnings. This warranty is expressly in lieu of all other warranties expressed or implied. The remedies of the Buyer are the exclusive and sole remedies available and Buyer shall not be entitled to receive any incidental or consequential damages. Buyer waives the benefit of any rule that disclaimer of warranty shall be construed against McElroy and agrees that such disclaimers herein shall be construed liberally in favor of McElroy.

RETURN OF GOODS

Buyer agrees not to return goods for any reason except upon the written consent of McElroy obtained in advance of such return, which consent, if given, shall specify the terms and conditions and charges upon which any such return may be made. Materials returned to McElroy, for warranty work, repair, etc., **must have a Return Material Authorization (RMA) number**, and be so noted on the package at time of shipment. For assistance, inquiry shall be directed to:

McElroy Manufacturing, Inc.
P.O. Box 580550
833 North Fulton Street Tulsa, Oklahoma 74158-0550
PHONE: (918) 836-8611, FAX: (918) 831-9285.
EMAIL: fusion@McElroy.com

Note: Certain repairs, warranty work, and inquiries may be directed, at McElroy's discretion, to an authorized service center or distributor.

DISCLAIMER OF LIABILITY

McElroy accepts no responsibility of liability for fusion joints. Operation and maintenance of the product is the responsibility of others. We recommend qualified joining procedures be followed when using McElroy fusion equipment.

McElroy makes no other warranty of any kind whatever, express or implied; and all implied warranties of merchantability and fitness for a particular purpose which exceed the aforesaid obligation are hereby disclaimed by McElroy.

PRODUCT IMPROVEMENT

McElroy reserves the right to make any changes in or improvements on its products without incurring any liability or obligation to update or change previously sold machines and/or the accessories thereto.

INFORMATION DISCLOSED

No information of knowledge heretofore or hereafter disclosed to McElroy in the performance of or in connection with the terms hereof, shall be deemed to be confidential or proprietary, unless otherwise expressly agreed to in writing by McElroy and any such information or knowledge shall be free from restrictions, other than a claim for patent infringement, is part of the consideration hereof.

PROPRIETARY RIGHTS

All proprietary rights pertaining to the equipment or the components of the equipment to be delivered by McElroy hereunder, and all patent rights therein, arising prior to, or in the course of, or as a result of the design or fabrication of the said product, are exclusively the property of McElroy.

LAW APPLICABLE

All sales shall be governed by the Uniform Commercial Code of Oklahoma, U.S.A.

Register your product online to activate your warranty: www.McElroy.com/fusion

(Copy information listed on the machine nameplate here for your records).

Model No. _____

Serial No. _____

Date Received _____

Distributor _____

Table of Contents

Safety

Safety Alerts	1-1
Read and Understand	1-1
General Safety	1-2
Wear Safety Equipment	1-2
Do Not Operate This Machine in an Explosive Atmosphere	1-2
Fuel Handling	1-3
Carbon Monoxide	1-3
Pipe Handling Safety	1-4
Overhead Components	1-4
Electrical Safety	1-5
Units with Hydraulics	1-5
Lifting Safety	1-6
Battery	1-7
Crush Points	1-7
Do Not Ride Machine	1-7
Facer Cutters are Sharp	1-8
Rotating Components, Chains and Belts	1-8
Personal Lifting Safety	1-9
Inside of Pipe is Slippery	1-9
Heater is Hot	1-9
Fusion Procedures	1-9
Safety Label Locations	1-10
Emergency Stop Locations	1-11

Overview

Theory of Heat Fusion	2-1
Talon 2000	2-2
Talon 2000 Radio Remote	2-6
Heater	2-8
Facer	2-8
Hydraulic Fluid Reservoir	2-9
Fuel Tank and Filler Cap	2-9
Power and Data Cables	2-10
Heater Stripper Cylinders	2-10
Indexer Skid	2-11
HMI Navigation Map	2-12
Talon 2000 Interface	
Main Screen	2-14
Machine Control Screen	2-16

COPYRIGHT © 2020, 2015

McELROY MANUFACTURING, INC.

Tulsa, Oklahoma, USA

All rights reserved

All product names or trademarks are property of their respective owners. All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Table of Contents

Overview (continued)

Manual Facing Screen	2-18
Manual Fusion Screen	2-20
Control Panel Screen	2-22
Machine Settings Screen	2-24
Indexer Calibration Screen	2-26
Facer Calibration Screen	2-28
Heater Calibration Screen	2-30
Shipping Screen	2-32
HMI Settings Screen	2-34
User Administration Screen	2-36

Set Up Talon

Read Before Operating	3-1
Lifting Vehicle	3-1
Starting the Machine	3-2
Remove Heater from Storage Configuration	3-4
Remove Facer from Storage Configuration	3-6
Remove Indexer from Indexer Skid	3-7
Lifting and Installing the Indexer Assembly	3-8
Install Upper Jaw Inserts	3-10
Calibrate Indexer Position	3-12
Install SIM Card for DataLogger® Vault™	3-13

Operation

Prepare Heater	4-1
Load Pipe	4-2
Talon 2000 Fusion Operation	4-3
DataLogger Operation	
Joint Information	4-4
Machine Information	4-5
Pipe Information	4-6
Machine Controls	4-7
DataLogger Facing	4-8
Drag Pressure	4-9
Check Alignment	4-9
Slip Check	4-9
Fusion Parameters	4-11
DataLogger Fusion	4-12
Joint Report	4-13
Joint Report Summary	4-15
Remove Fused Pipe	4-15

Table of Contents

Manual Operation

Manual Facing	4-16
Facing the Pipe	4-17
Drag Pressure	4-18
Check Alignment	4-18
Slip Check	4-18
Heating the Pipe	4-20

Special Operations - Jaw Configuration

Changing Jaw Configuration	5-1
----------------------------------	-----

Special Operations - Stub Ends

Configure Machine for Stub End Fusion	6-1
---	-----

Transport Talon

Remove Quarter Jaws	7-1
Attach the Indexer Assembly to Indexer Skid	7-3
Store Facer on Indexer Skid	7-4
Store Heater on Indexer Skid	7-5
Lifting Vehicle	7-7

Diagnostics

Hardware Diagnostics Screen	8-1
Current Alarms	8-3
Chassis Settings Screen	8-5
Indexer Drive Settings Screen	8-7
Facer Drive Settings Screen	8-9
Heater Drive Settings Screen	8-11
Heater Temperature Control Settings Screen	8-13
Program Information	8-15
Process Readings	8-17



Table of Contents

Maintenance

Preventative Maintenance	9-1
Disconnect Electrical Power	9-1
Washing the Machine	9-1
Check Hydraulic Fluid	9-1
Change Hydraulic Fluid and Filters	9-2
Bleeding Air From Hydraulic System	9-2
Adjusting System Pressure	9-3
Installing Butt Fusion Heater Plates	9-3
Clean Heater Surfaces	9-4
Facer Cutters	9-4
Clean Jaw and Inserts	9-4
Grease	9-4
Track Tension	9-5
Track Brake	9-5
Engine Oil	9-6
Air Filters	9-6
Pump Drive	9-7
Heater/Facer Chain Tension	9-7
Remote Batteries	9-8
Fasteners Must Be Tight	9-8

Maintenance Checklist

Talon 2000 Fusion Machine	10-1
---------------------------------	------

Determining Fusion Pressure

Determining Fusion Pressure	11-1
-----------------------------------	------

Hydraulic Fluids


Hydraulic Fluids	12-1
------------------------	------

Specifications

Talon 2000 Fusion Machine	13-1
---------------------------------	------

Safety

Safety Alerts

This hazard alert sign  appears in this manual. When you see this sign, carefully read what it says. **YOUR SAFETY IS AT STAKE.**

You will see the hazard alert sign with these words: **DANGER**, **WARNING**, and **CAUTION**.



Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.



In this manual you should look for two other words: **NOTICE** and **IMPORTANT**.

NOTICE: can keep you from doing something that might damage the machine or someone's property. It may also be used to alert against unsafe practices.

IMPORTANT: can help you do a better job or make your job easier in some way.

TX00030-12-1-92

WR00051-11-30-92

Read and Understand

Do not operate this equipment until you have carefully read, and understand all the sections of this manual, and all other equipment manuals that will be used with it.

Your safety and the safety of others depends upon care and judgment in the operation of this equipment.

Follow all applicable federal, state, local, and industry specific regulations.

McElroy Manufacturing, Inc. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the machine are therefore not all inclusive. You must satisfy yourself that a procedure, tool, work method, or operating technique is safe for you and others. You should also ensure that the machine will not be damaged or made unsafe by the method of operation or maintenance you choose.



TX02946-4-15-09

WR00052-12-1-92

Safety

General Safety

Safety is important. Report anything unusual that you notice during set up or operation.

LISTEN for thumps, bumps, rattles, squeals, air leaks, or unusual sounds.

SMELL odors like burning insulation, hot metal, burning rubber, hot oil, or natural gas.

FEEL any changes in the way the equipment operates.

SEE problems with wiring and cables, hydraulic connections, or other equipment.

REPORT anything you see, feel, smell, or hear that is different from what you expect, or that you think may be unsafe.



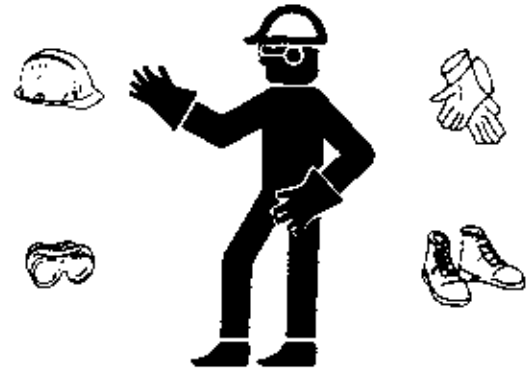
SAFETST-12-22-92

TX00114-4-22-93

Wear Safety Equipment

Wear a hard hat, safety shoes, safety glasses, and other applicable personal protective equipment.

Remove jewelry and rings, do not wear loose-fitting clothing, and tie back long hair that could catch on controls or moving machinery.



WR00053-12-2-92

TX00032-04-18-16

Do Not Operate This Machine in an Explosive Atmosphere



Electric motors and heaters are not explosion proof. Operation of these components in an explosive atmosphere will result in serious injury or death.



WR00080-4-12-93

TX04546-12-02-14

Safety

Fuel Handling



Gasoline and diesel fuels are extremely flammable, and their vapors will explode if ignited.

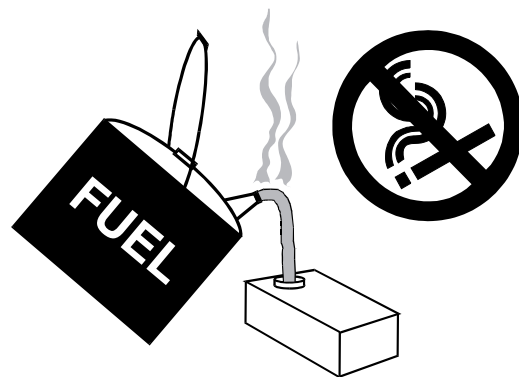
Do not fill the fuel tank while the engine is hot or running, as spilled fuel could ignite.

Refuel in a well ventilated area. Do not smoke or allow flames or sparks in the area where the engine is refueled, or where fuel is stored.

Do not start the engine near spilled fuel. Wipe up spills immediately.

Make sure the fuel tank cap is closed tightly and properly secured.

Avoid repeated or prolonged fuel contact with skin or breathing of fuel vapor.



CD00365-2-19-97

TX00953-04-18-16

Carbon Monoxide



Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide can cause severe nausea, fainting and death. Avoid inhaling exhaust fumes, and never run the engine in a closed or confined area.



W000093-5-14-96

TX00954-04-18-16

Safety

Pipe Handling Safety



WARNING Do not position yourself or any other personnel under supported or raised pipe. Pipe is heavy and could fall unexpectedly.



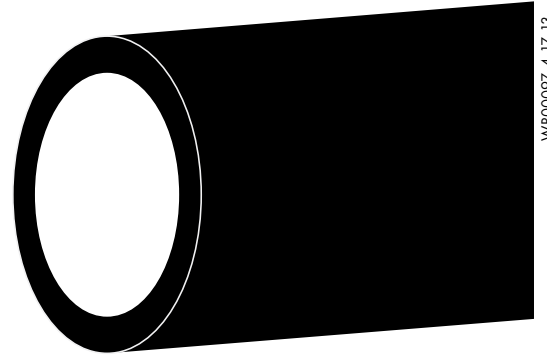
WARNING Pipe that is bent can store a great amount of energy. Do not bend and force the pipe into the machine. A bent pipe with stored energy can generate tremendous force when that energy is released.

It is recommended that the pipe is always held securely by either being clamped in the fusion machine jaws or properly attached to a lifting device.

NOTICE: Do not leave machine unattended to unauthorized personnel. Do not allow unauthorized personnel to operate the machine.

Keep persons that are not involved in handling pipe away from pipe handling operations. Keep away from the pipe when the pipe and handling equipment are in motion. When in motion, all persons involved in handling pipe should be able to see all other persons at all times. If any handling person is not in sight, immediately stop moving equipment and pipe and locate that person. Do not continue until all persons are accounted for and in sight.

Never push, roll, dump or drop pipe lengths, bundles or coils off the delivery truck, off handling equipment, or into a trench. Always use appropriate equipment to lift, move, and lower the pipe.



WR00097-4-17-13



WR00106-11-17-14

TX04882-04-18-16

Overhead Components



WARNING Fusion machine has overhead components that could fall. Components are heavy and can crush or kill. Set machine to lowest possible position and de-energize the machine before entering machine area.

To de-energize the machine, use the machine shut down procedure in this manual.



WR00105-11-17-14

TX04753-05-03-16

Safety

Electrical Safety

Frequently inspect electrical cables and unit for damage. Have damaged components replaced and service performed by a qualified electrician.

⚠ WARNING

Do not service electrical components while machine is operating. Failure to disconnect the power could result in electric shock. Refer service to a qualified technician.

⚠ WARNING

Do not operate machine with lightning in the area. Suspend operation of the machine until the lightning has concluded.

Pipe and pipe chips produce static electricity which can give a small electric shock.



WR00055-4-7-93



WR00025-11-30-92

TX04991-05-02-16

Units With Hydraulics

It is important to remember that a sudden hydraulic oil leak can cause serious injury, or even be fatal if the pressure or oil temperature is high enough.

⚠ WARNING

Escaping fluid under pressure can penetrate the skin causing serious injury. Keep hands and body away from pinholes which eject fluid under pressure. Use a piece of cardboard or paper to search for leaks. If any fluid is injected into the skin, it must be immediately removed by a doctor familiar with this type of injury.

⚠ WARNING

Unwanted movement of the machine could result in serious injury or damage to machine. Unwanted movement of the machine may take place if switches do not match machine state when the machine power is turned on.

NOTICE: Wear safety glasses, and keep face clear of area when bleeding air from hydraulic system to avoid spraying oil into eyes.



WR00078-4-8-93

TX03007-04-18-16

Safety

Lifting Safety

Follow all applicable federal, state, local, and industry specific regulations when lifting.

WARNING

Safety warnings:

1. Do not exceed rated load or lift loads greater than the rated load of the lifting device.
2. Do not operate a damaged or malfunctioning lifting device.
3. Do not lift persons.
4. Do not lift a suspended load over persons.
5. Do not leave a suspended load unattended.
6. Do not remove or obscure warning labels.
7. Read and understand the lifting device operator's manual before use.
8. Stay clear of the suspended load.
9. Lift loads only as high as necessary.
10. Do not alter or modify the lifting device.
11. Employ generally accepted safe lifting practices.
12. Do not shock or impact load the lifting device.
13. Inspect all lifting pins for damage.

See lifting instructions in this manual for specific instructions.



Safety

Battery

⚠ WARNING

Do not expose the battery to flames or electrical sparks. Hydrogen gas generated by the battery is explosive. Serious injury can result from an exploding battery.



CD00176-9-14-95

⚠ WARNING

The battery contains acid that can cause burns. Do not allow battery fluid to contact your skin, eyes, fabrics, or painted surfaces. After touching a battery or battery cap, do not touch or rub your eyes.

Eye Contact: Flush eyes with large amounts of water for at least 15 minutes. Seek immediate medical attention if eyes have been exposed directly to acid.

Skin Contact: Flush affected area(s) with large amounts of water using deluge emergency shower, if available, for at least 15 minutes. Remove contaminated clothing. If symptoms persist, seek medical attention.



CD00177-9-14-95

TX00650-04-18-16

Crush Points

⚠ WARNING

Hydraulically operated equipment operates under high pressure and generates extremely high forces. Anything inadvertently caught in the machine will be crushed. Keep fingers, feet, arms, legs, and head out of the machine while operated. Always ensure machine power is off before entering the machine for any reason.



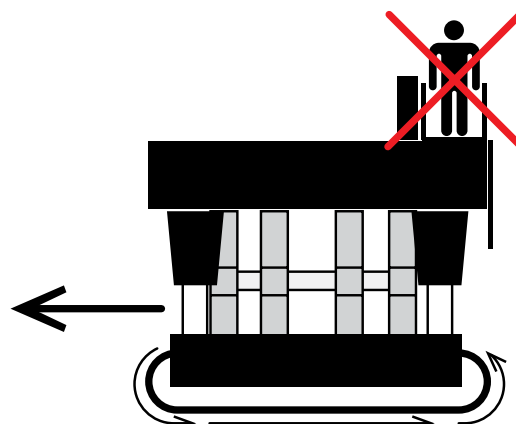
WR00012-12-4-92

TX03004-04-18-16

Do Not Ride Machine

⚠ WARNING

Do not ride on the machine while it is moving. Riding on the machine could cause the person to fall from or into the machine. Do not drive the machine while persons are on the machine. Only climb onto the catwalk while the machine is not moving.



WR00108-11-17-14

TX04756-11-20-14

Safety

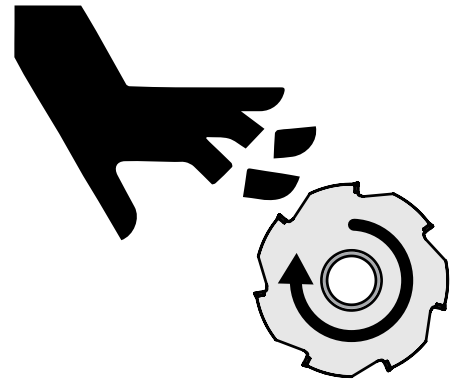
Facer Cutters Are Sharp

⚠ WARNING Facer cutters are sharp and can cut. Never attempt to remove shavings while the facer is running, or is in the facing position between the jaws.

NOTICE: De-energize the machine before attempting any maintenance or adjustment to facer.

NOTICE: Use only the cutters specified in the Maintenance section of this manual.

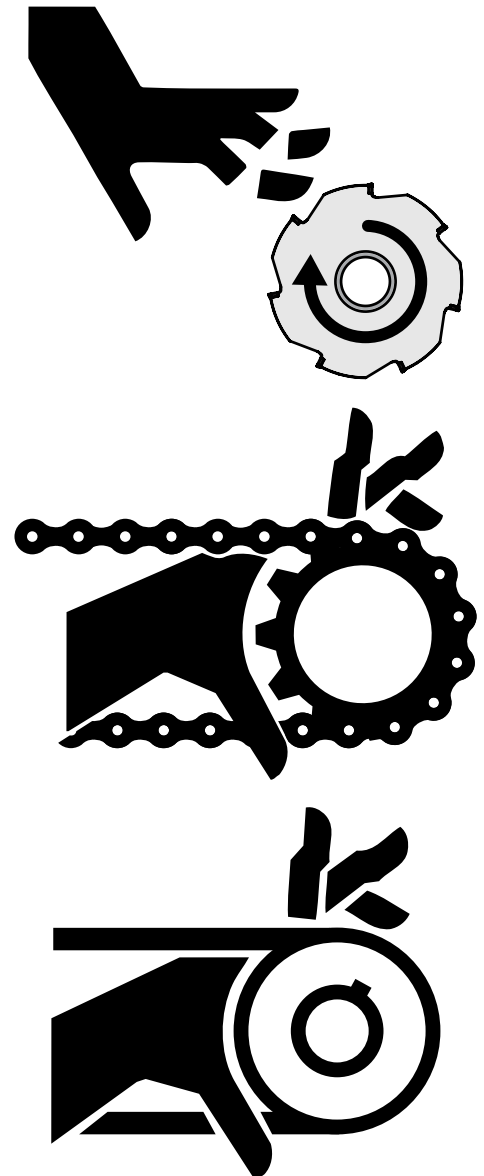
TX04993-05-03-16



WR00111-11-17-14

Rotating Components, Chains and Belts

⚠ WARNING Rotating parts can cause severe injury. Entanglement of hands, feet, clothing, or accessories can occur. Operate machine with guards in place and keep away from rotating parts, belts and chains.



WR00111-11-17-14

WR00109-11-17-14

WR00110-11-17-14

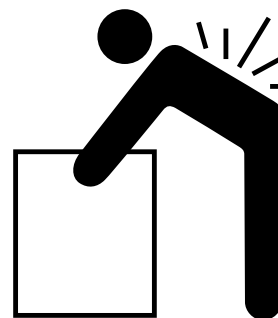
TX04761-05-03-16

Safety

Personal Lifting Safety



The quarter jaws and inserts are heavy. Using one person to lift the jaws and inserts may result in an injury. Two people are required to lift the jaws and inserts.



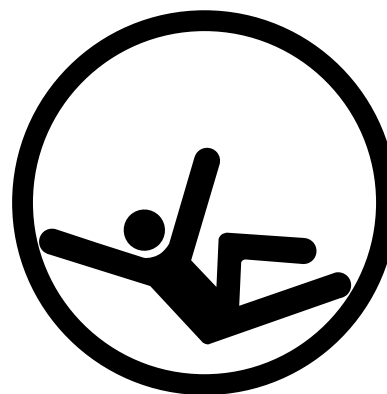
HeavyLifting5-25-10

TX04994-05-03-16

Inside of Pipe is Slippery



Inside of pipe is slippery and you could fall resulting in minor to moderate injury. Use caution by using arms to stabilize yourself while moving inside the pipe.



WR00107-11-17-14

TX04762-12-02-14

Heater is Hot



The heater is hot and will burn clothing and skin. Keep the heater in its insulated heat shields when not in use, and use care when heating the pipe.

NOTICE: Use only a clean dry lint free non-synthetic cloth to clean the heater plates.



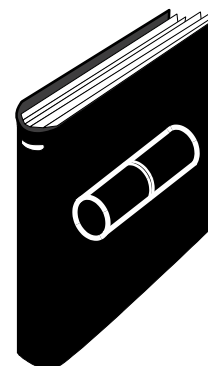
WR00030-2-10-93

TX04995-05-03-16

Fusion Procedures

Obtain a copy of the pipe manufacturer's fusion procedures or appropriate joining standard for the pipe being fused. Follow the procedure carefully, and adhere to all specified parameters.

NOTICE: Failure to follow the pipe manufacturer's fusion procedures or appropriate joining standard could result in a bad fusion joint.



WR00079-2-7-96

TX02984-04-18-16

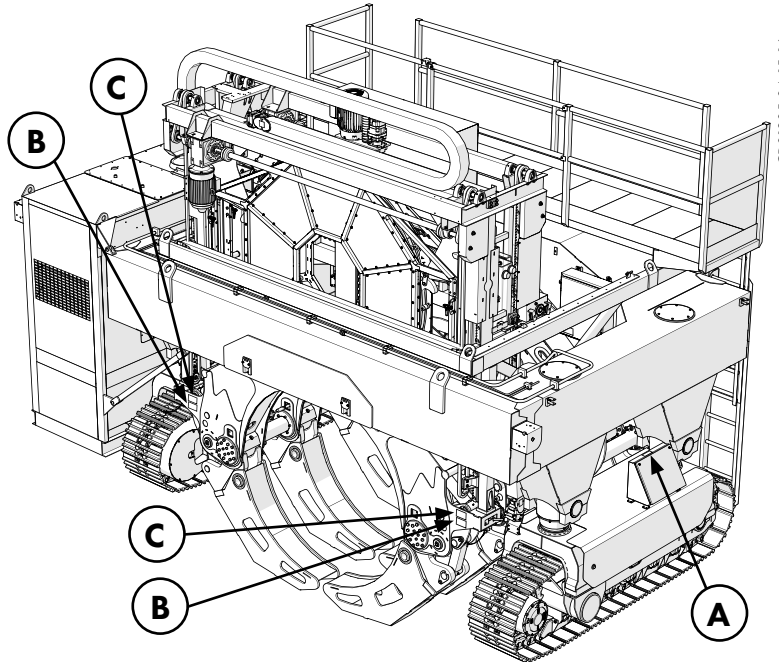
Safety

Safety Label Locations

DANGER - Part Number 829201 (A)

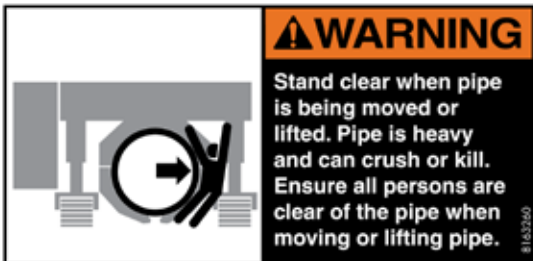


PH05389-04-15-16

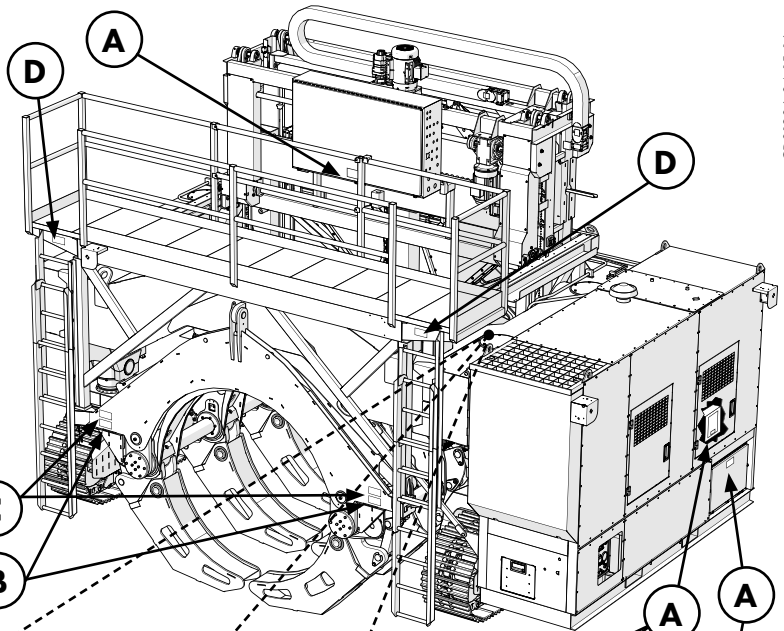


CD01305-04-15-16

WARNING - Part Number 8163261 (B)



PH05391-04-15-16

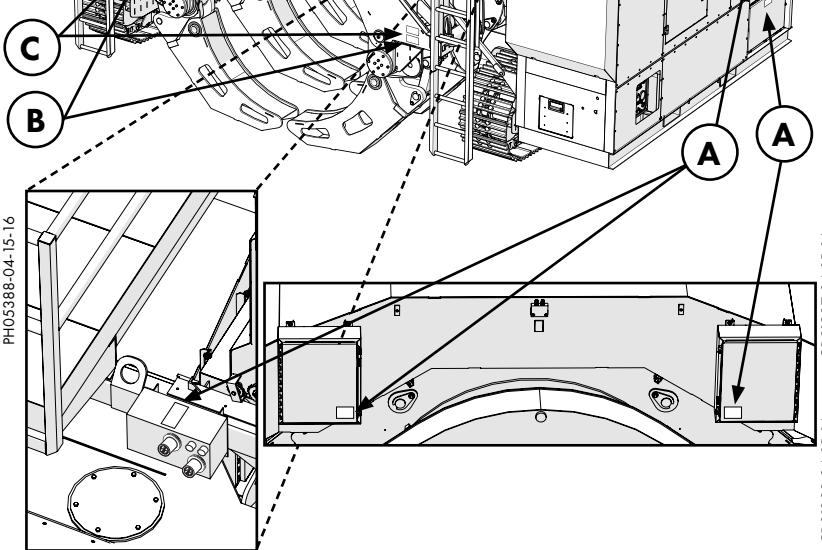


CD01306-04-15-16

WARNING - Part Number 8163260 (C)

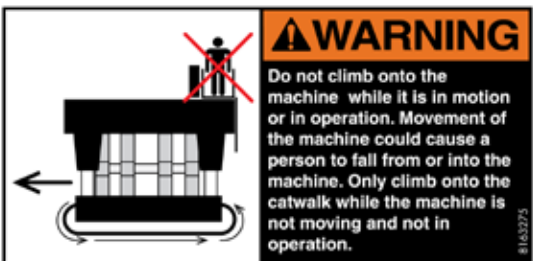


PH05390-04-15-16



CD01307-04-15-16
CD01308-04-15-16

WARNING - Part Number 8163275 (D)



PH05388-04-15-16

Safety

Emergency Stop Locations

Emergency stop buttons are positioned around the machine and when pressed, shuts off the engine and removes hydraulic and electrical power.

1 HMI (Human Machine Interface) Display

Emergency stop on top of the housing of the HMI display.

2 PLC Box

Emergency stop the front of the PLC box.

3 Engine Control Box

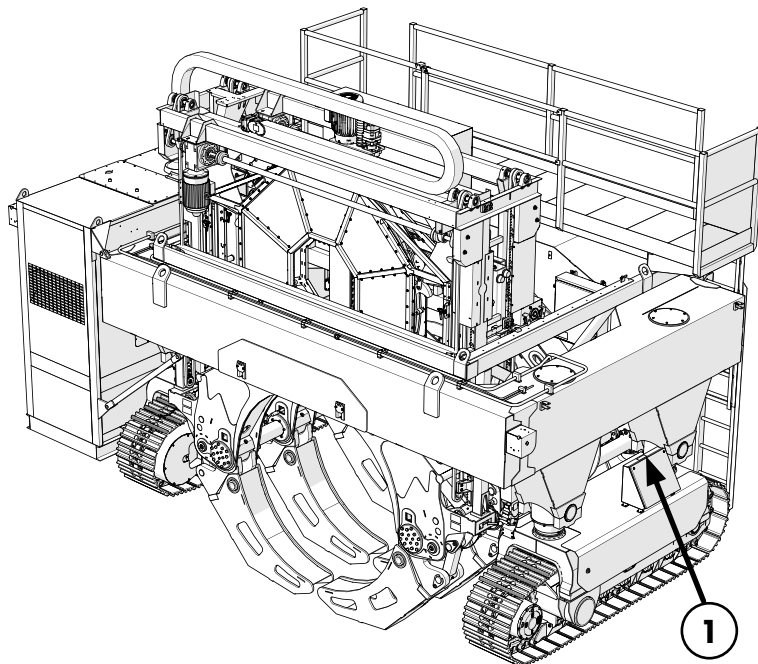
Emergency stop near bottom of engine control panel.

4 Battery Compartment

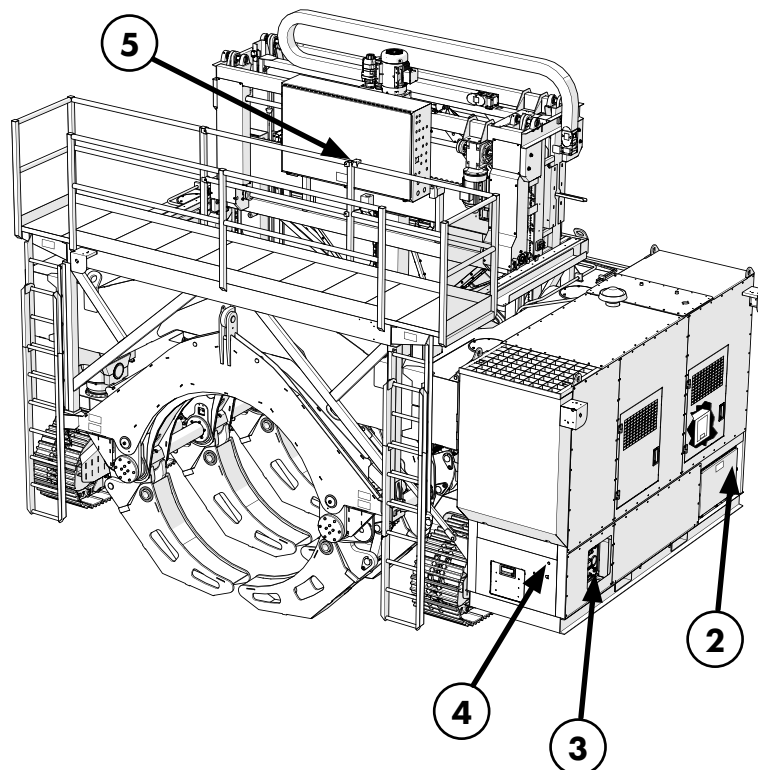
Emergency stop near battery compartment on the end of the power pack.

5 Catwalk

Emergency stop on catwalk handrail on top of the machine.



CD01305-04-15-16



CD01306-04-15-16

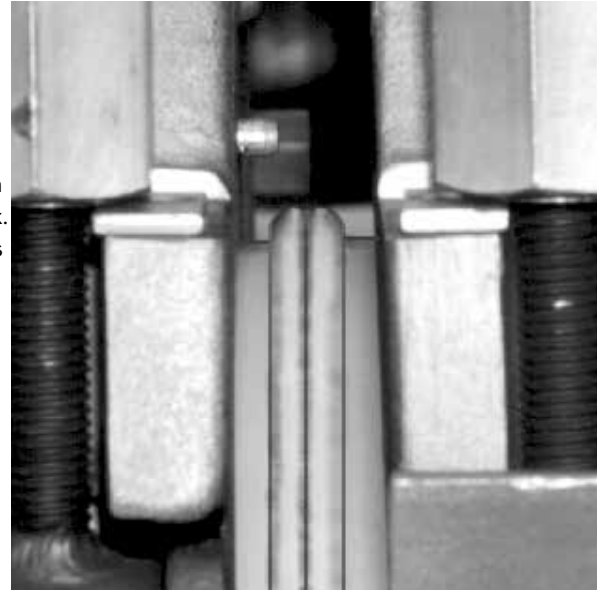
Overview

Theory of Heat Fusion

The principle of heat fusion is to heat two pipe surfaces to a designated temperature, and then fuse them together by application of force. This develops pressure which causes flow of the melted materials, which causes mixing and thus fusion. When the thermoplastic material is heated, the molecular structure is transformed into an amorphous condition. When fusion pressure is applied, the molecules from each thermoplastic part mix. As the joint cools, the molecules return to their form, the original interfaces are gone, and the fitting and pipe have become one monolithic unit. A strong, fully leak tight connection is the result.

The principal operations include:

- Clamping** The pipe pieces are held axially and radially to allow all subsequent operations to take place.
- Facing** The pipe ends are faced to establish clean, parallel mating surfaces perpendicular to the centerline of the pipes.
- Aligning** The pipe ends are aligned with each other to minimize mismatch of the pipe walls.
- Heating** A melt pattern that penetrates into the pipe is formed around both pipe ends.
- Fusing** The melt patterns are joined with a specified force, which is constant around the pipe interfacial area.
- Cooling** The fusion joint is held immobile with a specified force until adequately cooled.
- Inspecting** Visually examine the entire circumference of the joint for compliance with the standard or fusion procedure used.

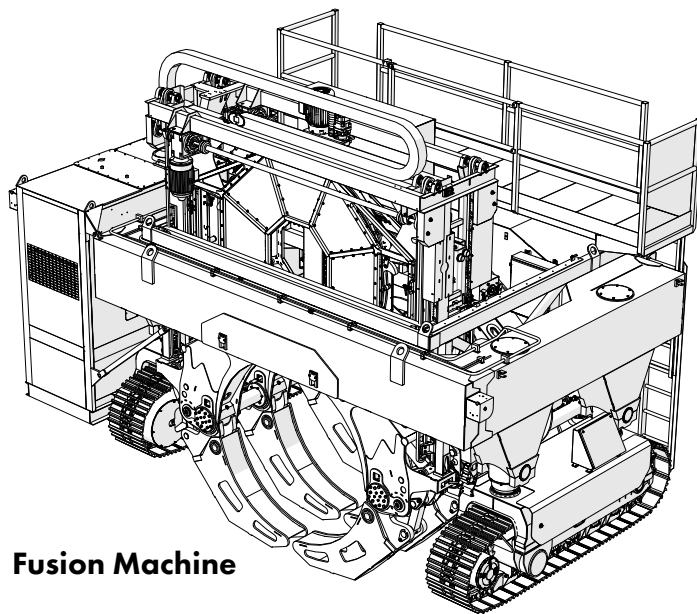


PH00363B-1-4-96

Overview

Talon 2000

The Talon 2000 fusion machine consists of an indexer assembly that mounts on to a tracked vehicle. The fusion machine has controls to drive the vehicle from the machine or from a remote control. It picks up/loads pipe from above the pipe and lifts it into the jaws of the carriage. The machine is controlled from a HMI computer display mounted on the side opposite the power pack above the tracks.

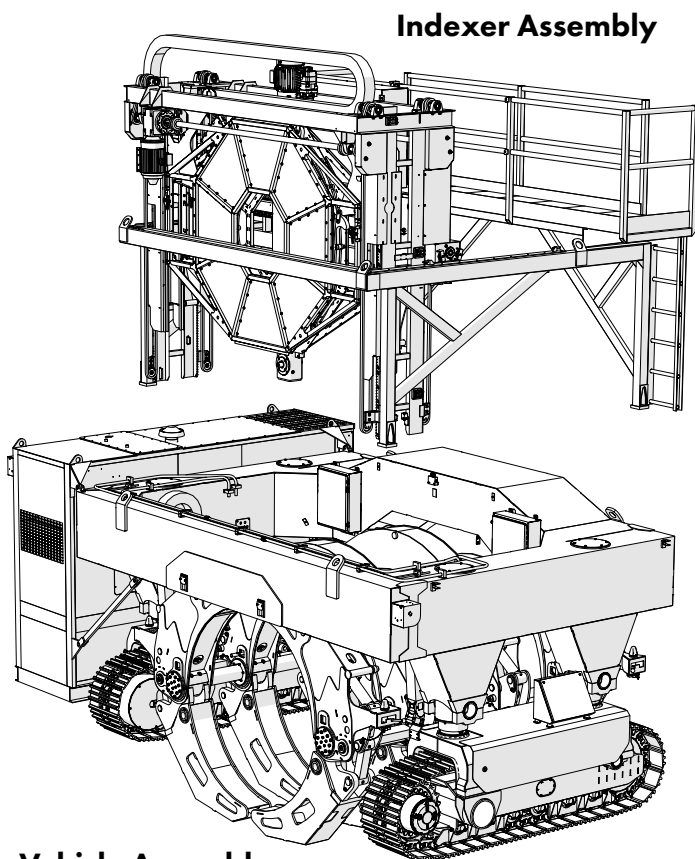


CD01268-04-15-16

The indexer assembly consists of the heater with heat shields and facer. The heater is inserted vertically by the indexer into the carriage of the vehicle. The facer has two cutting discs mounted to a boom that is inserted into the carriage of the vehicle between the two pipe ends.

There is a catwalk on the indexer assembly that allows operators to cross up and over the pipe that is clamped into the carriage. The catwalk also allows access to the indexer electrical box for any maintenance or troubleshooting.

The vehicle has two hydraulically driven tracks that allow the machine to be driven and placed in the exact location it needs to be in for the fusion. It can also be driven to pick up pipe and locate it in the proper location for fusion. The vehicle also has controls to change the elevation of the carriage and controls to roll and pitch the machine to accommodate the terrain where the fusion is taking place. A power pack is mounted on one side of the machine which houses the engine, generator and hydraulic pumps to power the machine.

