

Operator's Manual



McELROY

www.mcelroy.com



630 and 900

Automatic Fusion Machines

Patent No. 5,814,182 Other Patents Pending

Japanese Patent No. 4285806

Manual: T9028803 Revision: 2/11 Rev A

Original Language: English

**California
Proposition 65 Warning**

*Engine exhaust from this product
contains chemicals known to the State
of California to cause cancer, birth
defects, or other reproductive harm.*



Introduction



Thank You for purchasing this McElroy product

The re-designed TracStar 630 and TracStar 900 machines will butt fuse pipe sizes from:

8" IPS (225mm) minimum to 24" OD (630mm) maximum pipe on a TracStar 630.

12" IPS (340mm) minimum to 36" OD (900mm) maximum pipe on a TracStar 900.

Above ground or in the ditch, these machines bring the flexibility of the smaller machines to large diameter fusion. These fusion machines have all the advantages of their predecessors with additional features for in-ditch, close quarters work.

These Automatic TracStars control and monitor the heat, soak, fuse, and cool cycles. They have a built-in data logging feature that keeps a record of each fusion joint, which allows you to verify the joining procedure used.

The carriage has 4-jaws with a removable 3-jaw carriage and is capable of top loading the heater and facer to maximize functionality with limited space. The TracStar carriages are mounted on independently controlled, self propelled tracks and features a wireless remote driving control. The machines are hydraulically powered to assist all fusion functions including the operation of the jaws, pipe lifts, heater and facer. The machines allow for butt fusion of most fittings with special holders or removal of outer jaw. Optional mitered inserts are available for fabricating ells.

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.



TX04255-1-10-11

Patent No. 5,814,182 Other Patents Pending
Japanese Patent No. 4285806

World Class Training

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.

McElroy Manufacturing, Inc., offers advanced training classes to enhance efficiency, productivity, safety and quality. Training is available at our facility or on-site at your location. Call (918) 836-8611.

TX01315-4-7-97



PH03535-10-17-07



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 **3 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



Fusion Equipment Safety

Safety Alerts	1-1
Read and Understand	1-1
General Safety	1-2
Wear Safety Equipment	1-2
Fuel Handling	1-2
Units with Engines	1-3
Carbon Monoxide	1-3
Heater is Not Explosion Proof	1-3
Do Not Operate This Machine in a Hazardous Environment.	1-3
Crush Points	1-4
Battery	1-4
Electrical Safety	1-5
Units with Hydraulics	1-5
Facer Blades Are Sharp	1-6
Keep Machine Away From Edge of Ditch	1-6
Positioning Tracked Fusion Machine.	1-6
Stand Clear	1-7
Heater is Hot.	1-7
Do Not Attempt to Tow Tracked Fusion Machine	1-7
Fusion Procedures	1-8

Overview

Theory of Heat Fusion	2-1
TracStar® 630 and 900 Console	2-2
Radio Remote Drive Controls.	2-2
Operator's Fusion Control Pendant	2-2
Control Box.	2-3
Pipe Lift Controls	2-3
Jaw Pivot and Clamp Control	2-3
Indexer, Heater, and Facer Controls.	2-3
Index Cylinder Lock	2-4
Jaw Clamps	2-4

COPYRIGHT © 2011
 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



Diesel Engine	2-4
Carriage Assembly	2-5
Facer	2-5
Oil Reservoir	2-5
Filter	2-6
Heater	2-6
Power for Heater	2-6

Operation

Read Before Operating	3-1
Before Starting	3-1
Starting Instructions	3-2
Driving Vehicle	3-3
Prepare Heater	3-4
Move Heater and Facer Out	3-5
Jaws	3-5
Jaw Inserts	3-6
Loading Pipe Into Machine	3-6
Closing Jaws	3-7
Positioning Facer	3-7
Begin Facing	3-8
After Facing	3-8
Fusion Settings and Controls	3-9
Check for Slippage	3-9
Check Alignment	3-9
Check Heater Temperature	3-10
Cleaning Heater	3-10
Select Fusion Pressure (For Semi-Automatic Fusion Only)	3-10
Heat Pipe (For Semi-Automatic Fusion Only)	3-11
Fusing the Pipe (For Semi-Automatic Fusion Only)	3-11
Opening Movable Jaws	3-12
Opening Fixed Jaws	3-12
Raise Pipe	3-12
Position Pipe for Next Joint	3-12
Install Next Piece of Pipe	3-13



Table of Contents



Special Operations - In Ditch

Overview	4-1
Removing Carriage	4-1

Special Operations - Three Jaw

Removing Outer Fixed Jaw	5-1
Removing 3-Jaw Carriage	5-2
3-Jaw Carriage Tee Leg Length Requirement	5-3
Remove Upper Jaws	5-3

Special Operations - Heater/Facer

Modular Facing Operation	6-1
Modular Heater Operation	6-5

Lifting Fusion Machine

Lifting Safety	7-1
Lifting Tracked Fusion Machine	7-2
Lifting Fusion Carriage	7-3
Securing Carriage for Transport	7-4

Coach™ Fusion Control System

Coach™ Operator Interface	8-1
Setting up to Fuse Pipe in the Semi-Auto Mode	8-2
Entering Pipe Parameters	8-2

Setting up DataLogger® Mode

Setting up to Fuse Pipe in the DataLogger® Mode	9-1
---	-----

Setting up Automatic Mode

Setting up to Fuse Pipe in the Automatic Mode	10-1
---	------

Downloading Joint Reports

Introduction	11-1
System Requirement	11-1
Installing the Program	11-1
Using the Program	11-1
File Menu	11-2
Settings Menu	11-2
View Menu	11-2
Front-end Search Range	11-3
Getting Help	11-3



Table of Contents



Maintenance

Preventative Maintenance	12-1
Disconnect Electrical Power.	12-1
Washing the Machine	12-1
Check Hydraulic Fluid	12-1
Adjusting System Pressure.	12-2
Engine Oil System	12-3
Bleeding Air From Fuel Line	12-4
Replace Fuel Filter	12-4
Facer Blades	12-4
Clean Jaws and Inserts.	12-4
Grease	12-5
Change Hydraulic Fluid and Filter	12-5
Bleeding Air From Hydraulic System	12-6
Installing Butt Fusion Heater Plates	12-6
Clean Heater Surfaces	12-7
Fasteners Must Be Tight	12-7
Hydraulic Cylinder Cushion	12-7
Checking Track Tension	12-8
Adjusting Track Tension	12-8
Checking Oil Level in Gearbox	12-9
Changing Oil in Gearbox	12-9
Opening and Removing Hoods	12-9
Changing Remote Channels	12-10
Remote Batteries	12-10

Maintenance Checklist

TracStar [®] 630 and 900	13-1
---	------



Table of Contents



Troubleshooting

Engine Will Not Start from Radio Remote	14-1
Engine Will Not Start from Vehicle Control Panel	14-4
Carriage Will Not Move	14-7
Pendant Check	14-8
Cannot Set or Hold Carriage Pressure	14-9
Diagnostic Screen Pressure Test	14-10
Control Box Check	14-11
Heater Temp is Not Correct	14-12
Facer Will Not Run	14-13
Lights Do Not Work	14-14
Engine Instruments	14-15
Tracks Will Not Move Using Vehicle Switches	14-16
Radio Check	14-17
TracStar 630 and 900 AutoMc [®] Diagnostic Screen	14-18

Hydraulic Fluids

Hydraulic Fluids	16-1
----------------------------	------

Specifications

TracStar [®] 630 Specifications	17-1
TracStar [®] 900 Specifications	17-2



Fusion Equipment 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.



WR00051-11-30-92



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

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.



WR00052-12-1-92

TX02946-4-15-09



Fusion Equipment 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.

TX00114-4-22-93



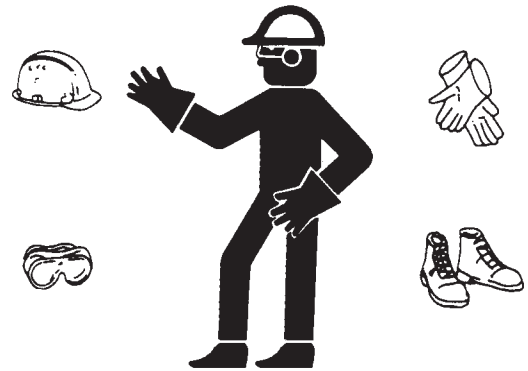
SAFE1ST:12-22-92

Wear Safety Equipment

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

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

TX00032-4-7-93



WR00053-12-2-92

Fuel Handling

⚠ DANGER Gasoline and diesel fuel 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.

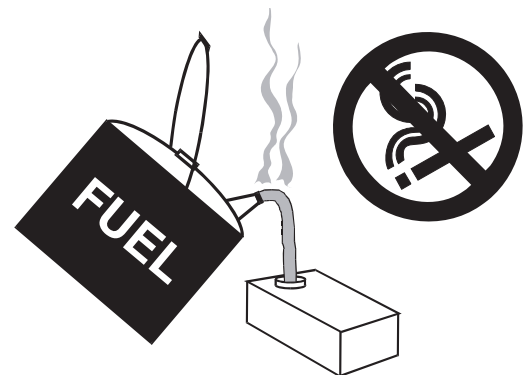
Refuel in a well ventilated area. Do not smoke or allow flames or sparks in the area where the engine is refueled, or where gasoline is stored.

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

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

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

TX00953-2-19-97



CD000365-2-19-97



Fusion Equipment Safety



Units With Engines

DANGER

Internal Combustion engines can cause explosions when operated in a hazardous environment. Do not operate gas or diesel powered machines in a hazardous environment. Operation of engines in a hazardous environment without necessary safety precautions will result in explosion and death.

When operating in a hazardous environment, keep engine and chassis in a safe area by using hydraulic extension hoses.

Help prevent fires by keeping machine clean of accumulated trash, debris and facer shavings.

TX01266-2-14-11



WR00080-4-12-93

Carbon Monoxide

DANGER

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.

TX00954-5-14-96



WR00093-5-14-96

Heater is Not Explosion Proof

DANGER

This heater is not explosion proof. Operation of heater in a hazardous environment without necessary safety precautions will result in explosion and death.

TX00100-9-16-94



WR00034-11-30-92

Do Not Operate This Machine in a Hazardous Environment

DANGER

Electric motors and heaters are not explosion proof. Operation of these components in a hazardous environment will result in explosion and death.

TX00796-11-30-95



WR00080-4-12-93



Fusion Equipment Safety



Crush Points



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.



TX03004-8-11-09

WR00012-12-4-92

Battery



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



Do not allow battery fluid to contact your skin, eyes, fabrics, or painted surfaces. Sulfuric acid can cause burns. After touching a battery or battery cap, do not touch or rub your eyes. Thoroughly wash your hands. If the acid contacts your eyes, skin or clothing, immediately flush with water for at least 15 minutes and seek medical attention.



TX00650-2-14-11

CD00176-9-14-95

CD00177-9-14-95



Fusion Equipment Safety



Electrical Safety



Always ensure equipment is properly grounded. It is important to remember when you are working in a wet environment with electrical devices. Proper ground connections help to minimize the chances of an electric shock. Failure to properly ground could result in serious injury or death from electric shock.

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

NOTICE: Always connect units to the proper power source as listed on the unit, or in the owner's manual.

NOTICE: Disconnect the machine from the power source before attempting any maintenance or adjustment.



Disconnect the machine from the power source before attempting to service the control panel. Failure to disconnect the power could result in electric shock. Refer service to a qualified technician.



WR00055-4-7-93



WR00025-11-30-92

TX03003-10-12-10

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 is high enough.



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.



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. Ensure the switches match the machine state before 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

TX03007-2-14-11



Fusion Equipment Safety



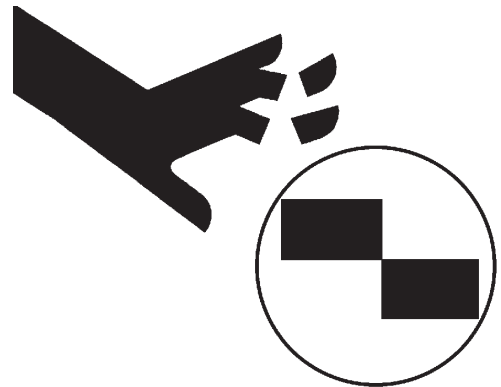
Facer Blades Are Sharp

WARNING Facer blades are sharp and can cut. Never attempt to remove shavings while the facer is running, or is in the facing position between the jaws. Use care when operating the facer, and when handling the unit.

NOTICE: Disconnect power from the facer, and remove the facer blades before attempting any maintenance or adjustment.

NOTICE: Never extend the blade beyond the inner or outer circumference of the facer.

TX02378-1-24-05

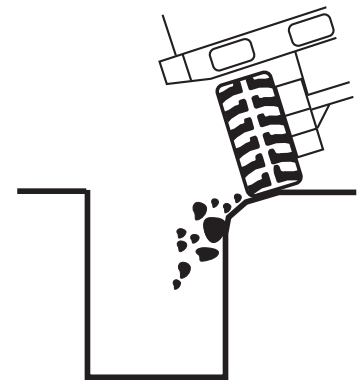


WR00073-4-6-93

Keep Machine Away From Edge of Ditch

WARNING Heavy equipment too close to a ditch can cause the walls of the ditch to cave-in. Keep the machine far enough away from the edge of the ditch to prevent injury to personnel and equipment from a cave-in. Serious injury or death could occur if machine falls into the ditch or causes a cave-in of the ditch.

TX01447-2-14-11



CD00408-12-31-97

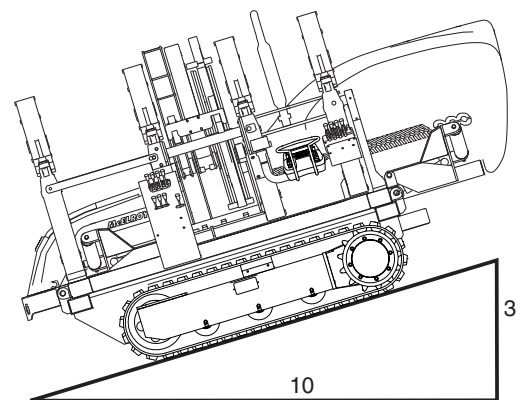
Positioning Tracked Fusion Machine

Place fusion machine on as level ground as possible.

If it is necessary to operate machine on unlevel grade, make sure that the ground is stable. Some unstable conditions may be ice, snow, mud and loose gravel.

WARNING For operation safety, never operate the machine on a grade steeper than 30 %. (A 3 foot elevation change in 10 feet). Operation of the machine at grades steeper than 30% could cause the machine to tip over causing serious injury or death.

TX01448-2-14-11



CD00547-8-19-99



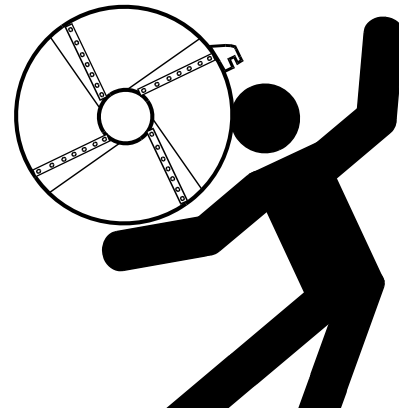
Fusion Equipment Safety



Stand Clear

⚠ WARNING Jaws, heater and facer pivot rapidly and can cause severe bodily injury if someone is standing too close. All personnel must stand clear of machine when operating.

Be aware of yourself and others when operating this machine and when sections of pipe are being moved.



WR00091:3:4:96

TX00822-12:27:95

Heater Is Hot

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

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

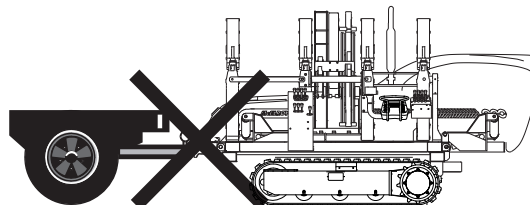


WR00030:2:10:93

TX04244-10:12:10

Do Not Attempt to Tow Tracked Fusion Machine

NOTICE: The machine is not designed for towing. The tracks will not move. Attempting to tow the machine can result in machine damage. Always transport the machine by flatbed trailer or similar means, and make sure that unit is properly secured.



CD00548:8:19:99

TX04245-11:8:10



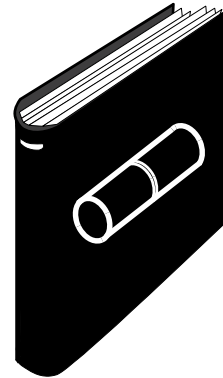
Fusion Equipment Safety



Fusion Procedures

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

NOTICE: Failure to follow pipe manufacturer's procedure could result in a bad joint. Always follow pipe manufacturer's procedures.



WR00079-2-7-96

TX02984-5-4-09

Theory of Heat Fusion

The principle of heat fusion is to heat two surfaces to a designated temperature, and then fuse them together by application of force. This pressure causes flow of the melted materials, which causes mixing and thus fusion. When the polyethylene material is heated, the molecular structure is transformed from a crystalline state into an amorphous condition. When fusion pressure is applied, the molecules from each polyethylene part mix. As the joint cools, the molecules return to their crystalline form, the original interfaces are gone, and the fitting and pipe have become one homogeneous unit. The joint area becomes as strong as the pipe itself in both tensile and pressure conditions.