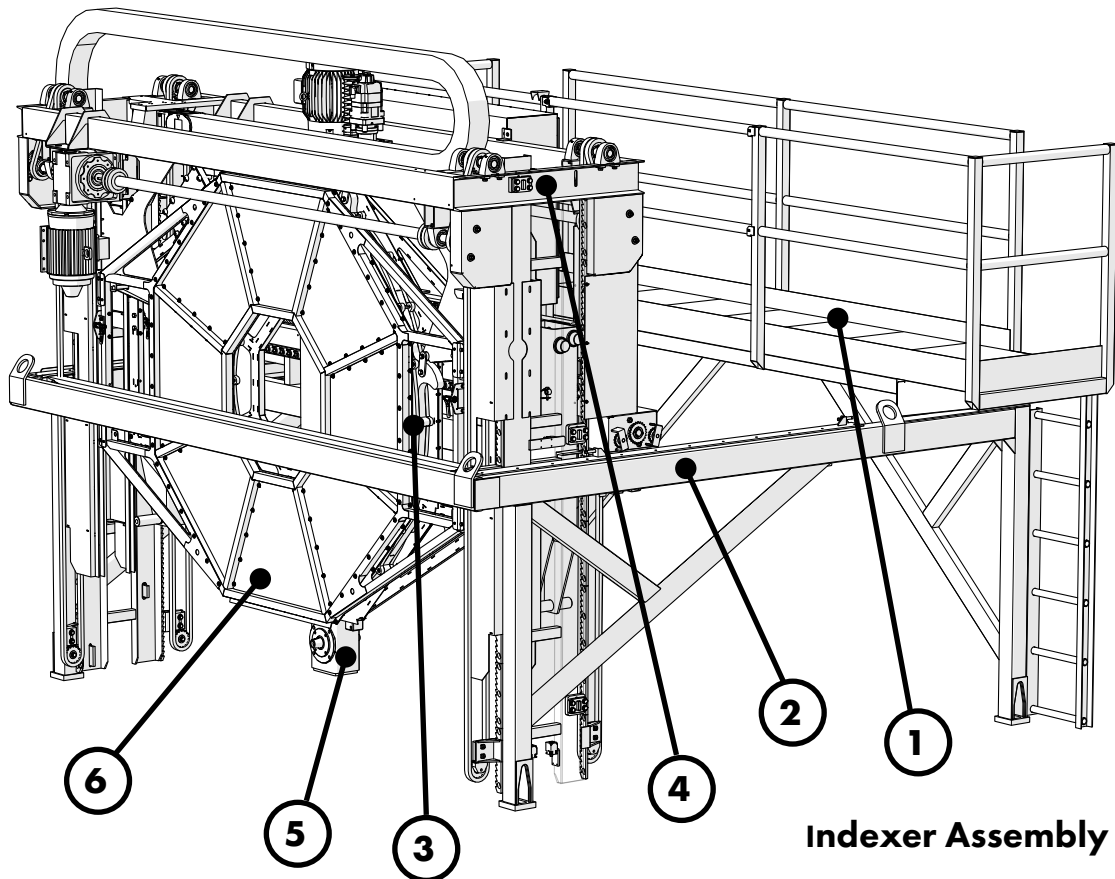


CD01269-04-15-16

Vehicle Assembly

Overview

Talon 2000 (continued)

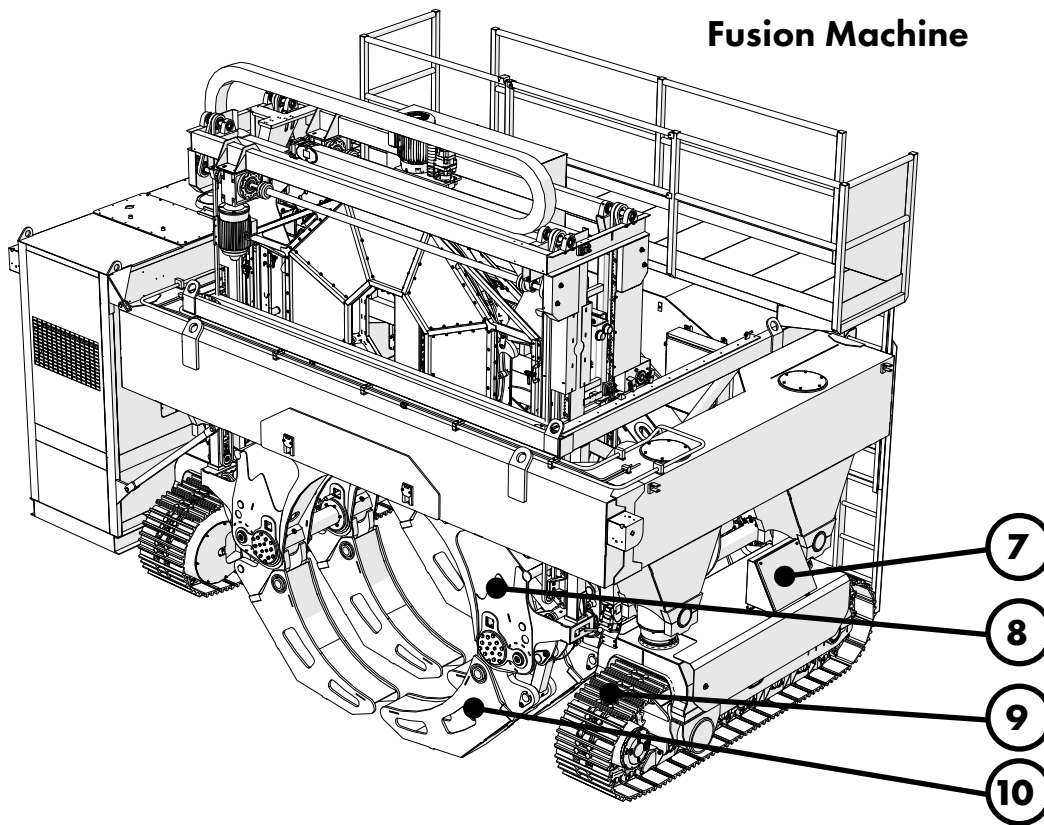


- 1) **Catwalk** Allows the operator to cross over the pipe to access the other side of the machine. The indexer electrical box is also accessed from the catwalk.
- 2) **Indexer Frame** Framing of the indexer that attaches to the vehicle assembly.
- 3) **Heater** Heater for melting the ends of the pipe for fusion.
- 4) **Indexer** Contains the heater with heat shield and facer unit. The indexer can move along the frame to be positioned over the fusion area.
- 5) **Facer** The facer has a long boom with rotating cutters on the end to face the end of both pipes at the same time.
- 6) **Heat Shield** Shield for insulating the heater and protecting nearby components and personnel from direct contact with the heater.

Overview

Talon 2000 (continued)

Fusion Machine



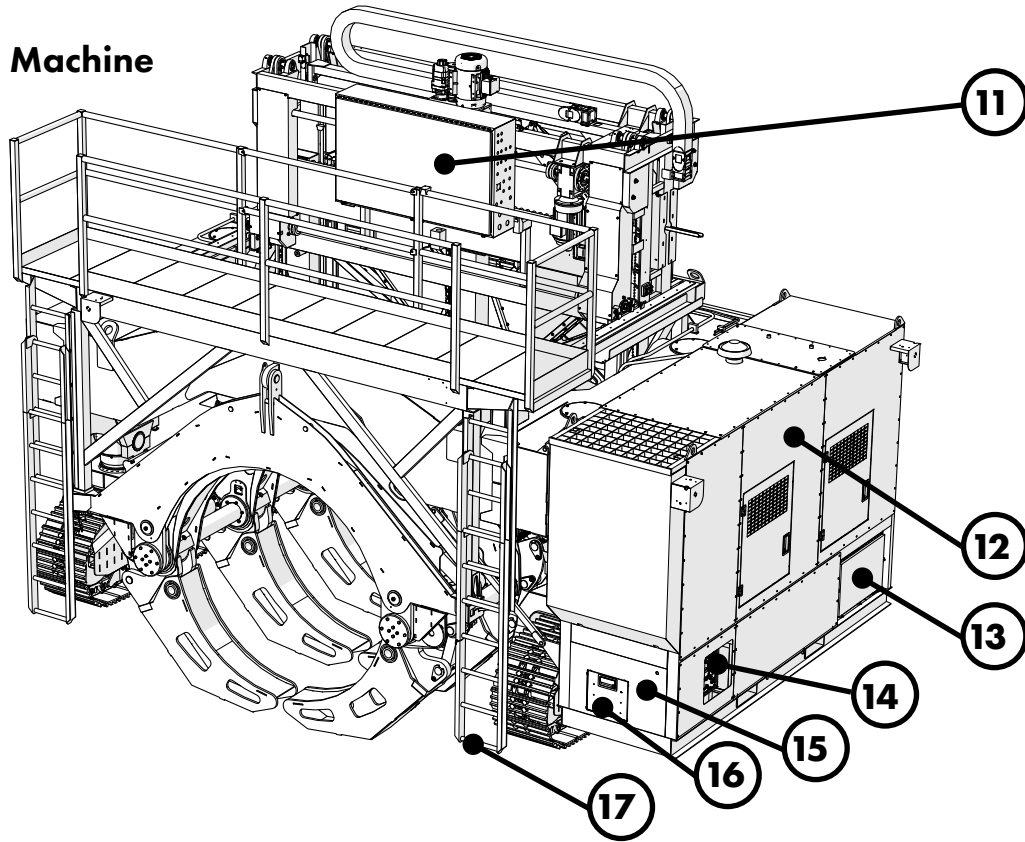
CD01268-04-15-16

- 7) **HMI Control Panel** Machine control panel with a touch screen interface to operate the machine. A remote start button is located on the right side of the control panel.
- 8) **Upper Carriage Jaws** Upper jaws of the machine that encircle the pipe. Inserts are available for different pipe sizes.
- 9) **Tracks** Hydraulically driven tracks for machine movement.
- 10) **Lower Quarter Jaws** Each jaw has two quarter jaws which open and close. They are used to lift the pipe into the upper jaws and secure the pipe from the bottom. There are different sized quarter jaws available for different pipe sizes.

Overview

Talon 2000 (continued)

Fusion Machine



CD01270-04-15-16

- | | |
|--|---|
| 11) Indexer Electrical Box | Contains machine electrical components that control all indexer functions. |
| 12) Power Pack | Power pack contains the engine, generator and pumps to power the machine. |
| 13) PLC Electrical Box | Contains the electrical components for the power pack. It is also the location of the SIM card. |
| 14) Engine Control Box | Key start and instruments for the engine. |
| 15) Battery Disconnect and Fuel Shutoff | Battery disconnect switch to shut off battery power to the power pack.
Fuel shutoff valve to shut off the supply of fuel to the engine. |
| 16) Battery Drawer | Stores the batteries to power the power pack. Holds two 12V batteries. |
| 17) Catwalk Ladder | Removable ladder for access to the catwalk. The ladder height can be adjusted to the height of the machine. There is a ladder for each side of the machine. |

Overview

Talon 2000 Radio Remote



PH05502-04-15-16

- | | |
|--|---|
| 1) Radio Disable Button | Pull out on the button to enable the transmission of the radio remote. |
| 2) Move Carriage Switch | Open or close the carriage of the machine. |
| 3) Adjust Hydraulic Pressure | Increase or decrease the hydraulic pressure to be able to move the carriage. |
| 4) Remote Battery Low Voltage Light | Indicates the radio remote battery voltage is low. |
| 5) Roll Left and Roll Right | Roll the machine to the left or right. |
| 6) Track Enable/Disable | Enable or disable the movement of the tracks. When the tracks are disabled, the carriage movements are enabled. |
| 7) Open/Close Outer Fixed Quarter Jaws | Open or close the quarter jaws. |
| 8) Open/Close Inner Fixed Quarter Jaws | Open or close the quarter jaws.. |
| 9) Machine Elevation Up/Down | Raise or lower the elevation of the machine. |
| 10) Drive Power Pack Side Track | Drives the track located underneath the power pack side of the machine. |
| 11) Drive HMI Side Track | Drives the track located underneath the HMI side of the machine. |
| 12) Pitch Machine Up/Down | Adjusts the pitch of the machine up or down. |
| 13) Open/Close Inner Movable Quarter Jaws | Open or close the quarter jaws. |
| 14) Open/Close Outer Movable Quarter Jaws | Open or close the quarter jaws. |

Overview

PH05503-04-15-16

Talon 2000 Radio Remote (continued)



15) Radio Remote Pairing

Pairs the transmitter with the receiver of the machine.

16) Radio Remote Power

Rotate to switch the remote on or off.

Radio Remote Start Up:

- A)** Power on the radio remote (16)
- B)** Release the Radio Disable button (1)
- C)** Wait a few seconds and press the Radio Remote Pairing button to pair the remote to the receiver on the machine.

Overview

Heater



Electric motors and heaters are not explosion proof. Operation of these components in an explosive atmosphere will result in serious injury or death.



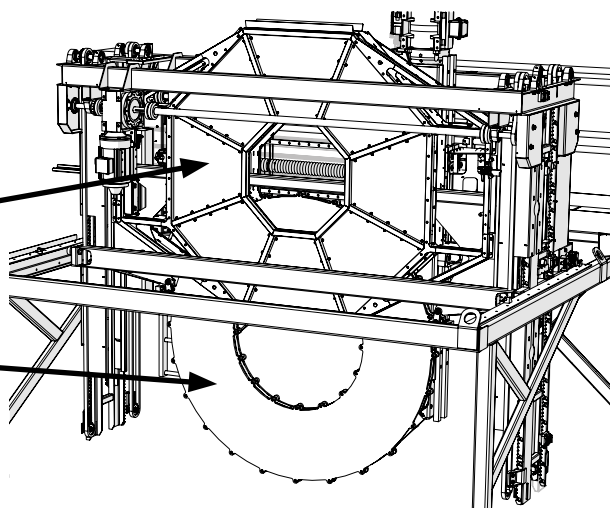
The heater is hot and will burn clothing and skin. Keep the heater in its insulated heat shields when not in use, and use care when heating the pipe.

The heater is equipped with butt fusion heater plates, coated with an anti-stick coating.

The heater is a component of the indexer assembly and has a heater shield on both sides of the heater.

Heat Shield

Heater



CD01303-04-15-16

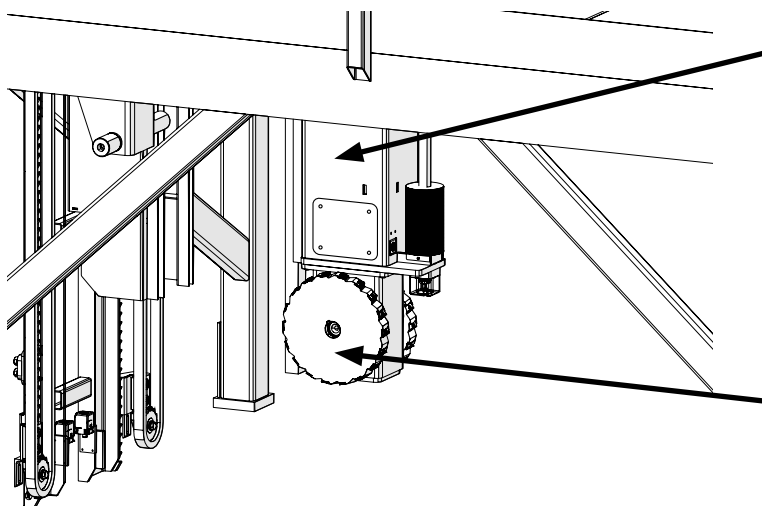
TX04999-05-03-16

Facer

The facer assembly has a cutting disc on either side of a telescoping boom that moves in a 2 axis plane on a facer frame. The facer will cut along the pipe ends moving around the pipe according to the size of pipe given in the Talon control application. The facer frame can be raised and lowered between the carriage jaws and has facer stops on the frame to position how much pipe to be faced. The duration of the facing operation is determined by the size and wall thickness of the pipe being faced.

Facer Boom

Cutting Disc



CD01304-04-15-16

TX05000-05-03-16

Overview

Hydraulic Fluid Reservoir

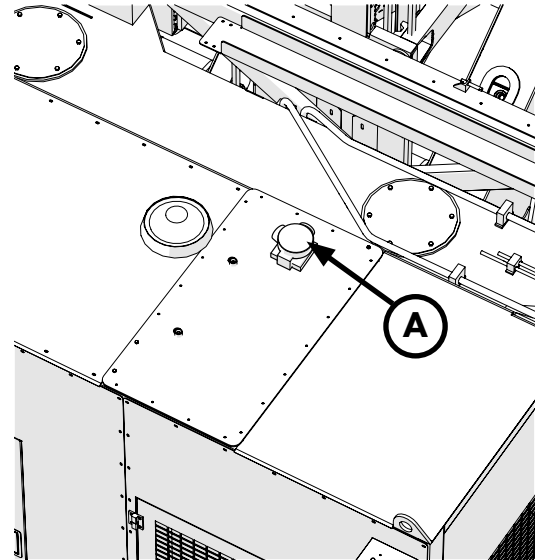
The filter and filler cap is located on top of the Power Pack with the hydraulic reservoir under the metal cover.

The cap has an integral air breather.

The tank is equipped with a 10 Micron filter.

The reservoir is filled by removing the cap **(A)** and the filter.

Reference the maintenance section of this manual for instruction on filling the hydraulic reservoir.



CD01309-04-15-16

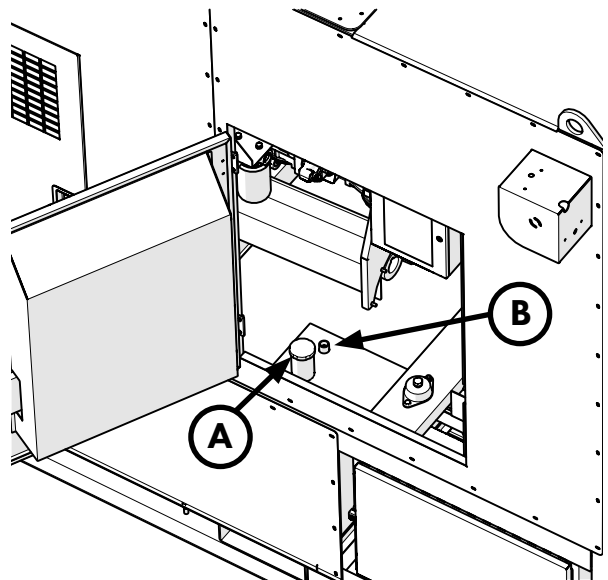
TX05001-05-03-16

Fuel Tank and Filler Cap

Open the engine compartment door. The filler cap **(A)** is located just inside the door of the engine compartment.

Only fill the tank with ultra low sulfur diesel fuel.

The tank has a breather **(B)** next to the filler cap.



CD01310-04-15-16

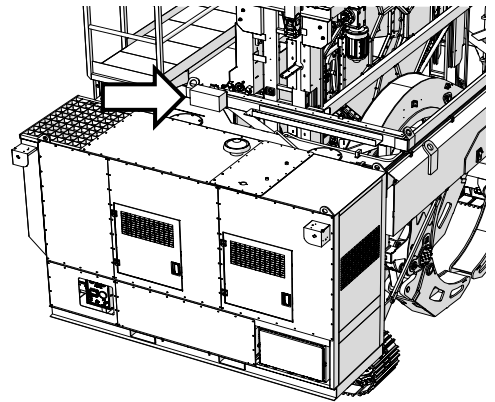
TX05002-05-03-16

Overview

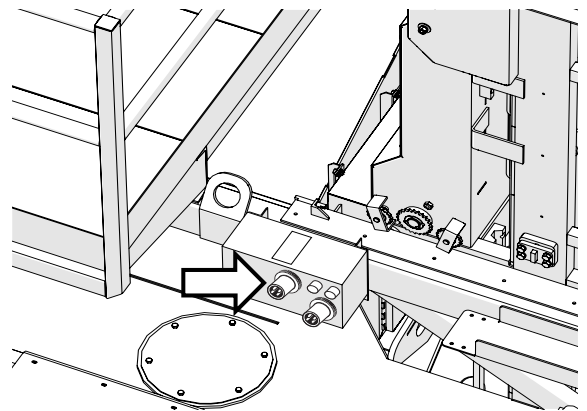
Power and Data Cables

The machine has two power cables and two data cables that connect the vehicle to the indexer assembly. The two power cables provide power to the heater and facer assemblies. The data cables provide communications for the indexer and facer assemblies.

The cables from the vehicle connect to the indexer assembly at the electrical box adjacent to the power pack. These 4 cables must be connected for the machine to operate.



CD01618-04-12-16

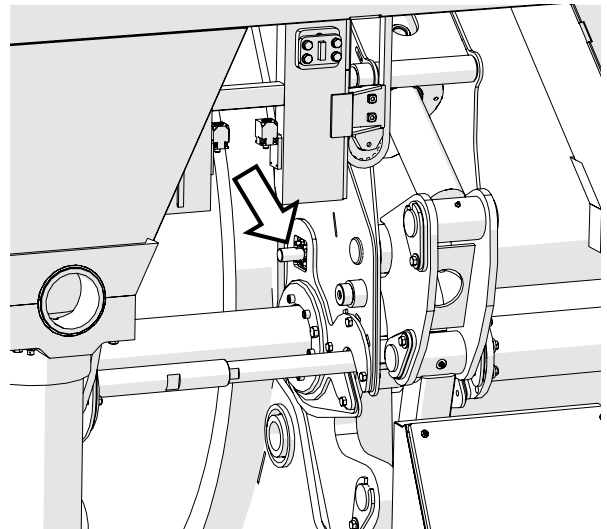


CD01308-04-12-16

TX05003-05-03-16

Heater Stripper Cylinders

The carriage jaws are equipped with heater stripper cylinders that push the heater away from the pipe so the heater can be raised out of the carriage after the heating operation. The machine is equipped with stripper cylinders in both fusion zones.



CD01311-04-12-16

TX05004-05-03-16

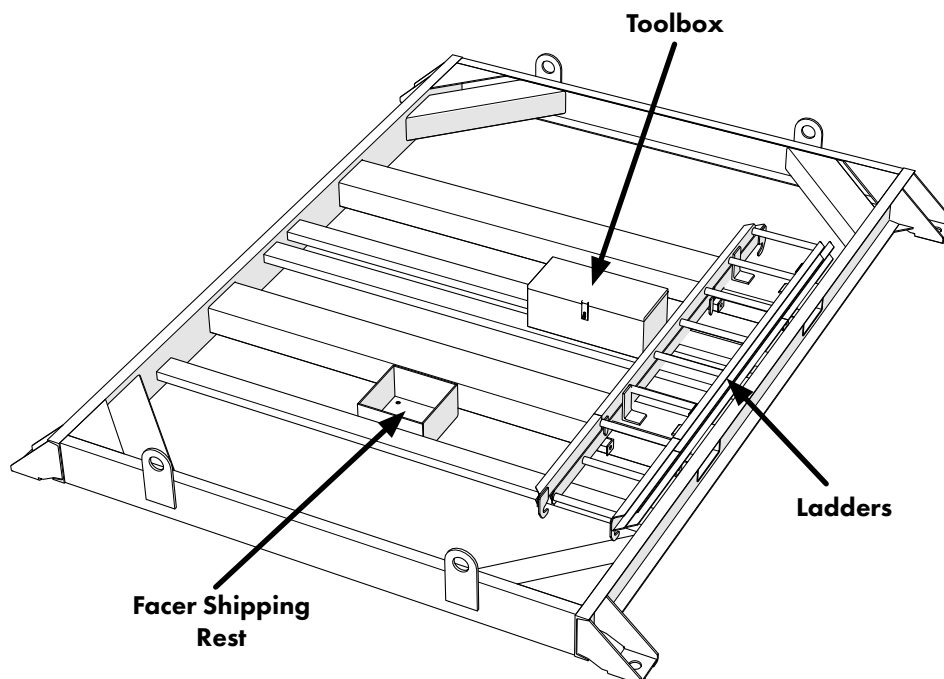
Overview

Indexer Skid

The indexer is shipped using the indexer skid. The indexer bolts to the skid at the 4 corners of the skid. It has rest locations for the heater and facer.

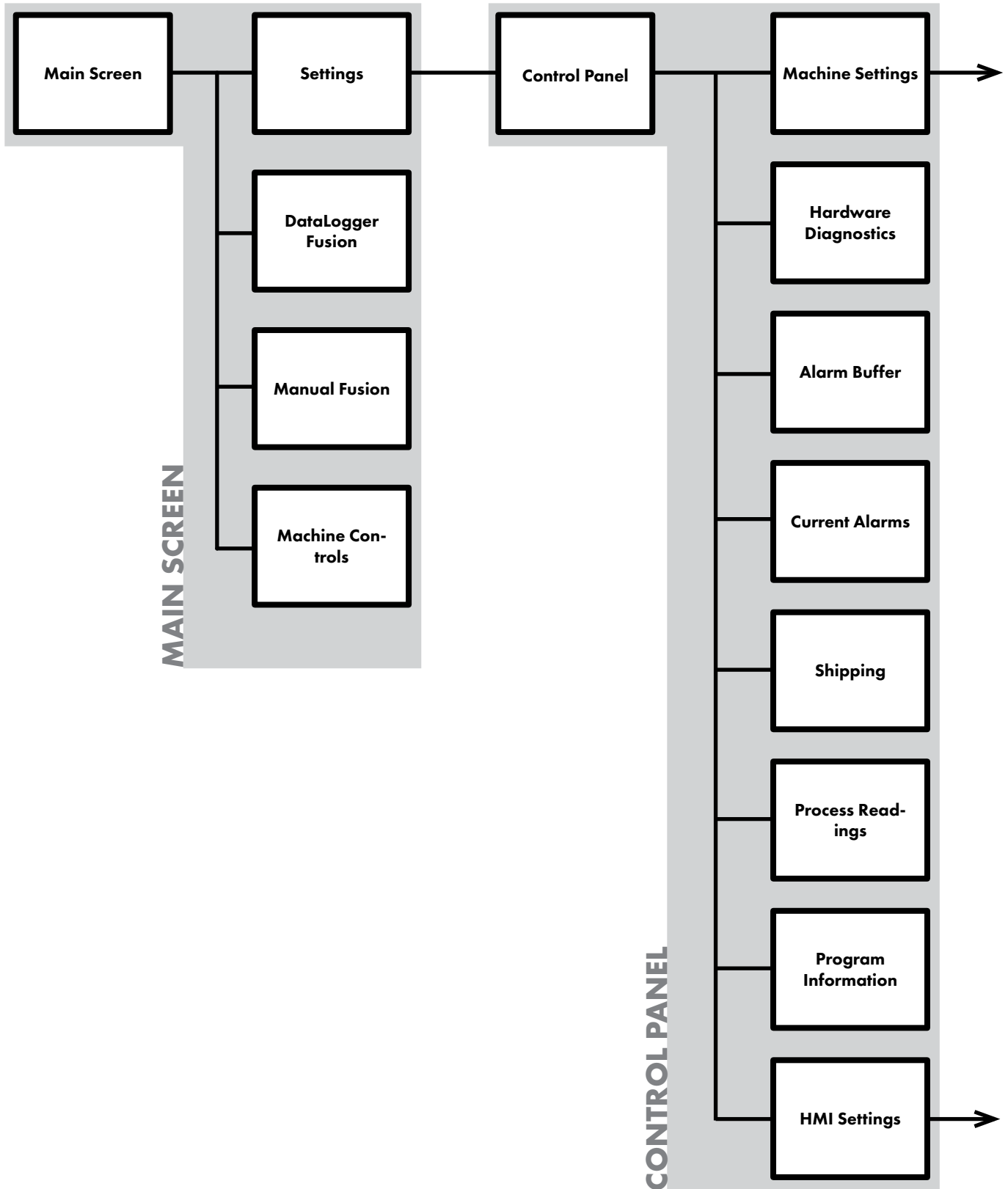
A toolbox is mounted for the storage of tools required for machine operation and hardware from the fusion machine.

The catwalk ladders have a storage location and the ladders are stacked and strapped down during shipping.



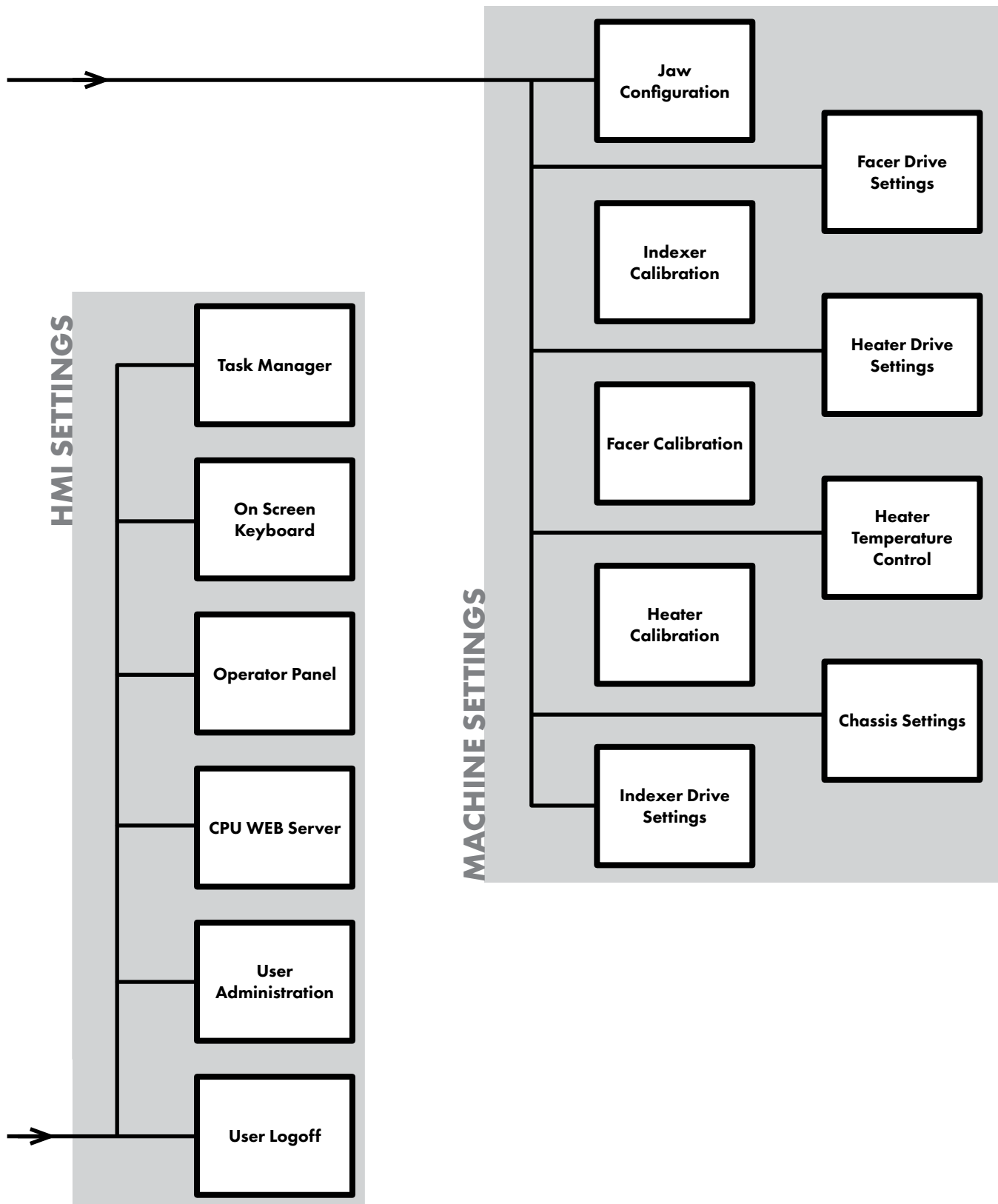
Overview

HMI Navigation Map



Overview

HMI Navigation Map



Overview

Talon 2000 Interface



PH05343-04-15-16

Main Screen

Some buttons may not be present unless certain selections or conditions are met.



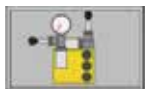
Settings

Opens the Control Panel screen



Machine Controls

Opens the Machine Controls screen which has the controls to drive the machine and operate the carriage and jaws.



Manual Fusion Control

Enables access to the following two options.



Facer Controls

Opens the Manual Facer Control screen which has controls for operating the facer.



Fusion Controls

Opens the Manual Fusion Control screen which has controls for operating the heater and hydraulic pressures.

Overview

Talon 2000 Interface



DataLogger Fusion

Enables access to the following two options.



Start DataLogger Fusion

Start a new fusion using the DataLogger Fusion to record the fusion joint.



Return to Last Step

Return to the last step of the fusion procedure.



Heater Power

Red light indicates the heater is powered on.



Hydraulic Temperature Warning

Indicates that the hydraulic fluid temperature exceeds the normal operating range.



Hydraulic Fluid Level Warning

Indicates that the hydraulic fluid level is low.



Hydraulic Filter Pressure Warning

Indicates that the hydraulic filter needs to be serviced.



Fuel Warning

Indicates ¼ tank remaining and should be filled before the next fusion joint.



Heater Temperature Warning

Indicates that the heater temperature exceeds the normal operating range.



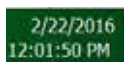
Insulation Resistance Warning

Indicates low insulation resistance in the AC system.



Alarm

Indicates a module or sensor error.



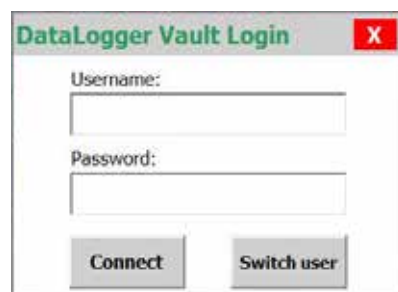
Date and Time

Displays the date and time. Touching this area will open the HMI settings page. This page has buttons for changing the date and time, units, user log on and log off.



DataLogger Vault

To utilize the DataLogger® Vault™ during the fusion operation, touch the green box to open the login window.

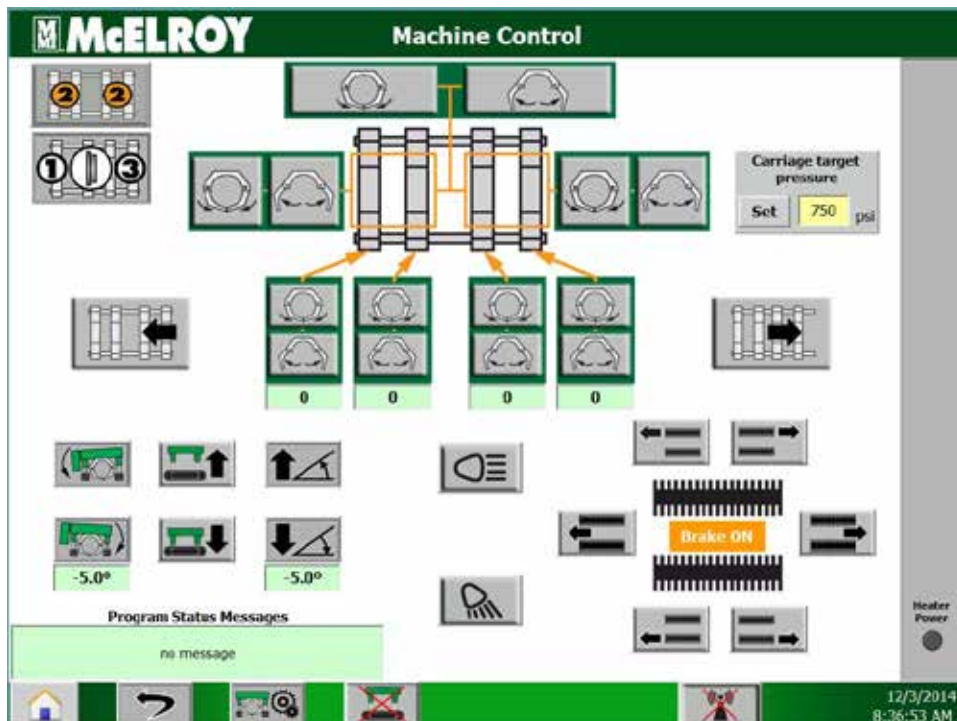


DataLogger Vault Login

Use login credential for an existing DataLogger Vault account. Use the Switch User button to change to a different user. New users, go to vault.mcelroy.com to create an account.

Overview

Talon 2000 Interface



Machine Control Screen

Some buttons may not be present unless certain selections or conditions are met.

	Close All Jaws	Close all of the jaws of the carriage.
	Open All Jaws	Open all of the jaws of the carriage.
	Open and Close Fixed Jaws	Open and close the fixed set of jaws.
	Open and Close Movable Jaws	Open and close the movable set of jaws.
	Individual Jaw Open and Close	Open and close an individual jaw on the carriage and also indicates the clamping cylinder pressure of the jaw below the each set of buttons.
	Close Carriage	Close the fusion carriage.
	Open Carriage	Open the fusion carriage.
	Carriage Actual Close Pressure	Set the pressure to allow the carriage to move.

TX05006-05-03-16

PH05344-04-15-16

Overview

Talon 2000 Interface



Jaw Configuration

Change the software setup for jaw configuration. A 2+2 and a 3+1 jaw configuration can be toggled. The machine will still need to be physically changed between the two configurations.



3+1 Jaw Configuration for Stub End Holder

Change the software setup for jaw configuration. This toggles 3+1 jaw configuration for fusion of stub ends. The machine will need to be physically changed for the use of the stub end holder. (Refer to Special Operation - Stub Ends).

NOTICE: Ensure the jaw braces are in the proper position for the jaw configuration being selected. If not, using the machine controls may cause damage to the machine.



Roll Left and Roll Right

Roll the machine left and right with indication of the degree of tilt.



Machine Elevation Up

Raise the machine up.



Machine Elevation Down

Lower the machine down.



Pitch Machine Up

Pitch the machine up with indication of the degree of pitch.



Pitch Machine Down

Pitch the machine down with indication of the degree of pitch.



Headlights On/Off

Toggle the headlights on and off.



Work Lights On/Off

Toggle the work lights on and off.



Far Track Forward/Backward

Drive the far track forward or backwards. The brake is released when driven and applied once drive is released.



Both Tracks Forward/Backward

Drive both tracks forward or backwards. The brake is released when driven and applied once drive is released.



Near Track Forward/Backward

Drive the near tracks forward or backwards. The brake is released when driven and applied once drive is released.



Home

Opens the Main Screen.



Previous Screen

Opens the previous screen.



Machine Settings

Opens Machine Settings screen.



Machine Elevation Lock Out On/Off

Toggle the lock out of the machine elevation.



Radio Remote On/Off

Toggle the radio remote on and off.

Program Status Messages

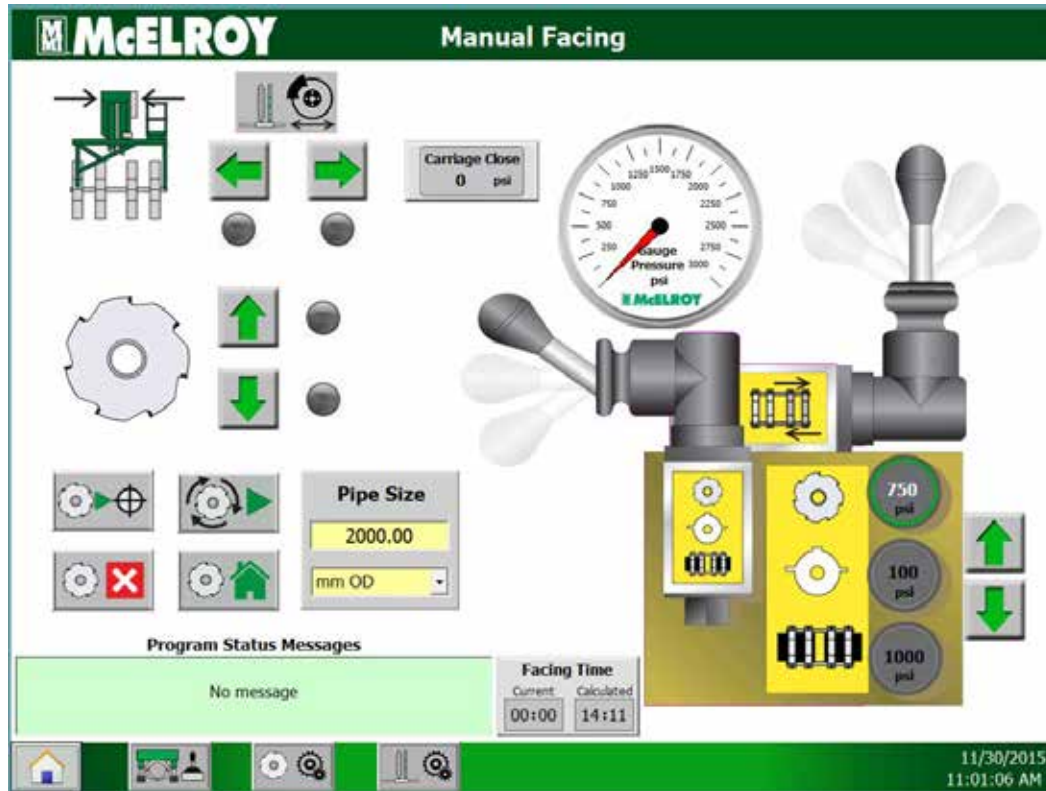


Program Status Messages

Displays status and errors of components during operation.