PH012692-1-98

The principal operations include:

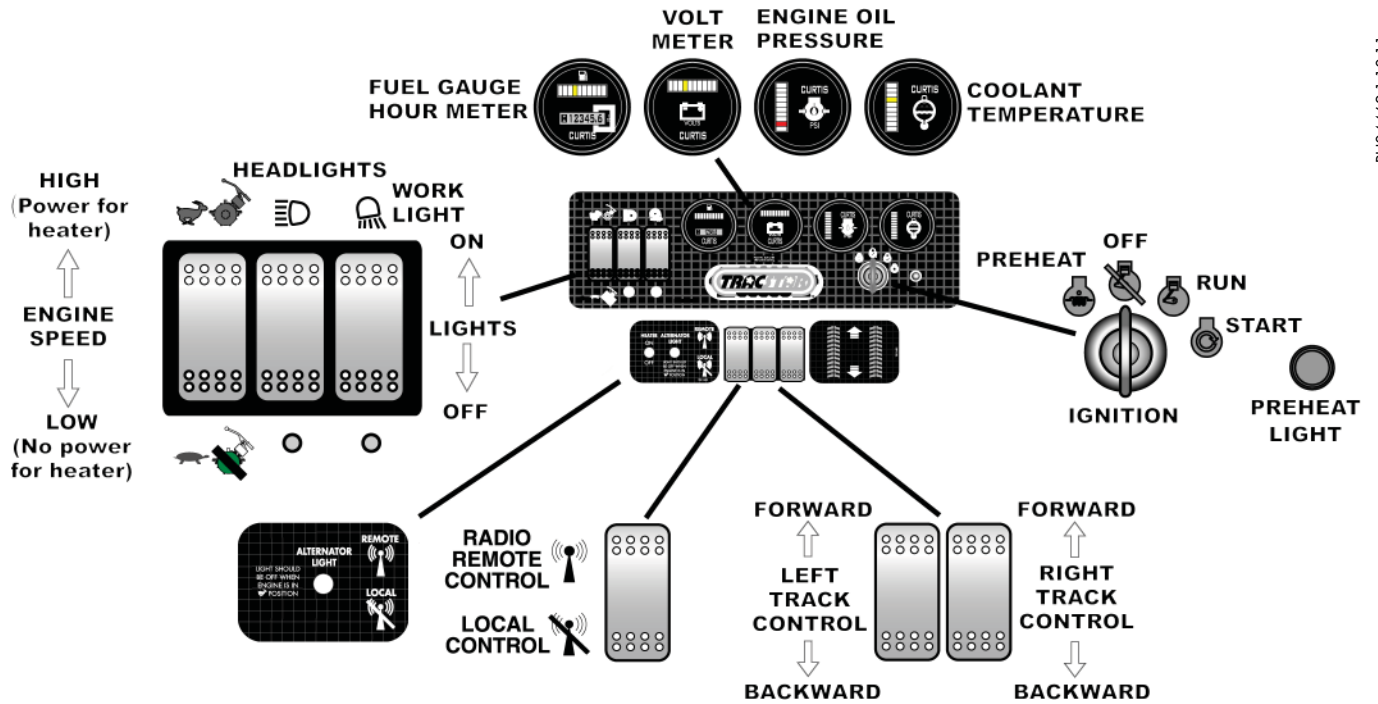
- Clamping** The pipe pieces held axially to allow all subsequent operations to take place.
- Facing** The pipe ends must be faced to establish clean, parallel mating surfaces perpendicular to the centerline of the pipes.
- Aligning** The pipe ends must be aligned with each other to minimize mismatch or high-low of the pipe walls.
- Heating** A melt pattern that penetrates into the pipe must be formed around both pipe ends.
- Joining** The melt patterns must be joined with a specified force. The force must be constant around the interface area.
- Holding** The molten joint must be held immobile with a specified force until adequately cooled.
- Inspecting** Visually examine the entire circumference of the joint for compliance with standards established by your company, customer, industry, federal, state, or local regulations.



Overview



TracStar® 630 and 900 Console



PH04462-1-10-11

Radio Remote Drive Controls

The engine can be started and machine can be driven from the radio remote.



PH03740-1-21-09

Operator's Fusion Control Pendant

The control pendant is designed to control 5 individual pressure settings. Face, Heat, Soak, Fuse and Cool. Setup for these controls is explained in the "Fusion Control System" section of this manual.

The carriage directional control, a pressure selector control and the facer on/off control is also located on the control pendant.

On top of the control pendant is a red emergency stop button. Push down on the button to shut down the system. The button must be pulled up to resume operations.



PH03544-12-17-07

TX01662-8-19-99

TX02756-12-31-07



Overview

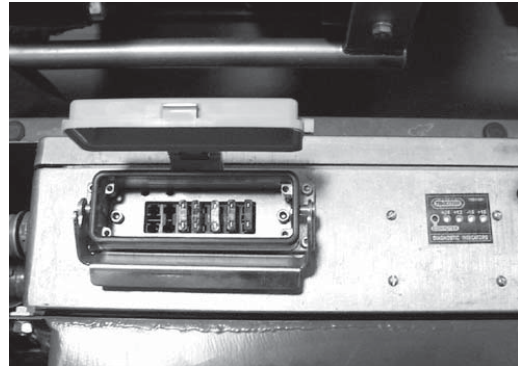


Control Box

The Control Box contains the electronics that operate the system. There are lights on top that indicate the status of the system as well as a fuse box.

There are no serviceable parts inside the Control Box.

Refer to the **Troubleshooting** section of this manual for more information.

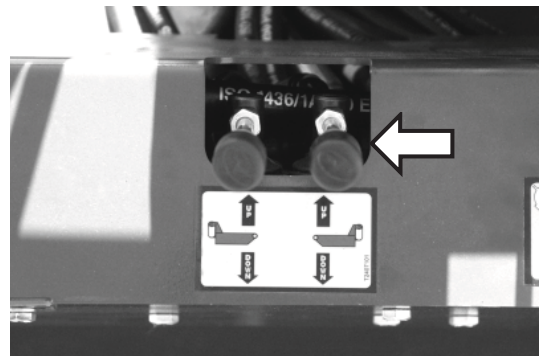


PH03544-12-17-07

TX01495-3-3-98

Pipe Lift Controls

Hydraulic pipe lifts are used to aid in positioning pipe in the machine.

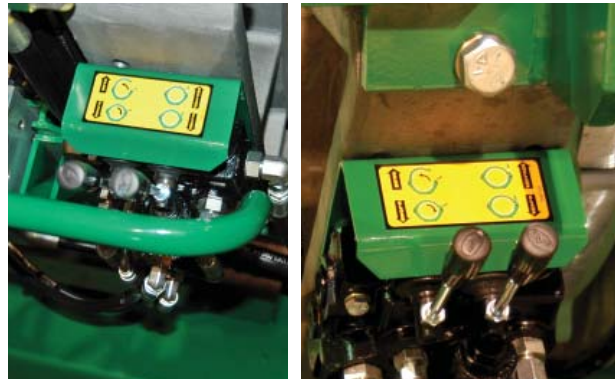


PH3258-6-23-06

TX01663-8-19-99

Jaw Pivot and Clamp Control

Arrows on valves indicate direction of control lever movement for operation required.



PH03735-1-21-09

PH03736-1-21-09

TX00885-3-7-96

Indexer, Heater and Facer Controls

Arrows on valves indicate direction of control lever movement for operation required.



PH03491-10-17-07

TX00886-3-7-96



Overview

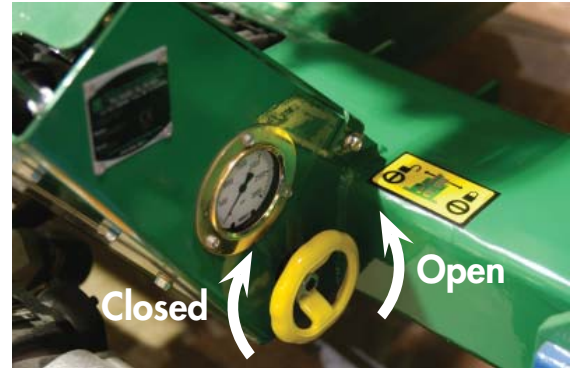


Index Cylinder Lock

The index cylinder lock valve should be in the closed position for transporting.

Open the index cylinder lock valve before operating.

NOTICE: Open valve before operating, failure to do so will result in damage to the machine.



PH03493-10-17-07

TX04253-12-7-10

Jaw Clamps

Jaw clamps are hydraulically operated for clamping and unclamping the upper jaws.

There is a handle connecting both clamping cylinders that is used for lowering the clamps away from the jaws.



PH03492-10-17-07

TX00887-3-7-96

Diesel Engine

Read the operating and maintenance instructions for the engine before operating.

There is an ignition key on the console that shows the preheat, off, run, and start positions.



PH04455-11-11-10

TX01465-11-8-10



Overview



Carriage Assembly

The carriage assembly consists of two fixed jaws and two hydraulically operated movable jaws.

The carriage assembly can be removed from the machine for remote operation. An optional extension kit is required when using the carriage remotely.

The two moveable and inner fixed jaw can be removed in a 3-Jaw configuration for remote operation from the carriage.

TX02637-7-17-06



PH02512-07-17-03

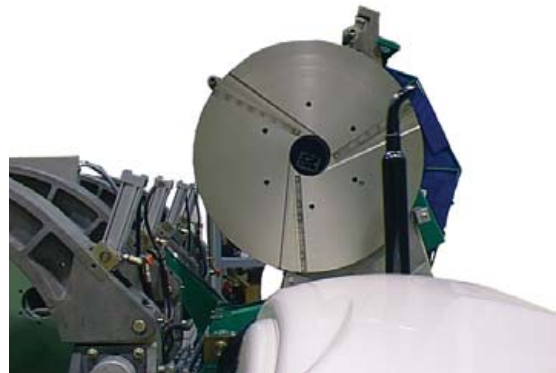
Facer

The facer is a McElroy Rotating Planer-Block design. The blade holders each contain three cutter blades. The block is chain driven (enclosed in lubricant) by a hydraulic motor.

When needed, the facer can be removed from its carriage skid-mounted pivot arm, for off-vehicle modular operation.

The optional extension kit as well as the optional heater/facer stand is needed for modular facer operation.

TX02638-3-12-07



PH01697-8-19-99

Oil Reservoir

The oil reservoir is located under the front hood of the tracked vehicle. The oil level sight gauge is located on the reservoir. It includes a thermometer which indicates oil temperature.

Fill to the bottom of the sight gauge when the oil is cool to allow for fluid volume expansion.

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

Never allow dirt or other foreign matter to enter the open tank.



PH03541-10-17-07

TX02732-11-15-07



Overview



Filter

This machine is equipped with a 10 Micron filter on the return side of the circuit.



PH017168-1999

TX02713-3-12-07

Heater

The heater is equipped with butt fusion heater plates, coated with an antistick coating.

⚠ DANGER This heater is not explosion proof. Operation of heater in a hazardous environment without necessary safety precautions will result in explosion and death.

When needed, the heater can be removed from its carriage skid-mounted pivot arm, for off-vehicle modular operation.

The optional extension kit as well as the optional heater/facer stand is needed for modular heater operation.

TX02733-11-8-10



PH032608-7-06

Power for Heater

The heater cord has a receptacle on the vehicle to allow carriage removal and has a receptacle on the carriage to allow heater removal. Extension cable for remote use can be used between either receptacle. Tighten coupling nut after plugging into receptacle.



PH01708-8-1999

TX02734-11-15-07



Operation



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.



Stop-1228-95

TX00401-9-15-94

Before Starting

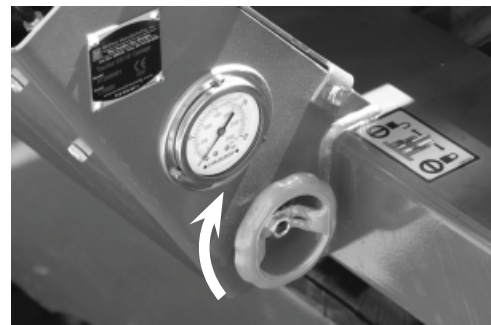
Before starting this machine make sure that the carriage directional control is centered.

The clamp valves (A) should be in the centered position, the jaw pivot valves (B) should match the current position of the jaws.

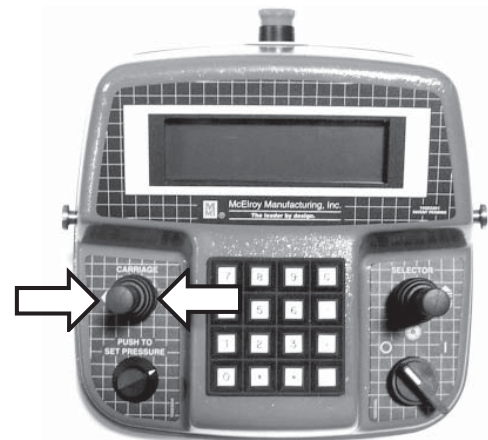
This will prevent any unwanted movement upon starting of engine.



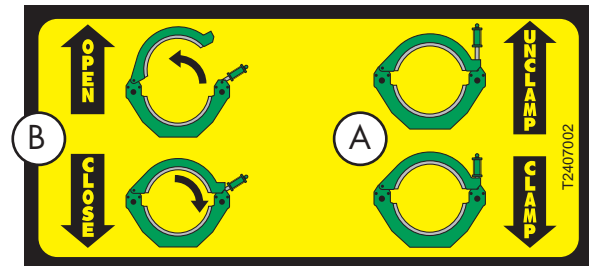
Unwanted movement of the machine may take place if valves do not match machine state when the machine power is turned on. Unwanted movement of the machine could result in serious injury, death, or damage to machine. Ensure that the valves match the machine state before the machine power is turned on.



PH03265-7-17-06



PH01667-8-19-99



T2407002

TX02714-2-17-11



Operation



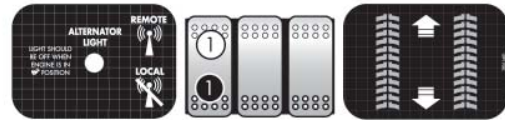
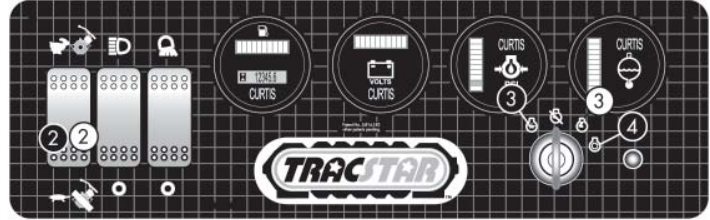
Starting Instructions

Read the operating and maintenance instructions for the engine before operating.

The key ignition has four positions. Preheat, off, run and start.

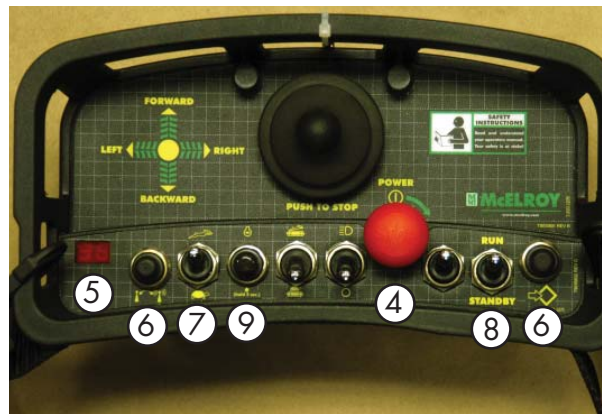
Starting in Local Mode

- 1 Set rocker switch to Local.
- 2 Set engine speed to slow.
- 3 Turn key switch to preheat for 5 sec.
- 4 Turn key switch to start.



Starting in Remote Mode

- 1 Set rocker switch to Remote.
- 2 Set speed switch on Instrument Panel to slow.
- 3 Turn the key switch on the control panel to run.
- 4 Turn remote Estop button so it comes out.
- 5 If the LED display shows a L in the display and has an audible beep, the batteries are low and need to be replaced. Refer to the "Remote Batteries" in the maintenance section.
- 6 Press the Reset button to link the remote. If the remote has interference, the remote channel can be changed. See the section "Changing Remote Channel" in the Maintenance section of this manual.



- 7 Set engine speed to slow.



- 8 Set the remote to Standby.



- 9 Hold the preheat push-button on for 5 sec.



- 10 Push the engine start button until the engine starts.



- 11 Switch to Run mode to drive the vehicle.



- 12 To stop the engine, press the engine stop button until the engine is off.



TX02144-1-21-09

PH04463-1-10-11

PH03740-1-21-09

PH03740-1-21-09

PH03740-1-21-09



Operation



Driving Vehicle

In local mode the tracks are operated by the toggle switches on the main console.