Overview

Talon 2000 Interface



PH05348-04-15-16

Manual Facing Screen

Some buttons may not be present unless certain selections or conditions are met.



Indexer Brake

Indicates the indexer brake is locked or floating. The red X indicates the brake is floating.

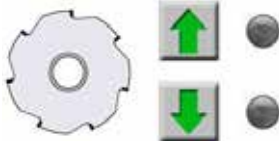


Move Indexer Left/Right

Move the indexer left and right.

End of Travel Indicator

The end of travel of the indexer is indicated in that direction by yellow light.



Move Facer Up/Down

Move the facer frame position up and down. The end of travel of the facer is indicated in that direction by yellow light.



Start Facer

Start the facer and moves the facer along the circumference of the pipe. Pressing the button again will pause the facer operation.



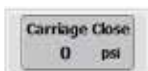
Facer Start Position

Move the facer frame down and move the facer to the start position.



Abort Facer Operation

Aborts facer operation, stops the cutters and stops facer movement.



Carriage Close Pressure

Indicates the pressure when the carriage is closed.

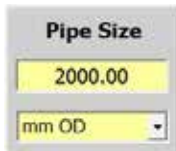
Overview

Talon 2000 Interface



Facer Home

Moves the facer frame up and the facer to the home position.



Pipe Size

The size of the pipe used to calculate the facer operation. The program validates the pipe size to ensure it is a proper pipe size within the range for this machine.



Facing Time

Shows the current facing time elapsed and the calculated cycle time.



Machine Control

Opens the Machine Control screen.



Facer Settings

Opens the Facer Settings screen.



Indexer Settings

Opens the Indexer Settings screen.



Pressure Selection

3 position selector for hydraulic pressure for Facing, Heating and Fusing.



Carriage Valve Selector

5 position selector for opening and closing the carriage. The positions are open and close with neutral in the middle. Between open/close and neutral is a momentary movement position.



Pressure Adjustments

3 pressure adjusters for Facing, Heating and Fusing pressures. Touch the adjuster to bring up a keypad to enter the pressure value or close the keypad and use the up and down arrows to adjust the selected pressure. Holding the arrow will continuously adjust the pressure.



Program Status Messages Displays status and errors of components during operation.



Component Fault

This button will appear over or near a component that has a fault with the component. Touch the button to open the screen to correct the fault.



Facer Tension Fault

This button will appear over the Facer Up/Down buttons and indicates a fault with the tension of the facer chain.

Overview

Talon 2000 Interface



PH05378-04-15-16

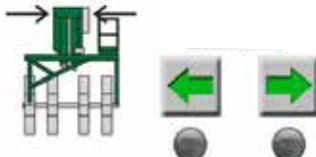
Manual Fusion Screen

Some buttons may not be present unless certain selections or conditions are met.



Indexer Brake

Indicates the indexer brake is locked or floating. The red X indicates the brake is floating.

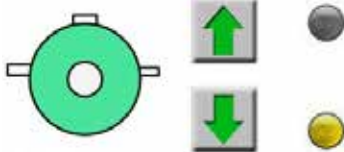


Move Indexer Left/Right

Move the indexer left and right.

End of Travel Indicator

The end of travel of the indexer is indicated in that direction by yellow light.



Move Heater Up/Down

Move the heater position completely up or down. The end of travel of the heater is indicated in that direction by a yellow light.



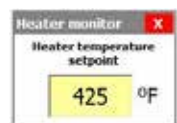
Heater On/Off Switch

Turn the heater on or off.



Heater Temperature Monitor

Displays the current temperature of the heater. The red indicator will be lit when the heater is powered on. The green indicator will flash while the heater is coming up to the set point and will stay solid once the temperature has reached the set point.



Heater Monitor

The heater temperature set point can be changed by pressing the Change set point button on the Heater Temperature Monitor. Enter the desired heater temperature and press the X to close the window.

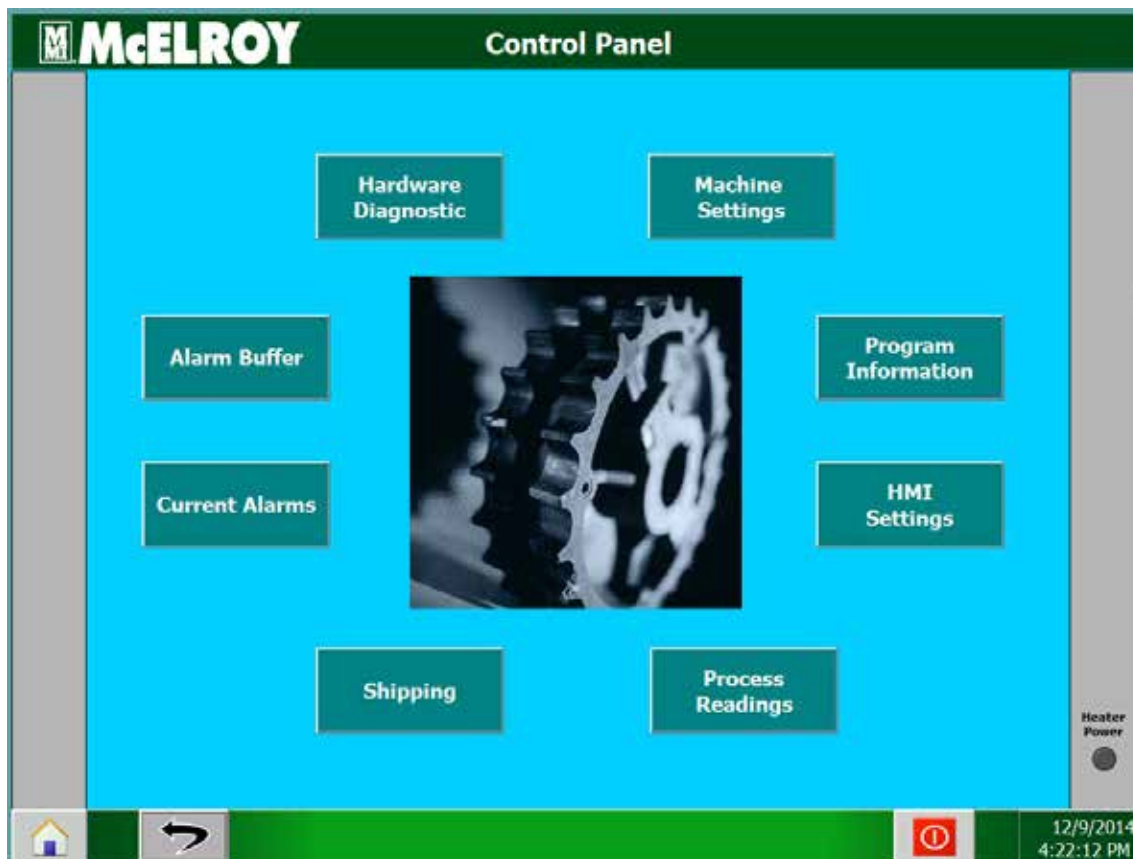
Overview

Talon 2000 Interface

	Stopwatch	Stopwatch to time the different phases of the fusion process. There is a pause/start button and a reset button.
	Carriage Displacement	Displays the displacement of the fusion carriage. This could be used to determine bead-up displacement.
	Program Status Messages	Displays status and errors of components during operation.
	Machine Controls	Opens the Machine Control screen.
	Heater Settings	Opens the Heater Settings screen.
	Indexer Settings	Opens the Indexer Settings screen.
	Heater Temperature Settings	Opens the Heater Temperature Settings screen.
	Stop Fusion	Stops the fusion, resets all parameters and opens the Manual Facing screen.
	Pressure Selection	3 position selector for hydraulic pressure for Facing, Heating and Fusing.
	Carriage Valve Selector	5 position selector for opening and closing the carriage. The positions are open and close with neutral in the middle. Between open/close and neutral is a momentary movement position.
	Pressure Adjustments	3 pressure adjustors for Facing, Heating and Fusing pressures. Touch the adjustor to bring up a keypad to enter the pressure value or close the keypad and use the up and down arrows to adjust the selected pressure. Holding the arrow will continuously adjust the pressure.
	Component Fault	This button will appear over or near a component that has a fault with the component. Touch the button to open the screen to correct the fault.
	Heater Elevation Tensioner Fault	This button will appear over the Heater Up/Down buttons and indicates a fault with the tension of the heater chain tensioners.
	Heater Element Failure	This button will appear over the Heater graphic and indicates a heater element failure or incorrect wiring.
	Fusion Button	Automates the opening of the carriage, retracts the heater then closes the carriage.

Overview








Talon 2000 Interface



PH05380-04-15-16






Control Panel Screen

Some buttons may not be present unless certain selections or conditions are met.

	Home	Opens the Main Screen.
	Previous Screen	Opens the previous screen.
	Close Application	Closes the Talon Control application. This must be done before shutting off the machine.
	Alarm Buffer	Opens the Alarm Buffer screen. This screen shows a log of activated alarms. This is a log and can not reset.
	Current Alarms	Opens the Current Alarms screen. This screen shows all of the current alarms active on the machine.
	Process Readings	Opens the Process Readings screen. This screen shows the heater current, hydraulic system pressure, gauge pressure and carriage close pressure.
	HMI Settings	Opens the HMI Settings screen. This screen has several options of settings for the HMI.

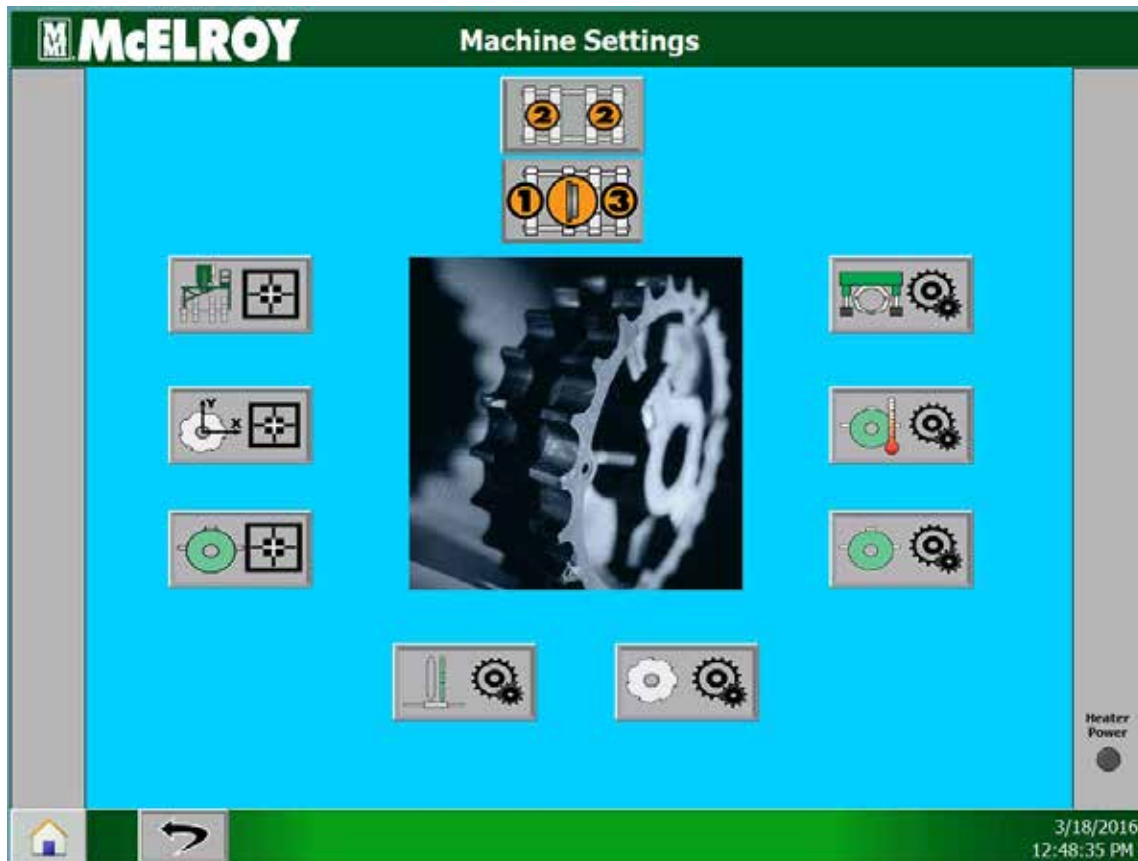
Overview

Talon 2000 Interface

	Program Information	Opens the Program Information screen. This contains information about the programs used.
	Hardware Diagnostic	Opens the diagnostic information for the electronic hardware.
	Shipping	Opens the Shipping controls screen. This screen has controls and settings for the shipping/storage operation.
	Machine Settings	Opens the Machine Settings screen.
	Heater Power	Red light indicates the heater is powered on.

Overview

Talon 2000 Interface



PH05403-04-15-16

Machine Settings Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Screen

Opens the previous screen.



Jaw Configuration

Change between 2+2 jaw configuration and 3+1 jaw configuration.

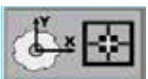


NOTICE: Ensure the jaw braces are in the proper position for the jaw configuration being selected. If not, using the machine controls may cause damage to the machine.



Indexer Calibration

Opens the Indexer Calibration screen.



Facer Calibration

Opens the Facer Calibration screen.



Heater Calibration

Opens the Heater Calibration screen.

Overview

Talon 2000 Interface



Indexer Settings

Opens the Indexer settings screen.



Facer Drive Settings

Opens the Facer Drive settings screen.



Chassis Settings

Opens the Chassis settings screen.



Heater Temperature Control

Opens the Heater Temperature Control screen.



Heater Drive Settings

Opens the Heater Drive settings screen.

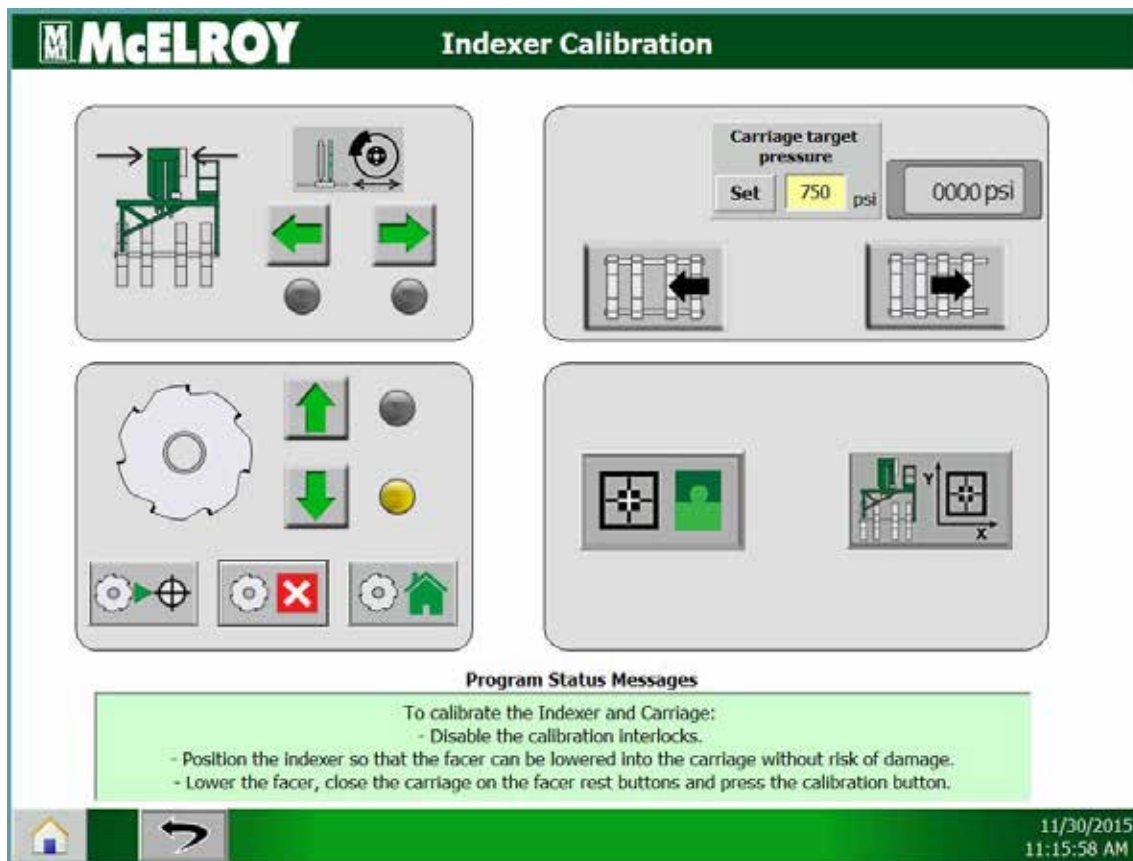


Heater Power

Red light indicates the heater is powered on.

Overview

Talon 2000 Interface



PH05470-04-15-16

Indexer Calibration Screen

Some buttons may not be present unless certain selections or conditions are met.



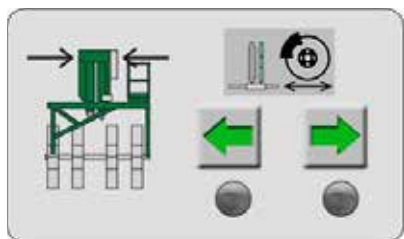
Home

Opens the Main Screen.



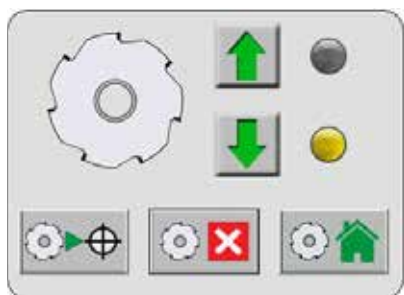
Previous Screen

Opens the previous screen.



Indexer Controls

Controls to move the indexer. The end of travel of the indexer is indicated in that direction by yellow light.



Facer Controls

Controls to raise and lower facer. The end of travel of the facer is indicated in that direction by yellow light.



Facer Start Position

Move the facer frame down and move the facer to the start position.



Abort Facer Operation

Aborts facer operation, stops the cutters and stops facer movement.



Facer Home

Moves the facer frame up and the facer to the home position.

Overview

Talon 2000 Interface



Carriage Target Pressure

Adjusts pressure to open and close carriage.



Carriage Pressure

Indicates the pressure of the carriage.



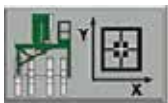
Close/Open Carriage

Buttons indicate the direction of the carriage movement. If the carriage does not move, the carriage target pressure can be adjusted.



Calibration Interlock

Disables the interlocks to allow the indexer and carriage to be moved.



Indexer Calibration

Calibrates the indexer and carriage.

Program Status Messages

Displays messages about the operation of this screen.

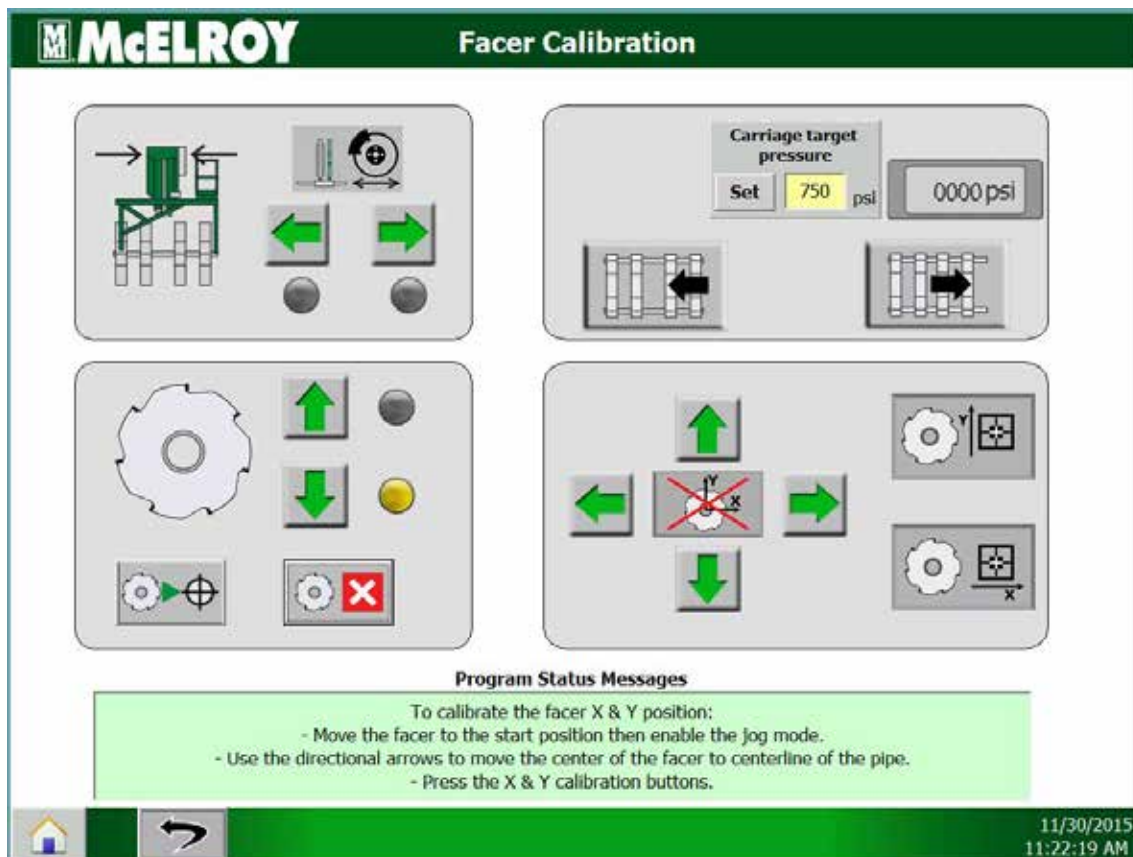
Program Status Messages

To calibrate the Indexer and Carriage:

- Disable the calibration interlocks.
- Position the indexer so that the facer can be lowered into the carriage without risk of damage.
- Lower the facer, close the carriage on the facer rest buttons and press the calibration button.

Overview

Talon 2000 Interface



PH05471-04-15-16

Facer Calibration Screen

Some buttons may not be present unless certain selections or conditions are met.



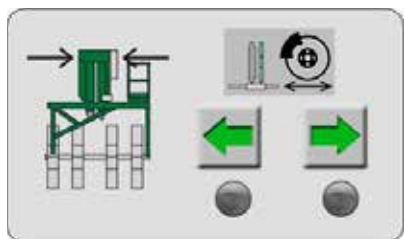
Home

Opens the Main Screen.



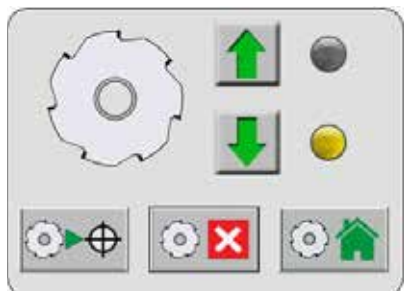
Previous Screen

Opens the previous screen.



Indexer Controls

Controls to move the indexer. The end of travel of the indexer is indicated in that direction by yellow light.



Facer Controls

Controls to raise and lower facer. The end of travel of the facer is indicated in that direction by yellow light.



Facer Start Position

Move the facer frame down and move the facer to the start position.



Abort Facer Operation

Aborts facer operation, stops the cutters and stops facer movement.

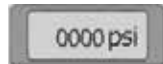
Overview

Talon 2000 Interface



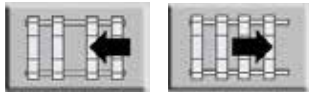
Carriage Target Pressure

Adjusts pressure to open and close carriage.



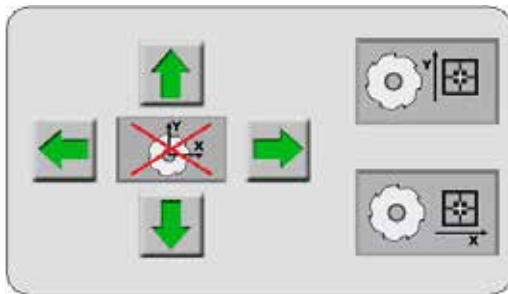
Carriage Pressure

Indicates the pressure of the carriage.



Close/Open Carriage

Buttons indicate the direction of the carriage movement. If the carriage does not move, the carriage target pressure can be adjusted.



Facer Controls

Buttons indicate the direction the facer will move. A enable jog mode button is in the center.

Facer Y Axis Calibration

Calibrates the facers Y axis position.



Facer X Axis Calibration

Calibrates the facers X axis position.



Program Status Messages

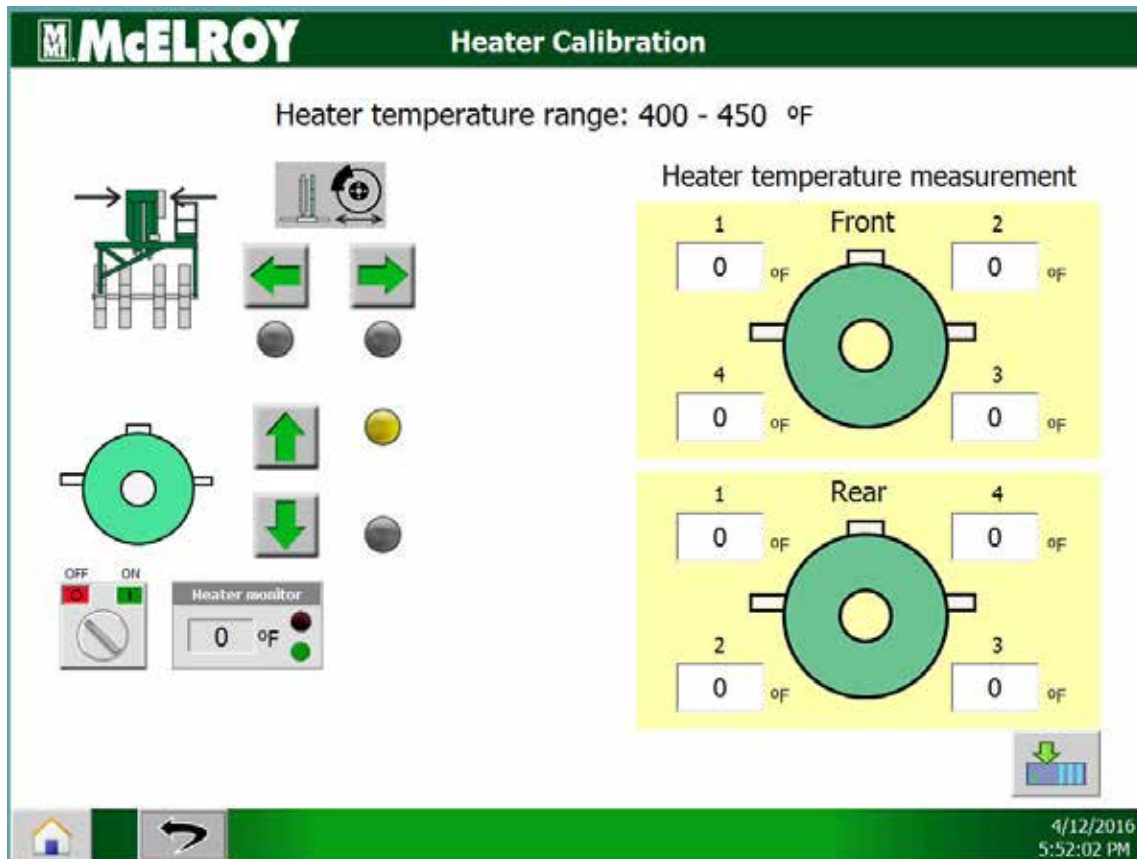
Displays messages about the operation of this screen.

Program Status Messages

- To calibrate the facer X & Y position:
- Move the facer to the start position then enable the jog mode.
 - Use the directional arrows to move the center of the facer to centerline of the pipe.
 - Press the X & Y calibration buttons.

Overview

Talon 2000 Interface



PH05481-04-15-16

Heater Calibration Screen

Some buttons may not be present unless certain selections or conditions are met.



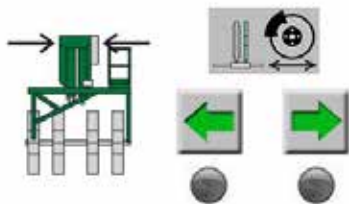
Home

Opens the Main Screen.



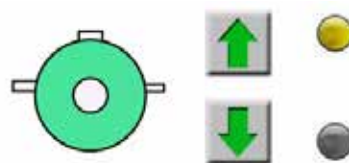
Previous Screen

Opens the previous screen.



Indexer Controls

Controls to move the indexer. The end of travel of the indexer is indicated in that direction by yellow light.



Heater Controls

Controls to raise and lower heater. The end of travel of the heater is indicated in that direction by yellow light.

Overview

Talon 2000 Interface



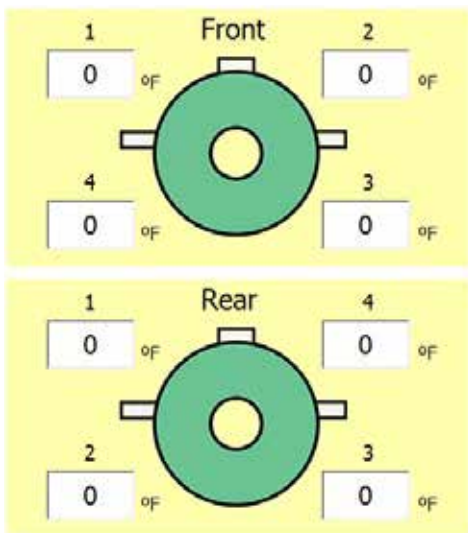
Heater On/Off Switch

Turn the heater on or off.



Heater Temperature Monitor

Displays the current temperature of the heater. The red indicator will be lit when the heater is powered on. The green indicator will flash while the heater is coming up to the set point and will stay solid once the temperature has reached the set point.



Heater Temperature Offset

Enter the heater surface temperature readings to calculate the heater temperature offset.

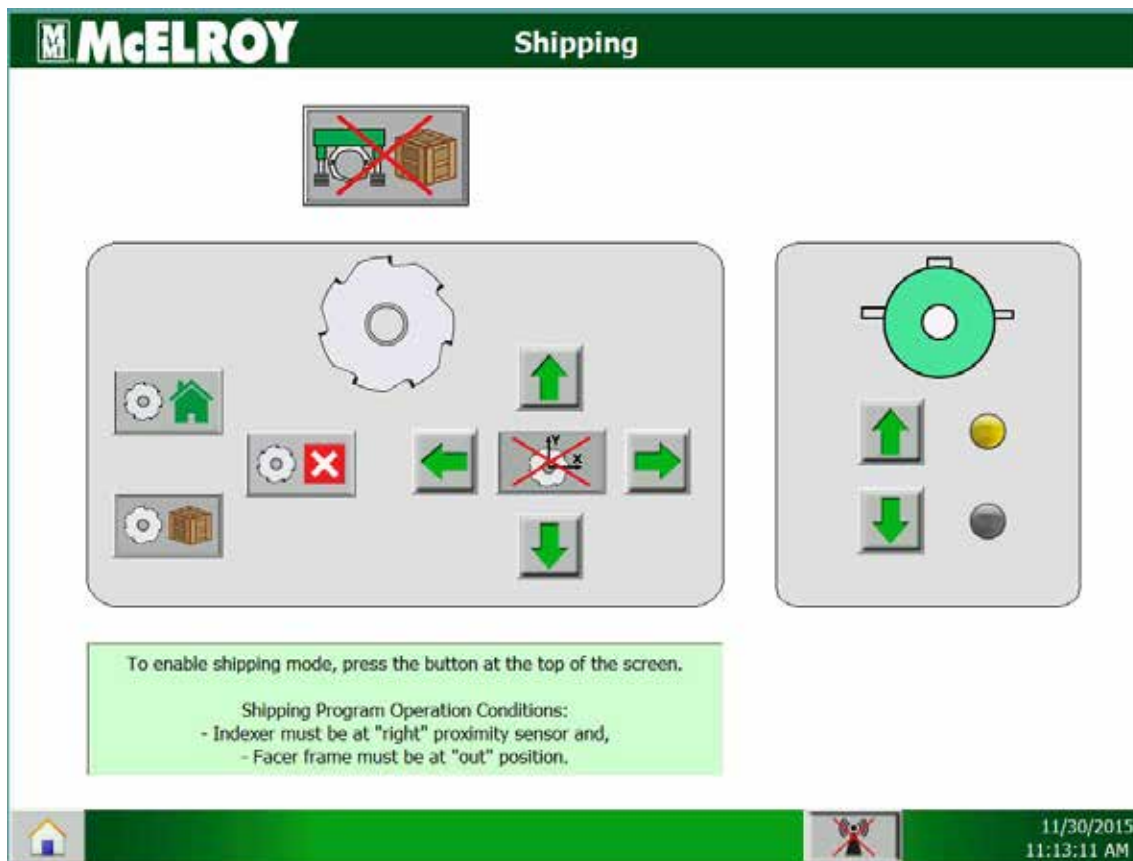


Store Data

Store the entered heater values.

Overview

Talon 2000 Interface



PH05469-04-15-16

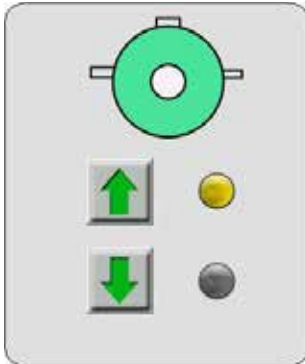
Shipping Screen

Some buttons may not be present unless certain selections or conditions are met.

	Home	Opens the Main Screen.
	Machine Shipping	Enables and disable the machine shipping controls.
	Facer Home	Moves the facer frame up and the facer to the home position..
	Abort Facer Operation	Aborts facer operation, stops the cutters and stops facer movement.
	Facer Shipping Position	Moves the facer close to the shipping position. It will then need to be positioned into the box on the indexer skid manually using the facer controls.
	Facer Controls	Move the facer using the directional arrow buttons. Press the Facer X/Y movement button to toggle the facer movement.
	Jog Mode Button	Enables and disables the facer jog mode.

Overview

Talon 2000 Interface



Heater Controls

Move the heater up or down to position on the indexer skid. The end of travel of the heater is indicated in that direction by yellow light.



Radio Remote Disable

Disable and enables the radio remote control to allow the operator to move the vehicle to connect the umbilical cables.

To enable shipping mode, press the button at the top of the screen.

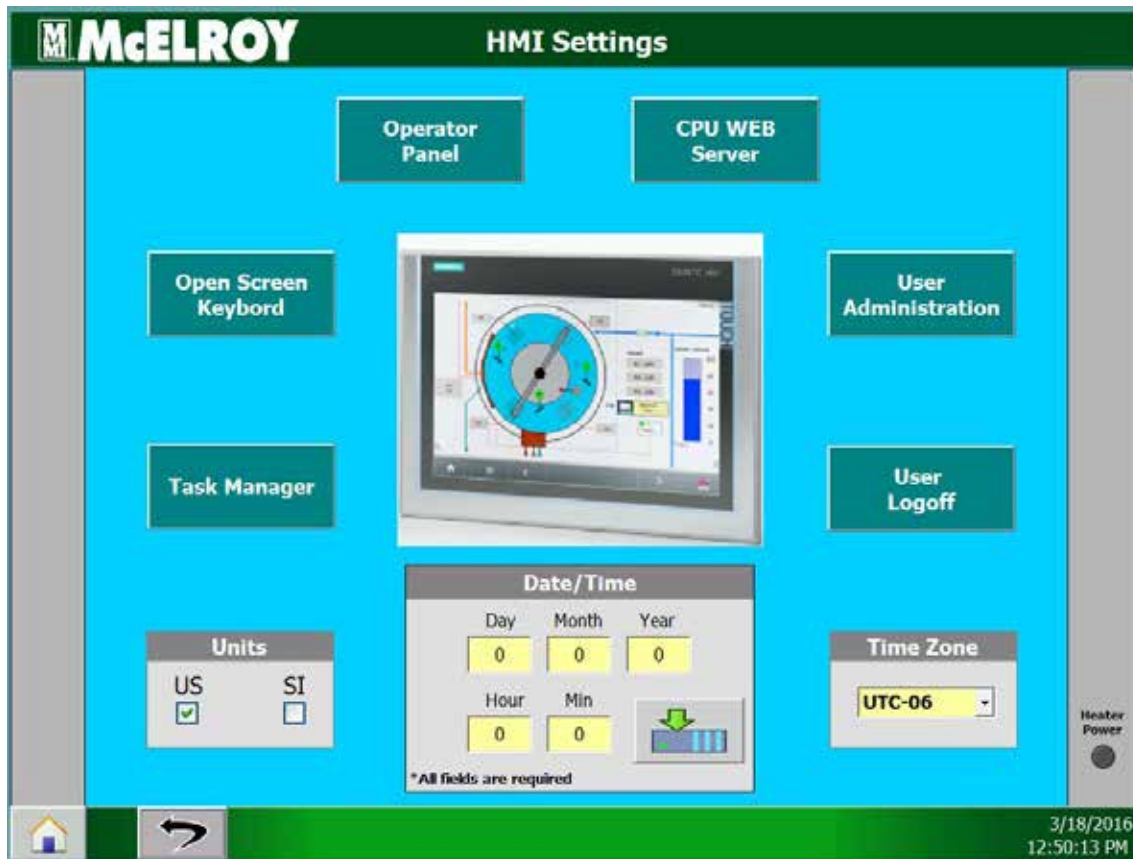
Shipping Program Operation Conditions:
- Indexer must be at "right" proximity sensor and,
- Facer frame must be at "out" position.

Message Screen

Displays information during the operation of this screen.

Overview

Talon 2000 Interface



PH05381-04-15-16

HMI Settings Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Page

Opens the previous page.



McElroy Panel

Opens the McElroy Panel screen. This screen allows changes to the operating system (McElroy password protected).



Open Screen Keyboard

Opens the On Screen Keyboard and the size and position of the keyboard can be adjusted. Once closed, the changes are saved for use on other screens.



Task Manager

Opens the Windows® task manager (McElroy password protected).



Units

Change the units the machine uses from US to Metric.

Overview

Talon 2000 Interface



CPU Web Server

Troubleshooting CPU hardware for Administrators.



User Administration

Manage users and user passwords.



User Logoff

Log off the current user from the software.



Data/Time

Make changes to the date and time used by the software.

Store Data

Stores the entered data to the PLC.



Time Zone

Set the time zone.



Heater Power

Red light indicates the heater is powered on.

Overview

Talon 2000 Interface



PH05411-04-15-16

User Administration Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Screen

Opens the previous screen.

User	Password	Group
Administr...	*****	Customer
Operator1	*****	Users
Operator2	*****	Users
Operator3	*****	Users
PLC User	*****	Unauthorize

User Administration

Displays the list of authorized users for the software. The password can be changed by touching an existing user but will require administrator authorization. To create a new user, double touch a new field and type the user name, password and group.



Heater Power

Red light indicates the heater is powered on.

TX05016-05-03-16

Set Up Talon

Read Before Operating

Before operating this machine, please read this manual thoroughly and keep a copy available for future reference.