NOTICE: Driving the vehicle with the indexer lock valve open can damage the machine. Be sure to open it before loading or fusing pipe.

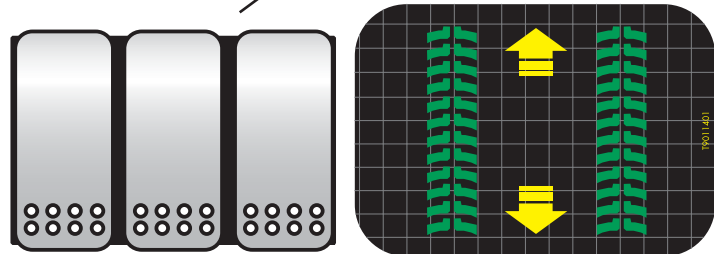
Left drive toggle switch engages left track. Right drive toggle switch engages right track.

To turn LEFT, toggle the left switch in reverse and the right switch forward.

To turn RIGHT, toggle the right switch in reverse and the left switch forward.



PH04458-11-11-10



CD00569-8-19-99

In Radio Mode the joystick controls the tracks.

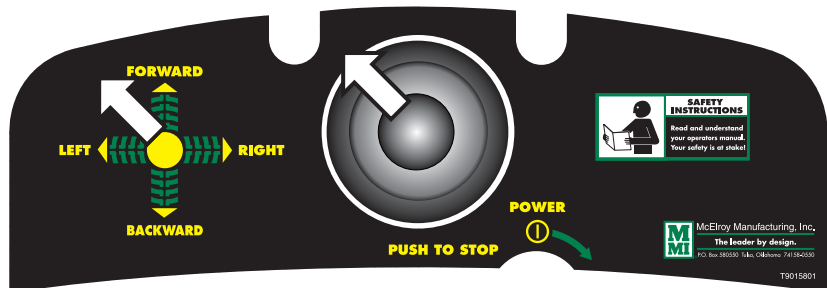
CAUTION When using remote mode, switch to "standby" when not driving the vehicle to prevent accidental movement.

With the Standby/Run switch in "RUN" move the joystick in the backward direction to move the machine backwards. Standing at the rear of the machine, moving the joystick to the left or right will make the machine turn in that direction.



PH03740-1-21-09

The track speed switch is used to switch between low speed/high torque and high speed/low torque. The machine will not have torque available to turn in all conditions in high speed.



CD00568-8-19-99

TX02631-11-11-10

Prepare Heater

⚠ DANGER Heater Is Not Explosion Proof. Operation of heater in a hazardous environment without necessary safety precautions will result in explosion and death.

Make sure butt fusion heater adapters are properly installed.

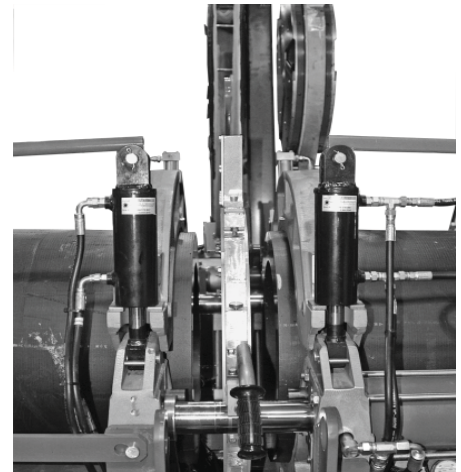
NOTICE: Non-coated heaters should never be used without butt fusion heater adapters installed. Refer to the "Maintenance" section of this manual for installation procedure.

Plug heater into receptacle on machine.

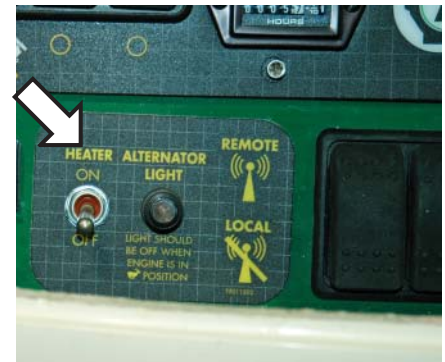
Switch the heater on. Adjust heater temperature to required setting. Allow heater to warm-up to operating temperature.

Heater temperature is shown on pendant screen.

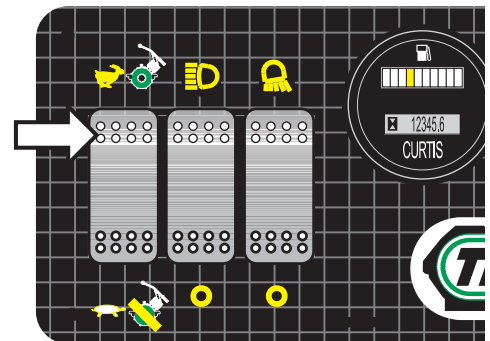
Refer to the "Fusion Control System" section of this manual for instructions how to adjust heater temperature.



PH03261-6-26-06



PH04456-11-1-1-10



CD00570-8-19-99



PH01708-8-19-99



Operation



Move Heater and Facer Out

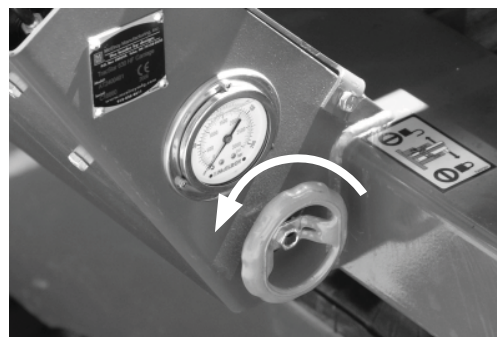
Unlock Index Cylinder valve and move carriage to the right (A)
 Pivot Support Arm / Heater Bag out by moving lever on valve to out position (B).



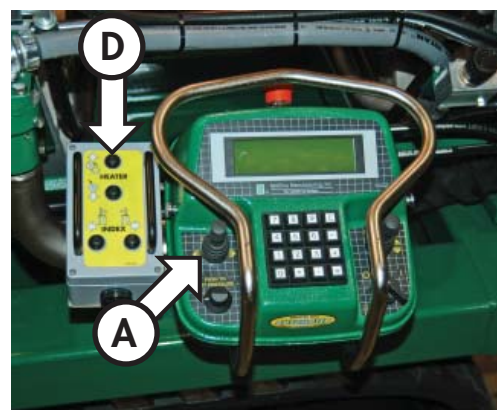
Swing Facer out by moving levers on valves to out positions (C).



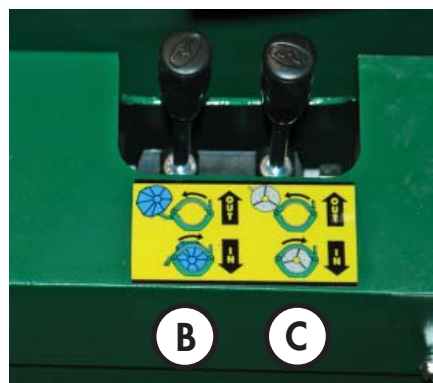
Swing Heater out by pressing the heater button (D).



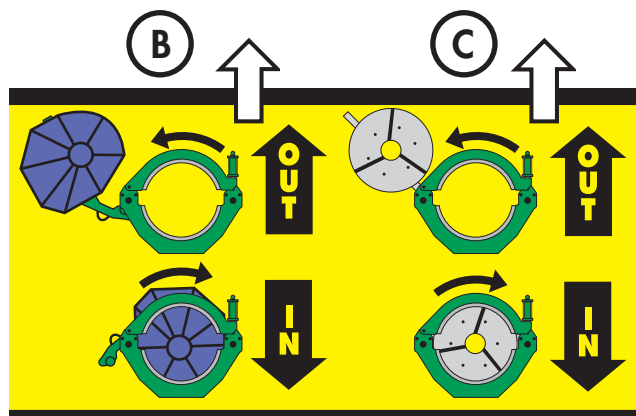
PH03265-1-22-07



PH03544-12-17-07



PH03546-12-17-07



CD00567-8-19-99

TX01675-8-19-99

Jaws

Move clamp valve lever to unclamp position and swing the clamp cylinders toward you.

NOTICE: Do not let the clamp cylinders drop. Dropping the cylinders can damage the equipment.

Move jaw valve lever to open position and open jaws.



PH01681-8-19-99

TX02644-7-17-06

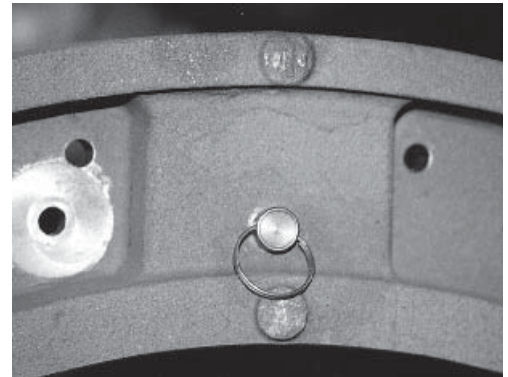


Operation



Jaw Inserts

Install appropriate size jaw inserts for the pipe that is being fused. The inserts are held in place by detent pins.



PH00737-3-11-96

TX01660-8-19-99

Loading Pipe into Machine

Position pipe support stands approximately 20 feet from each end of the machine to help support and align the pipe.

Raise pipe lifts on carriage to allow pipe to roll into position.



PH02224-8-22-01

Position pipe with enough material protruding past the jaw faces to allow for facing of the pipe end.

Important: The radio remote can be used to help position the machine for proper facing of the pipe end. Large diameter pipe may be difficult to position in the machine. The track drive can also be used to position the machine under the pipe.



PH01673-8-19-99



TX01689-11-15-07



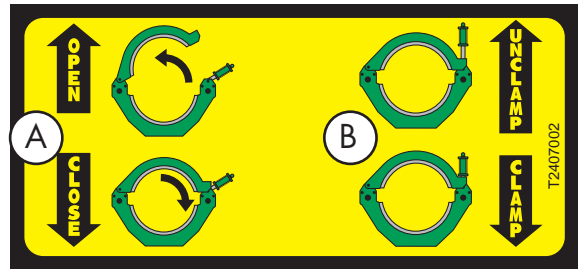
Operation



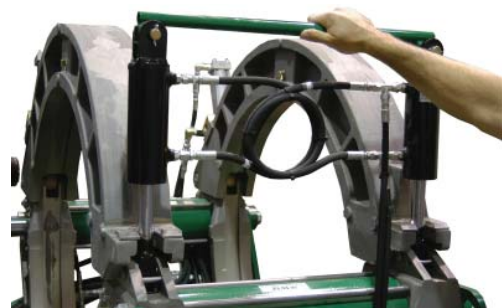
Closing Jaws

Move the jaw valve control lever to Close position (A).

Move the clamp cylinders into the vertical position and then move the jaw clamp control valve lever to the Clamp position (B).



TX02645-7-17-06

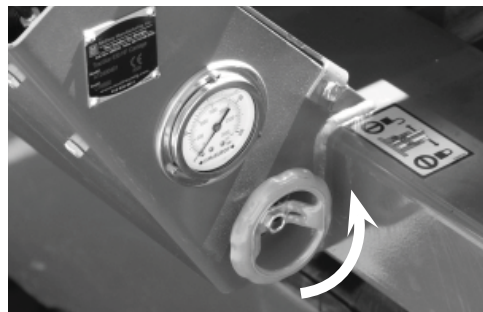


PH03515-10-17-07

Positioning Facer

Make sure the index cylinder lock valve is in the open position and press the heater/facer index buttons to position the facer between the pipe ends (A).

Pivot the facer into position by moving the facer valve lever (B) to IN position.



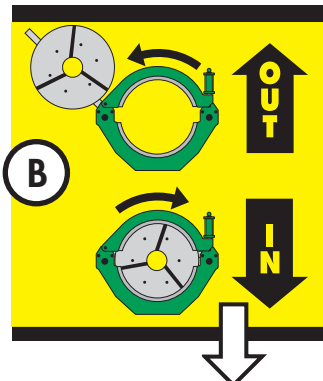
PH03265-6-30-06



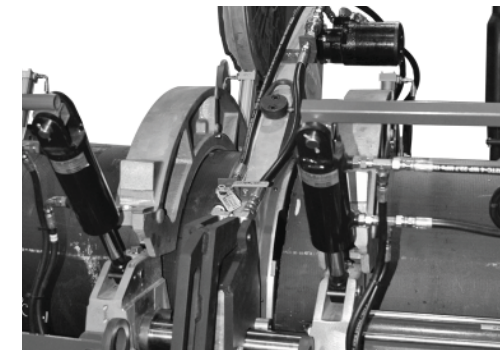
PH03544-12-17-07



PH03546-12-17-07



CD00567-8-19-99



PH03266-6-30-06

TX02739-11-15-07



Operation



Begin Facing

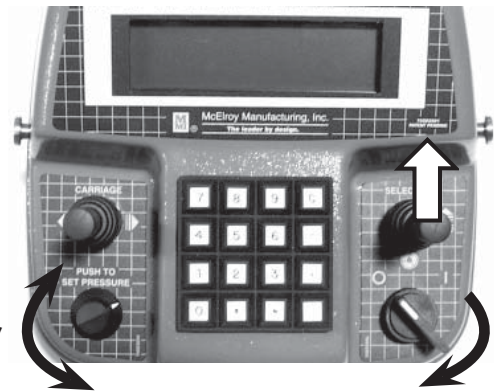
Turn facer on by opening valve on top of the facer (TracStar 630) or next to the carriage manifold (TracStar 900).

Select facing pressure on the pendant box.

The facing pressure should be set as low as possible while still facing pipe. Excessive facing pressure can damage the facer. It may be necessary to adjust the carriage pressure.

WARNING Facer blades are sharp and can cut. Never attempt to remove shavings while the facer is running, or is in the facing position between the jaws. Use care when operating the facer, and when handling the unit.

Activate the carriage control valve and move the carriage to the left to begin facing. Continue to face the pipe until the rest buttons on the jaws bottom out on the facer rest buttons.



PH01667-8-19-99

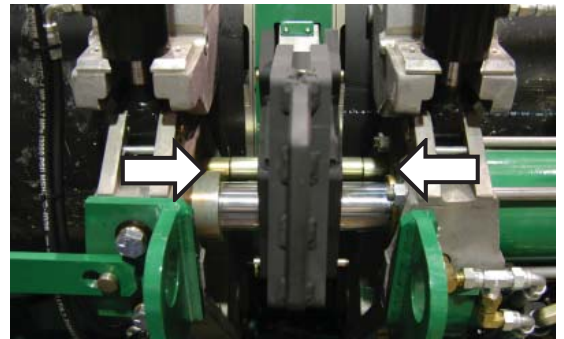


TracStar 900



TracStar 630

PH03278-6-30-06 PH03534-10-17-07



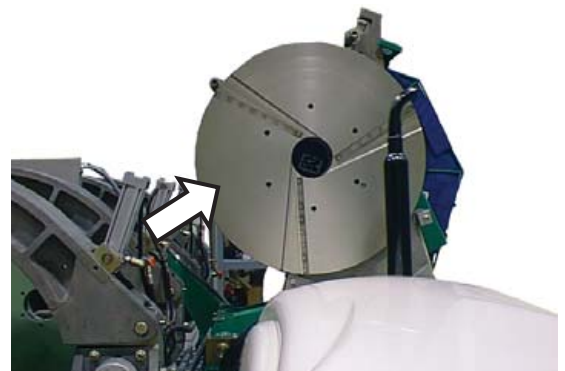
PH03512-10-17-07

TX04256-1-10-11

After Facing

Turn facer motor off. Move carriage all the way to the right. Center the facer in between the pipe ends to avoid dragging facer stops on the pipe ends. Swing facer to the out position. Clean shavings out of pipe ends and from between the jaws. Do not touch faced pipe ends.

WARNING Turn the hydraulics off if it is necessary to enter the unit for maintenance or chip removal. Death or serious injury will result if the hydraulics are activated while in the unit.



PH01697-8-19-99

TX02877-11-11-10



Fusion Settings and Controls

Refer to the **Coach Fusion Control System** section of this manual to program fusion settings or for use of pendant controls.



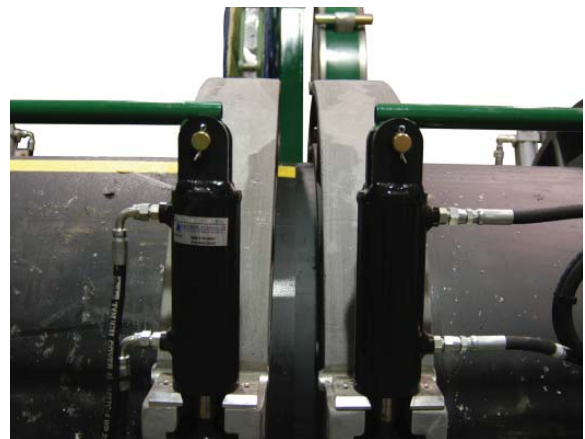
PH03544-12-17-07

TX01493-3-2-98

Check for Slippage

Bring the two sections of pipe together under fusion pressure to make sure they don't slip in the jaws.

If slippage occurs, return to **Loading Pipe into Machine**.



PH03514-10-17-07

TX00971-12-7-10

Check Alignment

Move carriage to the left at facing pressure, until pipe ends contact. Look across the top surface of pipe ends to check alignment. If there is a noticeable step across the joint, adjustments must be made.

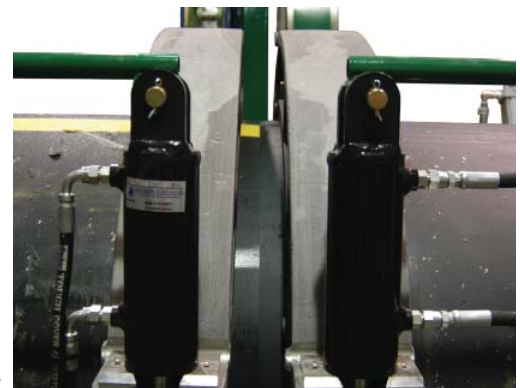
Adjusting screws are located on top of both inner jaws. The jaws must be opened to perform the adjustment. Tighten the bolt on the high side jaw to improve alignment.

IMPORTANT: Always tighten the side that is higher, never loosen the low side.

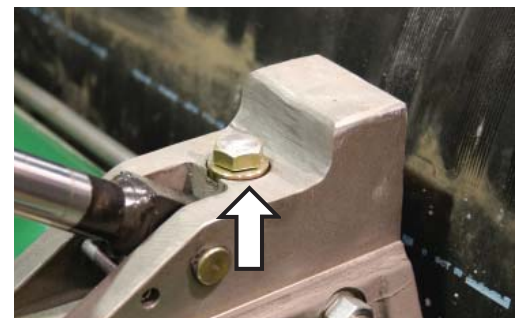


WARNING Hydraulically operated equipment is operated under pressure. Anything caught in the machine will be crushed. Keep fingers, feet, arms, legs, and head out of the machine while operated.

Ensure there is no unacceptable gap between the pipe ends. If there is an unacceptable gap, return to **Loading Pipe into Machine**.



PH03514-10-17-07



PH03513-10-17-07

TX04247-11-11-10



Operation



Check Heater Temperature

CAUTION Incorrect heating temperature can result in questionable fusion joints. Check heater plates periodically with a pyrometer and make necessary adjustments.

Check heater surface temperature.

Refer to the pipe manufacturer's recommendations for proper heater temperature.



Face: 100
Heat: 80
Fuse: 600
(Drag: 80)



TX01678-8-19-99

WR00077-4-16-93

CD0041668-19-99

Cleaning Heater

Use a clean non-synthetic cloth to clean the butt fusion heater adapter surfaces.



TX01679-8-19-99

PH01720-8-19-99

Select Fusion Pressure (For Semi-Automatic Fusion Only)

Move the toggle to select fusion pressure.



TX02556-11-7-05

PH01303-3-5-98



Operation



Heat Pipe (Semi-Automatic Fusion Only)

Use the indexing valve to move the heater left until it is within 1/2" of the pipe end.

Shift the selector valve to the fusion position and move carriage to the left to bring pipe ends in contact with the heater. Move selector valve to middle (heating mode) position. If heater pressure is not required by pipe manufacturer or joining standard, or opposing forces are not great enough to move the carriage away from the heater, shift the carriage control valve to neutral.

IMPORTANT: Always shift into the heating mode **before** returning carriage valve to neutral.

Follow the pipe manufacturer's suggested heating and soaking procedure or joining standard.



PH03516-10-17-07



000:01:14

02/02/99 14:49

Face: 100
▶Heat: 80◀
Fuse: 600

(Drag: 80)

440°F

CD004168-8-19-99

TX04260-1-10-11

Fusing the Pipe (For Semi-Automatic Fusion Only)



Failure to follow the pipe manufacturer's heating time, pressure and cooling time may result in a bad joint.

After following the heating procedure, verify carriage control valve is in neutral and move selector valve down, to fusion position.

Move the carriage to the right just enough to remove the heater.

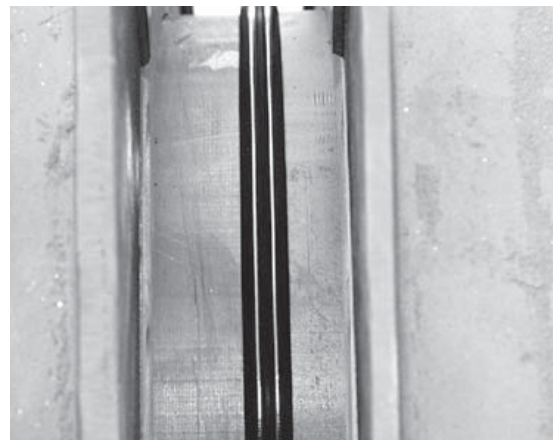
Index the heater to the right to clear the pipe ends. Move the heater pivot valve to **OUT** position to quickly pivot heater out.

Quickly inspect pipe ends for appropriate melt.

When heater is clear of the jaws, quickly move the carriage to the left and bring the pipe ends together using the pipe manufacturer's recommended pressure.

Allow joint to cool under pressure according to pipe manufacturer's recommendations or appropriate joining standard.

Visually examine the entire circumference of the joint for compliance with standards established by your company, customer, industry, federal, state, or local regulations.



PH01269-2-13-98

TX02881-12-7-10



Operation



Opening Moveable Jaws

After the joint has cooled for the pipe manufacturer's recommended time, move the index carriage all the way left then shift the carriage control to the neutral position.

- Open clamp cylinders.
- Open the movable jaws.

TX01680-8-19-99



PH01725-8-19-99

Opening Fixed Jaws

- Unclamp the fixed jaws.
- Open the fixed jaws.

TX00381-9-16-94



PH01684-8-19-99

Raise Pipe

Raise the joined pipe using the hydraulic pipe lifts.

TX01681-8-19-99



PH01734-8-19-99

Position Pipe for Next Joint

Move the fusion machine to end of pipe, or pull the pipe through the jaws until the end of the pipe is protruding past the jaw face of the fixed jaw.

TX01682-11-17-10



PH01668-8-19-99



Install Next Piece of Pipe

Insert a new piece of pipe in movable jaws and repeat all previous procedures.



PH01673-8-19-99

TX00384-10-12-95



Special Operations - In Ditch



Overview

The carriage may be used off the vehicle for in-ditch tie-ins and fusing tees or fittings that require more working space than is possible while the carriage is mounted on the machine.

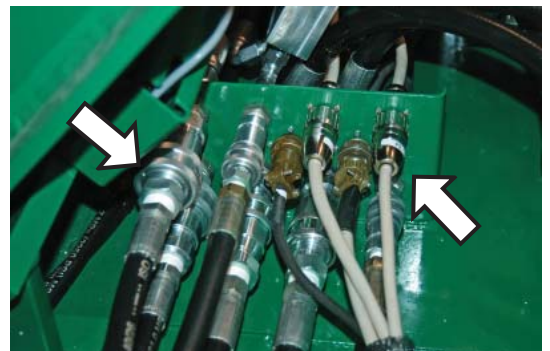
TX02651-3-12-07



Removing Carriage

Pivot the heater facer and support arm into the machine.
Turn off the engine.
Remove the four clevis pins.

Disconnect all hoses and cables.



Attach the spreader bar as shown on page 4-2.
The outrigger under the outer fixed jaw may be extended for additional support.

Attach extension cables and hoses between Carriage and Machine.



Special Operations - In Ditch

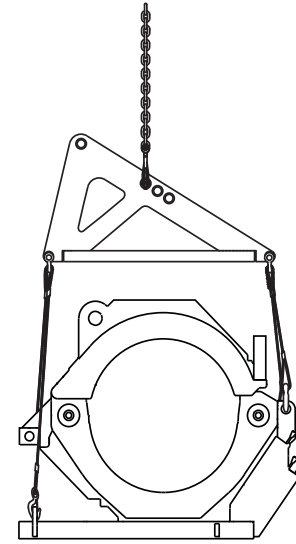


Removing Carriage (cont'd)

Spreader bar configuration shown is for lifting entire carriage.

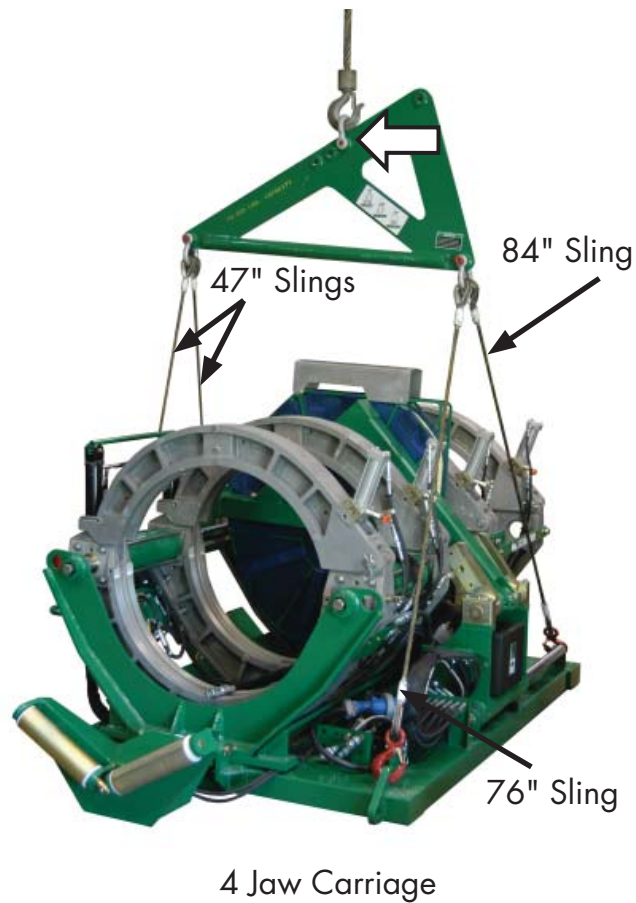
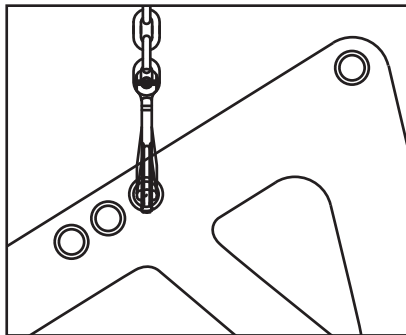
Spreader bar assembly comes with:

- (1) Spreader bar weldment
- (2) Sets of 47" slings
- (1) Sling set consisting of:
 - (1) 84" sling
 - (1) 76" sling



CD0754-10-17-07

NOTICE: Long sling (84") is toward the fixed jaw end.



PH03520-10-17-07

CD0761-10-17-07

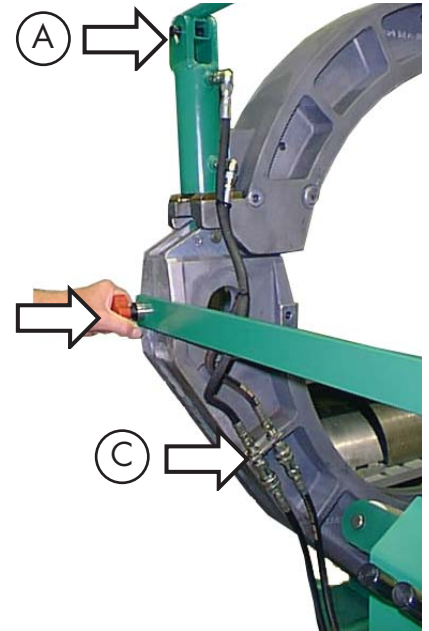
Removing Outer Fixed Jaw

Certain fusion applications require more clearance than is available in the 4-jaw, off-vehicle configuration. When needed, the outer fixed jaw can be removed from the carriage skid assembly while leaving the rest of the carriage skid assembly intact.

IMPORTANT: Automatic fusion cannot be done in 3-Jaw configuration.

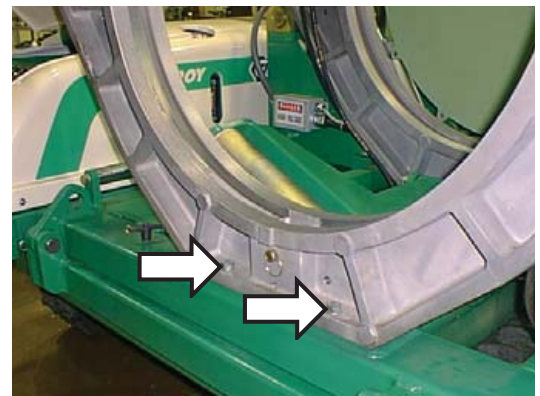
To remove the outer fixed jaw:

Disconnect the clamp handle (A), the tie bar (B), and the hydraulic connection between the jaws (C).



PH016948-19-99

Remove the bolts securing the outer fixed jaw and remove the jaw.



PH016958-19-99



Removing 3-Jaw Carriage

For very tight fusion conditions where the carriage skid assembly won't fit, or for fusing special fittings that would interfere with the carriage skid, pipe lifts, or the outer fixed jaw, the 3-jaw carriage assembly (2 moveable jaws and inner fixed jaw) can be removed as a separate unit from the carriage skid.

IMPORTANT: Automatic fusion can not be used in 3-jaw configuration. 3-jaw fusion can only be done in Semi-Auto mode only.

With the machine turned off and the facer, heater and heater bag support arm pivoted out:

Disconnect hoses between the carriage and the 3-jaw carriage assembly (A).

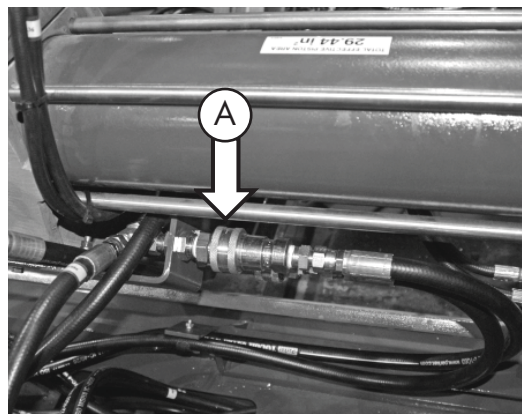
Disconnect the hoses to the facer near the facer motor (B).

Remove the fixed jaw supports (C) and clamp cylinder handle (D).

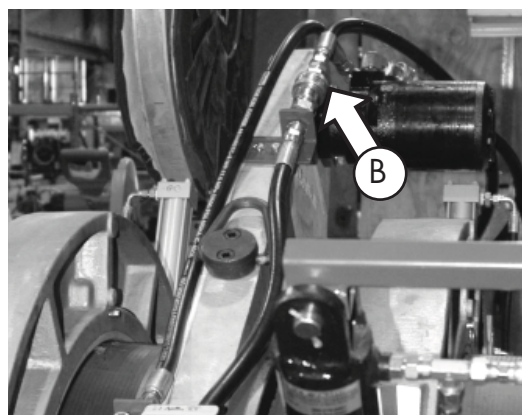
Disconnect hoses from outer fixed jaw pivot and clamp (E).

Remove (2) fixed jaw mounting bolts and (3) guide rod support mounting bolts (F).

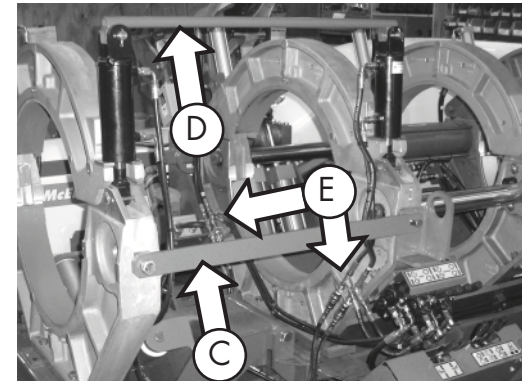
Attach spreader bar with (2) sets of 47" slings to lifting eyes on inner fixed jaw and guide rod support as shown.