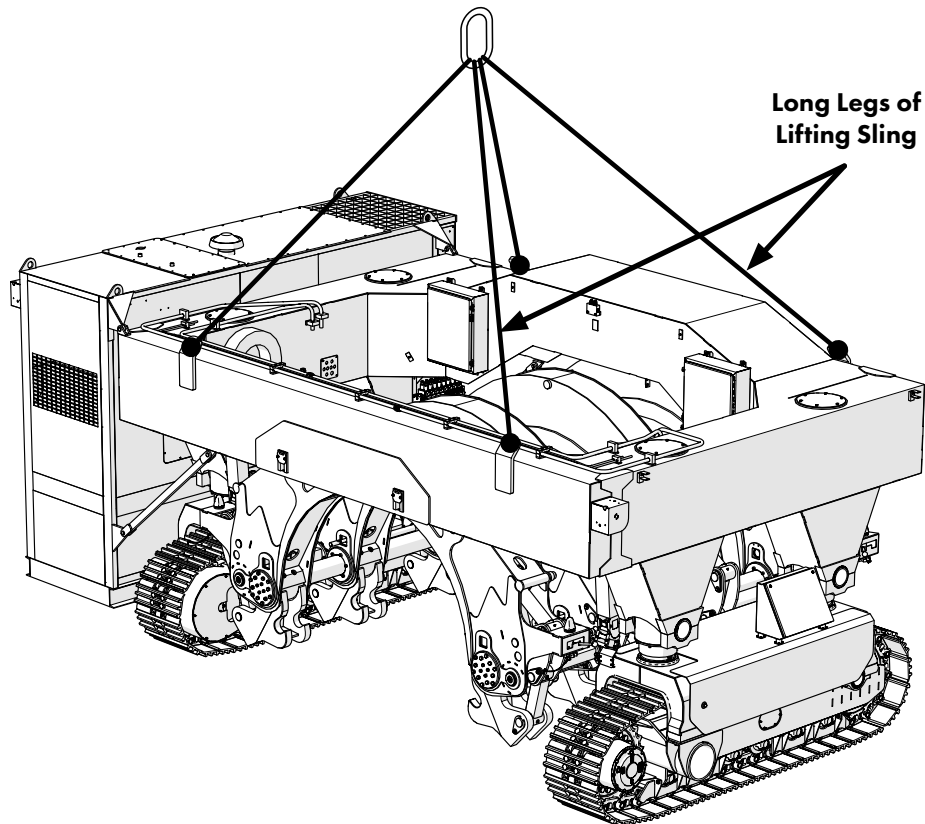
Return manual to the protective storage box when not in use. This manual is to be considered part of your machine.

TX00401-9-15-94



Stop-12-28-95

Lifting Vehicle



CD01323-04-15-16

⚠ WARNING

Follow all applicable federal, state, local, and industry specific regulations including the lifting safety warnings in the General Safety section of this manual when lifting.

Connect the lifting sling to the vehicle with the two long legs (White) of the sling connected to the two lift points on the operator side and the short legs (Yellow) connected near the power pack.

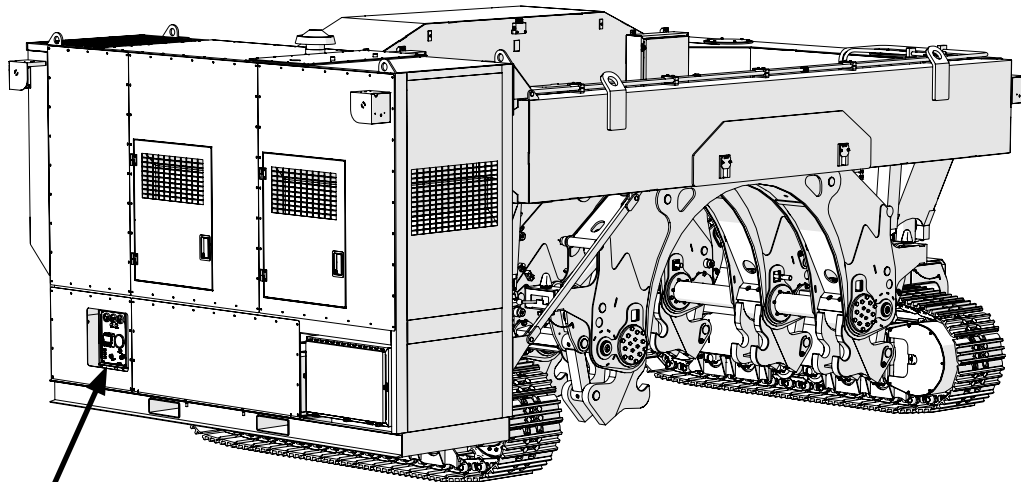
Connect the sling to an appropriately rated piece of overhead lifting equipment.

Lift and off-load the vehicle to the ground.

If the vehicle can be driven off of the transport vehicle, use the instruction on the next page to start the vehicle and use the remote control to drive the vehicle off of the transport vehicle.

Set Up Talon

Starting the Machine

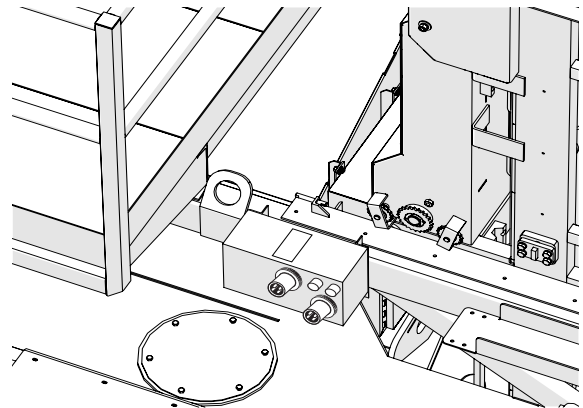


Engine Control Box

The vehicle will need to be moved close to the indexer assembly so the indexer assembly can be taken out of storage configuration and installed on the vehicle assembly.

The vehicle will not operate without the indexer attached. The data jumper connector is required if the indexer is not attached.

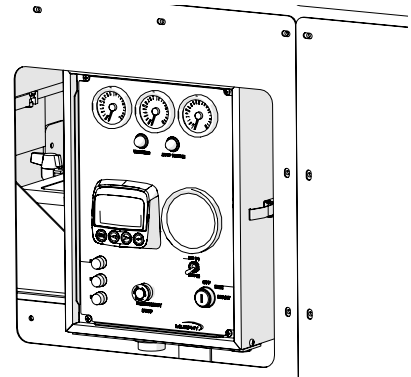
- Attach the data jumper connector to the data cable (Jumper is attached to the vehicle). This jumper will bypass the emergency stop from the indexer assembly and allow the vehicle to drive.
- Ensure all emergency stops are not activated.
- Turn on the battery disconnect switch.
- Open the fuel shutoff valve.



⚠ WARNING Ensure personnel are clear of the machine before starting. Failure to do so could result in serious injury or death to personnel.

- Start the machine using the Engine Control Box.

The engine will start and the HMI display will boot up to the Talon Control Application.



CD01292-04-15-16

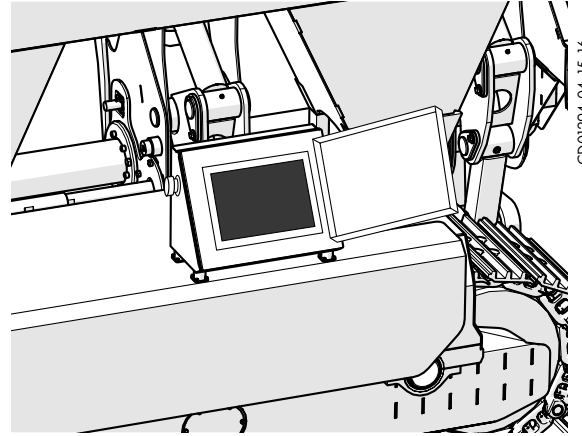
CD01308-04-15-16

CD01293-04-15-16

Set Up Talon

Starting the Machine (continued)

- Log in to the application using the operator's passcode.
- The vehicle can now be driven using the HMI or the remote.
- Navigate to the Shipping screen on the HMI and enable the radio remote. Drive the vehicle near the indexer assembly. Move the vehicle close enough for the vehicle to indexer umbilical cable to reach between the two assemblies.



CD01294-04-15-16

- Touch the Home button. Touch the Settings button to open the Control Panel screen.



- Touch the close application button.



- Shut off the vehicle.
- Remove the data jumper connector. Connect the vehicle to the indexer using the included umbilical cable.
- Restart the vehicle and log into the application on the HMI. Return to the Shipping screen.

Set Up Talon

Remove Heater from Storage Configuration

Use the controls on the Shipping screen on the HMI to raise the heater until the heat shield locks are above the heat shield stop.

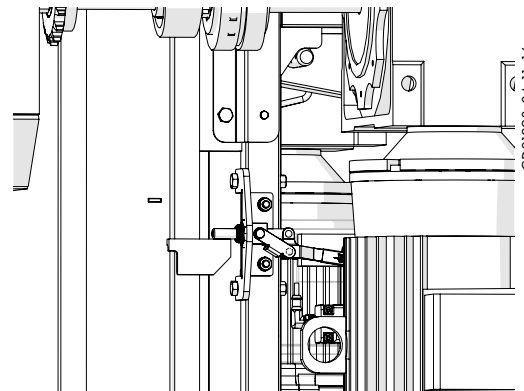
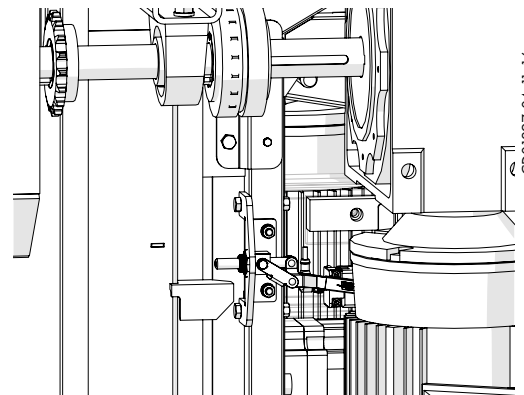
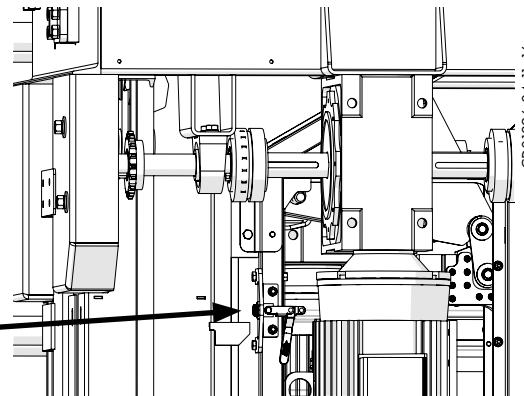
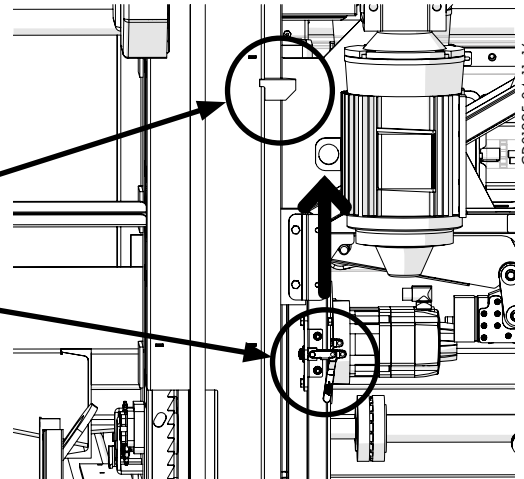
Heat Shield Stop

Heat Shield Lock

When the heat shield lock is above the heat shield stop, toggle all 4 locks on the heat shield assembly.

Toggle Heat Shield Lock

Lower the heater until the heat shield locks rest on the heat shield stops.



Set Up Talon

Remove Heater from Storage Configuration (continued)

Lower the heater several inches below the heat shield rest. The heater rest pin will no longer be in contact with the heat shield rest. The heater shield will stay in place as it is resting on the heat shield stops.

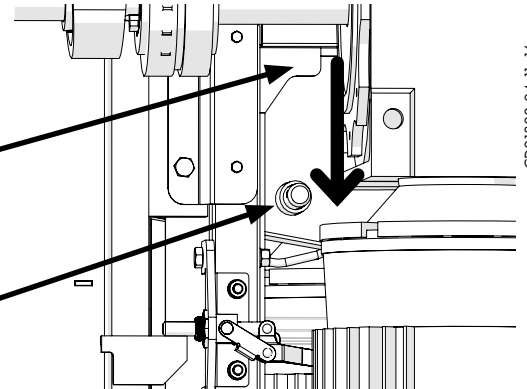
Heat Shield Rest

Heater Rest Pin

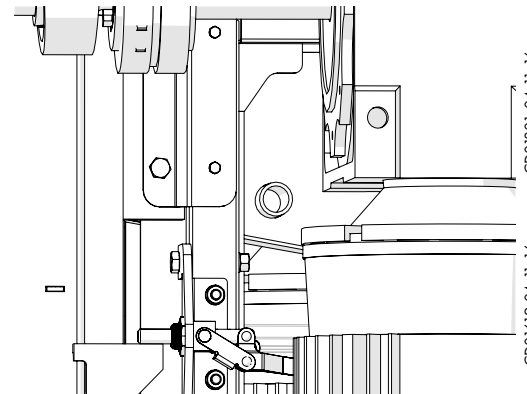
Remove the heater rest pin and stow in the provided location to prevent loss of pins.

Heater Rest Pin Storage Location

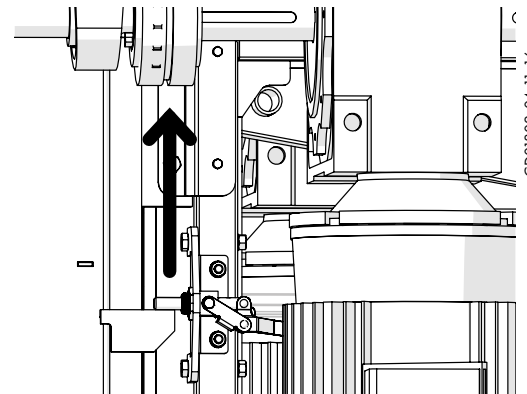
Raise the heater fully.



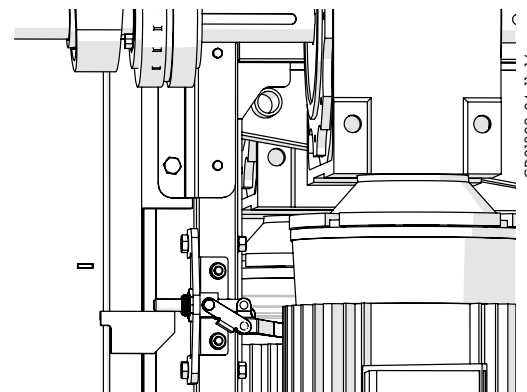
CD01300-04-11-16



CD01301-04-11-16



CD01302-04-11-16





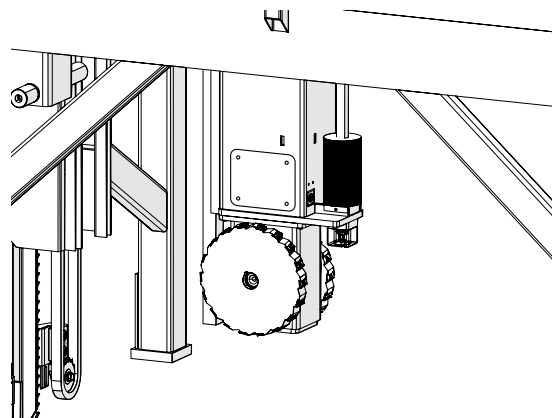
CD01302-04-11-16

Set Up Talon

Remove Facer from Storage Configuration

Use the controls on the Shipping screen on the HMI to raise the facer using the jog function on the screen. Raise the facer out of the shipping rest using the jog controls until the end of the facer boom is accessible.

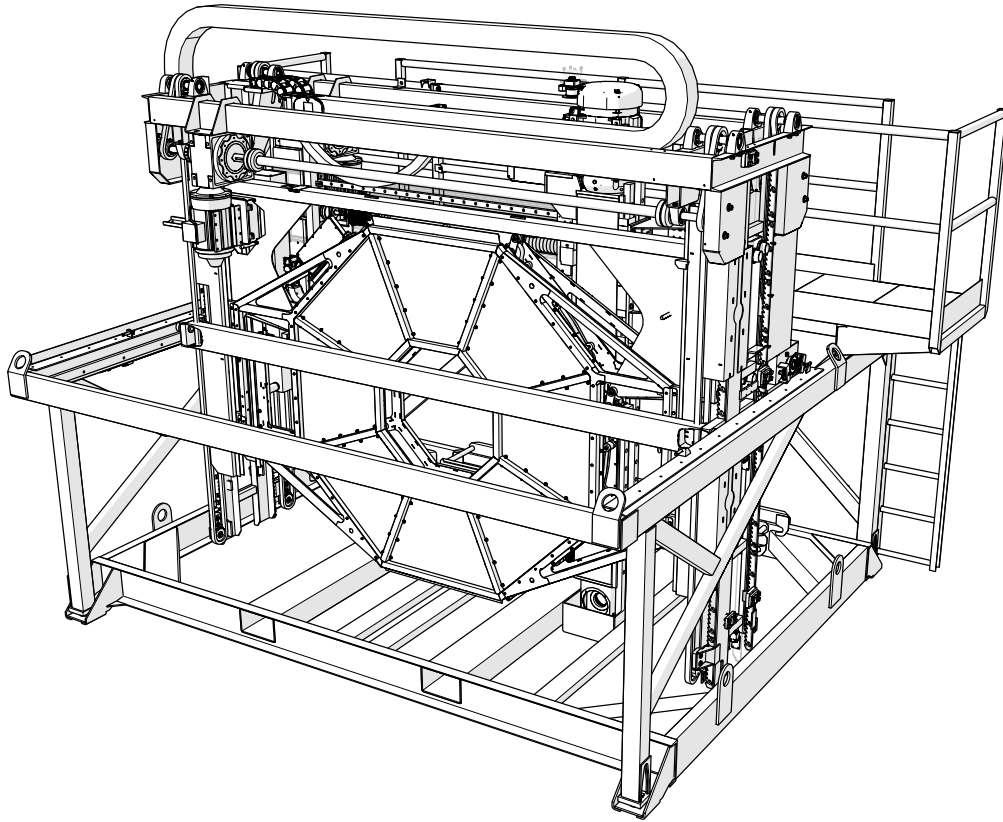
- Touch the close application button.
- Shut off the vehicle.
- Install the facer cutters to the end of the facer boom.
- Start the machine.
- Send the facer to the home position by pressing the Facer Home button on the screen.

- Navigate to the Control Panel screen and touch the close application button.

- Shut off the vehicle.
- Disconnect the vehicle to indexer umbilical.



CD01304-04-15-16

Set Up Talon

Remove Indexer from Indexer Skid



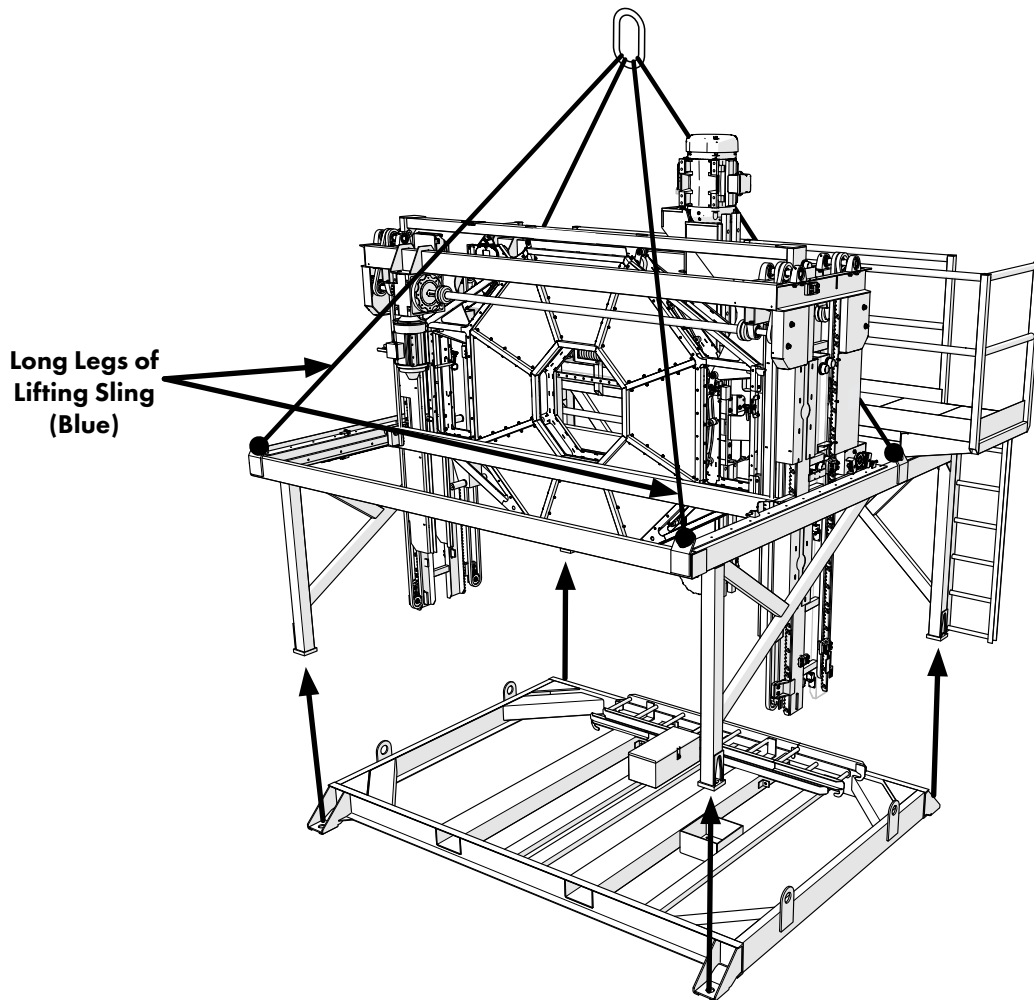
The indexer is attached to the skid with 4 bolts.

Unbolt all 4 corners of the indexer using the supplied tools included in the toolbox.

CD01319-04-15-16

Set Up Talon

Lifting and Installing the Indexer Assembly



CD01322-04-15-16

Make sure the vehicle assembly is on level and stable ground with the heater fully raised, facer in the home position and the indexer moved to the full right end of stroke.

Connect the lifting sling to the indexer assembly with the two long legs (**Blue**) of the sling connected to the two lift points away from the catwalk and the other legs (**Yellow**) connected to the points close to the catwalk.

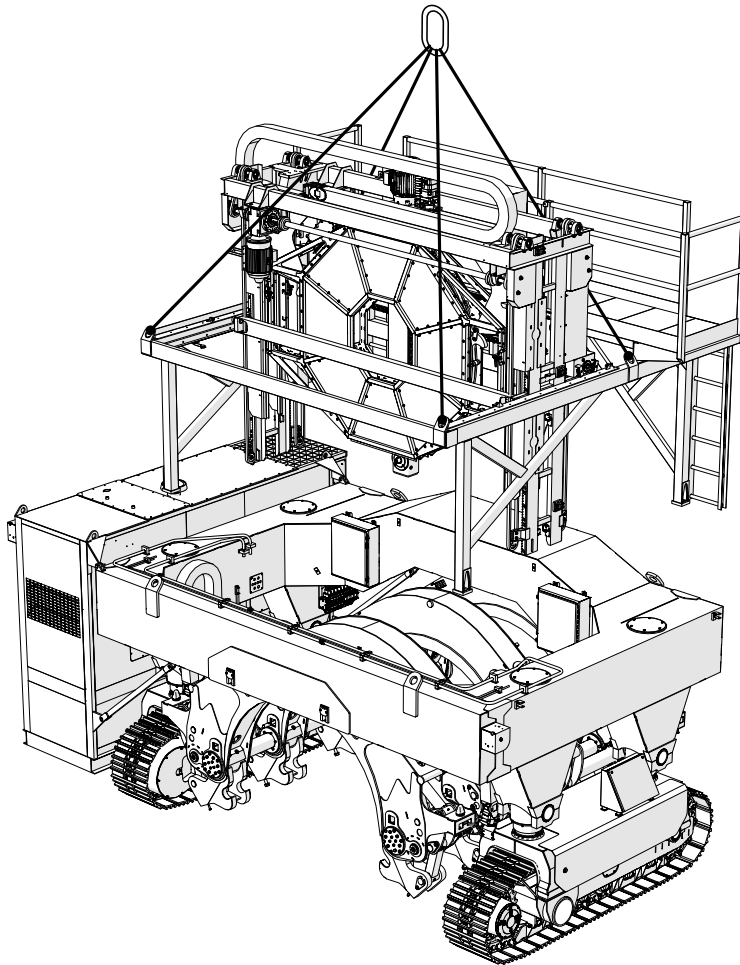
Connect the sling to an appropriately rated piece of overhead lifting equipment.

WARNING

Follow all applicable federal, state, local, and industry specific regulations including the lifting safety warnings in the General Safety section of this manual when lifting.

Set Up Talon

Lifting and Installing the Indexer Assembly (continued)



Lift the indexer assembly and maneuver it over the vehicle assembly.

Ensure the 4 quarter twist locks are in the unlocked position. Slowly lower the indexer assembly onto the four quarter twist locks on the vehicle assembly.

Quarter twist lock

Unlocked Position

Once the indexer assembly is resting on the vehicle assembly, turn all 4 quarter twist locks to the locked position and tighten the locking nuts on the twist locks and pin the nuts in place.

Disconnect the lifting sling from the 4 lifting points and lift and move the lifting sling away from the machine. Lower the lifting sling to ground and detach the lifting sling from the overhead lifting equipment.

Connect the 2 power plugs and 2 data cables for the indexer assembly to the vehicle assembly.

Quarter Twist Lock

Locked Position

TX05019-05-03-16


CD01277-04-15-16

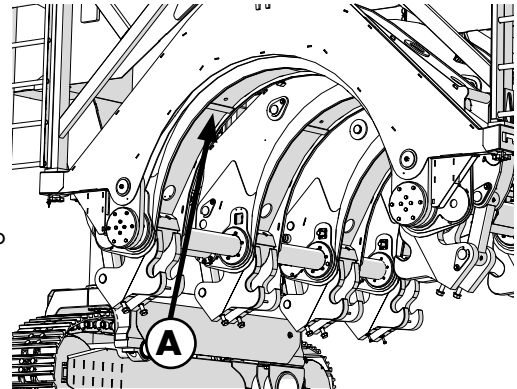
CD01278-04-15-16

CD01280-04-15-16

Set Up Talon

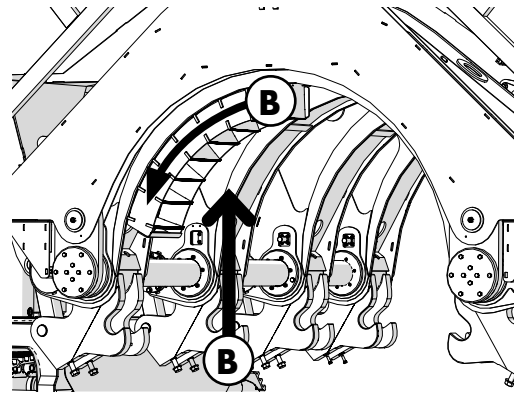
Install Upper Jaw Inserts

- Start the fusion machine.
- Log in using the operator passcode.
- On the **Main Screen**, touch the **Machine Controls** button on the screen.
- Use the **Machine Elevation** button on the screen to set the machine height to install upper jaw inserts.
- Navigate to the Control Panel screen and touch the close application button. 
- Shut down the machine.



CD01620-04-11-16

- Lift the insert using two people and place the insert against the upper jaw (B) and rotate (B) to secure the insert on the upper jaw insert bracket (A).

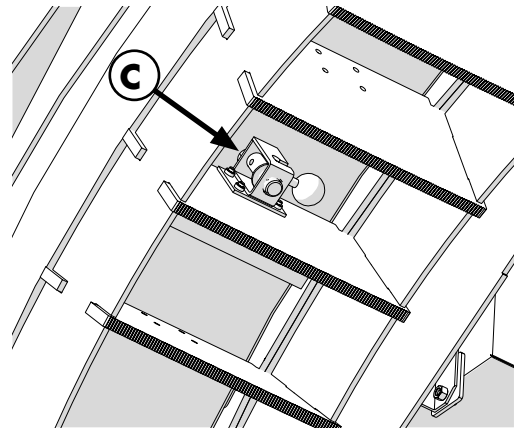


CD01621-04-11-16

CAUTION

The quarter jaws and inserts are heavy. Using one person to lift the jaws and inserts may result in an injury. Two people are required to lift the jaws and inserts.

Ensure the insert is rotated all the way until the bracket of the insert rests behind the upper jaw insert bracket.



CD01622-04-11-16

- Rotate the handle of the insert lock (C) to secure the insert in place.
- Repeat these steps to install all other inserts to the upper jaws.

Set Up Talon

Install Upper Jaw Inserts (continued)

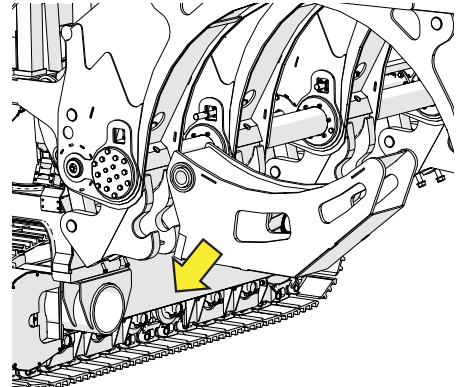
- Start the fusion machine.
- Log in using the operator passcode.
- On the **Main Screen**, touch the **Machine Controls** button on the screen.
- Use the **Machine Elevation** button on the screen to raise the machine up.
- Close all four sets of jaws.
- Navigate to the Control Panel screen and touch the close application button.
- Shut down the machine.
- Lift the quarter jaw using two people and place the jaw on the lower jaw pivot. Rotate the quarter jaw down into place.

CAUTION

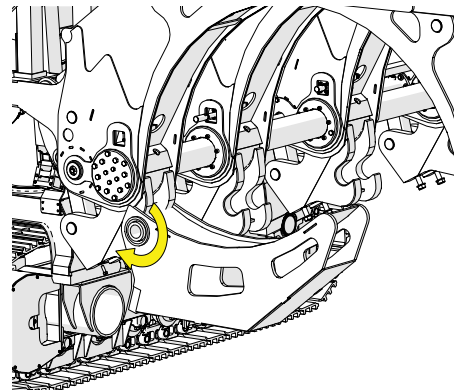
The quarter jaws and inserts are heavy. Using one person to lift the jaws and inserts may result in an injury. Two people are required to lift the jaws and inserts.

Ensure the quarter jaw is rotated all the way until the jaw stops against the lower jaw pivot.

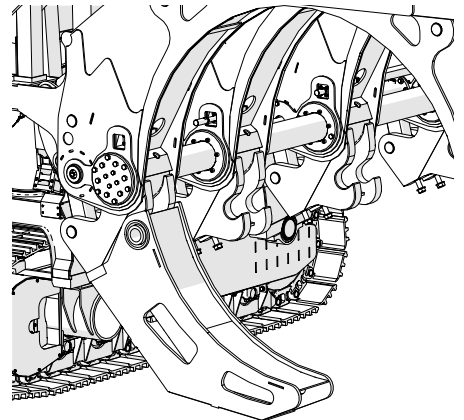
- Install the two bolts and washers to secure the quarter jaw to the lower jaw pivot.
- Repeat these steps to install all other quarter jaws to the carriage.



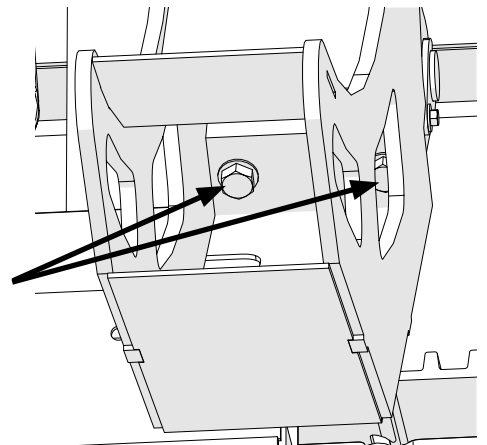
CD01281-04-15-16



CD01282-04-15-16



CD01283-04-15-16



CD01284-04-15-16

Set Up Talon

Calibrate Indexer Position

NOTICE: The indexer must be calibrated before the first facing operation of the work day to ensure the interlock's location is set to prevent accidental crashing of the indexer components against the components of the vehicle.

To calibrate the indexer position:

- Navigate to the Indexer Calibration screen.



- Open the carriage. Position the indexer so that the facer is between the jaws.

- Touch the facer start position button to move the facer into start position.



If the facer does not move when attempting to move the facer, an interlock is preventing the movement based on the indexers current calibration. The facer interlock can be disabled to allow the facer to move in between the jaws.

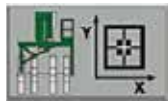
NOTICE: Disabling machine interlocks will not prevent crashing of components while moving the indexer and its components. Use care when moving indexer components to prevent accidental crashing and damage.

- Press the Calibration Interlock to disable the interlocks.



- Close the carriage against the facer stops.

- Touch the indexer calibration button.



The indexer is now calibrated to the carriage.

The interlocks are automatically enabled when leaving the Indexer Calibration screen.

Set Up Talon

Install SIM Card For DataLogger® Vault™

Requirements for configuration

- PC with Windows® and any Web browser
- Standard Ethernet cable
- A SIM card of your mobile network operator or cellular company with data services activated.
- The following access data must be present:
 - ◆ PIN (Personal Identification Number) number (if required);
 - In the USA it is normally not required to enter a PIN number for a SIM card. The cellular company that provided the SIM Card should be able to confirm whether or not their system requires PIN number to be entered for a SIM Card.
 - **IMPORTANT:** If the cellular company network requires SIM card pin number, do not put the SIM card in the router before entering its pin number.
 - ◆ APN (Access Point Name): Provided by the cellular company
 - ◆ Static IP address: Provided by the cellular company

Router overview

- 1) LEDs DC5V, VPN, IN, OUT
- 2) 2-port switch with the ports "X2P1" and "X2P2" for connection to the local area network, RJ-45 jacks each with 2 LEDs
- 3) Terminals for in port and out port (on the underside of the device)
- 4) X1, USB connector (currently without function)
- 5) Antenna socket "A2", type SMA (only for the extra antenna)
- 6) LED S
 - Flashing slowly: PIN transfer
 - Flashing quickly: PIN error / SIM error
 - On: PIN transfer successful
- LED Q
 - Flashing briefly: Poor signal strength
 - Flashing quickly: Medium signal strength
 - On: Very good signal strength
- LED C
 - Off: no connection
 - Flashing slowly: EGPRS/GPRS connection active
 - On: HSPA/UMTS connection active
- 7) Antenna socket "A1", type SMA (for the first connected antenna)
- 8) Service button SET
- 9) Terminals for connecting the supply voltage (top of device)



PH05483-04-15-16

Set Up Talon

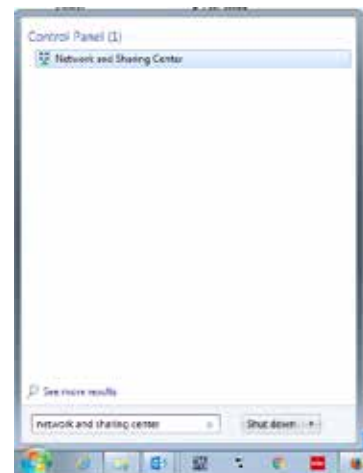
Install SIM Card For DataLogger® Vault™ (continued)

Settings on the PC

- Start the engine. PLC box must be energized to perform this procedure.
 - Open the PLC box and locate router (GR1).
 - Connect the PC to an available Ethernet port (X2P1 or X2P2) in the router by using a standard Ethernet cable.
 - The network adapter of the PC must have the TCP/IPv4 configured per below
-
- Go to Windows Start Menu and type **"Network and Sharing Center"**
 - Make sure the PC is connected with the router through a Ethernet standard cable
-
- Click on **"Local area connection"**.





PH05484-04-15-16




PH05485-04-15-16

View your basic network information and set up connections



C3025
(This computer)



Multiple networks


Internet

[See full map](#)


View your active networks


mcelroymfg.com
Domain network




Unidentified network
Public network

Connect or disconnect

Access type: Internet

Connections:  Wireless Network Connection (McElroyCorpStaff)

Access type: No Internet access

Connections:  Local Area Connection
 VirtualBox Host-Only Network

[Change your networking settings](#)

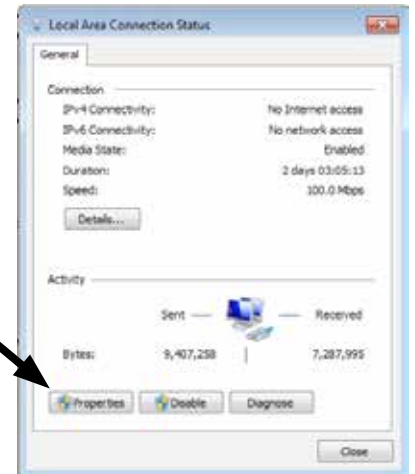
PH05486-04-15-16

Set Up Talon

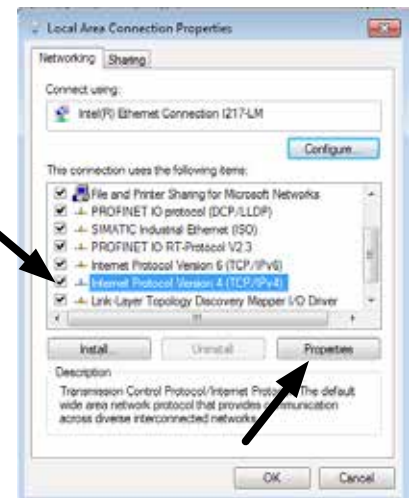
Install SIM Card For DataLogger® Vault™ (continued)

Settings on the PC

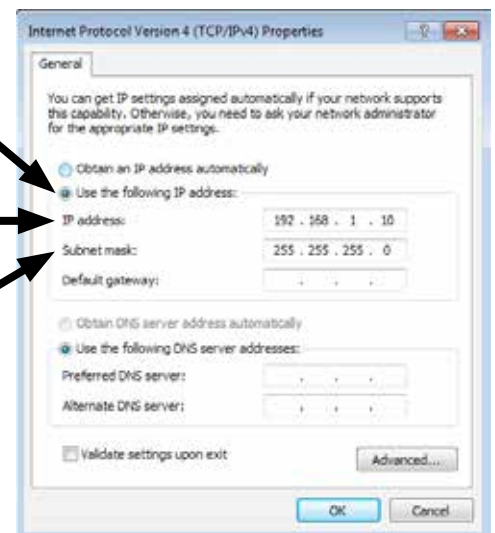
- Click on **"Properties"**.
- Select **"Internet Protocol Version 4"** and click on **"Properties"**.
- Check **"Use the following IP Address"** radio button.
- Enter IP address and subnet mask shown in the image.



PH05487-04-15-16



PH05488-04-15-16



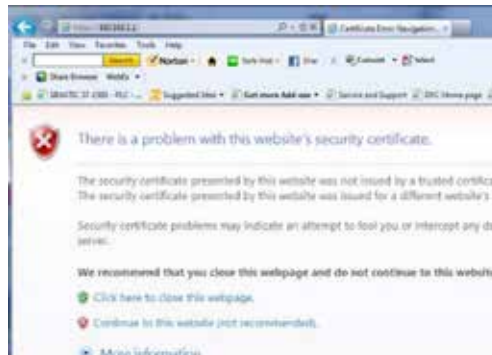
PH05489-04-15-16

Set Up Talon

Install SIM Card For DataLogger® Vault™ (continued)

Establishing connection with the router

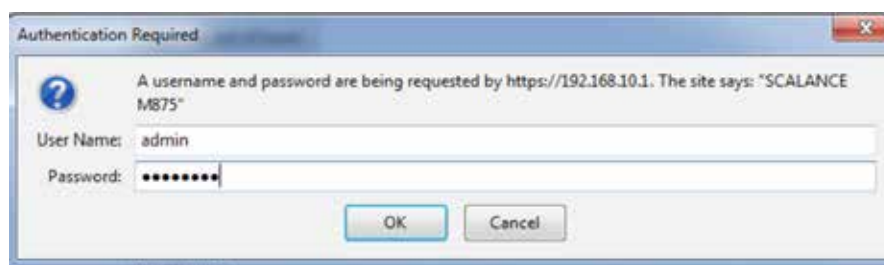
- Configuration is performed with the Web-based administration user interface of the router.
- Start the Web browser on the PC and enter router IP address: **https://192.168.1.1/**
- A message related to the security certificate appears.
- In Internet explorer select the red X **"Continue to this website"**.



- For Mozilla Firefox: select **"Add Exceptions"**, check **"Permanently store this exception"** and then press **"Confirm Security Exception"**.



- You will be prompted to enter the user name and the password.
- Enter User Name: **admin** and Password: **FRupha3t** (sensitive case).



Set Up Talon

Install SIM Card For DataLogger® Vault™ (continued)

- After logging into the system the “System - Overview” screen is shown

System - Overview	
Current system time	2013-01-14, 17:49
Connected since	---
External host name	---
Assigned IP address	---
NTP synchronization	✗
DynDNS	✗
Remote access HTTPS	✗
Remote access SSH	✗
CSD dial-in	✗
SNMP	✗
SNMP Trap	✗
Volume monitoring	✗
Number of activated firewall rules	0
Connection	---
Signal strength CSQ (dBm)	0 (-113 dbm)
APN in use	---
IMS	---
ID of the current wireless call	0
Number of WAN connection attempts (24h)	0
Bytes sent on this connection	0
Bytes received on this connection	0
Bytes sent since loading the factory settings	0
Bytes received since loading the factory settings	0
Traffic volume (bytes / current month)	0
Maximum data volume (bytes/month)	1000000
Firmware version	2.114

- Go to “External Network”, then “UMTS/EDGE”.
- **IMPORTANT:** Do not change any settings otherwise indicated as follow.
- If required enter the PIN number and save.
- Enter the correct APN for the data plan provided by the cellular company and press “Save”.
- Username: **guest**, Password: **guest**

External Network - UMTS/EDGE	
PIN	<input type="text"/> ✓
Change PIN	<input type="button" value="Change"/>
Network selection	UMTS or GSM
Allow roaming	Yes
Method of the provider authentication (PAP/CHAP)	Automatic
Mode of the provider selection	Manual
Username	guest
Password	*****
APN	l2gold
<input type="button" value="Save"/> <input type="button" value="Reset"/>	

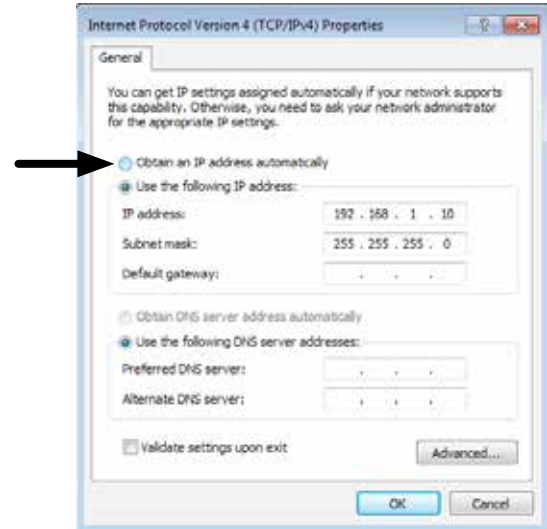
Set Up Talon

Install SIM Card For DataLogger® Vault™ (continued)

- After saving, power off the router by disconnecting the supply voltage connector (See router overview).
- The compartment for the SIM card is located on the back of the device. Directly beside to the compartment for the SIM card in the opening in the housing, there is a small yellow button. To open the drawer, press the yellow button with a sharp object, for example a pencil. Place the SIM card in the tray so that the card audibly locks in place and so that its gold-plated contacts remain visible. Then push the tray with the SIM card completely back into the housing.
- After installing the SIM card, go back to the **"Network and Sharing Center"** and go to the **"Internet Protocol Version 4 (TCP/IPv4) Properties"**. In the general tab, click the radio button for **"Obtain an IP address automatically"** and click **OK**.
- Shut off engine.
- Disconnect the computer from the router. Reinstall the router in the PLC box and connect all router cables.



PH05495-04-15-16



PH05495-04-15-16

Operation

Prepare Heater

The heater needs to be cleaned and temperature verified before each fusion joint. Cleaning and recording heater values will be easier to do before loading pipe.

- Touch Manual Operation and then the Manual Fusion button.



- Ensure the heater is on. If the heater is not on, turn on the heater.



- Allow the heater to reach the temperature range.
- Index the heater until the heater is positioned over the fusion zone.
- Lower the heater down to the end of travel.

NOTICE: Ensure the heater has cycled on and off for a few minutes before shutting off the machine to take heater temperature readings. Incorrect temperature readings will affect the temperature offset of the heater. The surface temperature of the heater may be out of range of the fusion standard.

- Shut the machine down.
- Measure temperature on the heater using a pyrometer at 4 points on each side of the heater. If the measurements are not within acceptable range, navigate to the Heater Calibration screen and enter the measured values to calculate the heater offset and calibrate the heater.



- Clean the heater surfaces with a clean dry lint-free non-synthetic cloth.
- Start the machine and log into the Talon Control Application.

Operation

Load Pipe

The Talon 2000 fusion machine loads pipe into the machine by using the carriage quarter jaws to pull the pipe up into the carriage upper jaws.

The fusion machine can clamp onto the middle of the pipe allowing the machine to move pipe into position on the job-site for fusion.



WARNING Do not position yourself under supported or raised pipe. Pipe is heavy and could result in serious injury or death.

Keep persons that are not involved in handling pipe away from handling operations. Keep away from the pipe when the pipe and handling equipment are in motion. When in motion, all persons involved in handling pipe should be able to see all other persons at all times. If any handling person is not in sight, immediately stop moving equipment and pipe and locate that person. Do not continue until all persons are accounted for and in sight.

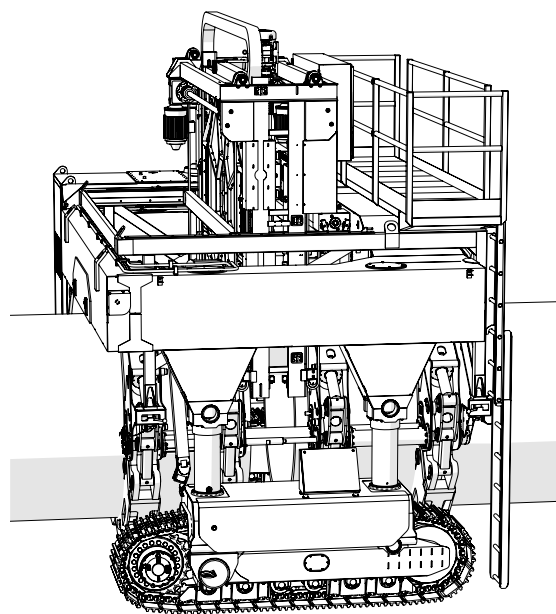
- Position pipe support stands at each end of the machine to support and align pipe.
- Use the Machine Controls screen to load the pipe into jaws of the carriage.

Allow 3 to 4 inches of pipe protruding into the fusion zone to allow proper facing.

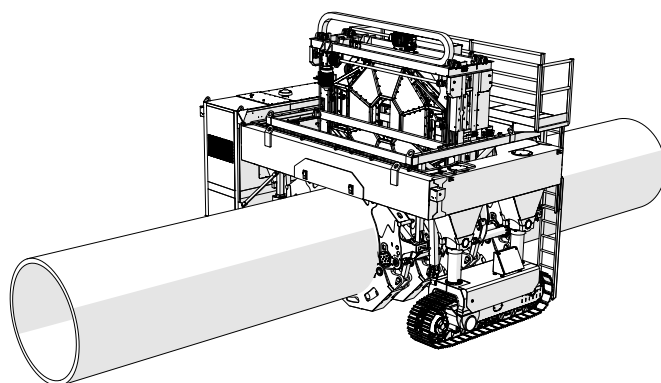
NOTICE: Do not exceed 4" of pipe protruding.

- Ensure the pipe is clamped securely in the jaws of the carriage.

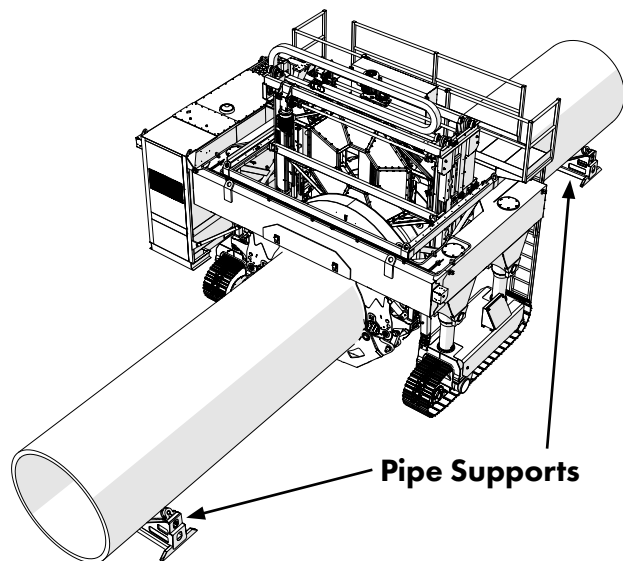
It is recommended that the pipe is always held securely by either being clamped in the fusion machine jaws or other means.



CD01312-04-15-16



CD01404-04-15-16



CD01405-04-15-16

Operation

Talon 2000 Fusion Operation



The Talon 2000 has two operation controls available.

Manual operation - Allows operator to control the heater, facer and fusion controls from the HMI display.



DataLogger operation - Allows operator to perform a fusion joint by entering information about the fusion joint and have that information as well as the fusion joint data recorded into a report. The fusion joint is created to a fusion standard, if an additional standard is needed contact McElroy. Joint reports can be transferred to a usb drive or uploaded to the DataLogger® Vault™.



The DataLogger Vault upload feature requires a data activated SIM card.

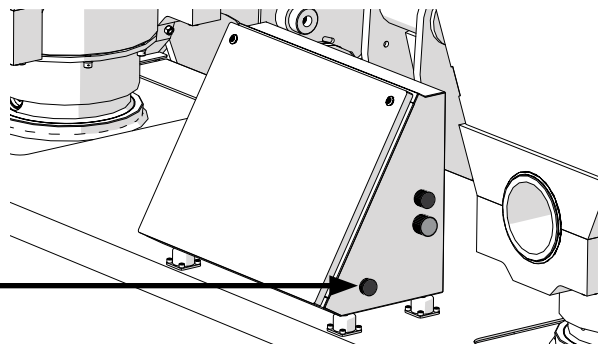
The DataLogger® Vault™ is a software application from McElroy that provides joint data storage and analysis at no cost to users. The DataLogger Vault is a secure, online application that allows users to view and analyze their joint data from almost any device, from almost any location.

All that is needed is a device such as a PC, Mac, smartphone, tablet, etc. that has a browser and access to the Internet.

If you do not already have access to the DataLogger Vault, we recommend creating your free account prior to fusing pipe.

To create your free DataLogger Vault account, and for more information (including complete instructions), visit:
<http://vault.mcelroy.com>.

Ensure a USB storage device is installed on the HMI to store the joint reports created.



Operation

DataLogger Operation

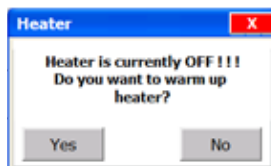
Entering DataLogger operation, the operator will fill out the joint and pipe information. After entering all the information the operator will be able to perform facing operations and then start the data logging of the heating and fusion operations.

The screenshot shows a software interface titled "McELROY Joint Information". At the top, it displays the date and time "4/12/2016 1:00:15 PM" with a "Change date and time" button. Below this are several input fields: "Location:" with a placeholder "Type location", "Project:" with a placeholder "Type project", "Operator ID#:" with a placeholder "Type operator ID#", "Job #:" with a placeholder "Type job", and "Joint #:" with the value "1". There is also a "Notes:" field. At the bottom, there is a green bar with a "Next >>" button and a small home icon. The date and time "4/12/2016 1:00:15 PM" are also displayed in the bottom right corner.

Joint Information

- Change Date and Time: Change the date and time if the information is incorrect.
- Location: Enter the location where the fusion joint is being performed.
- Project: Enter the name for the project the fusion joint is attached to.
- Operator ID Number: Enter the identification number for the operator.
- Job Number: Enter the job number for the project.
- Joint Number: The number of the current fusion joint. The number will automatically increment as fusion joints with the same information are performed.
- Notes: Enter information relative to the fusion joint.

A dialog box will appear if the heater is off and will ask the operator to turn on the heater.



Press **Next** to go to the next screen.

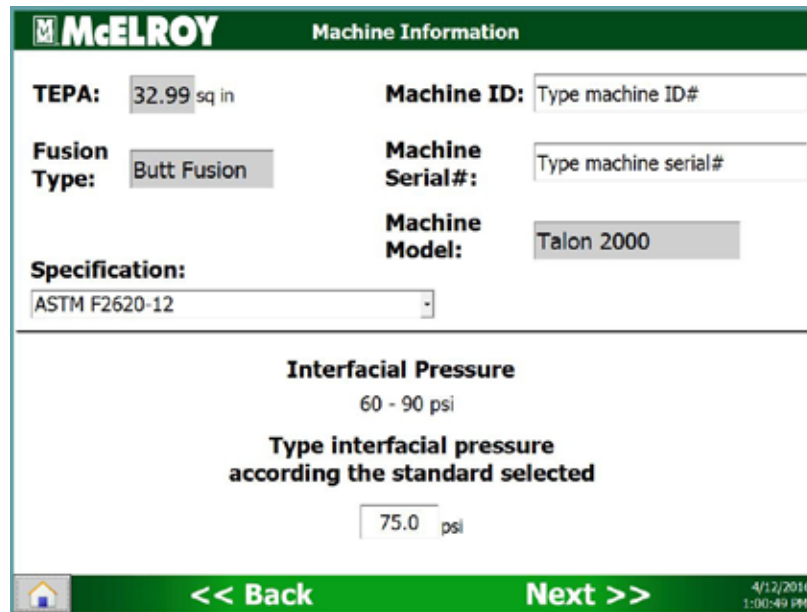
PH05392-04-15-16

PH05393-04-15-16

Operation

PH05394-04-15-16

DataLogger Operation



McELROY Machine Information

TEPA: 32.99 sq in **Machine ID:** Type machine ID#

Fusion Type: Butt Fusion **Machine Serial#:** Type machine serial#

Machine Model: Talon 2000

Specification: ASTM F2620-12

Interfacial Pressure
60 - 90 psi

Type interfacial pressure according the standard selected
75.0 psi

<< Back Next >> 4/12/2016 1:00:49 PM

Machine Information

The machine information is displayed on this screen. The fusion specification used for the fusion process is selected on this screen. The interfacial pressure according to the selected fusion standard is displayed at the bottom of the screen.

- **TEPA:** The total effective piston area for the machine is displayed.
- **Machine ID:** The machine ID is displayed.
- **Fusion Type:** The type of fusion is displayed.
- **Machine Model:** The model of the fusion machine is displayed.
- **Specification:** Select the fusion standard to be used from a list of pre-loaded fusion standards.
- **Interfacial Pressure:** Displays the interfacial pressure range used for the selected fusion standard. The operator can type in a specific interfacial pressure that is within the range of the fusion standard interfacial pressure.

Press **Next** to go to the next screen.

Press **Back** to go to the previous screen.

Operation

DataLogger Operation

McELROY Pipe Information

Butt Fusion
ASTM F2620-12

Input Pipe Data

Material :

Pipe Size :

W.T. :

<< Back **Next >>** 12/9/2014 2:57:47 PM

PH05396-04-15-16

Pipe Information

The pipe information is displayed on this screen. The screen will list the fusion type and fusion standard selected from previous screen. The pipe data has inputs for material, pipe size and wall thickness.

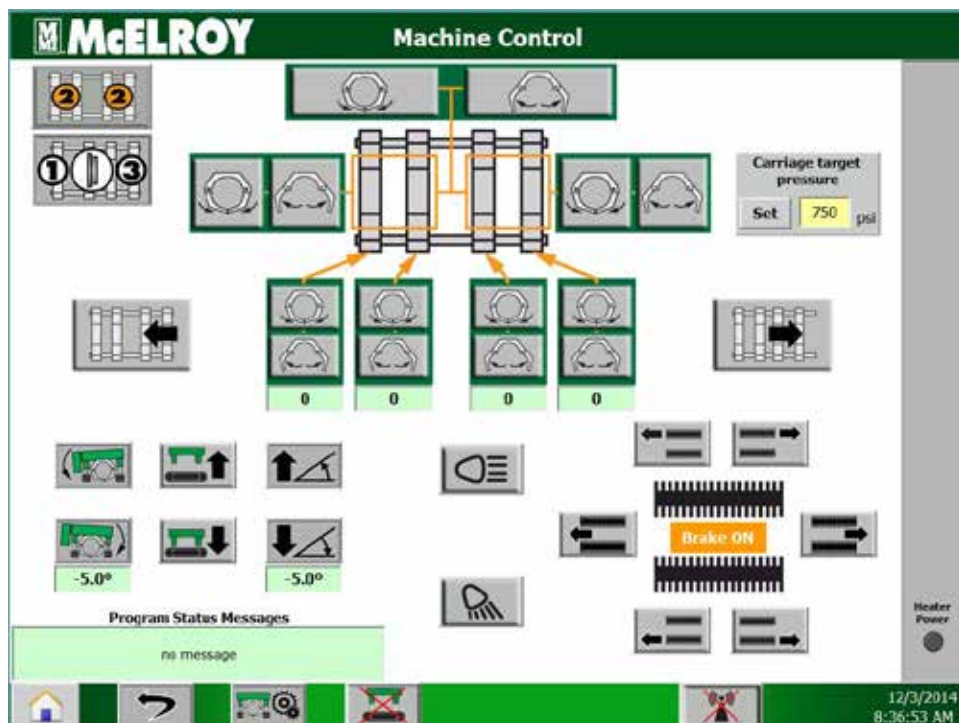
- **Fusion Type:** Displays the fusion type selected from the machine information screen.
- **Specification:** Displays the fusion standard selected from the machine information screen.
- **Material:** Enter the pipe material of the pipe being fused.
- **Pipe Size:** Enter the size of the pipe being fused. A drop-down menu is available to select the appropriate unit of measurement for the pipe size.
- **Wall Thickness:** Enter the wall thickness of the pipe being fused. A drop-down menu is available to select the appropriate unit of measurement for the wall thickness.

Press **Next** to go to the next screen.

Press **Back** to go to the previous screen.

Operation

DataLogger Operation



PH05344-04-15-16

Machine Controls

The Machine Control screen has the controls for the carriage, jaws and vehicle. The carriage, jaws and vehicle controls can be operated from this screen or from the radio remote.

Use these controls to load pipe into the machine.

NOTICE: Ensure the jaw braces are in the proper position for the jaw configuration being selected. If not, using the machine controls may cause damage to the machine.

To change the jaw configuration, refer to the Special Operation - Jaw Configuration section of this manual.

Press **Next** to go to the next screen.

Operation

DataLogger Operation



PH05497-04-15-16

DataLogger Facing

The DataLogger Facing screen has controls for the facer and indexer. The hydraulic pressure controls are available to operate the carriage and have the ability to select between the 3 hydraulic pressures.

NOTICE: The indexer must be calibrated before the first facing operation of the work day to ensure the interlock's location is set to prevent accidental crashing of the indexer components against the components of the vehicle.

To calibrate the indexer position, refer to the Set Up Talon 2000 section of this manual.

Facing the Pipe:

- Ensure the carriage is closed and the facer is in the start position.

If the facer is not in the start position, open the carriage and touch the facer start position button to send the facer cutter to the start position. Close the carriage against the facer stops.



- Touch the facer start button to start the facer operation. Touch the facer start button again to pause the facing operation. Pausing the facing operation will stop the cutter in its current location. The cutter will still rotate while paused.



If there are any issues with the facing operation, touch the facer abort button to abort the facing operation.



- After the facing operation is complete, Open the carriage and index right slightly.

If the face off is not complete, reload pipe and repeat facing procedures

- Touch the facer home button to send the facer to the home position.



Operation

DataLogger Operation



Drag Pressure:

Drag pressure should be determined using the following procedure:

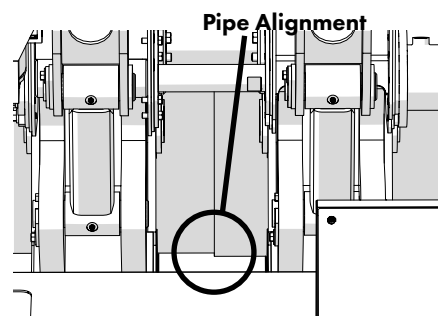
Heater must be out in order to proceed with drag measurement and slip testing

- Move the carriage so that the faced pipe ends are approximately 3.5" apart.
- Touch the carriage control valve middle (neutral) position.
- Touch the heating mode, and set the middle pressure reducing valve to its lowest pressure.
- Touch the carriage control valve left direction.
- Increase the pressure on the middle reducing valve until the carriage moves.
- Reduce the heating pressure valve until the carriage is just barely moving.
- Record this actual drag pressure by touching Set Drag and touching "to displayed".

Check Alignment:

Check the alignment of the pipe using the following procedure:

- With the pipe ends together under facing pressure, observe the outside diameter of the pipe ends for alignment.
- If the pipe ends are not in alignment, increase the pressure of the jaw clamps of the pipe on the low side using the Machine Controls screen.



Slip Check:

Perform a slip check using the following procedure:

- Touch the fusion pressure position on the pressure selector.
- Close the carriage by touching the far left position of the carriage control valve.
- Observe if the pipe slips in the jaws of the carriage. If the pipe slips, the pipe will need to be reloaded and facing procedures repeated.
- Open the carriage completely by touching the carriage control valve right direction.



PH05414-04-15-16

PH05415-04-15-16

CD01623-04-15-16

PH05416-04-15-16

Operation

DataLogger Operation

- Lower the facer.
- Shut off the fusion machine.



Hydraulically operated equipment is operated under pressure. Anything caught in the machine will be crushed. Keep fingers, feet, arms, legs, and head out of the machine while operated.

- Visually inspect the pipe ends for a smooth cut appearance. Clear any pipe shaving from the inside of the pipe. Deburr the pipe ends.

NOTICE: Remove shavings that pose a risk of contamination. If using a vacuum, use caution while vacuuming close to the ground so not to introduce dirt/dust onto the pipe ends.

IMPORTANT: A tarp can be used under the fusion area to remove shavings.



Inside of pipe is slippery and you could fall resulting in minor to moderate injury. Use caution by using arms to balance while moving inside the pipe.

NOTICE: Do not touch the ends of the pipe. Contamination of the pipe ends could effect the fusion joint.

- Restart the machine and log into the application. Touch DataLogger operation and then the return button to go back to the last screen in the operation.



- Fully raise the facer.

Press **Next** to go to the next screen.

Press **Back** to go to the previous screen.

Operation

DataLogger Operation

The image shows a handheld device screen with a green header bar. The header bar contains the McELROY logo on the left and the text 'Fusion Parameters' on the right. Below the header, the text 'Butt Fusion' and 'ASTM F2620-12' is displayed. A table with three columns: 'Parameter', 'Value', and 'Unit' is shown. The table contains the following data:

Parameter	Value	Unit
Heater plate temperature	400 - 450	°F
Bead-up pressure	1738	psi
Minimum bead size	14.2	mm
Heat soak / Drag pressure	100	psi
Heat soak time	00:13:37	h:m:s
Heater removal time	25	sec
Fusion pressure	1738	psi
Fusion/Cooling time	00:13:18	h:m:s

At the bottom of the screen, there is a green bar with a home icon on the left, the text '<< Back' in the center, and 'Start Log...' on the right. The date and time '6/9/2015 6:55:01 PM' are displayed in the bottom right corner.

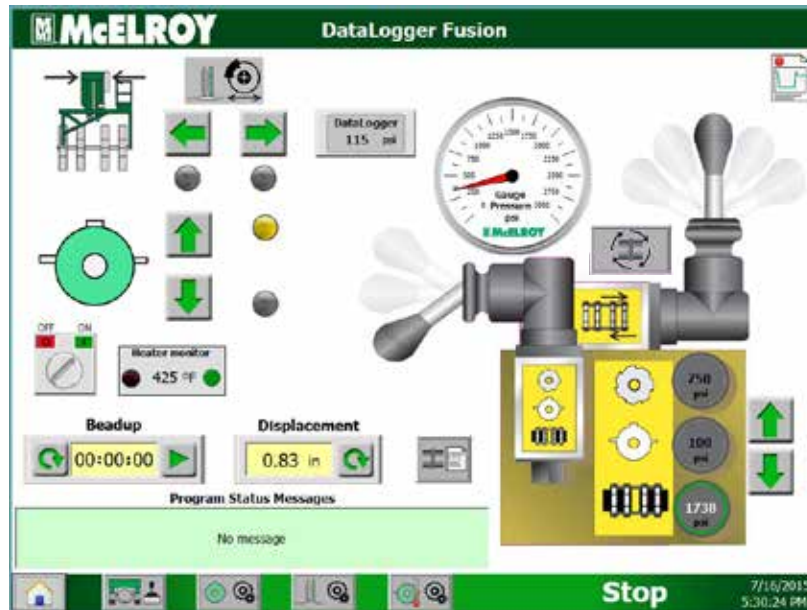
Fusion Parameters:

On this screen, the fusion standard selected and the calculated fusion values are displayed. When you are ready to start the fusion, touch **Start Log...**

PH05418-04-15-16

Operation

DataLogger Operation



PH05419-04-15-16

DataLogger Fusion:

On this screen, the heating and fusion operations are completed. All the controls are available to control the heater and the fusion carriage.

- Lower the heater to end of travel between the pipe ends. Ensure the heater is all the way down.
- Close the carriage under fusion pressure. Allow pipe to bead up according to the fusion standard. The stopwatch starts automatically to track bead up time.
- Shift the pressure selector to heating pressure. Allow pressure to decrease to drag pressure.
- If heating pressure is not required, shift the carriage control valve to neutral position.
- Allow the pipe to soak according to the fusion standard.
- When the soak cycle is complete, touch the **Fusion Button** to complete the fusion. The **Fusion Button** will not appear until the minimum soak time has elapsed per fusion standard.



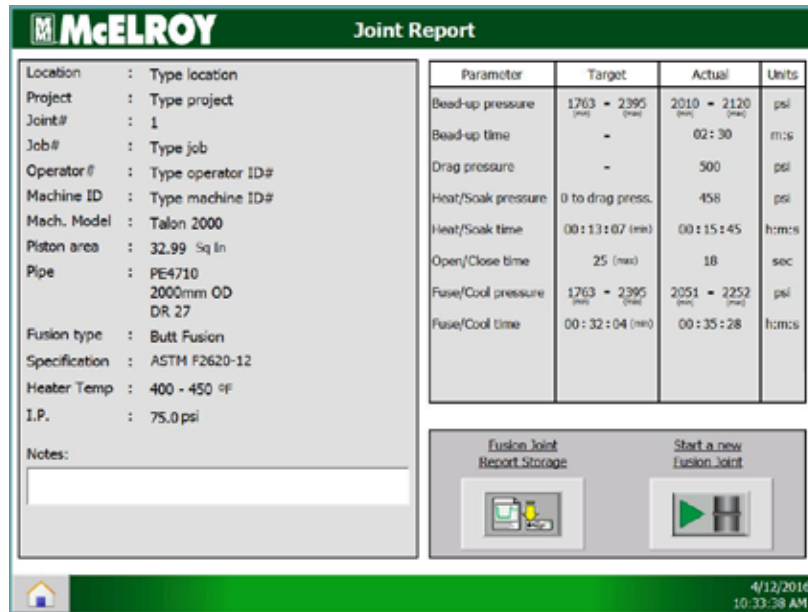
- Allow the fusion joint to cool for the fusion standard cooling time.
- After the cooling has been completed, touch **Stop** at the bottom of the screen to end the logging of the fusion joint.

IMPORTANT: If the joint needs to be aborted, press the **Stop** button.

- The Joint Report Summary screen will appear.

Operation

DataLogger Operation



The screenshot shows the 'McELROY Joint Report' interface. It is divided into three main sections: a left sidebar for metadata, a central table for fusion parameters, and a bottom section for storage and navigation.

McELROY Joint Report

Left Sidebar:

- Location : Type location
- Project : Type project
- Joint# : 1
- Job# : Type job
- Operator# : Type operator ID#
- Machine ID : Type machine ID#
- Mach. Model : Talon 2000
- Piston area : 32.99 Sq In
- Pipe : PE4710
2000mm OD
DR 27
- Fusion type : Butt Fusion
- Specification : ASTM F2620-12
- Heater Temp : 400 - 450 °F
- I.P. : 75.0 psi
- Notes: [Text area]

Central Table:

Parameter	Target	Actual	Units
Bead-up pressure	1763 - 2395 (max)	2010 - 2120 (max)	psi
Bead-up time	-	02:30	min:s
Drag pressure	-	500	psi
Heat/Soak pressure	0 to drag press.	458	psi
Heat/Soak time	00:13:07 (min)	00:15:45	h:m:s
Open/Close time	25 (max)	18	sec
Fuse/Cool pressure	1763 - 2395 (max)	2051 - 2252 (max)	psi
Fuse/Cool time	00:32:04 (min)	00:35:28	h:m:s

Bottom Section:

- Fusion Joint Report Storage:** A button with a folder icon.
- Start a new fusion joint:** A button with a play icon.

Status Bar: 4/12/2016 10:33:38 AM

Joint Report:

After the fusion joint is complete, the joint report will display. The report will show information about the fusion joint with a table of fusion parameters and the actual recorded values for those parameters.

Store the joint report by touching the Fusion Joint Report Storage button.



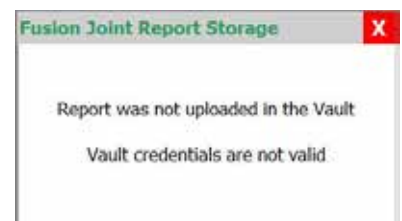
If you receive this message box, you do not have a USB device connected. Ensure you have a valid USB device connected to the HMI and touch the Fusion Joint Report Storage button again.



If you receive this message box, the joint report was not stored correctly.



If you receive this message box, the credentials used to log into DataLogger Vault



PH05497-04-15-16

PH05500-04-15-16

PH05499-04-15-16

PH05498-04-15-16

Operation

DataLogger Operation

Joint Report

Location	: Type location
Project	: Type project
Joint#	: 1
Job#	: Type job
Operator #	: Type operator ID#
Machine ID	: Type machine ID#
Mech. Model	: Talon 2000
Piston area	: 32.99 Sq In
Pipe	: PE4710 2000mm OD DR 27
Fusion type	: Butt Fusion
Specification	: ASTM F2620-12
Heater Temp	: 400 - 450 °F
I.P.	: 75.0 psi

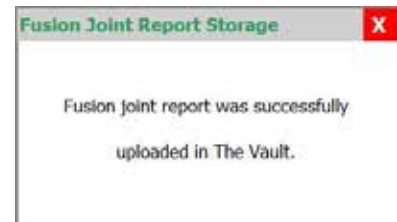
Notes:

Fusion Joint Report Storage

Start a new Fusion Joint

4/12/2016
10:33:38 AM

If you receive this message box, the joint report was successfully stored and sent to the DataLogger Vault. A new fusion joint can be performed.



To perform another fusion joint, touch Start a New Fusion Joint.
The Joint Report Summary screen will be displayed.



Operation

DataLogger Operation

The screenshot shows the 'McELROY Joint Report Summary' screen. It lists the following parameters: Location: Job Site 1, Project: Field Testing, Joint#: 1, Job#: B742, Operator#: 2345, Machine ID: C000000, Mech. Model: Talon 2000, Piston area: 32.99 Sq In, Pipe: PE4710, 2000mm OD, DR 26, Fusion type: Butt Fusion, Specification: ASTM F2620-12, and I.P.: 75.0psi. A 'DataLogger' dialog box is overlaid, asking 'Would you like to use the stored parameters?' with 'Yes' and 'No' buttons. The bottom status bar shows a home icon, the date '6/30/2015', and the time '6:58:41 PM'.

McELROY Joint Report Summary	
Location	: Job Site 1
Project	: Field Testing
Joint#	: 1
Job#	: B742
Operator#	: 2345
Machine ID	: C000000
Mech. Model	: Talon 2000
Piston area	: 32.99 Sq In
Pipe	: PE4710 2000mm OD DR 26
Fusion type	: Butt Fusion
Specification	: ASTM F2620-12
I.P.	: 75.0psi

DataLogger

Would you like to use the stored parameters?

Yes No

6/30/2015 6:58:41 PM

Joint Report Summary:

After storing the joint report and touching the Start a New Fusion Joint button, the Joint Report Summary screen will be displayed with fusion parameters used with the last fusion joint.

A dialog box will appear asking if you would like to use the stored parameters for the next fusion joint. Touch **Yes** to use the stored parameters and touch **No** to enter new parameters for the next fusion joint.

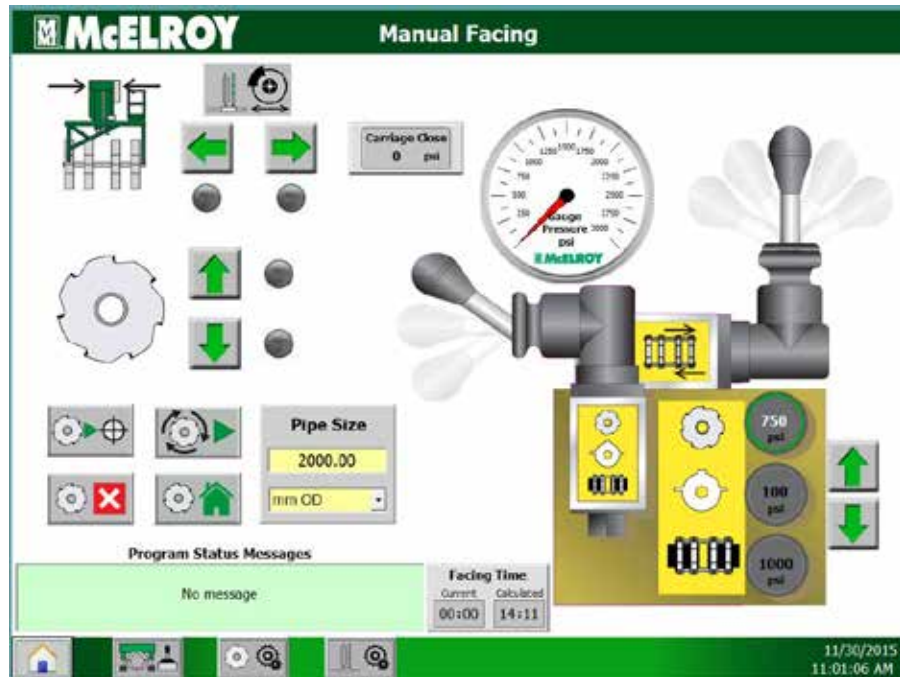
Touching **Yes** will display the Machine Controls screen so that fused pipe can be removed and new pipe can be loaded into the machine. Touching **No** will display the screens for entering new parameters. After new parameters are entered, the Machine Controls screen will display allowing for pipe removal and loading.

Remove Fused Pipe:

- The pipe can be lowered and released from the carriage using the machine controls.
- Load a new pipe into the movable jaws and proceed with the next fusion joint.

Operation

Manual Operation



- Touch Manual Operation and then the Manual Fusion button.



- Turn the heater to the on position.



- Touch the Home button.



- Touch Manual Operation and then the Manual Facing button.



Manual Facing:

The Manual Facing screen has controls for the facer and indexer. The hydraulic pressure controls are available to operate the carriage and have the ability to select between the 3 hydraulic pressures.

NOTICE: The indexer must be calibrated before the first fusion of the work day to ensure the interlock's location is set to prevent accidental crashing of the indexer components against the components of the vehicle.

To calibrate the indexer position, refer to the Set Up Talon 2000 section of this manual.

PH05348-04-15-16



Operation

Manual Operation

Facing the Pipe:

- Enter the pipe size of the pipe being fused. Choose the appropriate unit of measure for the pipe size. There is a pipe size reference button at the bottom of the screen if needed for reference.
- Ensure the carriage is closed and the facer is in the start position.

If the facer is not in the start position, open the carriage and touch the facer start position button to send the facer cutter to the start position. Close the carriage against the facer stops.

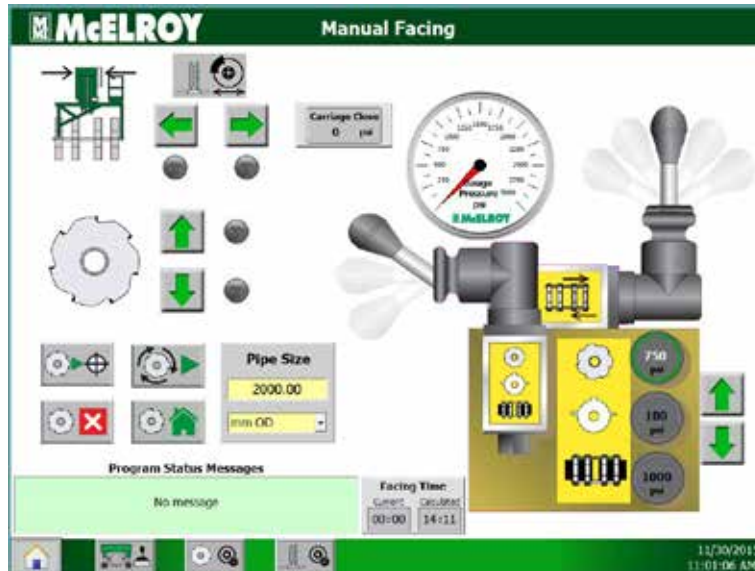
- Touch the facer start button to start the facer operation. Touch the facer start button again to pause the facing operation. Pausing the facing operation will stop the cutter in its current location. The cutter will still rotate while paused.

If there are any issues with the facing operation, touch the facer abort button to abort the facing operation.

- After the facing operation is complete, Open the carriage and index right slightly.
- Touch the facer home button to send the facer to the home position.

Operation

Manual Operation



PH05348-04-15-16

Drag Pressure:

Drag pressure should be determined using the following procedure:

- Move the carriage so that the faced pipe ends are approximately 3.5" apart.
- Touch the carriage control valve middle (neutral) position.
- Touch the heating mode, and set the middle pressure reducing valve to its lowest pressure.
- Touch the carriage control valve left direction.
- Increase the pressure on the middle reducing valve until the carriage moves.
- Reduce the heating pressure valve until the carriage is just barely moving.
- Record this actual drag pressure and add it to the calculated theoretical fusion pressure and set the fusion pressure to that value.

Check Alignment:

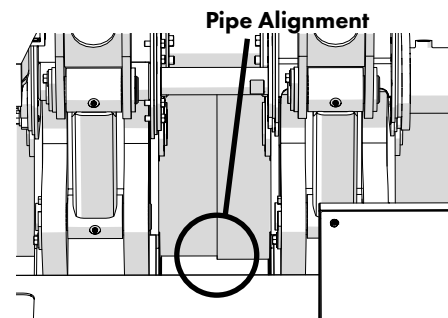
Check the alignment of the pipe using the following procedure:

- With the pipe ends together under facing pressure, observe the outside diameter of the pipe ends for alignment.
- If the pipe ends are not in alignment, increase the pressure of the jaw clamps of the pipe on the low side using Machine Controls screen.