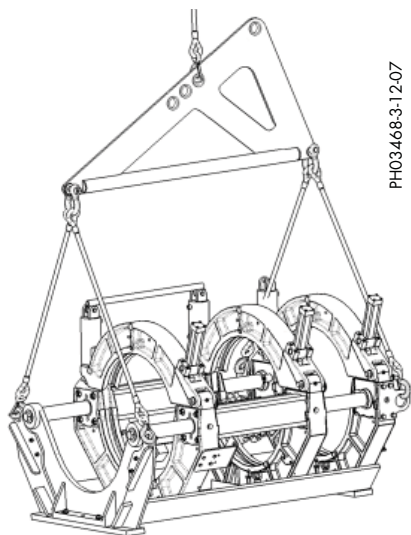
PH032827-17-06



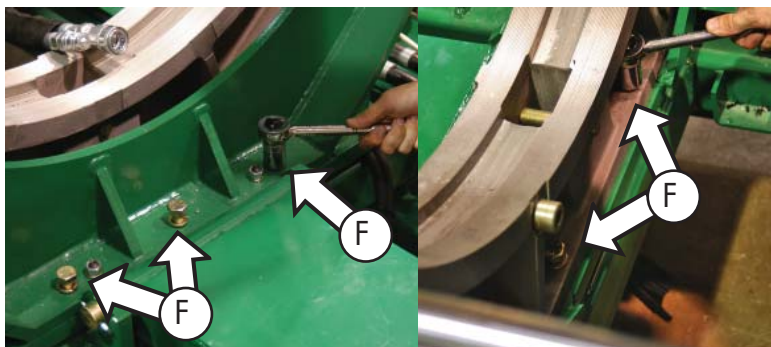
PH034693-12-07



PH034663-12-07



PH034683-12-07



PH034673-12-07

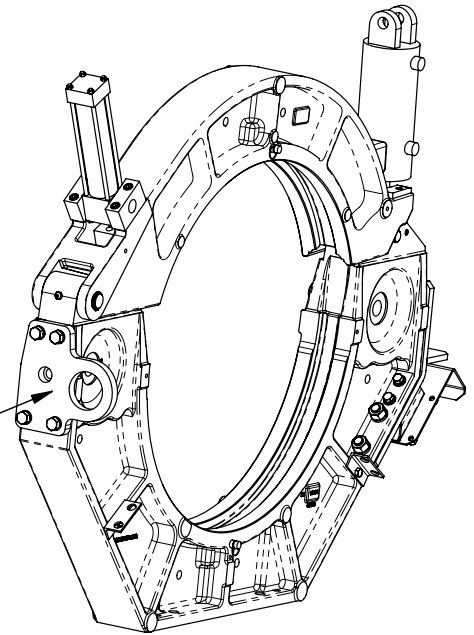
TX02742-11-15-07



3-Jaw Carriage Tee Leg Length Requirement

The inner fixed-jaw inbound lifting lug must be removed to achieve the minimum length.

REMOVE FOR MINIMUM TEE LEG LENGTH



CD00766-11-17-07

TX02743-11-15-07

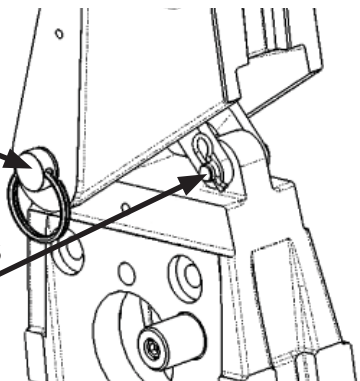
Remove Upper Jaws

Upper jaws may be removed by removing hairpin and clevis pin for pivot cylinder and removing the hairpin and jaw pin.

Disconnect the pivot cylinder hoses.

REMOVE HAIRPIN AND JAW PIN TO REMOVE UPPER JAW

REMOVE HAIRPIN AND CLEVIS PIN TO DISCONNECT JAW PIVOT CYLINDER



PH03448-1-22-07

TX02705-11-15-07



Modular Facing Operation

When operating the fusion machine in the 3-Jaw carriage assembly configuration, the facer must be operated away from the machine in a modular configuration.

WARNING Facer blades are sharp and can cut. Never attempt to remove shavings while the facer is running, or is in the facing position between the jaws. Use care when operating the facer, and when handling the unit.

To remove the facer from its on-skid pivot arm:

With the facer valve closed so the facer blades are not rotating, pivot the facer out to just above the clamping cylinders (A).

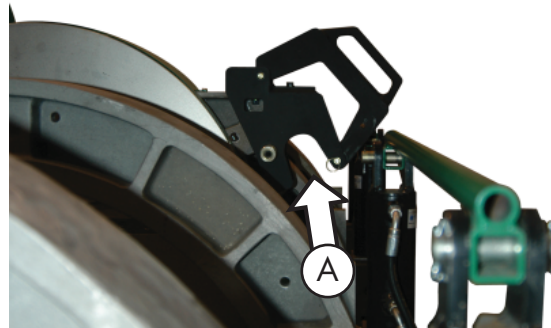
Attach a lifting strap of adequate load rating to the lifting eye on the top of the facer (B).

Turn off the machine.

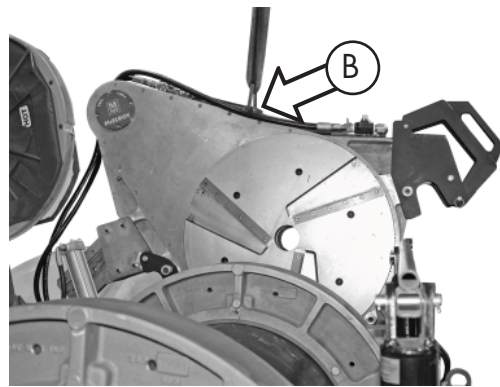
NOTICE: The facer must be rotated out to the clamping cylinders before removing the mounting bolts and lifting the facer. Failure to do so may cause uncontrolled movement of the facer and damage to the machine.

Remove in-board rest buttons (C).

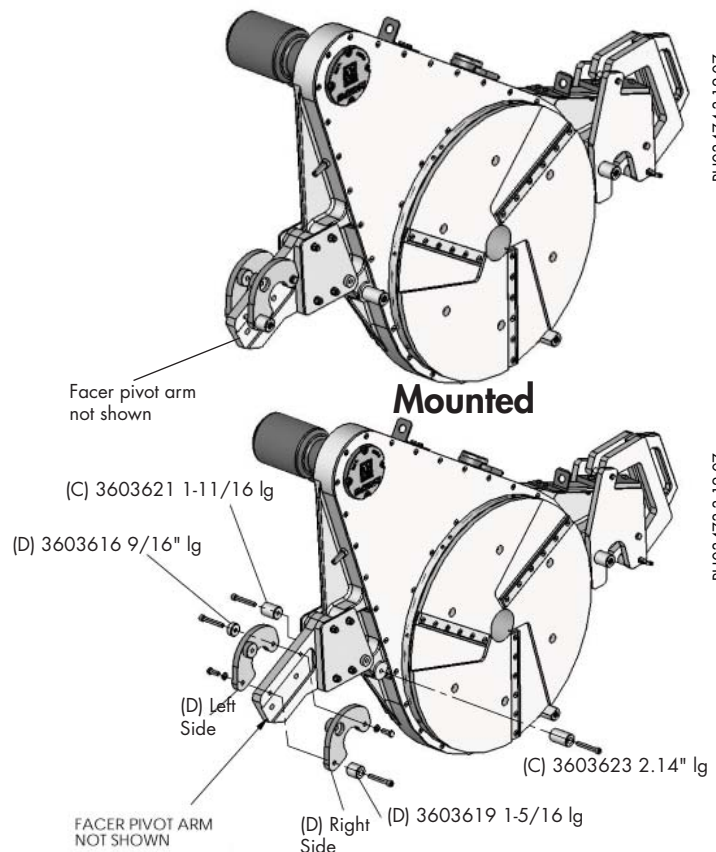
Remove mounted guide rod anchors and rest buttons (D).



PH03622-2-14-08



PH03288-6-30-06



PH03474-3-12-07

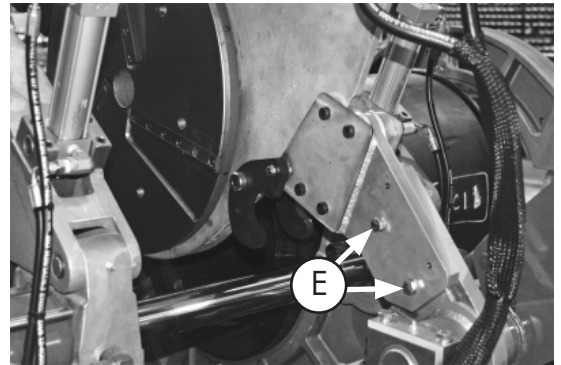
PH03473-3-12-07

Exploded Mounted Position



Modular Facing Operation (continued)

- Loosen and remove the (2) facer mounting bolts (E).
- Disconnect the hoses at the quick disconnects near the facer motor.
- Slowly lift out the facer using an overhead lifting device.

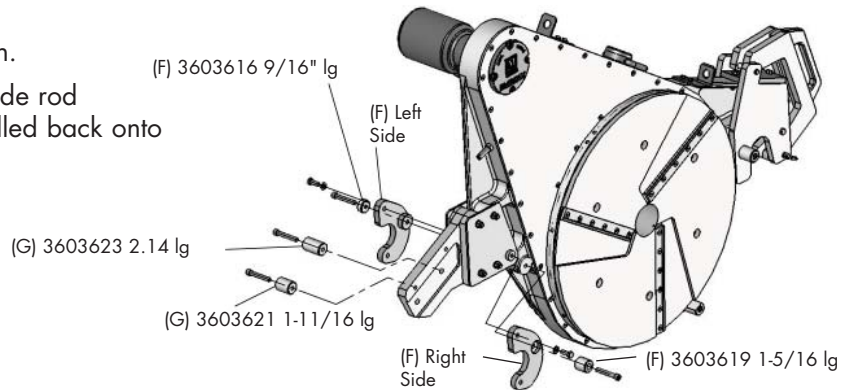


PH03470-3-12-07

TracStar 630 Modular Facer Setup

- Configure the facer as shown for in-ditch application.
- NOTICE:** Guide rod anchors and facer rest buttons must be installed as shown prior to modular facer operation.

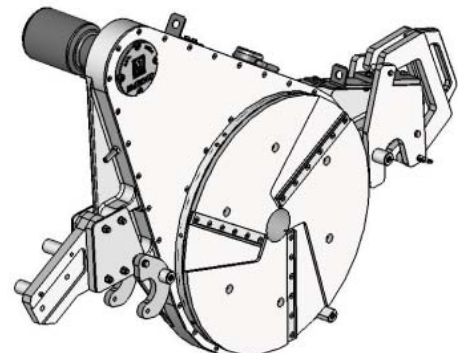
- Install anchors and rest buttons (F) as shown.
- Store the original rest buttons (G) in the guide rod anchor locations until facer is to be re-installed back onto carriage indexer pivot arm.



PH03472-3-12-07

Exploded In Ditch Position

- Attach the optional hose extension kit between the 3-Jaw carriage assembly and the facer.



PH03471-3-12-07

In Ditch



Modular Facing Operation (continued)

TracStar 900 Modular Facer Setup

Configure the facer as shown for in-ditch application.

NOTICE: Guide rod anchors and facer rest buttons must be installed as shown prior to modular facer operation.

Remove rest button (C).

Remove the bolts (D) from guide rod anchors and remove from facer pivot arm.



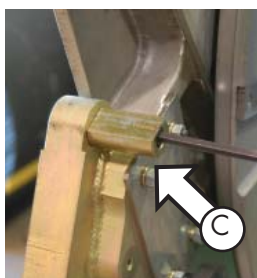
PH03531-10-17-07

Rotate anchors and rest buttons (E) and reinstall as shown on both sides of the facer.

Install anchor bolts (F) in the guide rod anchor on both sides of the facer.

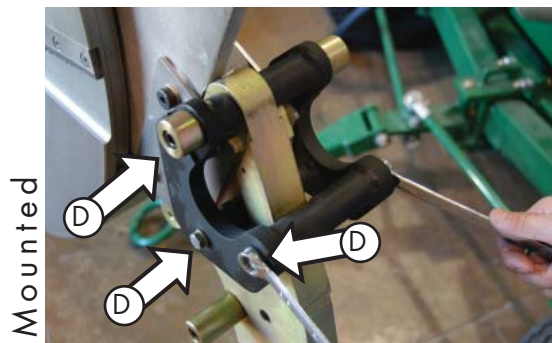
Install the bolt connecting the two guide rod anchors together (G).

Reattach rest button (C) on the facer arm as shown for storage until the facer is to be re-installed back onto the carriage indexer pivot arm.



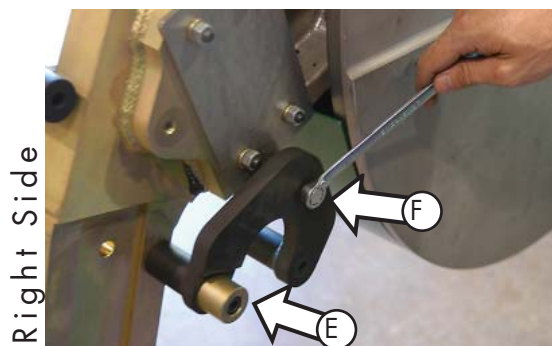
PH03532-10-17-07

Attach the optional hose extension kit between the 3-Jaw carriage assembly and the facer.



Mounted

PH03526-10-17-07



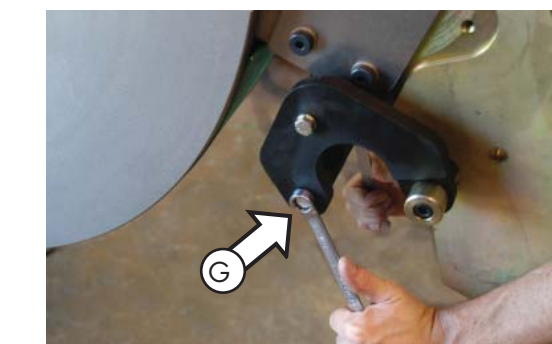
Right Side

PH03528-10-17-07



Left Side

PH03529-10-17-07



PH03530-10-17-07



In-Ditch

PH03533-10-17-07



Modular Facing Operation (continued)

Lower the facer between the pipe ends - the guide rod anchors will engage the inboard guide rod and the facer locking handle will engage the outboard guide rod. Open the latching handle by removing the pin (J)

To lock the facer in place during the facing operation, engage the pin back into the locking handle after the latch has swung below the guide rod.

Restart the machine.

Open facer valve on top of the facer.

Follow the instructions from section "Facing the Pipe" to face the pipe ends.

To re-install the facer to the skid-mounted pivot arm:

Turn off the machine

Disconnect hoses connected to the facer.

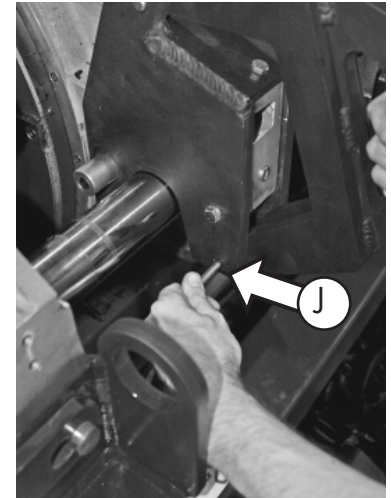
Position the facer so that the two halves of the pivot arm are aligned.

Install the (2) facer mounting bolts (K).

Remove the facer rest buttons and the guide rod anchors and install them as shown for the mounted position.

NOTICE: Failure to remove and reconfigure guide rod anchors on facer arm will result in damage to guide rods and guide rod anchors. Facer rest buttons must be re-installed onto the facer prior to standard operation.

Connect the hoses between the 3-Jaw carriage assembly and the facer.



PH03277-6-30-06

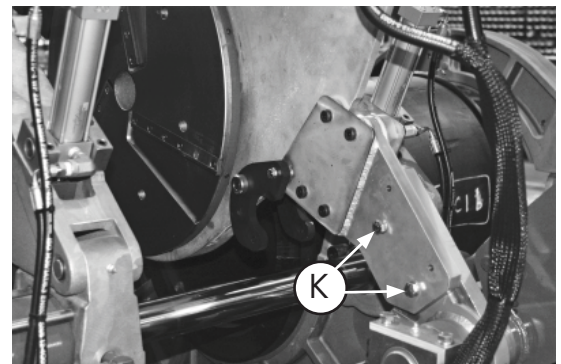


TracStar 900



TracStar 630

PH03278-6-30-06 PH03534-10-17-07



PH03470-3-12-07



Modular Heater Operation

When operating the fusion machine in the 3-Jaw carriage assembly configuration, the heater must be operated away from the machine in a modular configuration.

To remove the heater:

Verify the heater is turned off and cool.

Unplug the power and RTD connections attached to the heater (A).

Pivot the heater into a position between the guide rods.

Attach a lifting sling of proper rating to the lifting arm attached to the heater.

Remove the (2) heater mounting bolts (B).

Lift the heater clear of the machine.

When the heater is mounted on the pivot arm attached to the skid, the heater is able to be separated from the melted ends of the pipe hydraulically. Without this hydraulic aid, the heater must have a stripper bar (included with fusion machine package) installed so that the heater can be removed quickly and efficiently.

Remove the stripper bar assembly and braces from storage location on heater bag arm and install onto heater as shown.

Attach in ditch extension power and RTD cables between the vehicle and heater.

Set engine speed to high and turn on heater.



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

Refer to Section - Heating the Pipe for heating procedures.

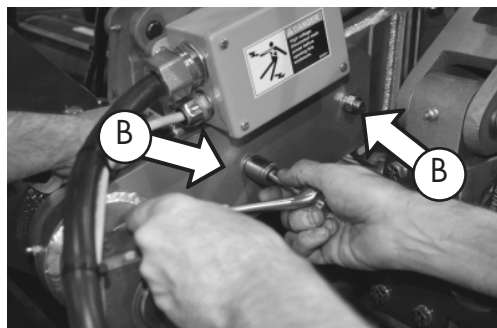
Heating times and pressures are the same for either on machine fusions or modular fusions.

Use the handle to steady the heater when positioning it between the pipe ends and removing the heater after heating.