Slip Check:

Perform a slip check using the following procedure:

- Touch the fusion pressure position on the pressure selector.
- Close the carriage by touching the far left position of the carriage control valve.
- Observe if the pipe slips in the jaws of the carriage. If the pipe slips, the pipe will need to be reloaded and facing procedures repeated.
- Open the carriage completely by touch the carriage control valve right direction.



CD01623-04-15-16

Operation

Manual Operation

- Lower the facer.
- Shut off the fusion machine.

⚠WARNING Hydraulically operated equipment is operated under pressure. Anything caught in the machine will be crushed. Keep fingers, feet, arms, legs, and head out of the machine while operated.

- Visually inspect the pipe ends for a smooth cut appearance. Clear any pipe shaving from the inside of the pipe. Deburr the pipe ends.

NOTICE: Remove shavings that pose a risk of contamination. If using a vacuum, use caution while vacuuming close to the ground so not to introduce dirt/dust onto the pipe ends.

IMPORTANT: A tarp can be used under the fusion area to remove shavings.

⚠CAUTION Inside of pipe is slippery and you could fall resulting in minor to moderate injury. Use caution by using arms to balance while moving inside the pipe.

NOTICE: Do not touch the ends of the pipe. Contamination of the pipe ends could effect the fusion joint.

- Restart the machine and log into the application. Touch Manual Operation and then Manual Facing screen.
- Fully raise the facer.

Operation

Manual Operation



Heating the Pipe:

- Set the temperature according to the temperature range specified in the fusion procedure used.
- Allow the heater to reach the temperature range.
- Lower the heater to end of travel between the pipe ends. Ensure the heater is all the way down.
- Close the carriage under fusion pressure. Allow pipe to bead up according to the fusion procedure.
- Shift the pressure selector to heating pressure. Allow pressure to decrease to drag pressure.
- If heating pressure is not required, shift the carriage control valve to neutral position.
- The Fusion Button will appear after pressure has reached drag pressure.
- Allow the pipe to soak according to the fusion procedure. The stopwatch can be used to keep track of time.
- When the soak cycle is complete, touch The Fusion Button to remove the heater. The machine will move on its own in order to complete the fusion. The machine will remove the heater and close the carriage under fusion pressure.
- Allow fusion joint to cool according to the fusion procedure.
- After the cooling time has been completed, shift the carriage to neutral, the pipe can be removed and a new pipe can be loaded to perform another fusion joint.



PH05387-04-15-16

Special Operation - Jaw Configuration

Changing Jaw Configuration

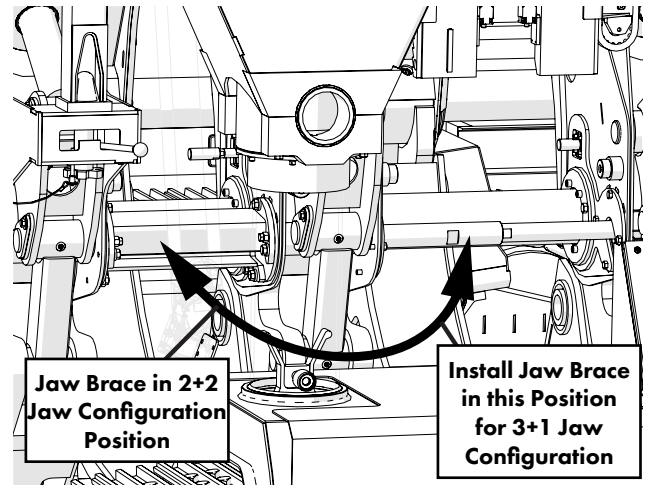
The fusion machine can be used with a 2 movable jaw/2 fixed jaw configuration or a 3 movable jaw/1 fixed jaw configuration.

To change configuration:

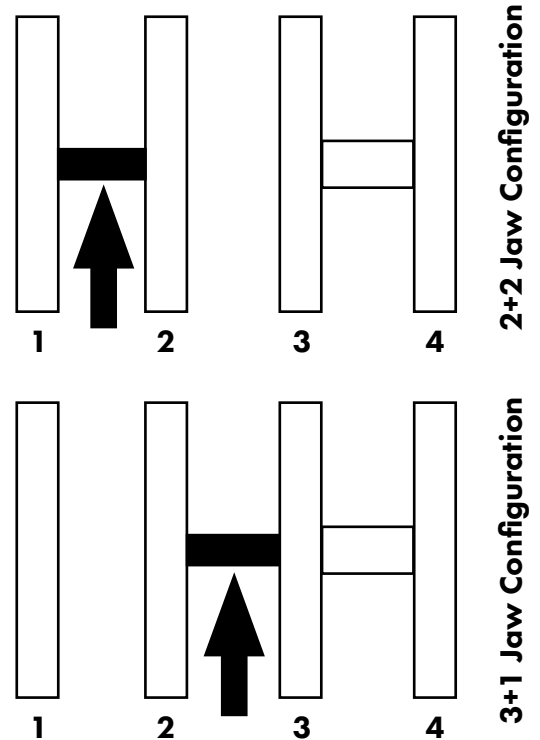
Select the desired configuration from the **Machine Control** screen.

Remove the two jaw braces using included tools in the toolbox and install them in the positions that match the selected configuration. When removing the jaw brace, the inner fixed jaw will need to be moved slightly to allow the brace to be removed once it has been unbolted.

When changing configurations, the movable jaws will need to be moved to close the distance between the two jaws so that the jaw braces will connect between the two jaws.



CD001313-04-15-16

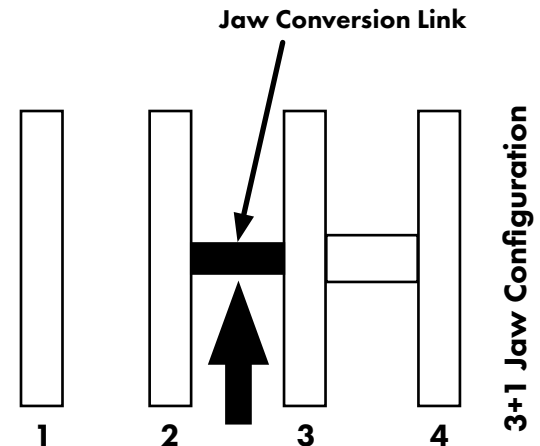
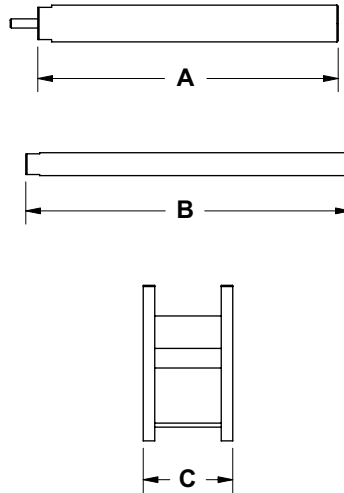


Special Operation - Stub Ends

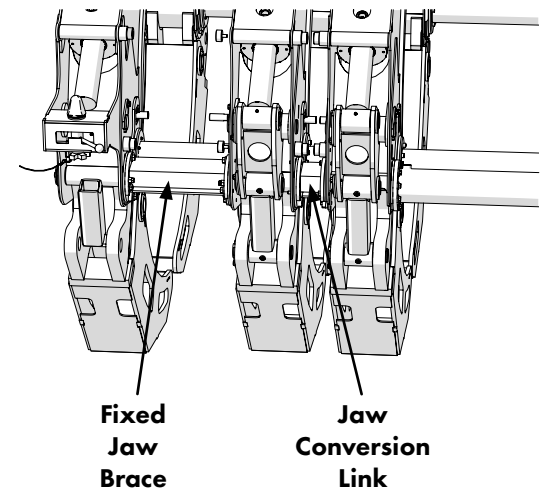
Configure Machine for Stub End Fusion

Install the jaw conversion links (C) between jaws 2 and 3 on both sides that is the appropriate size for the stub end that is being fused.

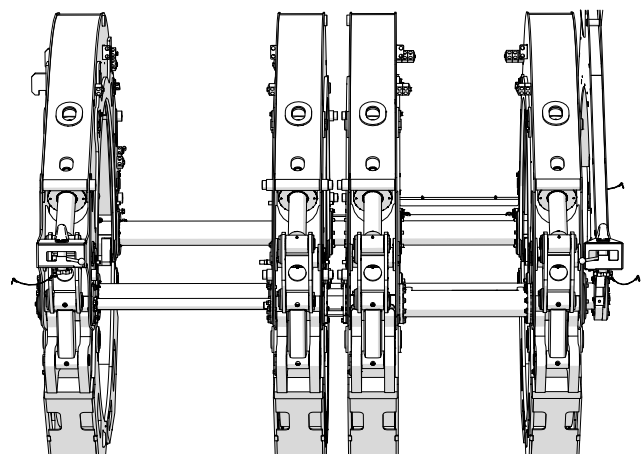
STUB END LENGTH (INCH)	A	B	C
15-16	16.35	17 1/2	4.88
14-15	15.35	16 1/2	5.88
13-14	14.35	15 1/2	6.88
12-13	13.35	14 1/2	7.88
11-12	12.35	13 1/2	8.88
10-11	11.35	12 1/2	9.88
9-10	10.35	11 1/2	10.88
8-9	9.35	10 1/2	11.88
7-8	8.35	9 1/2	12.88
6-7	7.35	8 1/2	13.88



Remove the fixed jaw braces from between the 1 and 2 jaws on both sides.



CD02503-05-13-20



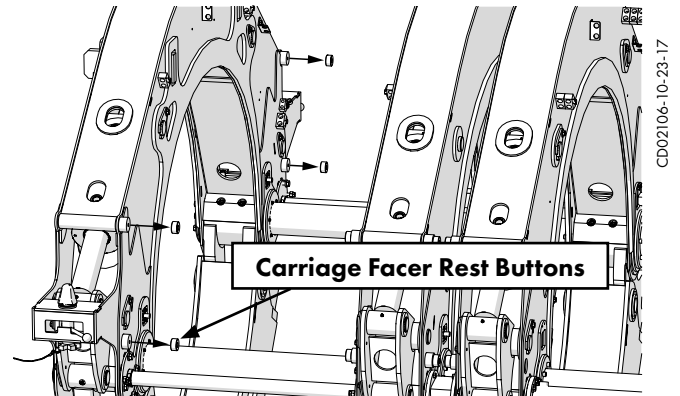
CD02106-10-23-17

Some machine assemblies may be hidden in these illustrations for visibility of components in the procedure.

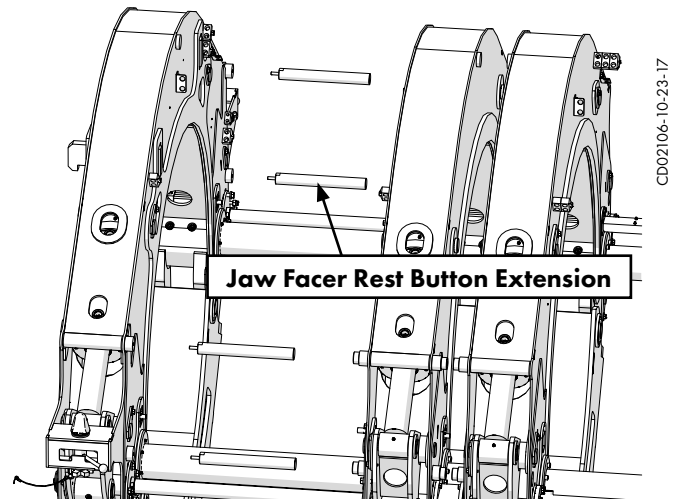
Special Operation - Stub Ends

Configure Machine for Stub End Fusion

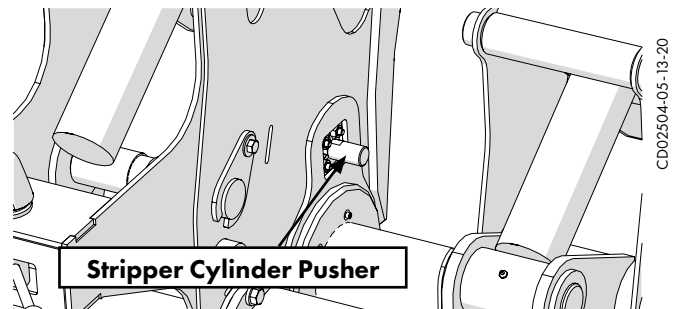
Remove the carriage facer rest buttons from the outer fixed jaw (#1 jaw).



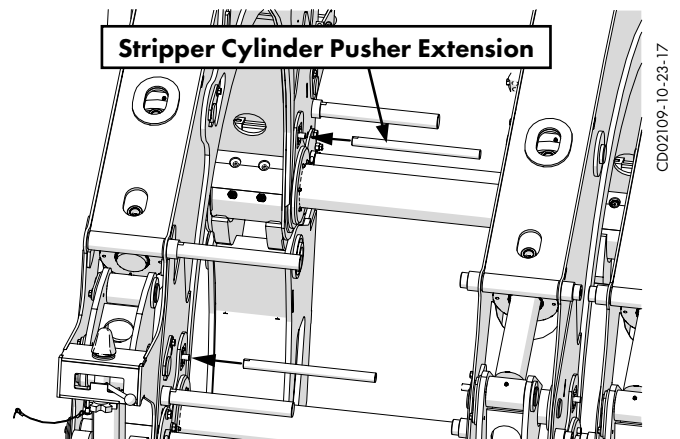
Install the jaw facer rest button extensions (A) appropriate for the length stub end being fused.



Remove the stripper cylinder pushers from the outer fixed jaw (#1 jaw).



Install the stripper cylinder pusher extensions (B) appropriate for the length stub end being fused.



Special Operation - Stub Ends

Configure Machine for Stub End Fusion

On the Machine Control screen, press the Jaw Configuration button to change the configuration from 2 + 2 to 3 + 1.

To calibrate the indexer position for 3 + 1:

- Navigate to the Indexer Calibration screen.



- Open the carriage. Position the indexer so that the facer is between the #1 and #2 jaws.
- Touch the facer start position button to move the facer into start position.



If the facer does not move when attempting to move the facer, an interlock is preventing the movement based on the indexers current calibration. The facer interlock can be disabled to allow the facer to move in between the jaws.

NOTICE: Disabling machine interlocks will not prevent crashing of components while moving the indexer and its components. Use care when moving indexer components to prevent accidental crashing and damage.

- Press the Calibration Interlock to disable the interlocks.



- Close the carriage against the facer stops.
- Touch the indexer calibration button.



The indexer is now calibrated to the 3 + 1 carriage.

The interlocks are automatically enabled when leaving the Indexer Calibration screen.

Special Operation - Stub Ends

Configure Machine for Stub End Fusion

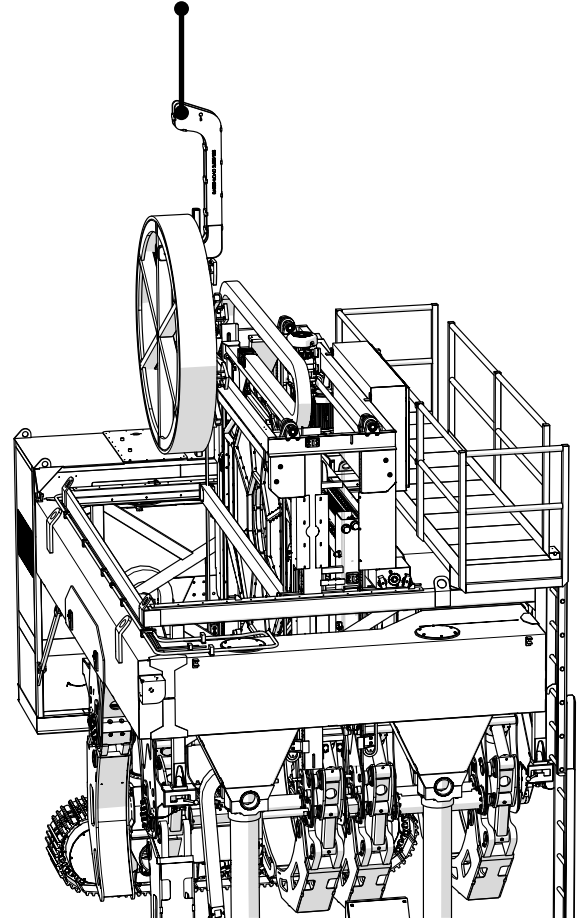
Attach the lifting fixture assembly to the stub end holder using the two pins and secure it to the holder.

Use an overhead lifting device of adequate load rating attached to the lifting fixture assembly and lift the stub end holder.

Position the indexer towards the movable jaw end of the machine.

Lift the stub end holder above the machine and position it between the #1 and #2 jaws.

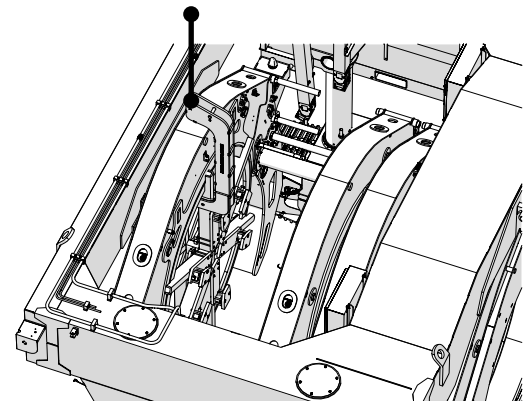
Open the quarter jaws of the #1 jaw.



CD02101-10-23-17

Lower the stub end holder and place the holder in the #1 jaw.

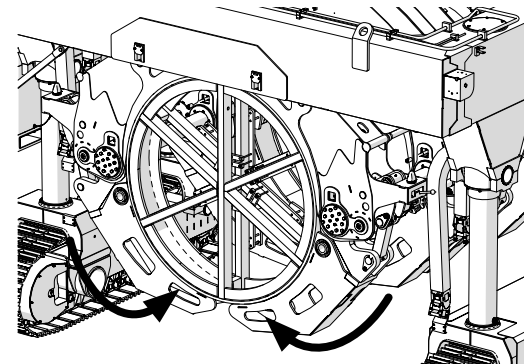
Ensure the stops of the holder rest on the inner surface of the #1 jaw.



CD02106-10-23-17

Close the quarter jaws of jaw #1 and secure the holder in the jaw.

Remove and lift away the lifting fixture assembly.



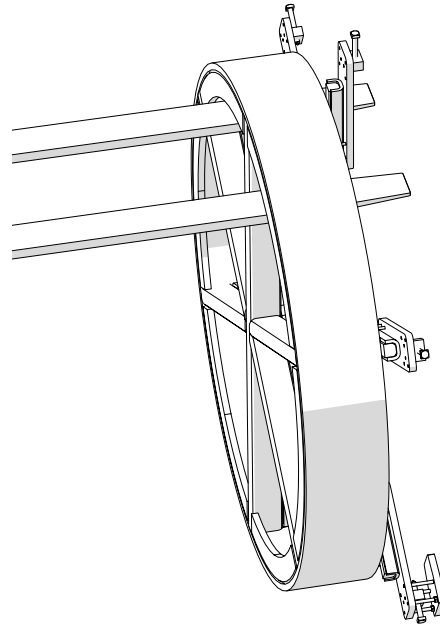
CD02112-10-23-17

Special Operation - Stub Ends

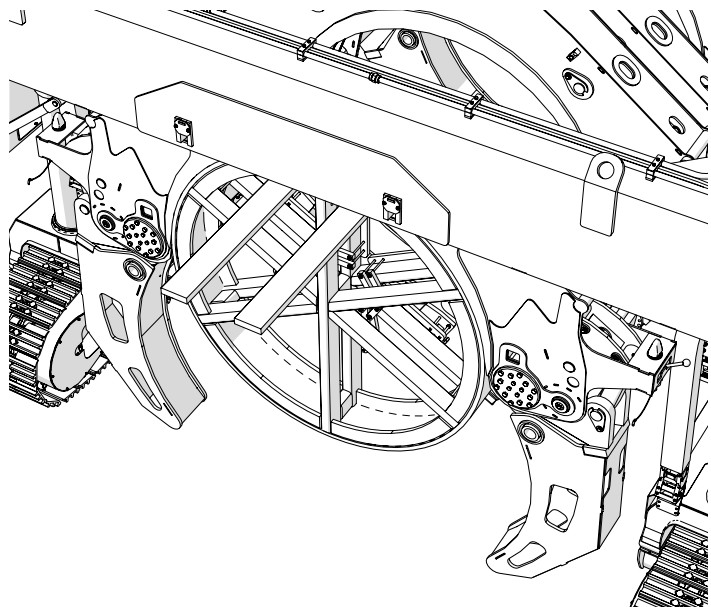
Configure Machine for Stub End Fusion

Using a forklift of proper load rating, lift the stub end holder with the forks on each side of the top spoke of the holder.

Drive the holder into position below the upper jaw of jaw #1.

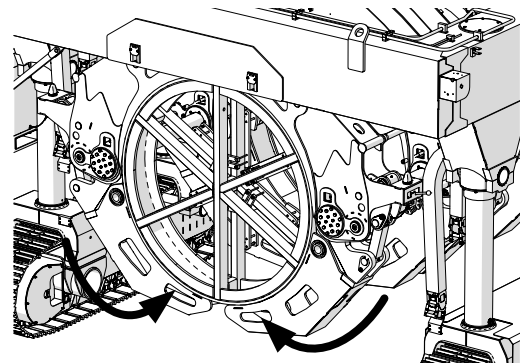


Lift the holder up and ensure the stops of the holder rest on the inner surface of jaw #1.



Close the quarter jaws of jaw #1 and secure the holder in the jaw.

Lower the forks enough to drive the forklift away from the machine.



CD002112-10-23-17

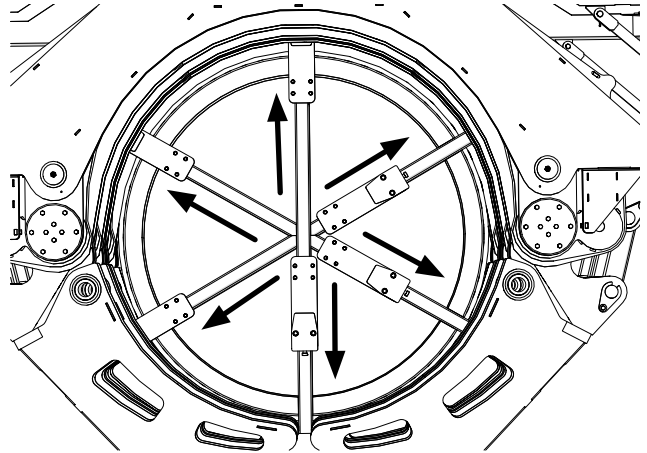
Special Operation - Stub Ends

Configure Machine for Stub End Fusion

Loosen the slide clamp assemblies and move the clamps to the outer position. Leave approximately 1 inch for the flange, this will allow enough room for the flange to be clamped on.

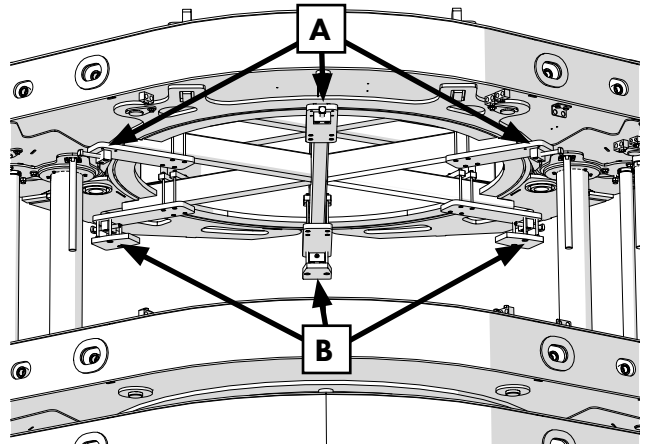
IMPORTANT: Measuring the stub end and using that measurement to locate the distance from the center the slide clamp assembly needs to be positioned. Doing this will minimize the amount of alignment adjustments that will need to be done once the stub end is installed in the holder.

Tighten down the bolts on the slide clamp assemblies.



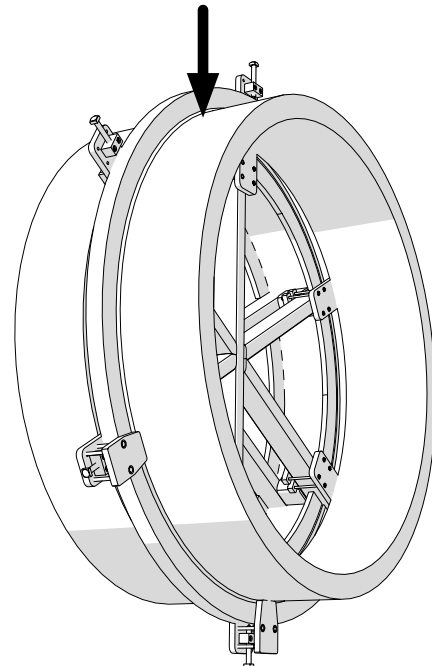
Remove the upper 3 over clamp plates (A) from the upper slide clamp assemblies.

Loosen the bottom 3 over clamp plates (B) from the lower slide clamp assemblies.



Loosen the holder alignment bolts roughly the same amount on each clamp.

Place the stub end into the holder ensuring the lower over clamp plates are over the flange of the stub end.

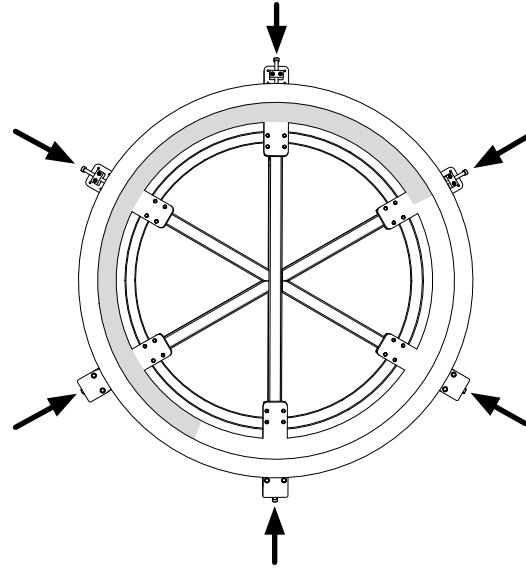


Special Operation - Stub Ends

Configure Machine for Stub End Fusion

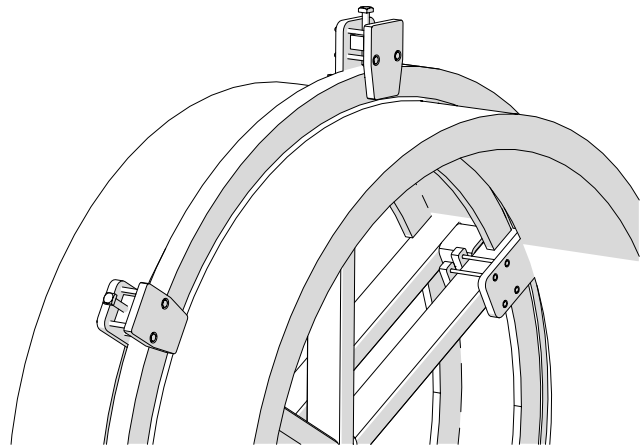
Attach the 3 over clamp plates loosely.

Adjust the alignment bolts and roughly center the stub end.



CD02116-10-23-17

Tighten the over clamp plates.

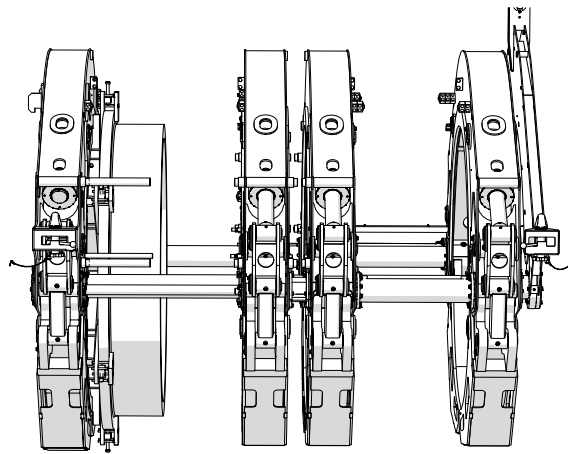


CD02117-10-23-17

Load pipe into the carriage.

Confirm the alignment between the stub end and the pipe.

Make adjustments to the alignment if needed and reconfirm the alignment.



CD02112-10-23-17

Perform a fusion of the stub end and pipe using the appropriate fusion standard.

TX05407-06-11-20

Transport Talon

Transport Talon

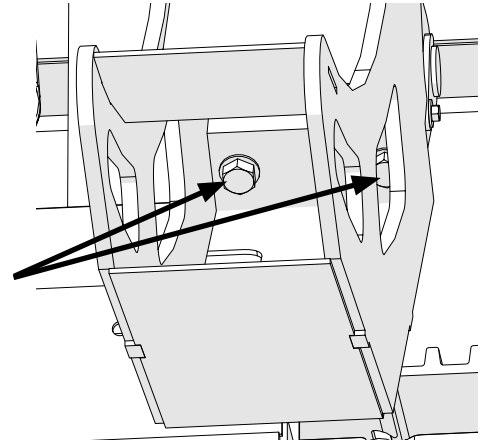
The Talon must be disassembled and set into a shipping configuration before transportation.

- Set the facer to the home position and raise the heater up to the end of travel. Move the indexer right to the end of travel.

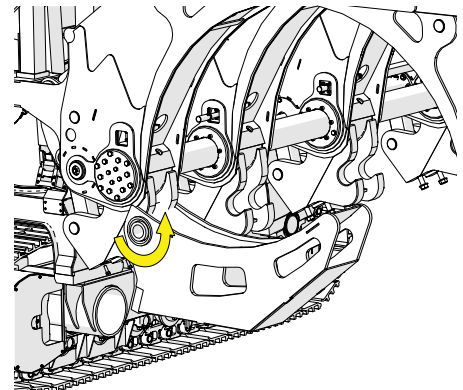
Remove Quarter Jaws:

The quarter jaws must be removed before shipping.

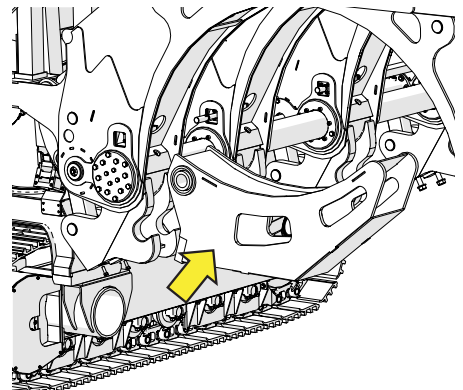
- Raise the machine up using the **Machine Elevation** button on the **Machine Controls** screen.
- Close all four sets of jaws so the lower jaw pivot is in the proper position for quarter jaw removal.
- Shut down the machine.
- Remove the two bolts and washers that secure the quarter jaw to the lower jaw pivot.
- Lift the quarter jaw using two people and rotate the jaw up on the pivot
- Lift the jaw up and away from the lower jaw pivot.
- Repeat these steps to remove all other quarter jaws on the carriage.



CD01284-04-15-16



CD01317-04-15-16



CD01318-04-15-16

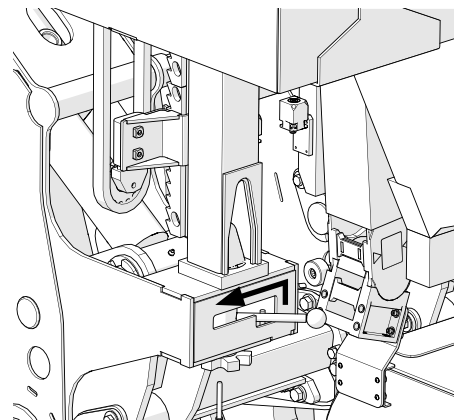
Transport Talon

Disconnect the 2 power cables and the 2 data cables.

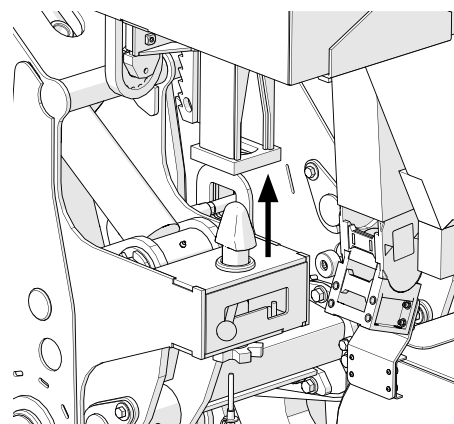
Install the Data Jumper Connector to the vehicle.

Remove the extension ladders from the indexer assembly and store on the indexer skid.

Remove the pins and loosen the locking nuts on the twist locks. Turn all 4 quarter twist locks to the unlocked position.



CD01280-04-15-16



CD01278-04-15-16

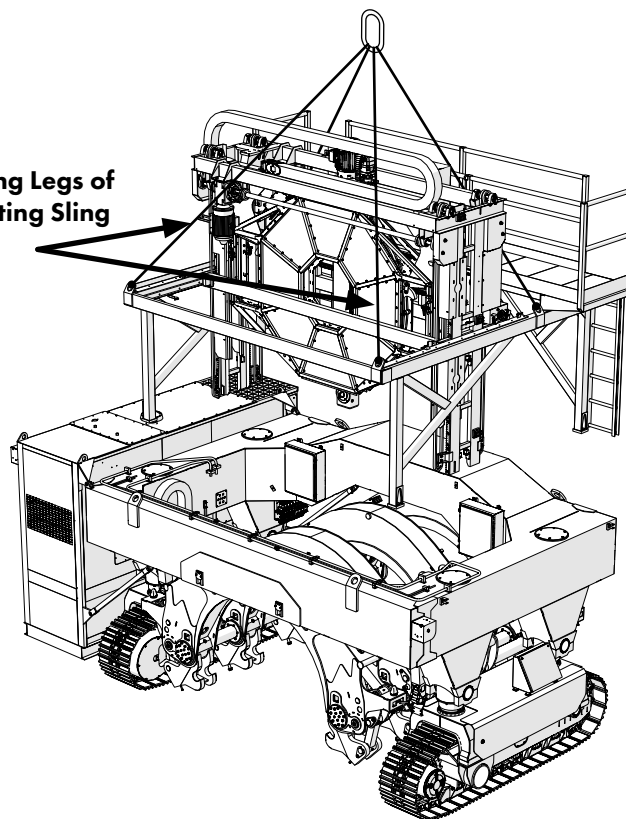
⚠ WARNING

Follow all applicable federal, state, local, and industry specific regulations including the lifting safety warnings in the General Safety section of this manual when lifting.

Connect the lifting sling to the indexer assembly with the two long legs (**Blue**) of the sling connected to the two lift points away from the catwalk and the short legs (**Yellow**) connected near the catwalk

Connect the sling to an appropriately rated piece of overhead lifting equipment.

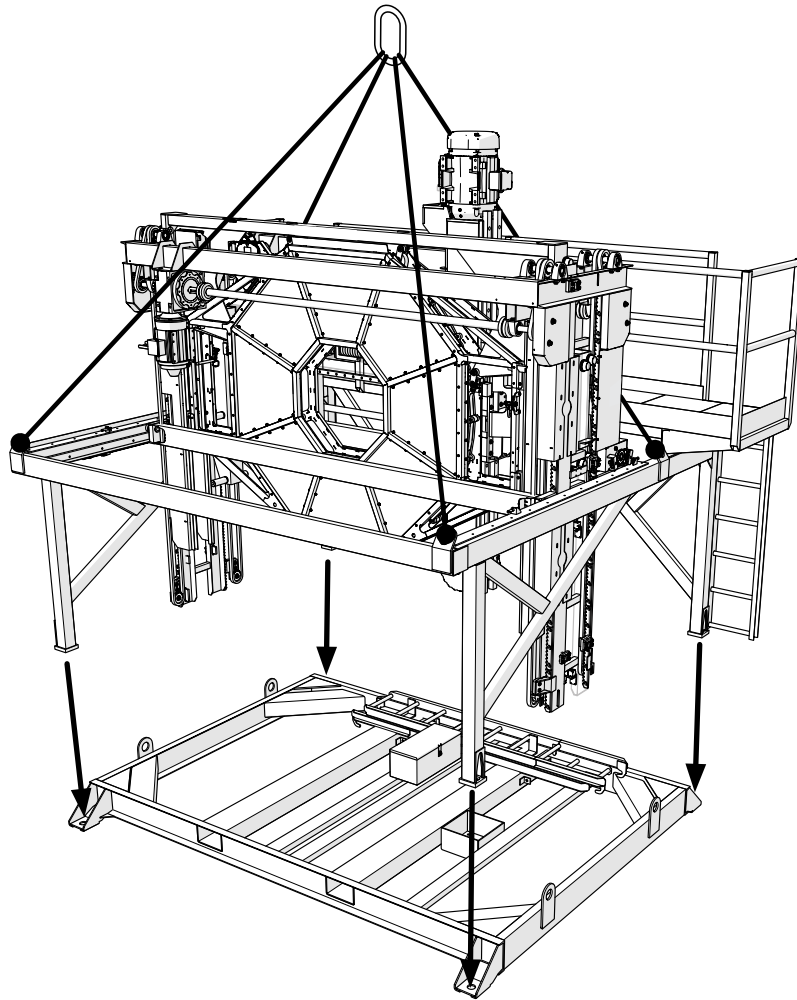
Long Legs of Lifting Sling



CD01277-04-15-16

Transport Talon

Attach the Indexer Assembly to Indexer Skid

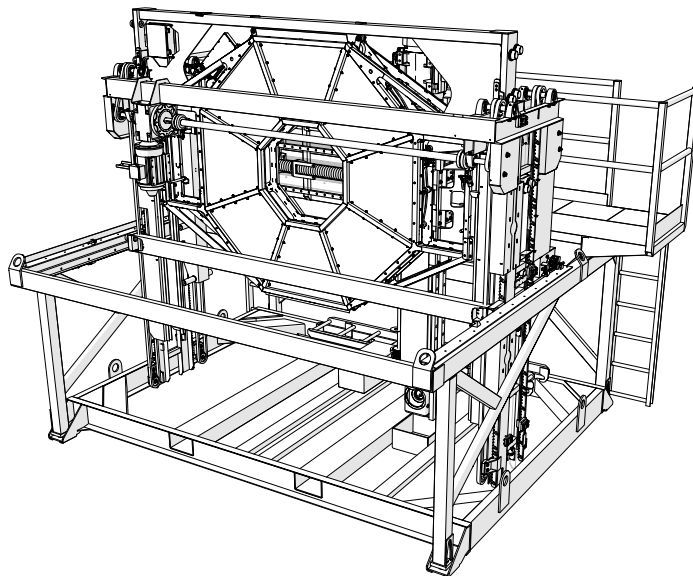


- Position the catwalk over the extension ladders. Lower the indexer assembly on the indexer skid. Ensure the legs of the indexer assembly fit into the four corners of the indexer skid.
- Bolt the indexer assembly to the indexer skid.




CD01322-04-15-16

Transport Talon




Store Facer on Indexer Skid



CD01321-04-15-16

- Lower the machine down using the **Machine Elevation** button on the **Machine Controls** screen.
- Ensure vehicle is close enough for the umbilical cables to reach the indexer junction box. If not close enough, drive the vehicle to the skid.
- Shut down the machine if not shut down already.
- Attached the indexer to vehicle using umbilical cables.
- Start the machine.
- Log into the Talon Control Application.
- Touch the **Settings** button  and then touch the **Shipping** button. 
- Touch the **Machine Shipping** button to disable the appropriate interlocks and enable shipping controls to complete the shipping configuration. 

NOTICE: When lowering indexer components on to the indexer skid, do not run components into the skid. Damage to components could occur.

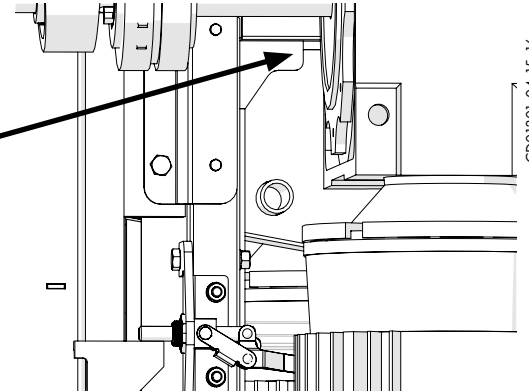
- Touch the **Facer Shipping Position** button to send the facer near the shipping position. 
- Shut down the machine.
- Remove both facer cutters from the indexer assembly. Store the cutters in the original shipping crates.
- Start the machine and log into the Talon Control Application.
- Touch the **Settings** button  and then touch the **Shipping** button. 
- Touch the **Machine Shipping** button, and use facer controls to jog the facer into position on the indexer skid. Position the end of the facer boom into the box location of the indexer skid.

Transport Talon

Store Heater on Indexer Skid

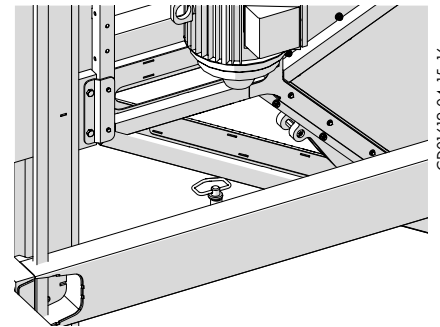
- Raise the heater up into the heat shield. Leave the heater several inches short of the Heat Shield Rest.

Heat Shield Rest



- Remove the heater rest pins from the provided storage location and install the pins into hole below the Heat Shield Rest on both ends of the heater.

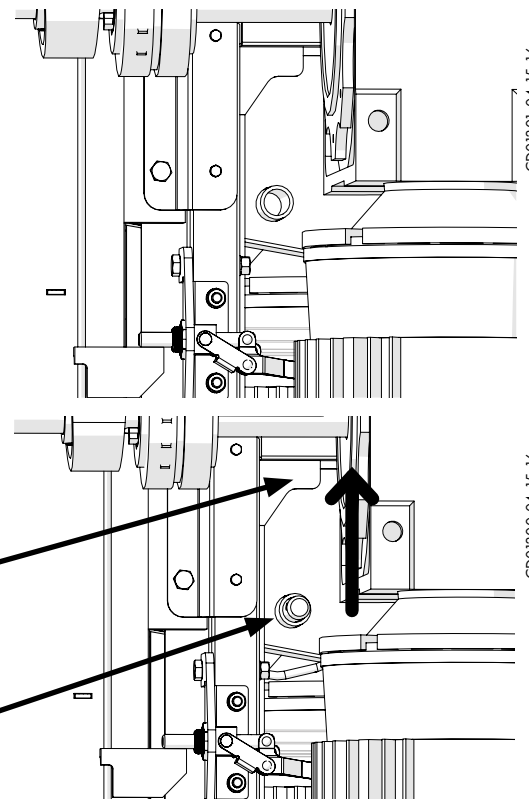
Heater Rest Pin Storage Location



- Raise the heater until the Heater Rest Pin is in contact with the Heater Shield Rest.

Heat Shield Rest

Heater Rest Pin

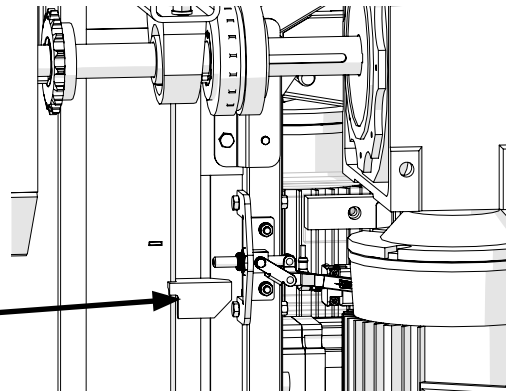


Transport Talon

Store Heater on Indexer Skid (continued)

- Raise the heater slightly until the Heater Shield Lock is off of the Heat Shield Stop.

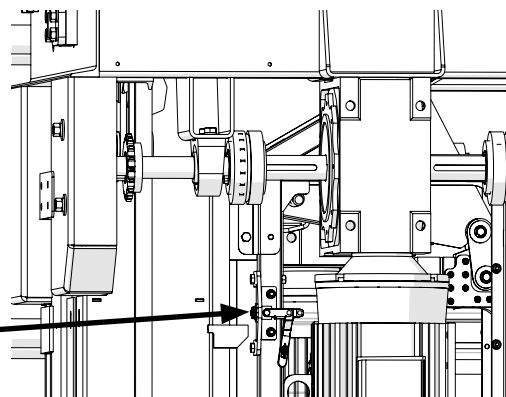
Heat Shield
Stop



CD01297-04-15-16

- Toggle the Heat Shield Lock to retract the lock.

Toggle Heat
Shield Lock



CD01296-04-15-16

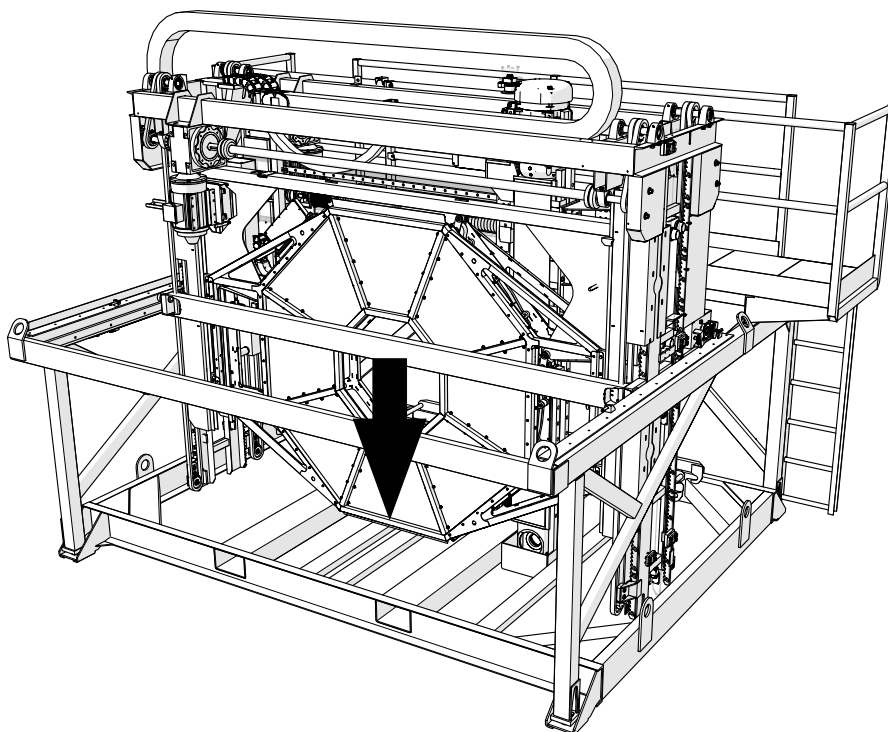
- Lower the heater and heat shield down until the heater rest on the cross member of the indexer skid.

NOTICE: When lowering indexer components on to the indexer skid, do not run components into the skid. Damage to components could occur.

- Close the application.



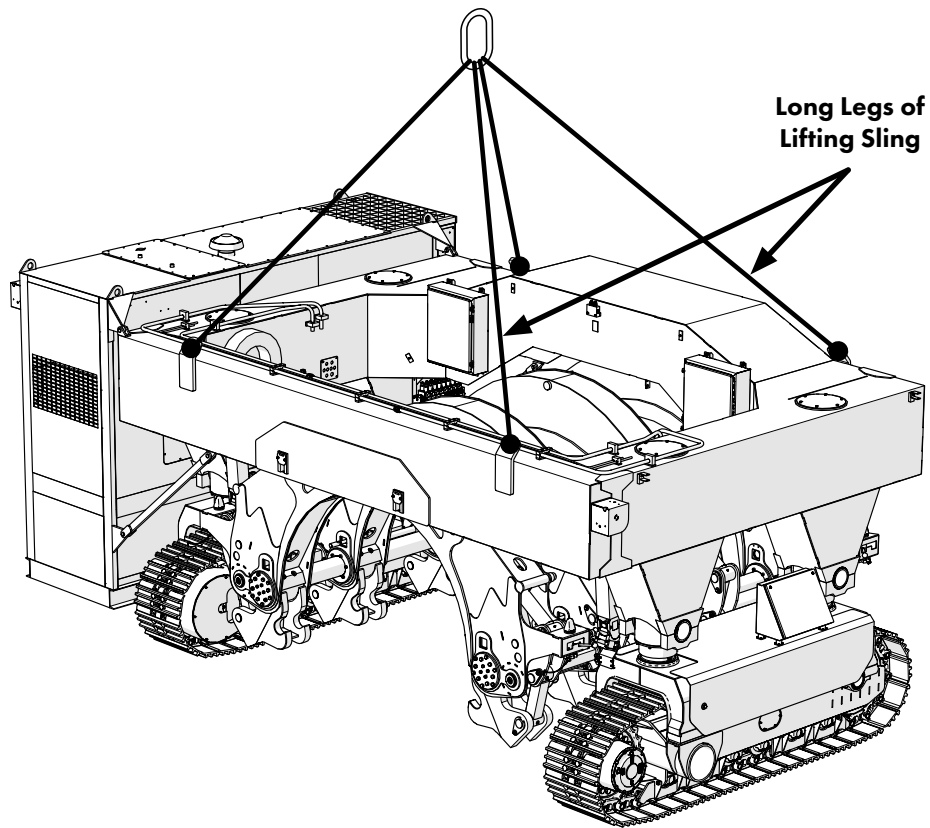
- Shut down machine.
- Disconnect the umbilical cable from the indexer assembly and from the vehicle.



CD01319-04-15-16

Transport Talon

Lifting Vehicle



CD01323-04-15-16

⚠ WARNING Follow all applicable federal, state, local, and industry specific regulations including the lifting safety warnings in the General Safety section of this manual when lifting.

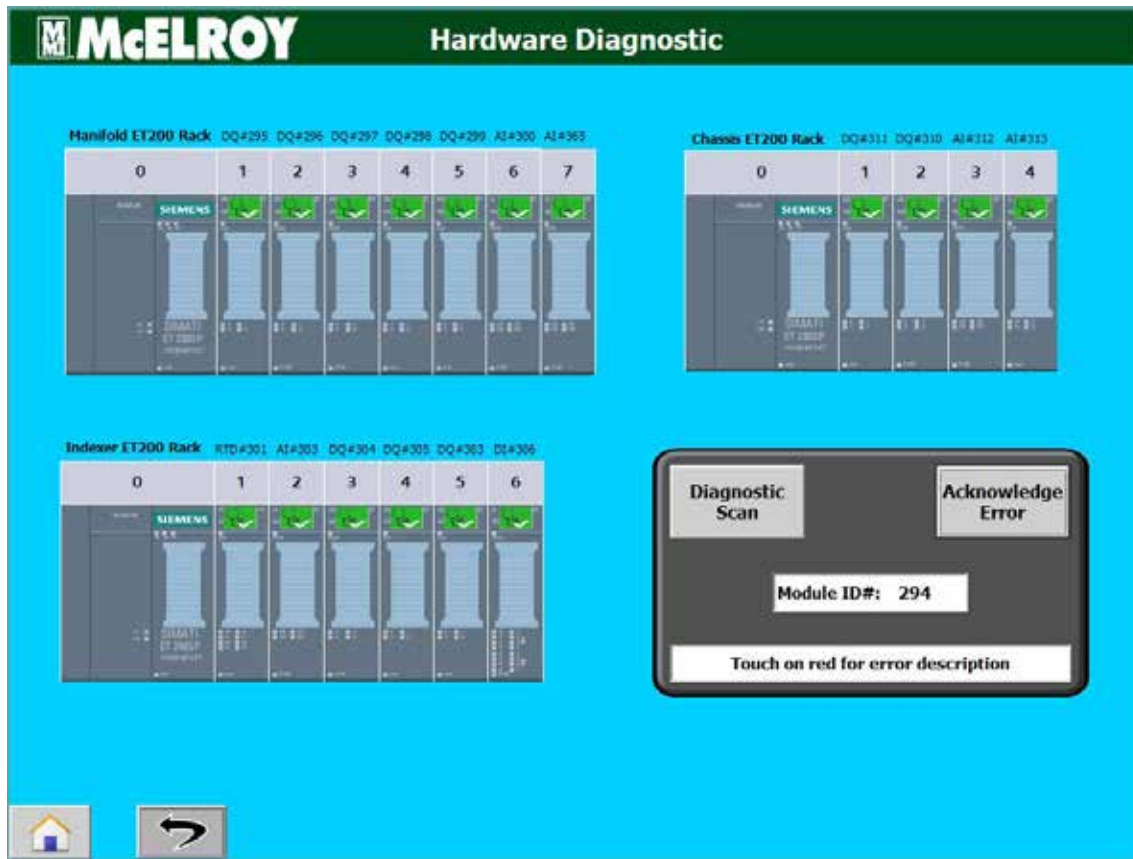
Connect the lifting sling to the vehicle with the two long legs (White) of the sling connected to the two lift points on the operator side and the short legs (Yellow) connected near the power pack.

Connect the sling to an appropriately rated piece of overhead lifting equipment.

Lift and load the vehicle onto the transport vehicle.

Diagnostics

Talon 2000 Interface



PH05402-04-15-16

Hardware Diagnostics Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Page

Opens the previous page.



Manifold Rack

Displays the I/O modules on the manifold rack.



Chassis Rack

Displays the I/O modules on the chassis rack.

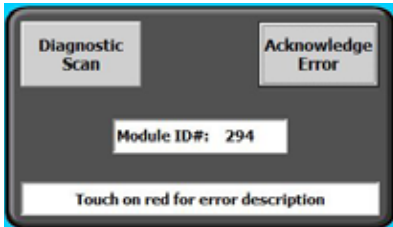
Diagnostics

Talon 2000 Interface



Indexer Rack

Displays the I/O modules on the indexer rack.



Diagnostic Scan

Scans the I/O modules and if there is a fault, it will display the module in red. Touch the red module to see the error description.

Acknowledge Error

Resets the errors to green. Press this after the errors have been corrected.

It is suggested to scan for errors and correct those errors and then scan again to verify that the errors are corrected.

Diagnostics

Talon 2000 Interface

McELROY Current Alarms						
D.	No.	Time	Date	Status	Text	PLC
E...	14	6:35:43 PM	6/30/2015	IO	ET-200 Chassis Mod#4 error / fault	HMI_2m
E...	6	6:35:23 PM	6/30/2015	IO	ET-200 Manifold Mod#6 error / fault	HMI_2m
E...	14	6:34:53 PM	6/30/2015	I	Carriage LT05 error: 32767	HMI_2m
E...	13	6:34:52 PM	6/30/2015	IO	Carriage LT05 error: -3255	HMI_2m
E...	12	6:34:09 PM	6/30/2015	I	Carriage Process PT02 error: 32767	HMI_2m
E...	11	6:34:08 PM	6/30/2015	IO	Carriage Process PT02 error: -4493	HMI_2m

PH05404-04-15-16

Current Alarms

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Page

Opens the previous page.

D.	No.	Time	Date	Status	Text
E...	14	6:35:43 PM	6/30/2015	IO	ET-200 Chassis Mod#4 error / fault
E...	6	6:35:23 PM	6/30/2015	IO	ET-200 Manifold Mod#6 error / fault
E...	14	6:34:53 PM	6/30/2015	I	Carriage LT05 error: 32767
E...	13	6:34:52 PM	6/30/2015	IO	Carriage LT05 error: -3255
E...	12	6:34:09 PM	6/30/2015	I	Carriage Process PT02 error: 32767
E...	11	6:34:08 PM	6/30/2015	IO	Carriage Process PT02 error: -4493

Alarm Window

Displays information about all of the alarms currently activated.

Alarm Status:

- IO - has been corrected
- I - not corrected
- AI - acknowledged error

Diagnostics

Talon 2000 Interface

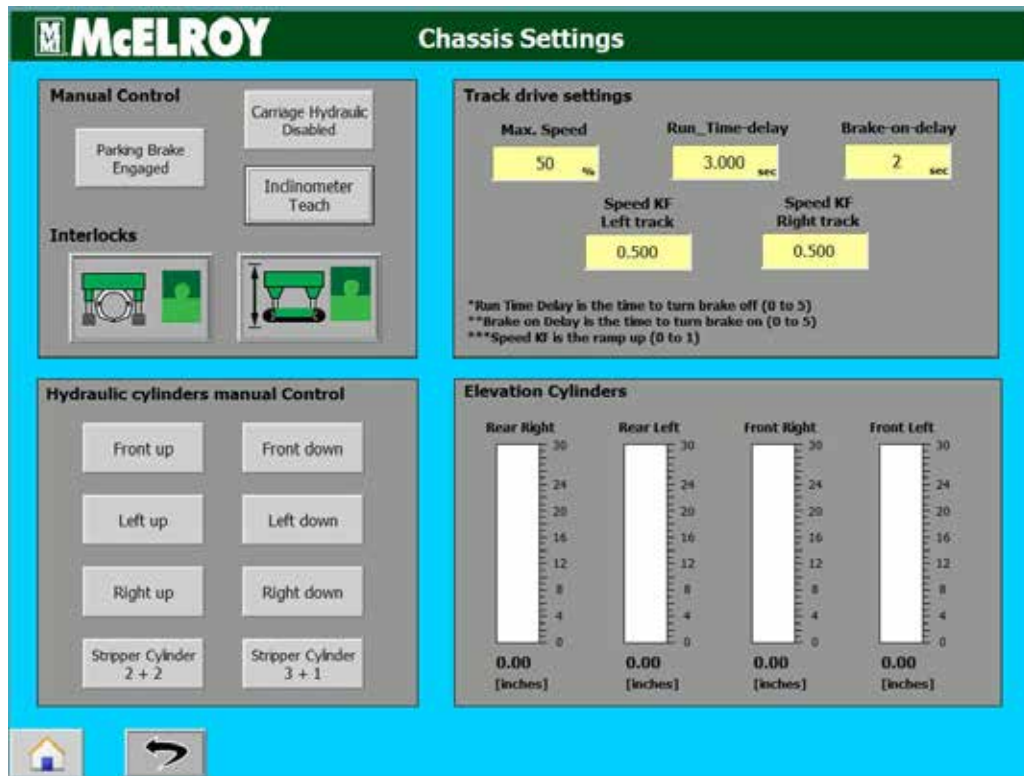


Acknowledge Alarm

The button will show all alarms as viewed and acknowledged. Pressing this button will clear all alarms with status **IO** and add an **A** to alarms with a status **I**. Alarms with a status **I** are not corrected.

Diagnostics

Talon 2000 Interface



PH05405-04-15-16

Chassis Settings Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Screen

Opens the previous screen.



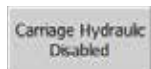
Parking Brake

Toggles the Parking Brake on/off.



Inclinometer Teach

Sets the values of the pitch and roll to zero. This will set the values as if the machine is level.



Hydraulic Load Sensing

On/Off actuation. On - sends full pressure to the carriage cylinders only. Off - no pressure to carriage cylinders.



Machine Interlock

Toggles the Machine Interlock on/off. This button is administrator password protected.



Machine Elevation Interlock

Toggles the Machine Elevation Interlock on/off. This button is administrator password protected.

Diagnostics

Talon 2000 Interface

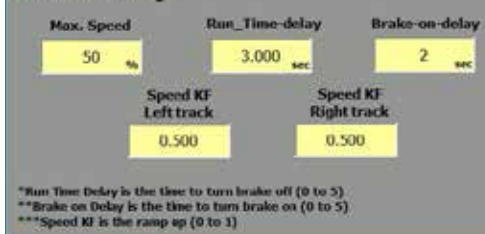
Hydraulic cylinders manual Control



Hydraulic Cylinder Manual Control

Buttons to manually control the chassis hydraulic cylinders for the elevation and heater strippers. (Administrator password protected)

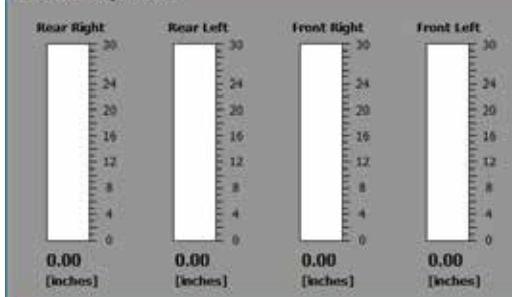
Track drive settings



Track Drive Settings

Input fields for adjusting the parameters of the track drive settings. Loop time field is not adjustable. (Administrator password protected)

Elevation Cylinders

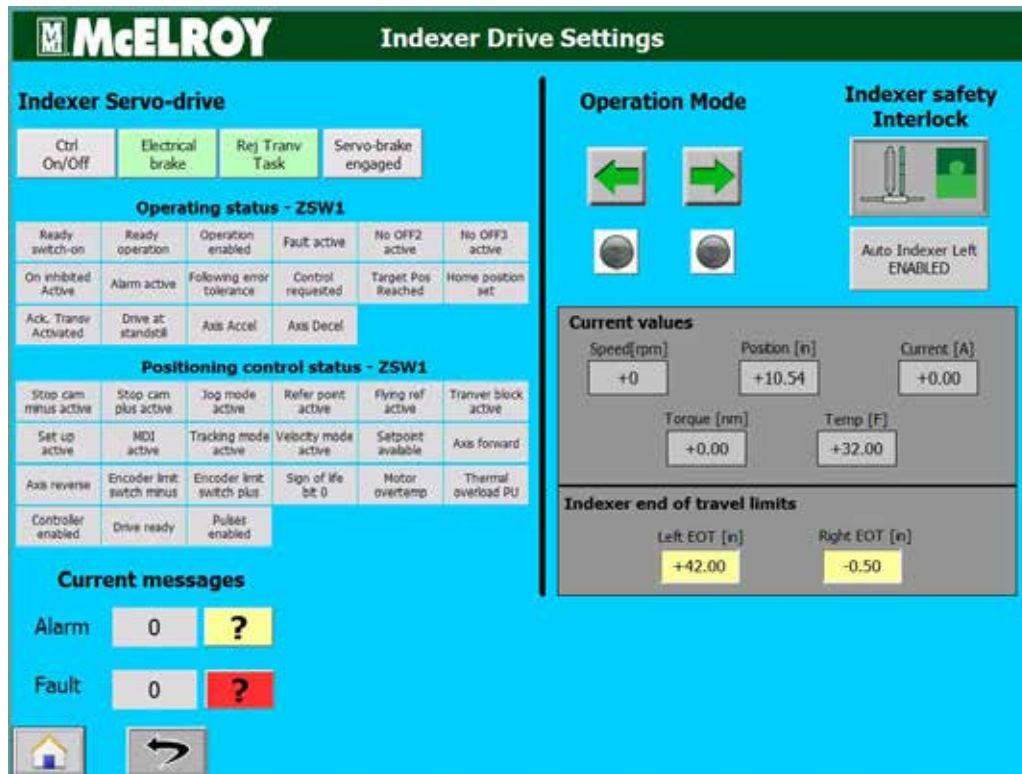


Elevation Cylinders

Displays the height of each of the elevation cylinders on the chassis.

Diagnostics

Talon 2000 Interface



Indexer Drive Settings Screen

Used primarily for McElroy troubleshooting. Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Page

Opens the previous page.



Indexer Servo-drive

Bank of 4 indexer switches for the indexer. (Administrator password protected)

Operating status - ZSW1					
Ready switch-on	Ready operation	Operation enabled	Fault active	No OFF2 active	No OFF3 active
On inhibited Active	Alarm active	Following error tolerance	Control requested	Target Pos Reached	Home position set
Ack. Transv Activated	Drive at standstill	Axis Accel	Axis Decel		

Operating status

Displays a bank of status blocks. The green blocks are active. The gray blocks are inactive and red blocks are alarms. Touch the red alarms to reset them.

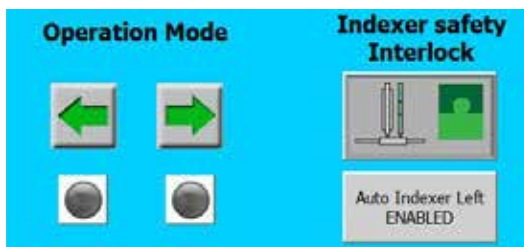
Diagnostics

Talon 2000 Interface

Positioning control status - ZSW1					
Stop cam minus active	Stop cam plus active	Jog mode active	Refer point active	Flying ref active	Tramper block active
Set up active	MDI active	Tracking mode active	Velocity mode active	Setpoint available	Axis forward
Axis reverse	Encoder limit switch minus	Encoder limit switch plus	Sign of life bit 0	Motor overtemp	Thermal overload PU
Controller enabled	Drive ready	Pulses enabled			

Positioning control status

Displays a bank of status blocks. The green blocks are active. The gray blocks are inactive.



Operation Mode

Contains Indexer controls and interlocks.

Auto Indexer Left - by default (Enabled) raising the heater and facer up will move the indexer to the non fusion zone.

(Disabled) the indexer will have to be moved manually.

Current values		
Speed [rpm]	Position [in]	Current [A]
+0	+10.54	+0.00
Torque [nm]	Temp [F]	
+0.00	+32.00	
Indexer end of travel limits		
Left EOT [in]	Right EOT [in]	
+42.00	-0.50	

Indexer Drive Parameters

Displays fields for speed, position and left and right end of travel set points for the indexer (Administrator password protected). The display on the right shows the current values of the speed, current, position, torque and motor temperature.

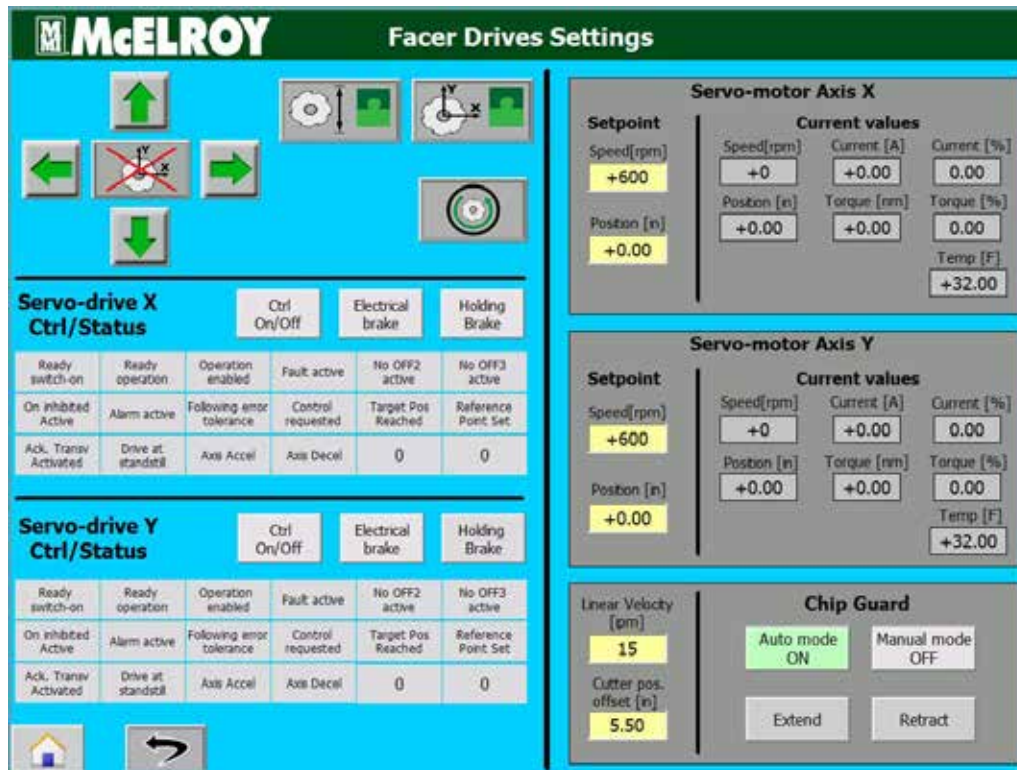
Current messages		
Alarm	0	?
Fault	0	?

Indexer Current Messages

Displays the current number of alarm and fault messages for the indexer. Touching the question mark will display the error at the bottom of the page.

Diagnostics

Talon 2000 Interface



Facer Drive Settings Screen

Some buttons may not be present unless certain selections or conditions are met.



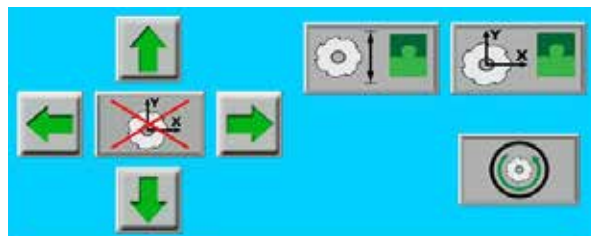
Home

Opens the Main Screen.



Previous Screen

Opens the previous screen.



Operation Mode

Contains facer controls , facing direction (CW/CCW) and facer interlocks. (Administrator password protected)

Diagnostics

Talon 2000 Interface

Servo-drive X Ctrl/Status			Ctrl On/Off	Electrical brake	Holding Brake
Ready switch-on	Ready operation	Operation enabled	Fault active	No OFF2 active	No OFF3 active
On inhibited Active	Alarm active	Following error tolerance	Control requested	Target Pos Reached	Reference Point Set
Ack. Transv Activated	Drive at standstill	Axis Accel	Axis Decel	0	0

Servo-drive X Ctrl/Status

Displays a bank of status blocks. The green blocks are active. The gray blocks are inactive and red blocks are alarms. Touch the red alarms in an attempt to reset it.

Servo-drive Y Ctrl/Status			Ctrl On/Off	Electrical brake	Holding Brake
Ready switch-on	Ready operation	Operation enabled	Fault active	No OFF2 active	No OFF3 active
On inhibited Active	Alarm active	Following error tolerance	Control requested	Target Pos Reached	Reference Point Set
Ack. Transv Activated	Drive at standstill	Axis Accel	Axis Decel	0	0

Servo-drive Y Ctrl/Status

Displays a bank of status blocks. The green blocks are active. The gray blocks are inactive and red blocks are alarms. Touch the red alarms in an attempt to reset it.

Servo-motor Axis X			
Setpoint	Current values		
Speed[rpm]	Speed[rpm]	Current [A]	Current [%]
+600	+0	+0.00	0.00
Position [in]	Position [in]	Torque [nm]	Torque [%]
+0.00	+0.00	+0.00	0.00
			Temp [F]
			+32.00

Servo-motor Axis X/Y Parameters Displays fields for speed, position and left and right end of travel setpoints for the indexer. The display on the right shows the current values of the speed, current, position, torque and temperature.

Linear Velocity [ipm]	Chip Guard	
15	Auto mode ON	Manual mode OFF
Cutter pos. offset [in]	Extend	Retract
5.50		

Chip Guard

Controls and fields for the chip guard.

Diagnostics

Talon 2000 Interface

McELROY Heater Drive Settings

control word 1

ON/OFF1	No OFF2	No OFF3	Enable operation
Operating cond.	Enable RFG	Enable setpoint	Control by PLC
Direction reversal	MOP up	MOP down	Motor Brake OFF

status word 1

Ready switch-on	Ready operation	Operat. enabled	Fault active
No OFF2 active	No OFF3 active	Sw.-on inhibited	Alarm active
Deviation setpoint	Control from PLC	Comparison value	Warning Current Limit
Hold.brake open	Motor overload	n_act >=0	Inverter temp. ok

Current messages

Alarm +0 ?

Fault +0 ?

Speed Setpoint

Heater IN	-300 rpm
Heater OUT	+600 rpm
Heater OUT-HS	+1800 rpm
Ramp up (5sec)	3 %
Ramp down (5sec)	20 %
Heater OUT-HS time	9.5 sec

Current values

Speed	0.00 rpm
Current	0.00 A
Torque	0.00 Nm
Temp.	32.00 F
Voltage	0.00 VAC

Heater Drive Settings Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Screen

Opens the previous screen.

control word 1			
ON/OFF1	No OFF2	No OFF3	Enable operation
Operating cond.	Enable RFG	Enable setpoint	Control by PLC
Direction reversal	MOP up	MOP down	Motor Brake OFF

Control Word 1

Displays a bank of status blocks. The green blocks are active. The gray blocks are inactive and red blocks are alarms.

status word 1			
Ready switch-on	Ready operation	Operat. enabled	Fault active
No OFF2 active	No OFF3 active	Sw.-on inhibited	Alarm active
Deviation setpoint	Control from PLC	Comparison value	Warning Current Limit
Hold.brake open	Motor overload	n_act >=0	Inverter temp. ok

Status Word 1

Displays a bank of status blocks. The green blocks are active. The gray blocks are inactive and red blocks are alarms. Touch the red alarms in an attempt to reset it.

PH05409-04-15-16

Diagnostics

Talon 2000 Interface

Current messages

Alarm

Fault

Heater Current Messages

Displays the current number of alarm and fault messages for the indexer. Touching the question mark will display the error at the bottom of the page.

Speed Setpoint

Heater IN rpm

Heater OUT rpm

Heater OUT-HS rpm

Ramp up (5sec) %

Ramp down (5sec) %

Heater OUT-HS time sec

Heater Speed Set points

Adjust values for the heater speed. (McElroy password protected)

Current values

Speed rpm

Current A

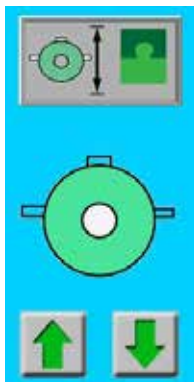
Torque Nm

Temp. F

Voltage VAC

Heater Current Values

Displays current values for speed, current, torque, temperature and voltage for the heater.

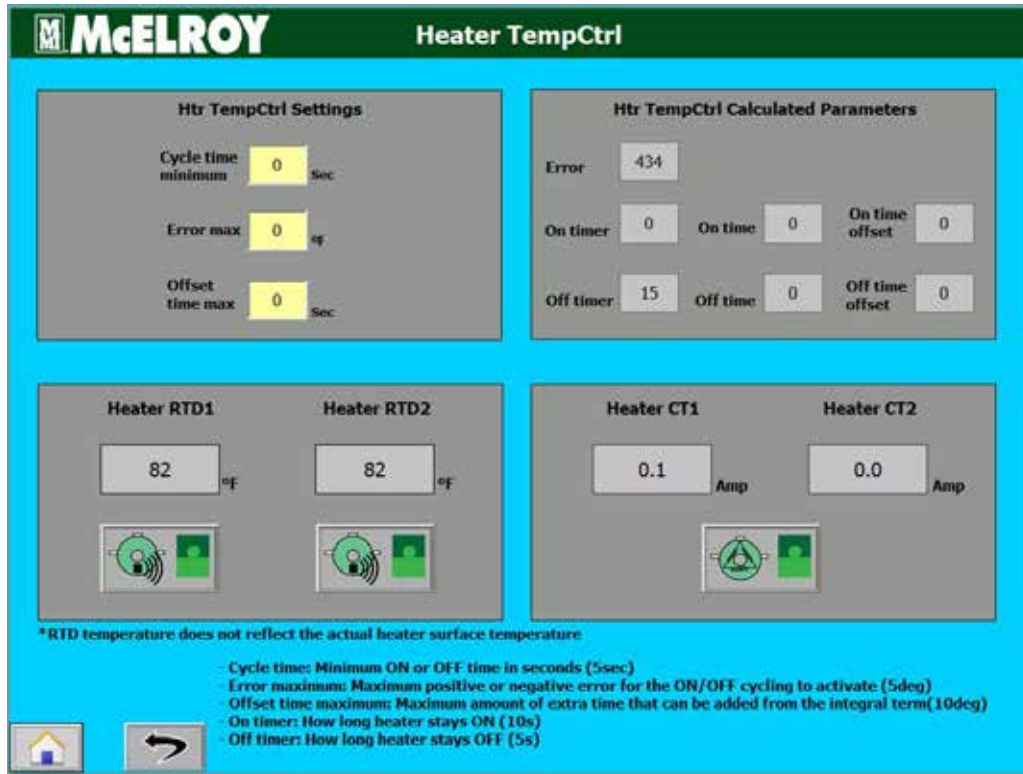


Heater Elevation Control

Controls for jogging the heater up and down. There is a heater elevation interlock which can be enabled/disabled. (Administrator password protected)

Diagnostics

Talon 2000 Interface



PH05410-04-15-16

Heater Temperature Control Settings Screen

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



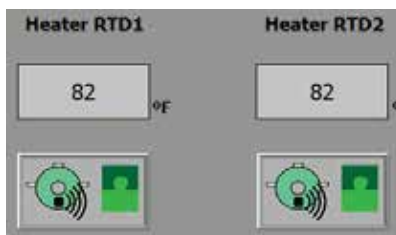
Previous Screen

Opens the previous screen.



Heater Temperature Control Settings

Adjustable fields for heater control. These fields are administrator password protected.

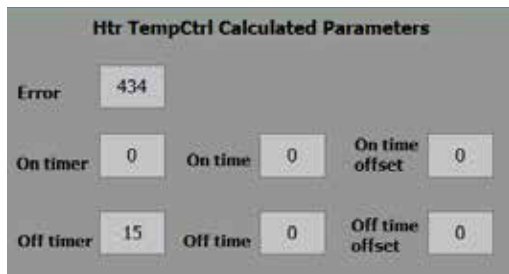


Heater RTD Display

Displays the temperature of both RTD's and has a button for each to enable/disable the heater RTD interlock.

Diagnostics

Talon 2000 Interface



Heater Temperature Control Calculated Parameters Displays the calculated parameters for the Heater Temperature Control.

Error: Difference between the target temperature and current temperature.

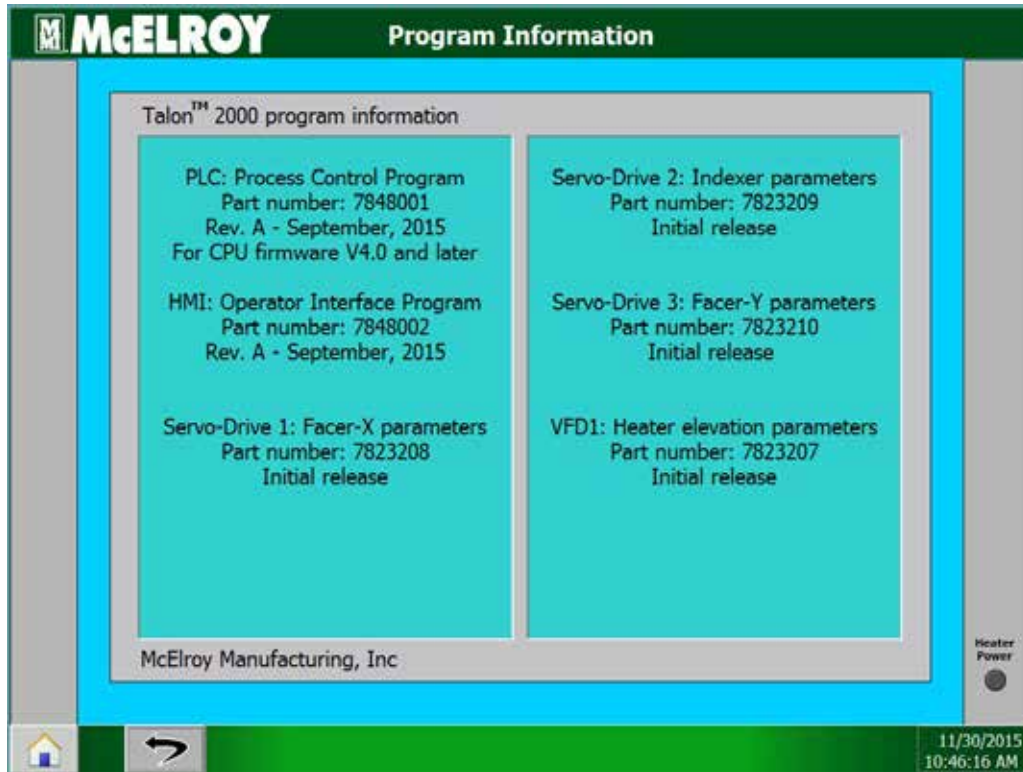


Heater Element Failure Detector

Displays the amperage of two phases of the heater and if the amperage is out of range, the heater will shut down. There is a button to enable/disable the heater failure interlock.