NOTICE: Stripper bar must be removed before re-installing heater onto indexer pivot arm.



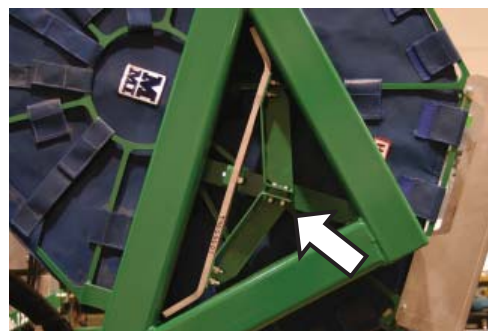
PH03524-10-17-07



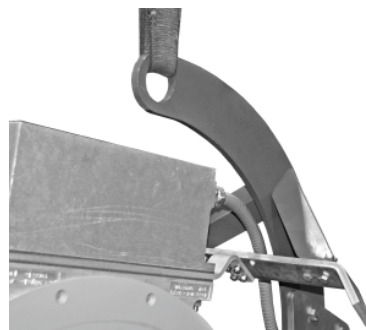
PH03279-7-010-06



PH03260-8-7-06



PH03525-10-17-07



PH03280-7-017-06



Lifting Fusion Machine



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 rating of the lifting strap.
2. Do not operate a damaged or malfunctioning lifting strap.
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 operator's manual before using the device.
8. Stay clear of the suspended load.
9. Lift loads only as high as necessary.
10. Do not alter or modify the lifting strap.
11. Employ generally accepted safe lifting practices.
12. Do not shock or impact load the lifting strap.
13. Inspect all lifting pins for damage.



SAFE1st-12-14-92

WR0001.4-3-8-93



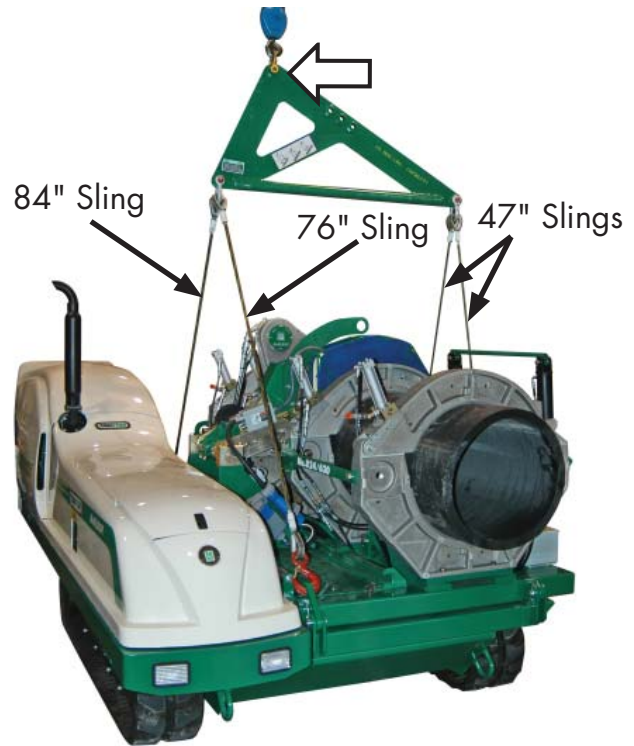
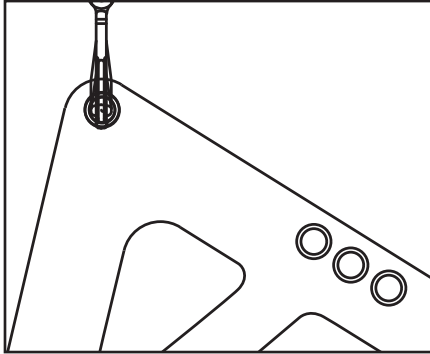
Lifting Fusion Machine



Lifting Tracked Fusion Machine

A special spreader bar shipped with the machine has been designed to lift the entire machine, the carriage assembly, and the 3-Jaw carriage.

Notice: Never use this spreader bar for any other purpose. You could damage the spreader bar and machine.



PH03521-10-17-07

CD0761-10-17-07

TX02653-7-17-06



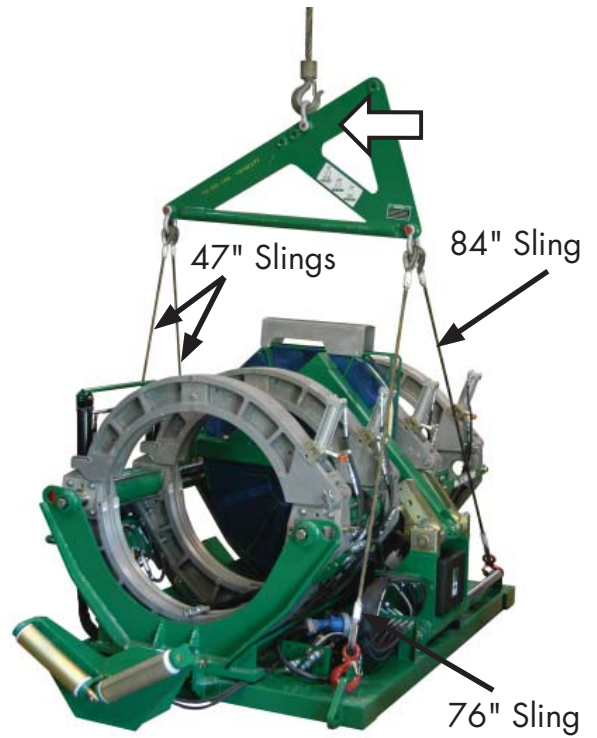
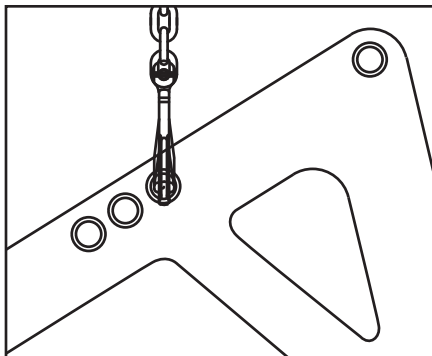
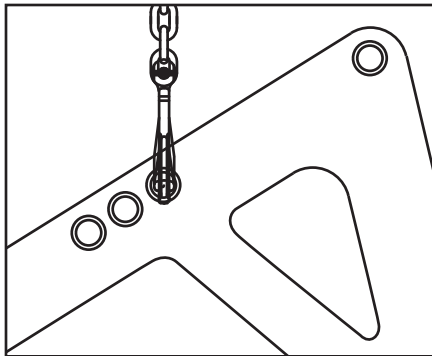
Lifting Fusion Machine



Lifting Fusion Carriage

A special spreader bar shipped with the machine has been designed to lift the entire machine, the carriage assembly, and the 3-Jaw carriage.

Notice: Never use this spreader bar for any other purpose. You could damage the spreader bar and machine.



4 Jaw Carriage



3 Jaw Carriage

PH03520-10-17-07

CD0761-10-17-07

PH03519-10-17-07

CD0761-10-17-07



Lifting Fusion Machine



Securing Carriage for Transport

The carriage is a free floating mechanism that needs to be secured prior to transport as a safeguard against machine damage.

To properly secure the carriage for transport:

Position the moveable jaws all the way to the right.

Move the heater/facer indexer all the way to the right.

Place heater support block (A) into position in provided brackets.

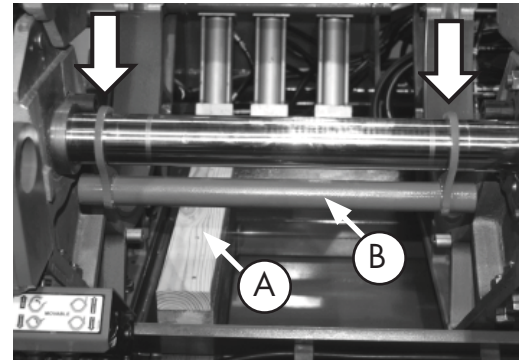
Install one hanging shipping brace (B) onto the interior guide rod and one hanging shipping brace onto the exterior guide rod as shown.

Pivot facer, heater and heater bag into the carriage.

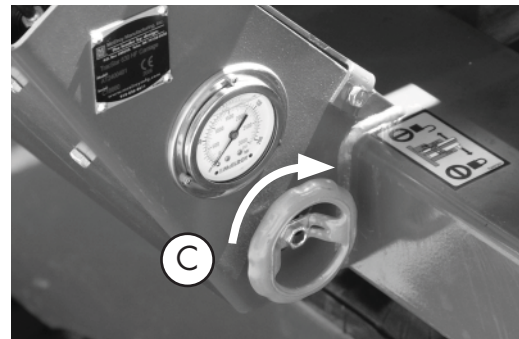
Move the carriage at low pressure (100 psi or less) to the left against the shipping braces.

After closing the carriage against the braces, turn the valve handle to lock the heater/facer indexer (C).

NOTICE: Do not use pressure higher than 100 psi to secure carriage for transport.



PH03281-4-17-06



PH03265-7-17-06



Coach™ Fusion Control System

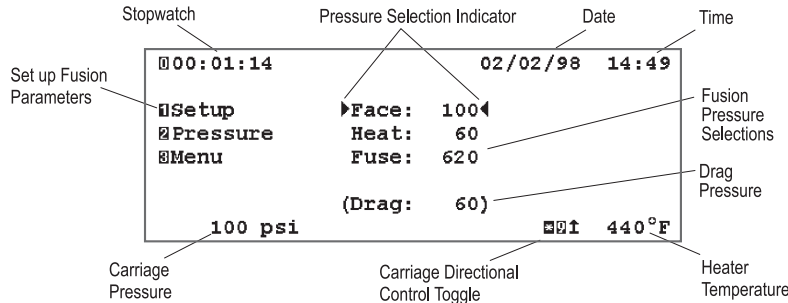


Coach™ Operator Interface

The Coach™ Operator Interface provides communications between the operator and the Coach Fusion Control System. In addition to providing the familiar operation of a McElroy semi-automatic fusion machine, the Coach™ Operator Interface has a built in stopwatch and fusion pressure calculator.

Press *+ or *- to adjust the contrast of the screen.

In the semi-auto screen you may press 0 on the keypad to reset the *stopwatch*. Press 1 to setup *fusion parameters*. Press 2 to set the currently selected pressure. Press 3 to



CD000415-2-26-98

access other menus. Press the * key followed by 9 to toggle the *carriage directional control*.

At the lower left hand corner is the carriage pressure showing the current carriage pressure. An X appears in front of all pressure readings except for *face* pressure. Facing pressure is the only pressure that can be varied with the pressure adjustment knob.

The pressure selection indicators surrounds the currently selected pressure. This is the pressure which the Fusion Control System is currently maintaining. The pressure can be changed by pressing 2 on the key pad and typing in a new pressure. In the above example, the currently selected pressure is Face, and you can select Heat pressure using the *pressure selector lever*. You may assign up to five pressures, namely *Face, Heat, Soak, Fuse, and Cool*.

The last measured drag pressure is displayed in parenthesis. In the example above, the last measured drag pressure is 60 psi, and it is included in the fuse pressure of 620 psi. In other words, if the theoretical fuse pressure (without drag) is 560 psi.

On the top right hand corner is the current date and time. The time is in 24 hour format showing hour and minutes.

On the bottom right hand corner is the heater temperature.

To the left of temperature gauge is the *carriage directional control orientation* icon. The upward pointing arrow is replaced by a downward pointing arrow when the orientation is changed. The change in orientation allows you to control the carriage direction from either side of the carriage.

In all data entry screens, the C key is used as a backspace key to clear the last digit entered. The C key is also used to backup one screen in most cases.



Fusion Control System

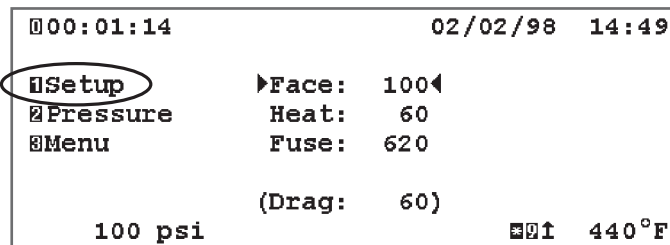


Setting up to Fuse Pipe in the Semi-Auto Mode

You may choose to fuse pipe using the semi-automatic mode, or set up the Datalogger[®] mode to record your fusion process. This section discusses the semi-auto fusion mode.

While in the semi-auto screen, select the facing pressure using the pressure selector lever. You may adjust the carriage pressure using the pressure adjustment knob to position the pipes. Face the pipes, check for hi-lo and slippage. Using the carriage control lever, position the pipes one (1) inch apart to prepare for drag measurement. Make sure that the pipes are properly prepared for the next step.

Press 1 on the keypad to setup fusion parameters.

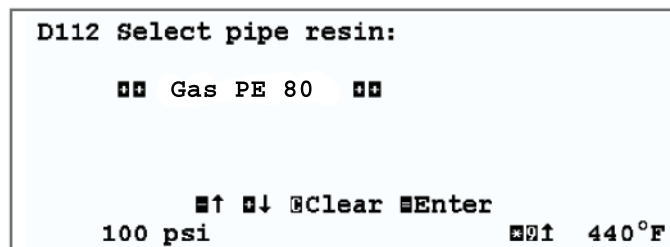


CD00416-2-26-98

Entering Pipe Parameters

You will be prompted to enter pipe size and interfacial pressures necessary to compute recommended gauge pressures for the fusion. You are also required to enter a heater temperature and a drag pressure. The drag pressure, which you are required to measure, will be added to the calculated pressures. These calculated pressures will be displayed in the pressure selection section of the screen.

The first data entry screen prompts you to select a pipe resin. You may scroll through the list of pipe resins to select the resin you are about to fuse. You may use - - - - if



CD00417C-12-31-07

your resin is not on the list. The - and + keys are used to scroll the resin list. The C Key takes you back to the previous screen. The = key enters your selection into the system and goes on to the next screen.



Fusion Control System



The next screen prompts you for heater temperature. Type in the pipe manufacturer recommended heater temperature using the numeric keypad. Use the C key for backspace, and press = to enter the temperature and go on to the next screen.

```

S030 Heater Temperature (°F): _

01234567890 CClear =Enter
100 psi                               =01 440°F

```

CD004182-26-98

Piston area for the standard TracStar® 900 is 15.32 in., if a different carriage is used, you type in the piston area shown on the carriage. Otherwise, press = to accept the default 15.32 in. piston area. Press = to enter the correct piston area and go to the next screen.

```

S014 Pipe Size: _

▶" IPS
" DIPS
" OD
mm OD
01234567890 =↑ =↓ CClear =Enter
100 psi                               =01 440°F

```

CD004202-26-98

Pipe size can be entered in four different units (IPS, DIPS, inch OD, and mm OD). Use the - and + keys to select from one of the four units, then type in the pipe size and press = for the next screen.

Use the - and + keys to select from one of the three wall thickness units (DR, inches,

```

S018 Pipe Wall Thickness: _

▶DR
" WT
mm WT

01234567890 =↑ =↓ CClear =Enter
100 psi                               =01 440°F

```

CD004212-26-98

and millimeters), then type in the wall thickness and press = to move on. If you have previously entered a wall thickness, you may press = to automatically paste it in the data entry field then press = to move on instead of having to retype the wall thickness. This is true for all data entry screens.



Fusion Control System



Next, you will be prompted for interfacial pressures (*heat, soak, fuse, and cool*). You may not need all four to complete your fusion, but some pipe resin do require all four. Most pipes manufactured in the USA require two interfacial pressures, *soak* and *fuse*. If you prefer *soak* and *cool*, you may do so by skipping the other interfacial pressures using the - key.

```

D122 Heat(psi): _

      (Interfacial pressure)

012345678901  #Skip #Clear #Enter
100 psi                #01 440°F
  
```

CD00422-2-26-98

If you need heat pressure, simply type in the heat interfacial pressure and press =. *It is important to type in the **interfacial pressure** and not the gauge pressure. For a given interfacial pressure, a small piston area requires a higher gauge pressure than a machine with a larger piston area.*

Normally, the pipe is soaked under no interfacial pressure, and you enter 0 for soak pressure. In the soak cycle, you will be using 0 + drag pressure. You will be prompted to enter a drag pressure at a later screen.

```

C092 Use these parameters?
Gas PE 80      12" IPS  DR 11
Heat(IFP): -----
Soak(IFP):      0 psi      440°F
Fuse(IFP):      75 psi     6.013in²
Cool(IFP): -----
      #Yes.  #Enter new data
100 psi                #01 440°F
  
```

CD00423B-12-31-07

At the end of the data entry screens, you will be asked to confirm your data entry. After verifying that the data entered is correct, press + to go on. If you need to change any of the data item, press - to make any corrections. Since you have entered all the data items once, you may press = to enter those items automatically instead of retyping all of them.

```

S010 Drag Pressure (psi): _

012345678901  #Set #Clear #Enter
70 psi                #01 440°F
  
```

CD00424B-2-26-98



Fusion Control System



The TracStar computer automatically lowers the carriage pressure to minimum so that you can measure drag correctly. As a reminder, it would be ideal if the pipes were faced off and positioned for drag measurement (pipes 1 inch apart) before coming into this screen. Also, make sure the face pressure is selected so that the X mark is not shown at the lower left hand corner of the screen.

The proper way to measure drag is to set the carriage control lever in the "close carriage" position, then dial the pressure adjustment knob until the carriage begins to move. On the first sign of carriage movement, put the carriage control lever to neutral (center position) and wait for the pressure gauge (at lower left hand corner) to settle down. Press the + key to set the drag pressure. Press the = key to accept the pressure and go on to the next screen. Note, you may also type in a drag pressure using the keypad.

You will come back to the semi-auto screen after entering all the pertinent fusion

```

003:18:07                02/05/98  16:26

1Setup          ▶Face:  100◀
2Pressure       Soak:   80
3Menu           Fuse:   600

                    (Drag:  80)

100 psi          *01  440°F
  
```

CD000425-2-26-98

information. At this point, you may follow the pipe manufacturer's fusion procedure to fuse the pipe.

If at any time you feel you need to increase or decrease any of the pressures, you may select that pressure using the selector and press 2 to change the pressure.

Type in a pressure and press = to go back to the semi-auto screen.

```

S034 Pressure (psi): _

01234567890 0Clear 0Enter

100 psi          *01  440°F
  
```

CD000426-2-26-98

You may use the stopwatch on the upper left corner of the screen to time your fusion.

```

003:18:07                02/05/98  16:26

1Setup          ▶Face:  100◀
2Pressure       Soak:   80
3Menu           Fuse:   600

                    (Drag:  80)

100 psi          *01  440°F
  
```

CD000425-2-26-98

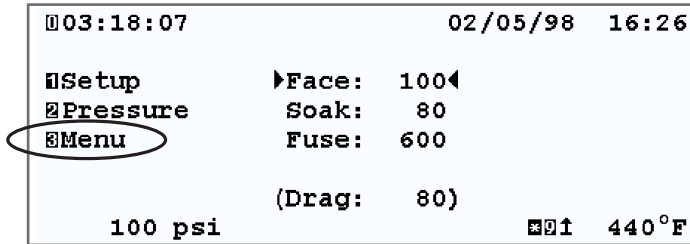
The stopwatch runs continuously, and it can be reset to 00:00:00 by pressing 0 at any time during the fusion.



Setting Up DataLogger[®] Mode



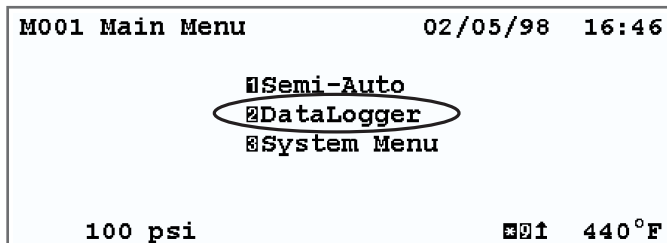
Setting up to Fuse Pipe in the DataLoggerTM Mode



CD000427-2-19-98

While in the semi-auto screen, select the facing pressure using the pressure selector lever. You may adjust the carriage pressure using the pressure adjustment knob to position the pipes. Face the pipes, check for hi-lo and slippage. Using the carriage control lever, position the pipes one (1) inch apart to prepare for drag measurement. Make sure that the pipes are properly prepared for the next step.

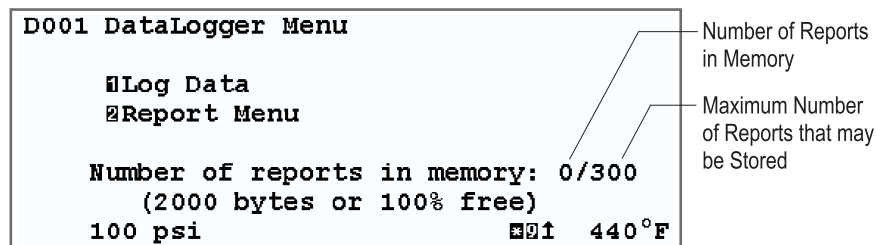
From the semi-auto screen, press 3 to access the main menu.



CD000428-2-19-98

Press 2 to access the DataLoggerTM

The DataLoggerTM menu offers two options: log data or report menu. It shows you how many reports were logged, and the maximum number of reports you are



CD000429-2-19-98

allowed to store. It also shows you the number of bytes free (not used) in the report memory and the percentage free.



Setting Up DataLogger® Mode



Press 1 to log data.

```

C100 Machine ID: _

01234567890  Space Clear Enter
              Alphabets
100 psi          440°F

```

CD004302:1998

You will be prompted to enter a machine identification. It may be the machine's serial number, or a name that you gave the machine.

In this screen, you may enter both alphabets and digits. Use the + and - keys to step up and down the alphabets A through Z. In the alphabet mode, press . to enter the selected alphabet for the current character space, so that you can prepare to select a different alphabet for the next character space. At any time during alphabet entry, you may press any digit key (0 through 9) to stop alphabet mode and enter a numeric digit.

Use the combination of * and . to enter a white space between characters. As always, the C key is used as backspace for data entry corrections, and the = key completes the data entry and proceeds to the next screen.

The employee number may also consist of alphabets and digits. Follow the

```

C102 Employee No.: _

01234567890  Space Clear Enter
              Alphabets
100 psi          440°F

```

CD004312:1998

instructions for the *machine ID* screen above.



Setting Up DataLogger® Mode



```

C104 Job No.: _

01234567890 Space Clear Enter
          Alphabets
100 psi          440°F

```

CD000432-19-98

The job number may consist of alphabets and digits. Follow the instructions for the machine ID screen above.

The joint number is a number-only data field. Use the keypad (0 through 9) to enter

```

C106 Joint No.: _

Previous: 0

01234567890 Clear Enter
100 psi          440°F

```

CD000433-2-19-98

an integer number (1 through 9999). If you press = without entering a number, the computer automatically increments the previous joint number by 1 and makes it the current joint number.

At the end of identification data entry, you are asked to confirm your entries. If

```

C090 Use these identifications?

Machine ID: TS980315
Employee No.: M01432
Job No.: 98MAR001
Joint No.: 1
    Yes. Enter new data
100 psi          440°F

```

CD000434-2-19-98

every entry is correct, press + to go on. If you need to change one of the fields, press -. You do not have to retype all the fields. You may press = and have the computer recall what you typed in previously, press = again to go on to the next screen.



Setting Up DataLogger® Mode



Entering Pipe Parameters

After entering identification data, you will be prompted for pipe parameters. Please refer to *Entering Pipe Parameters* under the *Setting up to Fuse Pipe in the Semi-Auto Mode* section for instructions on entering pipe parameters. If you have previously entered pipe parameters, you will be prompted to confirm the data entered as follows:

```

C092 Use these parameters?
  Drisco 4000 12" IPS DR 11
  Heat(IFP): -----
  Soak(IFP):    0 psi      440°F
  Fuse(IFP):   75 psi      6.013in²
  Cool(IFP):   -----
            Yes.   Enter new data
100 psi                                 01 440°F

```

CD0004352-19-98

You will be prompted to measure drag for each joint in the DataLogger® mode.

```

S010 Drag Pressure (psi): _

 01  02  03  04  05  06  07  08  09  10  Set  Clear  Enter
20 psi                                 01 440°F

```

CD0004362-19-98

Follow the procedure described in the *Setting up to Fuse Pipe in the Semi-Auto Mode* section for proper drag measurement.

After entering drag pressure, the recommended fusion pressures are computed and displayed in the pressure selection section of the screen.

```

000:48:32                                02/06/98 09:34
 Pressure
 Log

           (Drag: 80)
100 psi                                 01 440°F

```

Note: In the original image, a circle highlights the 'Face: 100', 'Soak: 80', and 'Fuse: 600' values.

CD0004372-19-98

At this point, you are ready to log data. Check to make sure the heater is up to temperature, then install the heater between the pipes. Use the pressure selector lever to select fuse pressure for closing the pipes against the heater.



Setting Up DataLogger® Mode



Just before switching the carriage control lever to close on the heater, press 4 on the keypad to enter into the data logging mode.

```

00:56:14                02/06/98  09:42
                                Face:  100
▣Pressure                Soak:   80
▣Log                    ▶Fuse:  600◀
▣
                                (Drag:  80)
X   600 psi                441  440°F

```

CD00438-2-19-98

Once the pipes contact the heater, shift into soak pressure and wait for the pressure gauge to read soak pressure, then shift the carriage control lever to neutral.

Press 0 to reset the stopwatch to time your soak cycle. At the end of soak, shift the

```

00:00:03                02/06/98  09:52
                                Face:  100
▣Pressure                ▶Soak:  80◀
▣Stop                    Fuse:   600
  Logging
                                (Drag:  80)
X   80 psi                 441  440°F

```

CD00439-2-19-98

pressure selector to fuse pressure, and prepare to remove the heater.

Open the carriage and remove the heater quickly, then close the carriage to join the pipes. Press 0 to reset the stopwatch to time your fuse cycle.

At the end of the fuse cycle, press 6 to stop logging data, then center the carriage control lever.

```

D150 DataLogging Stopped!
      (STOP key pressed)

  ▣View Report
  ▣Continue

X   600 psi                441  440°F

```

CD00440-2-19-98



Setting Up DataLogger® Mode



The computer informs you that the logging was stopped because you pressed 6 to stop it. Data logging can also be stopped if the report memory is full, or the maximum log time of 6550 seconds (1 hour 49 minutes) is reached.

You will be given an option to either view the report or continue logging the next joint. If you want to view report, press +.

You will be shown the report and pressure profile of the joint. Use the - and + key to navigate the report pages.

```

D182 Joint report page 1:
  1. Date and Time: 02/06/98  09:52:12
  2. Joint Number : 1
  3. Job Number   : 98MAR001
  4. Employee No. : M01432
  5. Machine ID   : TS980315
      █
X   600 psi                █ 440°F

```

CD00441-2-19-98

```

D184 Joint report page 2:
  6. Machine Model: TracStar
  7. Piston Area  : 15.320 in²
  8. Pipe Material: Gas PE 80
  9. Pipe Size    : 12" IPS  DR 11
      █ █
X   600 psi                █ 440°F

```

CD00442B-12-31-07

```

D186 Joint report page 3:
Interfacial Pressures:
12. Heat          : -----
13. Soak          :      0 psi
14. Fuse          :      75 psi
15. Cool          : -----
      █ █
X   600 psi                █ 440°F

```

CD00443-2-19-98



Setting Up DataLogger® Mode



```

D188 Joint report page 4:
Recommended Gauge Pressures:
18. Heat      : -----
19. Soak     :    80 psi
20. Fuse     :    600 psi
21. Cool     : -----
              # #
X   600 psi          #0f 440°F

```

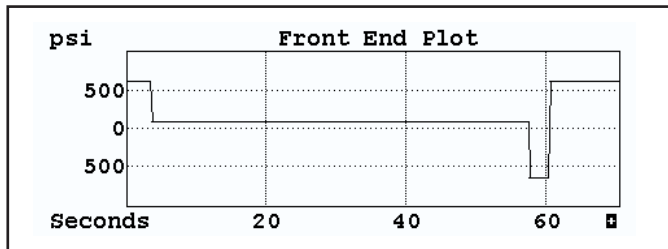
CD004442-19-98

```

D190 Joint report page 5:
Recorded Data:
24. Drag Pressure:    80 psi
25. Heater Temperature: 440°F
              # #
X   600 psi          #0f 440°F

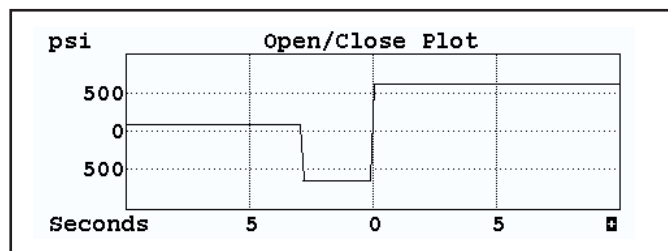
```

CD004452-19-98



CD004465-4-98

The front end plot highlights the soak cycle so that you can determine if the shift sequence was done properly. A proper pressure shift sequence allows the carriage pressure to go to drag pressure quickly. An improper sequence may trap pressure.



CD004472-19-98

The summary plot shows the pressure profile for the entire fusion process until the end of data logging.



Setting Up DataLogger® Mode



```
D160 Print report?  
  
        Yes  No  
X    600 psi          01  440°F
```

CD004482-19-98

After viewing the report on the screen, you may print it out on the optional portable printer. Make sure you have the proper printer cable. Turn on the printer and press +.

The next screen asks if you want to make another joint.

```
D170 Log another joint?  
  
        Number of reports in memory: 1/300  
        (1802 bytes or 90% free)  
  
        Yes  No  
X    600 psi          01  440°F
```

CD004492-19-98

It also tells you how many joints are currently in the report memory, and how much memory is left to store new joint reports.

If you want to make another joint, press +. You will be prompted to confirm the identification and pipe parameters entered previously. You may choose to use the same information entered previously, or modify any data field as described earlier in this section.



Setting Up Automatic Mode



Setting up to Fuse Pipe in the Automatic Mode

On power up, all Coach™ systems with automatic feature will display the Automatic menu:

```

A001 Automatic Menu

  1 Fuse Pipe
  2 Report Menu

Number of reports in memory: 0/700

100 psi                1 440°F
  
```

Number of reports in memory

Maximum number of reports you can store

The Automatic menu offers two options: Fuse Pipe or Report Menu. It shows how many reports were logged, and the maximum number of reports you are allowed to store. It also shows the number of bytes free (not used) in the report memory and the percentage free.

Press 1 to fuse pipe.

After entering password, you will be prompted to enter machine identification. It may be the machine's serial number or a name you assigned the machine.

```

C100 Machine ID: _

01234567890 Space Clear Enter
Alphabets

100 psi                1 440°F
  
```

In this screen, you may enter both alphabets and digits. Use the + and - keys to step up and down the alphabets A through Z. In the alphabet mode, press . to enter the selected alphabet for the current character space, so that you can prepare to select a different alphabet for the next character space. At any time during alphabet entry, you may press any numeric key (0 through 9) to stop alphabet mode and enter a numeric digit.

Use the combination of * and . to enter a white space between characters. As always, the C key is used as backspace for data entry corrections, and the = key completes the data entry and proceeds to the next screen.



Setting Up Automatic Mode



```

C102 Employee No.: _

01234567890  ##Space  @Clear  #Enter
              ##Alphabets

100 psi                      ##01  440°F

```

CD00672-1-10-05

The employee number may also consist of alphabets and digits. Follow the instructions for the machine ID screen above.

```

C103 Passport No.: _

01234567890  ##Space  @Clear  #Enter
              ##Alphabets

100 psi                      ##01  440°F

```

CD00673-1-10-05

The passport number may also consist of alphabets and digits. Follow the instructions for the machine ID screen above.

```

C104 Job No.: _

01234567890  ##Space  @Clear  #Enter
              ##Alphabets

100 psi                      ##01  440°F

```

CD00674-1-10-05

The job number may consist of alphabets and digits. Follow the instructions for the machine ID screen above.



Setting Up Automatic Mode



```

C106 Joint No.: _
          Previous: 0

          01234567890  [C]Clear [E]Enter
          100 psi                [F] 440°F
  
```

CD00675-1-10-05

The joint number is a number-only data field. Use the keypad (0 through 9) to enter an integer number (1 through 9999). If you press = without entering a number, the computer automatically increments the previous joint number by 1 and makes it the current joint number.

```

C090 Use these identifications?
Machine ID: TS980315
Employee No.: M01432
Passport No.: P321
Job No.: 98MAR001
Joint No.: 1
          [Y]Yes. [N]Enter new data
          100 psi                [F] 440°F
  
```

CD00676-1-10-05

At the end of identification data entry, you are asked to confirm your entries. If every entry is correct, press + to go on. If you need to change one of the fields, press -. You do not have to retype all the fields. You may press = and have the computer recall what you typed in previously, press = again to go on to the next screen.

Entering Fusion Parameters

After entering identification data, you will be prompted to enter fusion parameters if not already entered. A password is required to add or change fusion parameters. Once the correct password is entered, you are guided step-by-step to complete the entries:

```

D112 Select pipe material

          [L] Gas PE 80 [R]

          [U] [D] [C]Clear [E]Enter
          100 psi                [F] 440°F
  
```

CD00677B-12-31-07



Setting Up Automatic Mode



The first data entry screen prompts you to select a pipe material. You may scroll through the list of pipe resins to select the resin you are about to fuse. You may use `—` if your resin is not on the list. The `-` and `+` keys are used to scroll the resin list. The `C` Key takes you back to the previous screen. The `=` key enters your selection into the system and goes on to the next screen.

```

S014 Pipe OD (mm) :_

mm OD
01234567890    [C]Clear [E]Enter
100 psi          [0]1  440°F
  
```

Type in the pipe size and press `=` for the next screen.

```

S018 Pipe SDR/DR: _

01234567890    [C]Clear [E]Enter
100 psi          [0]1  440°F
  
```

Type in the wall thickness and press `=` to move on. If you have previously entered a wall thickness, you may press `=` to automatically paste it in the data entry field then press `=` to move on instead of having to retype the wall thickness. This is true for all data entry screens.

```

C092 Use these parameters?
Gas PE 80    12" IPS DR 11
Heat: 00:10    22 psi    ><00:10
Soak:  1:30     0 psi     440°F
Fuse:  2:30    22 psi
Cool:  3:00    22 psi    15.320in²
    [Y]Yes. [N]Enter new data
100 psi          [0]1  440°F
  
```

At the end of the data entry screens, you will be asked to confirm your data entry. After verifying that the data entered is correct, press `+` to go on. If you need to change any of the data items, press `-` to make any corrections. Since you have entered all the data items once, you may press `=` to enter those items automatically instead of retyping all of them.