Diagnostics

Talon 2000 Interface



PH05413-04-15-16

Program Information

Some buttons may not be present unless certain selections or conditions are met.



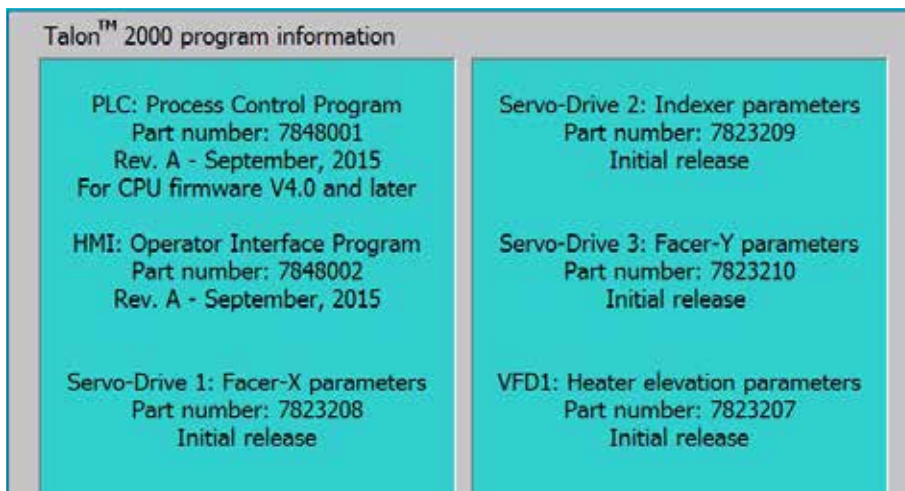
Home

Opens the Main Screen.



Previous Page

Opens the previous page.



PLC and HMI Program Information

Displays the information about the PLC and HMI programs.

Diagnostics

Talon 2000 Interface

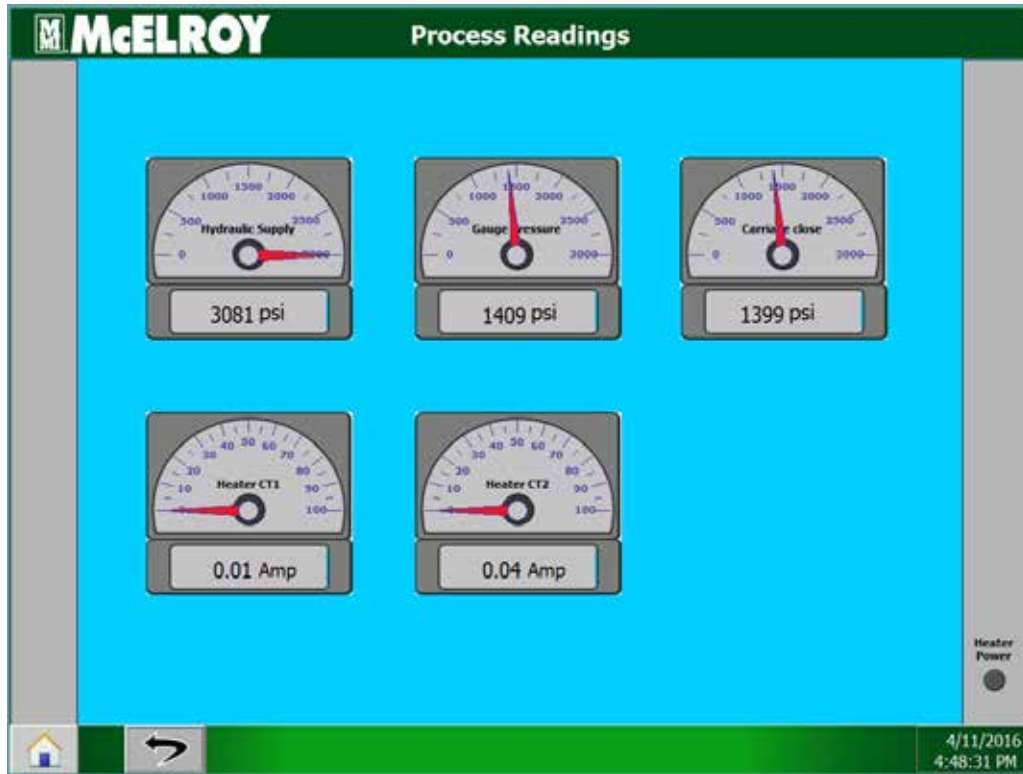


Heater Power

Red light indicates the heater is powered on.

Diagnostics

Talon 2000 Interface



PH05482-04-15-16

Process Readings

Some buttons may not be present unless certain selections or conditions are met.



Home

Opens the Main Screen.



Previous Page

Opens the previous page.



Hydraulic Supply

Displays the system pressure of the machine.



Gauge Pressure

Displays the pressure that would be seen on the gauge of the hydraulic manifold block on a McElroy fusion machine.



Carriage Close

Displays the pressure that would be seen on the Datalogger port of the hydraulic manifold block on a McElroy fusion machine.

Diagnostics

Talon 2000 Interface



Heater CT1

Displays the amperage of one of the two phases of the heater.



Heater CT2

Displays the amperage of one of the two phases of the heater.



Heater Power

Red light indicates the heater is powered on.

Maintenance

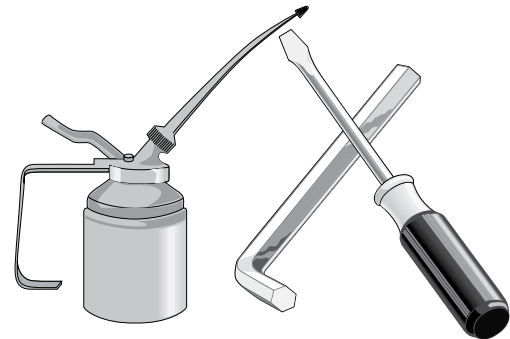
Preventative Maintenance

The machine must be kept clean and well maintained.

With reasonable care, this machine will give years of service. Therefore, it is important that a regular schedule of preventive maintenance be kept.

Service intervals are approximate for average service and may need to be done more frequently in severe service conditions or can be done less frequently if used minimally.

Store machine inside, out of the weather, whenever possible.



CD00142-11-2-94

TX04962-04-11-16

Disconnect Electrical Power



Always disconnect unit from electrical power source before beginning any maintenance to avoid the risk of electric shock

De-energize the machine by turning the battery switch to disconnected.



WR00055-4-7-93

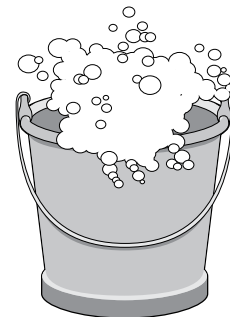
TX04963-04-11-16

Washing the Machine

An important factor in the service life of this machine is cleanliness. The machine should be cleaned with soap and water as needed.

When exposed to dust and mud in a field location, the machine should be washed at the end of each days work.

Power washing the machine is not recommend.



CD00178-5-3-96

TX04964-04-11-16

Check Hydraulic Fluid

The hydraulic fluid level should be checked during work-site commission or if a leak is found.

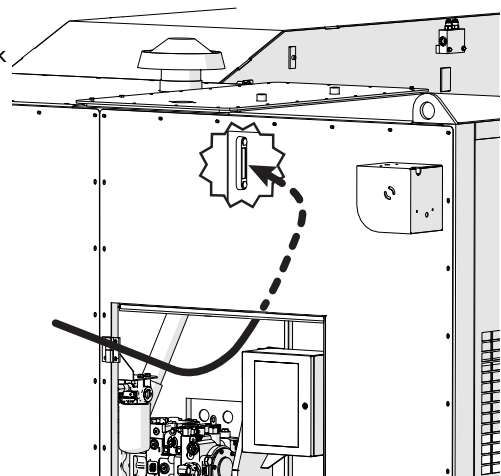
The level should be checked with cold fluid and with all cylinders fully retracted including elevation and clamping. The quarter jaws will need to be removed in order to lower the machine to lowest position and retract the quarter jaw cylinders fully.

If hydraulic fluid is not visible in the sight gauge, fluid must be added.

Fill to the top of the sight gauge when the oil is cool.

Ensure fluid is clear with no air bubbles present.

Refer to the "Hydraulic Fluids" section of this manual for hydraulic oil recommendations.



CD01324-04-11-16

TX04965-04-11-16

Maintenance

Change Hydraulic Fluid and Filters

The hydraulic fluid and filters should be replaced after every 500 hours or when an alert for hydraulic pressure warning is present on the application.



There is a drain valve on the hydraulic reservoir. There is a plug on the end of the valve that must be removed before draining the reservoir.

The reservoir is filled by removing the cap (A) and the filter inside.

There are two more filters behind the left door of the power pack.

The magnetic suction filters inside the reservoir should be disassembled and cleaned. Remove the top reservoir cover of the reservoir to access the suction filters.

Use compressed air to remove contamination from the magnetic elements.

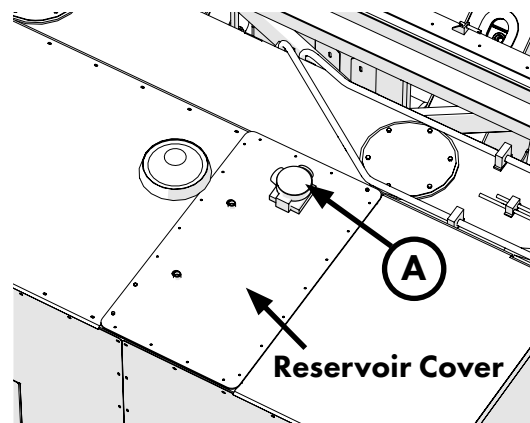
Hydraulic fluid should be changed to a different viscosity as weather conditions dictate.

Refer to the "Hydraulic Fluids" section of this manual for hydraulic oil recommendations.

TX04966-04-11-16



PH05427-04-11-16



CD01309-04-11-16



PH05421-04-11-16

Bleeding Air From Hydraulic System

If there is air in the hydraulic system, it can be removed by operating the machine. Machine operation will move any air to the tank to be expelled.

If any hydraulic cylinder is replaced, the system will need to be bled at the cylinder before operating the machine to remove any additional air in the system.

TX04967-04-11-16

Maintenance

Adjusting System Pressure

The system pressure for the machine is 3000 psi. A standby pressure of 350 psi is used when full system pressure is not required by the machine.

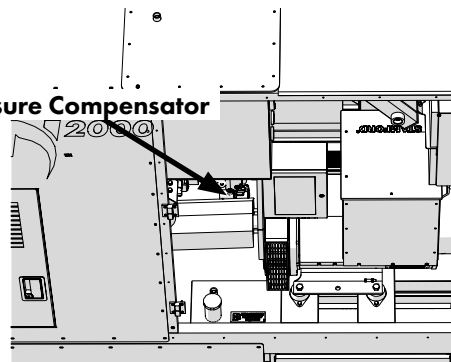
Both pressures are adjusted at the pressure compensator in the engine compartment of the power pack of the machine.

To adjust the pressures, loosen the two set screws on compensator and adjust each spool to change the pressure.

View the pressures on the Process Readings screen on the HMI.

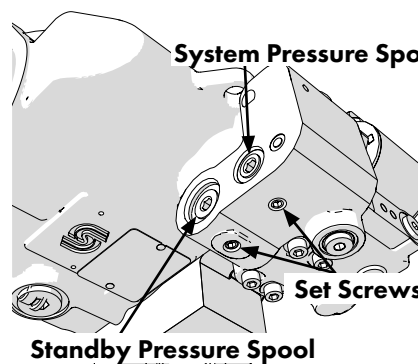
When both spools have been adjusted to the correct pressures, tighten the two set screws.

Pressure Compensator



CD01613-04-11-16

System Pressure Spool



CD01614-04-11-16

TX04968-04-11-16

Installing Butt Fusion Heater Plates

Butt fusion heater plates are installed with stainless steel cap screws.



Always disconnect unit from electrical power source before beginning any maintenance to avoid the risk of electric shock

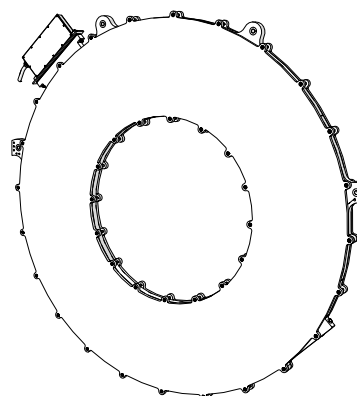
De-energize the machine by turning the battery switch to disconnected.

Install butt fusion heater plates while the heater is cool.

Care should be taken to assure that the butt fusion heater plates are seated on the heater body, and that there is no foreign matter trapped between these surfaces.

IMPORTANT: Do not over tighten the bolts.

The surface of the butt fusion heater plates are coated with an antistick coating.



CD01587-04-11-16

TX04969-04-11-16

Maintenance

Clean Heater Surfaces

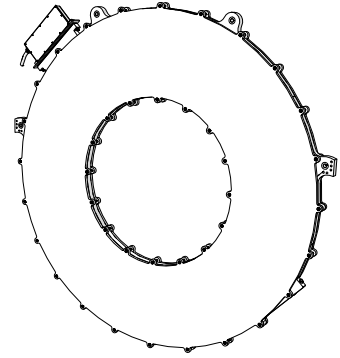
The heater faces must be kept clean and free of any plastic build up or contamination.

Before each fusion joint the heater surfaces must be wiped with a clean, non-synthetic cloth.

NOTICE: Do not use an abrasive pad or steel wool. Use a non-synthetic cloth that won't damage surfaces.

Refer to Prepare Heater in the Operation section of this manual for instructions for cleaning the heater.

TX04970-04-11-16



CD01587-04-11-16

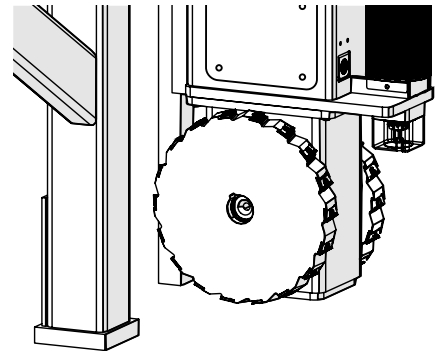
Facer Cutters

The facer cutters have cutting inserts with 4 cutting surfaces.

Inspect the cutting inserts daily for dull or damaged inserts.

Rotate the cutting inserts to a new cutting surface as needed.

TX04971-04-11-16



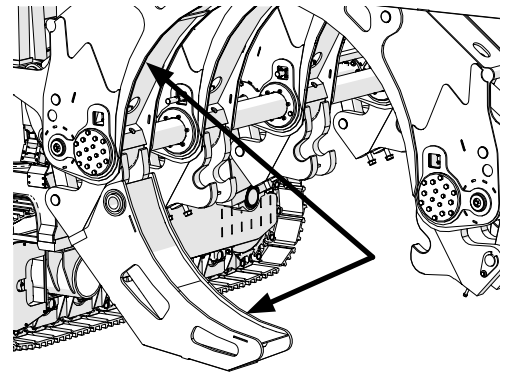
CD01304-04-11-16

Clean Jaws and Inserts

To prevent slippage and insure proper alignment, the jaws and inserts must be clean.

Clean the jaws and inserts of any dirt or residual material using a stiff-bristled brush.

TX00433-9-15-94



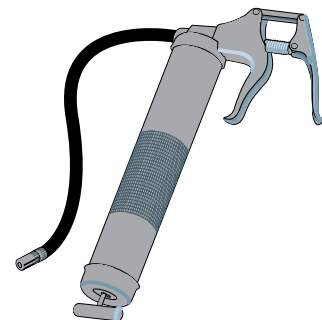
CD01283-04-11-16

Grease

NOTICE: Use only Mobil Mobilith SHC 100 grease to lubricate parts throughout the machine. Other greases will damage parts on the machine.

Keep moving parts well lubricated as needed.

TX04972-04-11-16



CD00183-11-6-95

Maintenance

Track Tension

Correct track tension is important to wear of the tracks. If the tracks are too tight or too loose, it will wear rapidly.

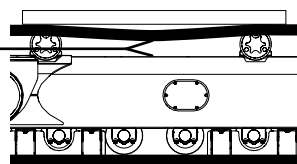
To check track tension:

Place a straight edge across both track idlers. Measure the amount of sag from the straight edge to the track. Correct track tension is approximately 1.25" (32mm).

Due to the track on the HMI side of the machine being covered with a guard, the correct track measurement from the power pack side track can be used to set the HMI side track.

Measure the distance from the track weldment to the bottom of the track and use that distance to set the tension of the HMI side track.

Distance from Track Weldment to Bottom of Track



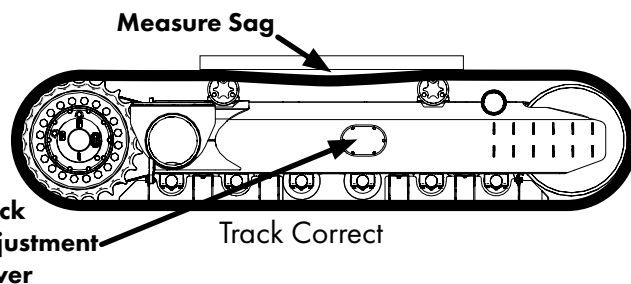
To adjust track tension:

Remove track adjustment cover.

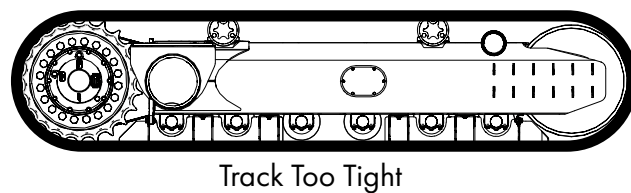
Use a grease gun and add grease to the track grease zerk to increase track tension.

To relieve track tension, turn the cartridge fitting enough to allow grease to exit. Removing the grease zerk will not allow grease to exit.

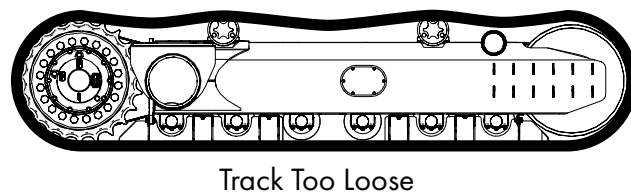
TX04973-04-11-16



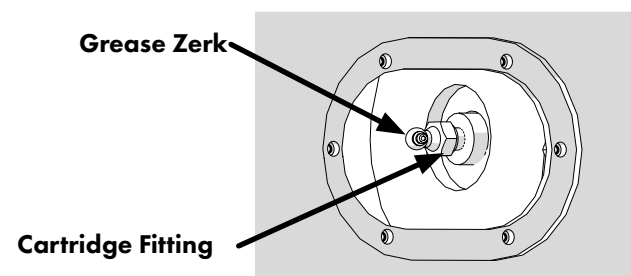
CD01591-04-11-16



CD01589-04-11-16



CD01592-04-11-16



CD01588-04-11-16

Track Brake

The track brake is normally applied and is hydraulically released to allow the tracks to rotate.

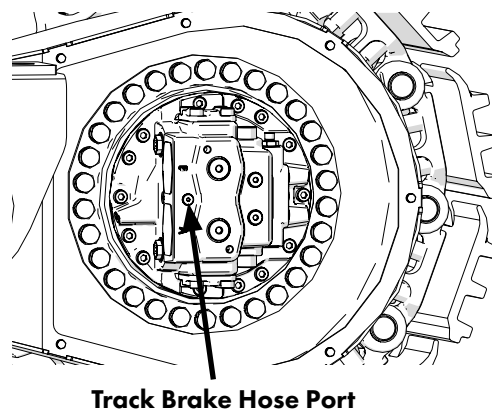
If the track motor and hydraulic hoses are replaced, the track brake line must be bled.

On the HMI, navigate to the Chassis Settings screen. Press the Parking Brake button to disengage the parking brake.

Loosen the track brake hose fitting (smallest hose) until fluid is expelled. Tighten track brake fitting.

Enable the parking brake on the HMI.

TX04974-04-11-16



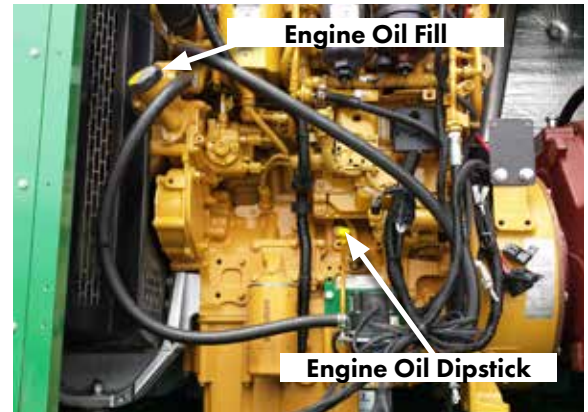
CD01593-04-11-16

Maintenance

Engine Oil

Check engine oil according to engine manual maintenance instructions.

Change engine oil after the first 50 hours of operation. Following that, change the oil and filter every 500 hours of operation. Refer to the engine manual for engine maintenance instructions.



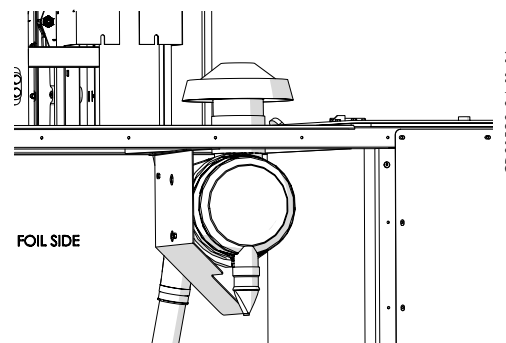
TX04975-09-15-20

Air Filters

The engine air filters should be replaced every 500 hours of operation.

The filters are located in an air filter housing above the engine of the machine.

Refer the engine manual for air filter maintenance instructions.



TX04976-09-15-20

Maintenance

Pump Drive

Check the pump drive oil level with the dipstick (A) while the engine is off. Ensure the oil level is to the MAX oil level on the dipstick.

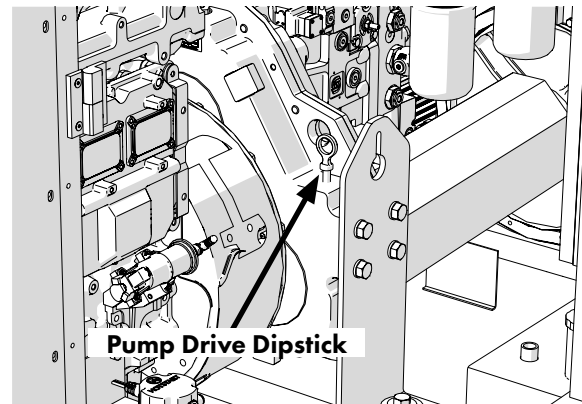
It is recommended to change oil after the first 500 hours or 3 months of service, whichever occurs first. Under normal operating conditions, it is recommended that the oil be changed every 1000 hours or 6 months of service.

The drain plug (B) is located on the bottom of the pump drive.

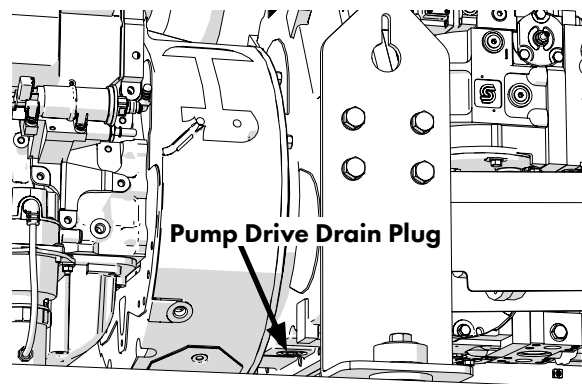
Inspect and clean magnetic drain plug for contamination or metal particles before replacing.

Recommended Oil Lubricant Grade:

- Below -10°F Mobile SHC 630 Synthetic or equivalent
- -10°F to 100°F 80w-90 or EP90 (APL-GL-5)
- Above 100°F Mobile SHC 630 Synthetic or equivalent



CD01615-04-11-16



CD01615-04-11-16

TX04977-04-11-16

Heater/Facer Chain Tension

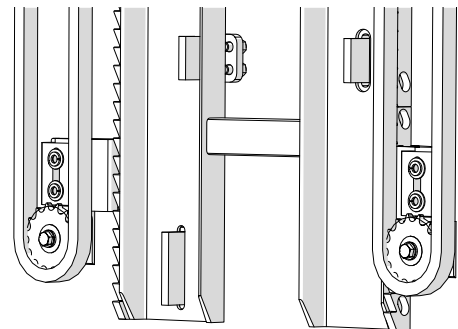
The chains for the elevation of the heater and facer are kept tight with the use of tensioners.

If the chains experience a loss or major increase in tension, an alarm will be displayed.

A tension alarm could be triggered due to:

- Heater/Facer obstruction
- Debris on tensioner sensors
- Sensor/cable failure

Correct the problem and then reset the alarm.



CD01616-04-11-16

TX04978-04-11-16

Maintenance

Remote Batteries

To replace the battery in the remote:

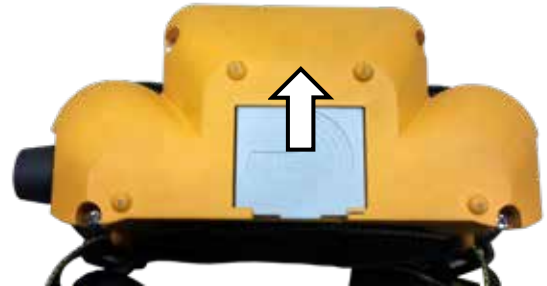
Rotate the remote to the bottom.

Push the battery away from the tabs holding the battery and lift the battery out of the remote.

Use the battery charger to recharge the battery.

Replace with a fully charged battery.

There is also a battery pack which uses standard batteries. Place the 3 AA batteries into the battery pack and insert the battery pack into the remote.



PH05504-04-15-16



PH05474-03-31-16

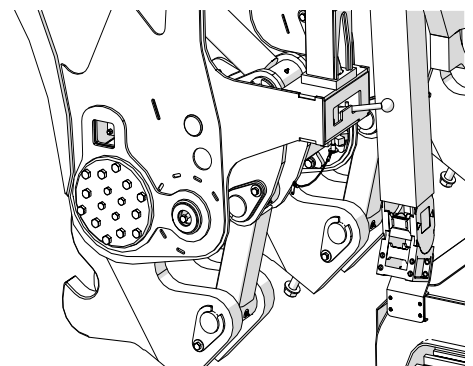


PH05473-03-31-16

TX04979-04-11-16

Fasteners Must Be Tight

Check all nuts, bolts, and snap rings to make certain they are secure and in place.



PH04926-4-5-13

TX00437-9-13-94

Maintenance Checklist

Talon 2000 Fusion Machine

INSPECTION CHECKLIST

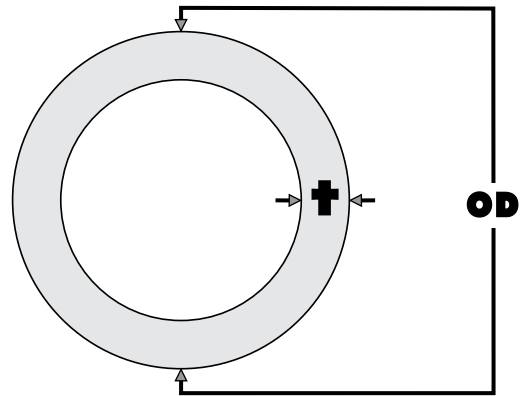
	INSPECTION CHECKLIST
1.	Machine is clean
2.	Hydraulic oil is visible in reservoir sight glass
3.	Hydraulic hoses are in good condition
4.	Hydraulic carriage works smoothly
5.	All hydraulic cylinders adjusted (speed and travel)
6.	All grease points and pivot points lubricated
7.	No visual oil leaks (hydraulic system)
8.	All identification placards are on unit
9.	Wiring & all electrical terminals are in good condition
10.	Jaws are aligned properly
11.	Inserts fit and mounted properly
12.	Facer works properly
13.	Heater in good condition (no nicks or gouges)
14.	Surface temperature check with a pyrometer
15.	Switches and buttons work properly
16.	HMI and software working properly
17.	All hardware is with unit (inserts and pins, etc.)
18.	System pressure (3000 psi)
19.	Power cords and plugs in good condition
20.	All rest buttons in place
21.	Stripper cylinder work properly
22.	No damage to fusion machine
23.	Inspect lifting points for damage.
24.	Lifting slings are not damaged and are in good condition
25.	Quarter jaws are not damaged and mounted properly

TX05038-05-03-16

Determining Fusion Pressure

Variable Definitions

- O.D. = Outside Diameter of Pipe (inch)
 t = Wall Thickness of Pipe (inch)
 π = 3.14
 SDR = Standard Dimensional Ratio of Pipe (unitless)
 IFP = Interfacial Pressure of Pipe (PSI)
 TEPA = Total Effective Piston Area of Carriage Cylinders (inch²)



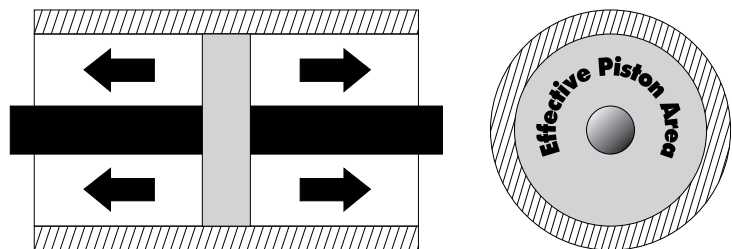
Formulas

$$t = \frac{\text{O.D.}}{\text{SDR}}$$

$$\text{PIPE AREA} = (\text{O.D.} - t) \times t \times \pi$$

$$\text{FUSION FORCE} = \text{AREA} \times \text{IFP}$$

$$\text{GAUGE PRESSURE} = \frac{\text{FUSION FORCE}}{\text{TEPA}} + \text{DRAG}$$



Example

Pipe Size = 8" IPS, SDR 11

O.D. = 8.625 inch

DRAG = as measured in PSI (for this example use 30 PSI)

Recommended IFP = 75 PSI

Using a Model 28 High Force Fusion Unit

$$t = \frac{\text{O.D.}}{\text{SDR}} = \frac{8.625}{11} = 0.784$$

TEPA = 4.71 (From Table)

$$\text{GAUGE PRESSURE} = \frac{(\text{O.D.} - t) \times t \times \pi \times \text{IFP}}{\text{TEPA}} + \text{DRAG}$$

$$\text{GAUGE PRESSURE} = \frac{(8.625 - .784) \times .784 \times 3.14 \times 75}{4.71} + 30 \text{ PSI} = 338 \text{ PSI}$$

Total Effective Piston Areas (in²)

Fusion Model	High Force	Medium	Low Force
A160/A250	-	-	0.895
28	4.71	3.24	1.66
250	4.71	3.24	1.66
412	11.78	6.01	3.14
618	11.78	6.01	3.14
500	-	6.01	3.14
824/T630	29.44	15.32	9.43
1236/T900	29.44	15.32	9.43
1648/T1200	31.42	14.14	-
2065	31.42	-	-
1600	31.42	14.14	-
2000	32.99	-	-

Hydraulic Fluids

Hydraulic Fluids

The use of proper hydraulic fluid is mandatory to achieve maximum performance and machine life. Use a clean, high quality, anti-wear hydraulic fluid with a viscosity index (VI) of 135 minimum. It should have a maximum viscosity of 500 cSt (2000 SSU) at startup (ambient temperature) and a minimum viscosity of 13 cSt (65 SSU) at the maximum fluid temperature (generally 80°F above ambient). Using hydraulic fluids that do not meet these criteria may cause poor operation and/or damage to the hydraulic components.

The following table specifies the fluid temperature at various viscosities. Temperature rise of the hydraulic fluid can vary from 30° F to about 80° F over the ambient temperature depending on the pressure setting, age of the pump, wind, etc. Mobil Univis N46 hydraulic fluid is installed at our factory. The advantage of this fluid is a wider temperature range, however, this fluid should not be used for continuous operation below 24°F.

TX03082-04-18-16

Hydraulic Fluids Characteristics																	
Manufacturer	Fluid Name	cSt 100F	cSt 210F	V.I.	-20F	-10F	0F	10F	30F	50F	70F	90F	110F	130F	150F	Range °F	Range °C
Mobil	DTE 10 Excel 15	15.8	4.1	168	*****	*****	*****	*****	*****	*****	*****	*****	*****		-16 - 113	-27 - 45	
	DTE 10 Excel 32	32.7	6.6	164				*****	*****	*****	*****	*****	*****	*****	12 - 154	-11 - 68	
	DTE 10 Excel 46	45.6	8.5	164				*****	*****	*****	*****	*****	*****	*****	23 - 173	-5 - 78	
	DTE 10 Excel 68	68.4	11.2	156				*****	*****	*****	*****	*****	*****	*****	37 - 196	3 - 91	
	Univis N-32	34.9	6.9	164				*****	*****	*****	*****	*****	*****	*****	12 - 150	-11 - 66	
	Univis N-46	46	8.5	163				*****	*****	*****	*****	*****	*****	*****	24 - 166	-4 - 74	
	Univis N-68	73.8	12.1	160				*****	*****	*****	*****	*****	*****	*****	39 - 193	4 - 89	

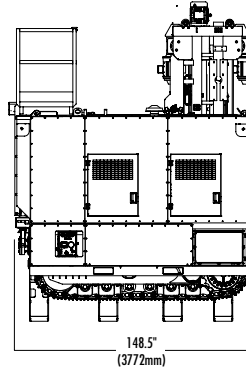
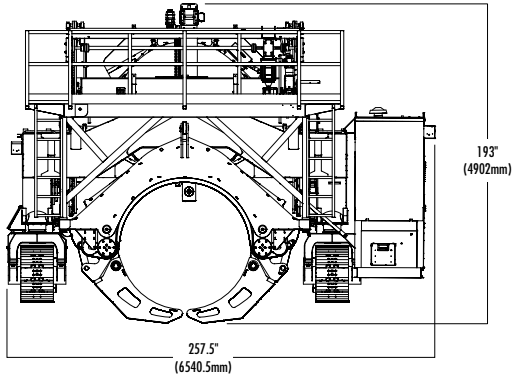
NOTE: This chart is based on pump manufacturer recommendations of 13 to 500 cSt.

NOTE: Temperatures shown are fluid temperatures. – NOT ambient temperatures.

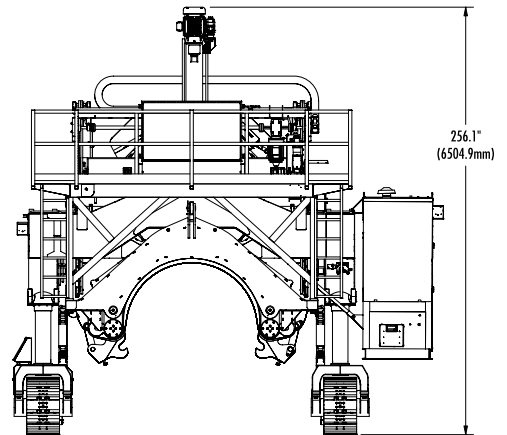
Specifications

Talon 2000 Fusion Machine

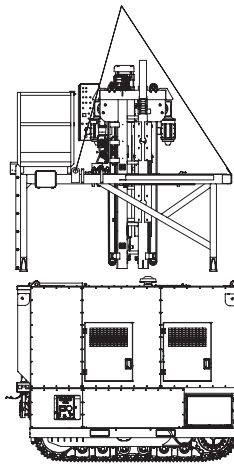
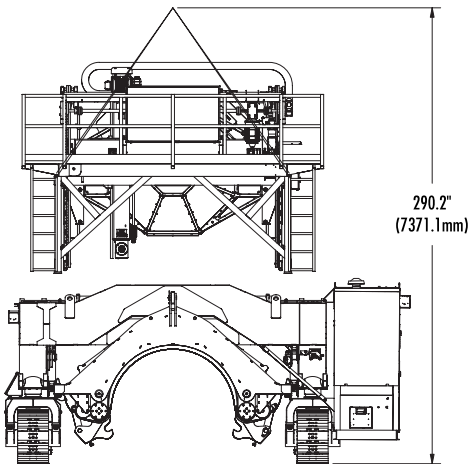
STANDARD DIMENSIONS



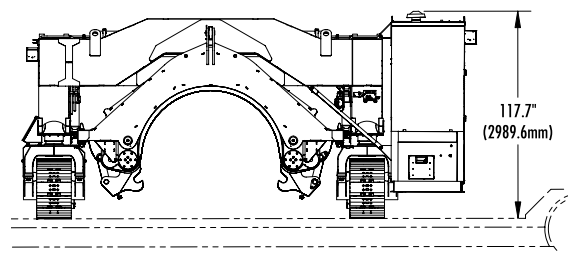
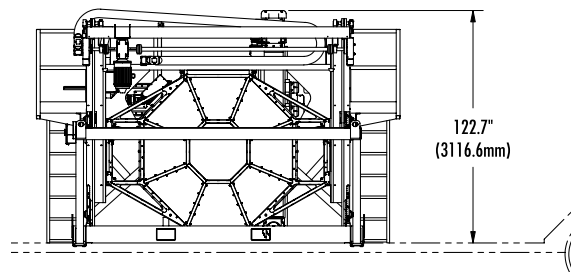
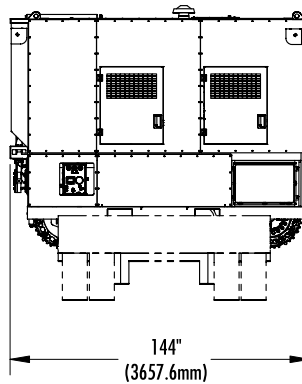
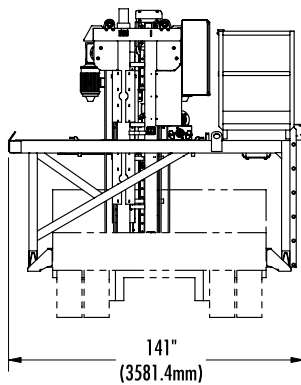
Maximum Height



MINIMUM HOOK HEIGHT



SHIPPING DIMENSIONS





Specifications

Talon 2000 Fusion Machine

Fusion Machine Weights

Complete Fusion Machine: 56,000 lbs (25,401 kg)

Vehicle: 46,000 lbs (20,865 kg)

Indexer: 10,000 lbs (4,536 kg)

Quarter Jaw (2000mm): 145 lbs (66 kg) each

Stub End Holder Assembly Weights

Talon Stub End Holder: 2,572 lbs (1,167 kg)

Lifting Fixture Assembly: 225 lbs (102 kg)

Hydraulics

System Pressure: 3,000 PSI (206.8 BAR) Max

Hydraulic Reservoir Capacity: 60 gal (227 liters)

Engine

Engine: 173.5 SHP (129.4 kW), 4.4L (268.5 in³) displacement, 4 cylinders, twin turbo, US EPA Tier 4i/EU Stage III B

Fuel Type: Ultra Low Sulfur Diesel (15 PPM)

Fuel Tank Capacity: 100 gallons (378L)

Operational Tank Capacity: 12 Hours

Heater

Heater Power: 70,500 W

Facer

Facer Cutters: 12"

Facer Motor:

Mobility

Vehicle: Hydraulic Powered Tracks

Vehicle Speed: 0.5 mph (0.8 kph)

About this manual . . .

McElroy Manufacturing continually strives to give customers the best quality products available. This manual is printed with materials made for durable applications and harsh environments.

This manual is waterproof, tear resistant, grease resistant, abrasion resistant and the bonding quality of the printing ensures a readable, durable product.

The material does not contain any cellulose based materials and does not contribute to the harvesting of our forests, or ozone-depleting constituents. This manual can be safely disposed of in a landfill and will not leach into ground water.

TX001660-8-19-99



P.O. Box 580550 Tulsa, Oklahoma 74158-0550, USA
www.mcelroy.com