CD00703-11-1-05

CD00704-11-1-05

CD00682B-12-31-07



Setting Up Automatic Mode



At the end of the data entry screens, you will be asked to confirm your data entry. After verifying that the data entered is correct, press + to go on. If you need to change any of the data items, press - to make any corrections. Since you have entered all the data items once, you may press = to enter those items automatically instead of retyping all of them.

```

C092 Use these parameters?
Gas PE 80      12" IPS DR 11
Heat: 00:10    22 psi      ><00:10
Soak:  1:30    0 psi      440°F
Fuse:  2:30    22 psi
Cool:  3:00    22 psi     15.320in²
      Yes.  Enter new data
100 psi                      01 440°F

```

CD00682B-12-31-07

Fusing Pipe in Automatic Mode

After entering identification data and fusion parameters, you are prompted to prepare the pipe for fusion:

```

A170 Prepare pipe for fusion:

(1) Face Pipe
(2) Check Hi/Lo

      Press  to proceed
100 psi                      01 440°F

```

CD00705-11-1-05

Prepare the pipe for fusion by manually facing the pipe ends, checking hi/lo, and check for slippage. Once the pipes are prepared, press + to continue.

A warning message will appear before automatic mode begins.

```

A172 Machine in Automatic mode.

      Carriage will move automatically.

      Press  to proceed
100 psi                      01 440°F

```

CD00684-1-10-05

Press + to continue, and the carriage movement alarm will sound. The carriage moves automatically to measure drag pressure. After the drag pressure is measured, the required carriage pressures are automatically calculated and checked to make sure these pressures are attainable.

The heater is inserted automatically. The carriage closes automatically against the heater. The heat cycle begins followed by the soak cycle. At the end of the soak cycle, the heater is removed automatically.



Setting Up Automatic Mode



Fusion Process Control

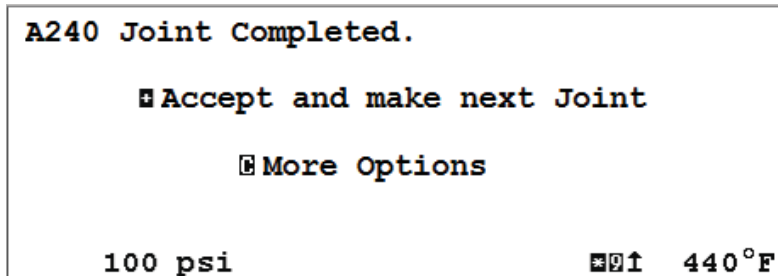
After the heater is automatically removed, the carriage closes to fuse the pipe. The fuse and cool cycles are automatically controlled and timed according to the fusion parameters. During the entire process, the TracStar[®] monitors the carriage for slippage and maintains the carriage pressure. If the carriage slips or the machine fails to maintain the correct pressure, the joint will be aborted. Operator's can abort by pressing C.

Dummy Joint (Optional)

A Dummy Joint can be made by following the normal facing, heating, and soaking procedures. Any time during the soak cycle, you may press the C key to interrupt the cycle. The automatic cycle will stop, and you are given a choice to abort the joint or record a Dummy Joint report.

Fusion Joint Completion and Report

At the end of a joint, the alarm sounds and a message is displayed:



Press C for options to view report and save report to USB drive, or press + to acknowledge the joint completion message and move on to make a new joint.

When viewing reports on the screen, each report is arranged in pages, and you may use the + and – keys to scroll through the report.

Whether or not you view the report, you have the option to save it to a USB thumb drive via the USB Thumb Drive Adapter Kit, which allows for more convenient report upload and archive. Simply attach the adapter and USB thumb drive to the pendant, wait 30 seconds for the thumb drive to be recognized by the adapter, and follow the onscreen prompts to save reports to the Thumb Drive.

When attached to a personal computer, the thumb drive appears as a removable drive, and joint reports can be copied and paste to the computer for further archive or emailed.

PH03542-1-15-07



Setting Up Automatic Mode



This is a sample report:

```

1. Date and Time: 13/12/04 16:06:25
2. Joint Number : 3
3. Job Number   : 56
4. Employee No. : 456
5. Passport No. : 789
6. Machine ID   : 123
7. Machine Model: TracStar
8. Piston Area  : 38.79 cm2
9. Pipe Material: Gas PE 80
10. Pipe Size   : 450 mm OD DR 11

12. Joint Status : Good

*** Simulation      Target      Actual
15. Heater Temp.  :      230      230°C
16. Heat Time     : 00:05      00:05
17. Heat Pressure:      370      370 psi
18. Soak Time     : 00:15      00:15
19. Soak Pressure:      70       70 psi
20. Open/Close   : 00:08      00:05
21. Fuse Time    : 00:10      00:10
22. Fuse Pressure:      370      370 psi
23. Cool Time    : 00:10      00:10
24. Cool Pressure:      270      270 psi
25. Drag Pressure:           70 psi
26. Ext. Probe   :           ---

```

CD00687B-12-3 1-07

The next screen asks if you want to make another joint.

```

A260 Make another joint?

  █ Make another joint.  █ No

Number of reports in memory: 1/300

X  600 psi                █01  440°F

```

CD00688-1-10-05

It also tells you how many joints are currently in the report memory.

If you want to make another joint, press +. You will be prompted to confirm the identification and pipe parameters entered previously. You may choose to use the same information entered previously, or modify any data field as described previously.



Joint Reports



Introduction

The McElroy Joint Reporter allows you to download joint reports from the DataLogger[®] and Coach[™] family of machines (including the TracStar[®] 500, TracStar[®] 900, and McHILYT[™]) to an IBM compatible PC for viewing, printing, and archiving.

System Requirement

To use this program, you need a PC with Microsoft Windows 95 or higher.

Installing the Program

Go to the McElroy download webpage:

<http://www.mcelroy.com/fusion/support/downloads.htm>

Scroll down to find the picture of the pendant and download the McElroy Joint Reporter program.

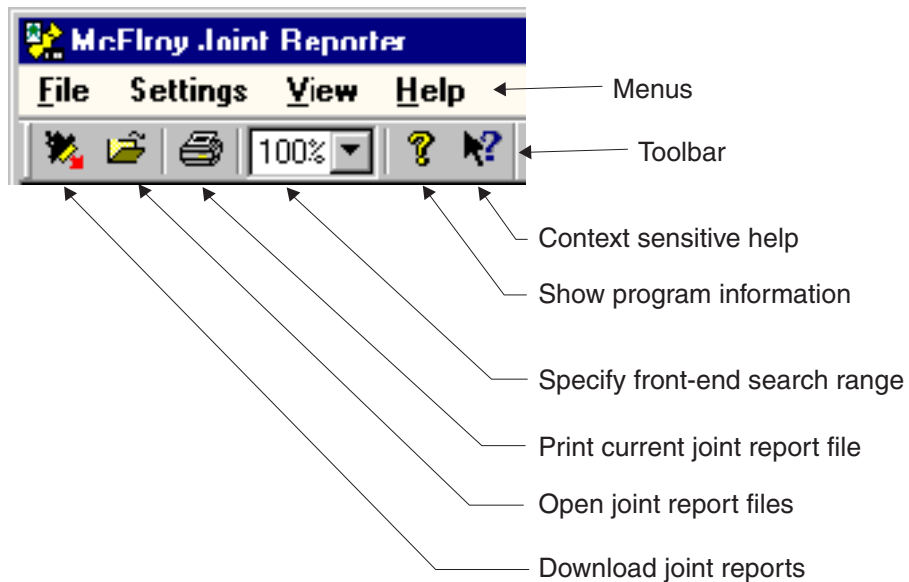
Follow the setup program prompts on the screen. You may accept all the default settings and allow the setup program to install the McElroy Joint Reporter in the recommended directory.

Using the Program

To start the program, click the Start button, then click Programs and find the McElroy Joint Reporter's icon. Click on the icon to run the program.

The program will display the following menus and toolbar icons:

The toolbar consists of shortcut icons to access functions in the menus.





Joint Reports



Features of the McElroy Joint Reporter

File Menu

1. Download joint reports from DataLogger[®] and Coach[™] systems. Individual reports are saved in individual joint report files with an extension ".JRP". Each download is organized in a folder under the default main folder "C:\My Reports\".
2. Open a joint report file (with the file extension ".JRP") for on screen viewing and printing.
3. Print the currently displayed joint report.
4. Print Preview the currently displayed joint report before printing.
5. Print Setup - change the printer settings (to a different printer, etc) before printing.
6. Print Many - print a selected group of report files (*.JRP). To select a group of files, hold down the CTRL key and click the files you want to print one at a time. To select a range of files, click the first file you want to print, then hold down the SHIFT key and click on the last file you want to print. To select all files in the current folder, hold down CTRL and press A. Selected files are shown in reverse-video or white letters on blue background on most PC's.
7. Convert report files downloaded by the DataLogger[®] Companion Program or MMI Joint Report Manager to the new JRP file format.
8. Send - attach joint report file(s) to e-mail for transmission.
9. Keeps a list of 4 most recently opened report files.
10. Exit program.

Settings Menu

1. Change unit of measurements: psi, bar, and Kg/cm².
2. Change date display format: US (MM/DD/YY) and others (DD/MM/YY).
3. Change serial port for download: COM1, COM2, COM3, or COM4.
4. Location - change the report storage location from the default 'C:\My Reports\' to any sub-folder on any drive accessible by the computer.

View Menu

1. Show or hide the Toolbar.
2. Show or hide the Status Bar.



Joint Reports



Front-end Search Range

This feature is to help graph the front-end plot and open/close plot more accurately in case logging was not turned off before removing pipe from the carriage. Because the program cannot tell the difference between an "open/close to remove heater" from an "open/close to remove fused pipe", the program cannot produce the correct front-end plot if logging is not turned off as intended. As a remedy, you can specify in percentage a range you want the program to start searching for the open/close point. The range is between 5% to 100% in 5% increments. For example, if by looking at the summary plot you estimate the open/close point occurred in the first 30% of the entire plot, then specifying 30% will tell the program to ignore all pressure fluctuations beyond the first 30%. This setting remains for subsequent joint reports until you change it or restarts the program.

Getting Help

At anytime you need help, click on the help menu for online instructions. Or, click on the context sensitive help icon to activate the special context sensitive help cursor. Then using that cursor, you may click on any of the toolbar icons to get help on it.

TX02760-12-31-07



Maintenance

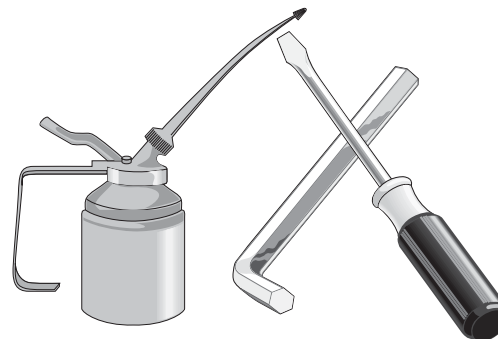


Preventative Maintenance

To insure optimum performance, 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 preventative maintenance be kept.

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



CD00142-11-2-94

TX00428-8-10-95

Disconnect Electrical Power



WARNING Always disconnect unit from electrical power source before beginning any maintenance to avoid the risk of electric shock. Failure to disconnect the power source could result in serious injury or death from electric shock.

Cover plug and electrical control box before washing.

TX00742-2-17-11



WR00055-4-7-93

Washing the Machine

The machine should be cleaned, as needed, with soap and water.



TX00429-9-15-94

CD00178-5-3-96

Check Hydraulic Fluid

The hydraulic fluid level should be checked daily.

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

Fill to the bottom of the sight gauge when the oil is cool to allow for fluid volume expansion.

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



PH03541-10-17-07

TX04259-1-11-10



Adjusting System Pressure

Open rear hood to gain access to the hydraulic pump.

Start the engine and select high speed.

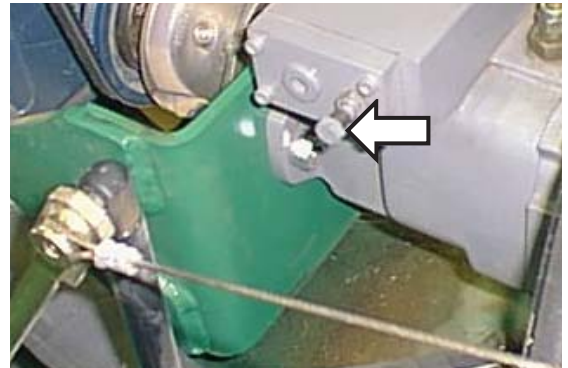


Do not touch belts and rotating parts while the engine is running. Failure to do so could result in injury.

To adjust the pressure, loosen the jam nut and turn the compensator clockwise to increase the pressure, or counter-clockwise to decrease pressure.

The system pressure should be at 2300 psi.

Re-tighten the jam nut.



PH01722-8-19-99

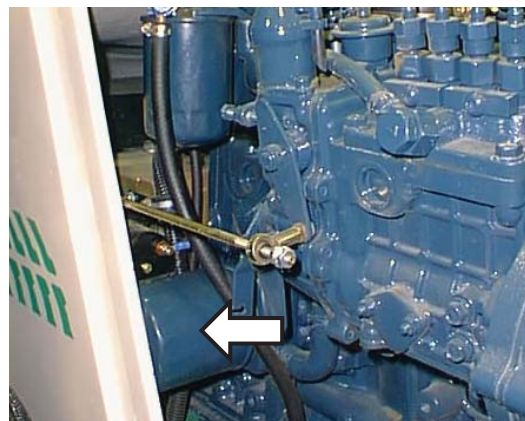


PH03554-12-31-07

Engine Oil System

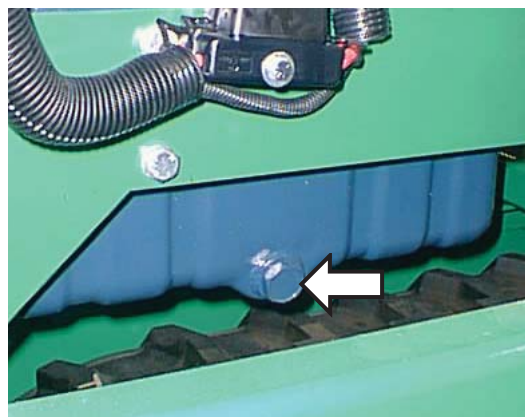
Change engine oil after the first 50 hours of operation. Following that, change the oil and filter every 200 hours of operation. Read the engine maintenance instructions.

The oil filter is located on the inboard side of the engine.



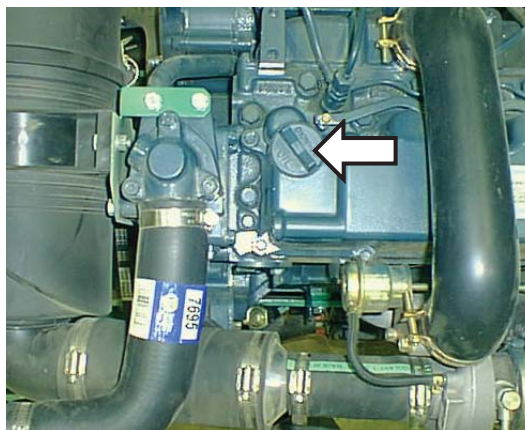
PH017218-19-99

The oil drain plug is located on the inboard side of the oil pan.



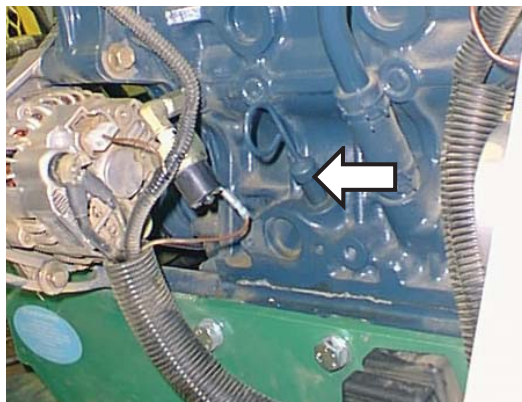
PH013143-12-98

The oil filler cap is located on top of the engine.



PH017068-19-99

The dipstick is located on the outboard side.



PH017068-19-99



Bleeding Air From Fuel Line

If the fuel tank becomes empty, air will be pumped into the fuel line. The following procedure will purge the system of air.

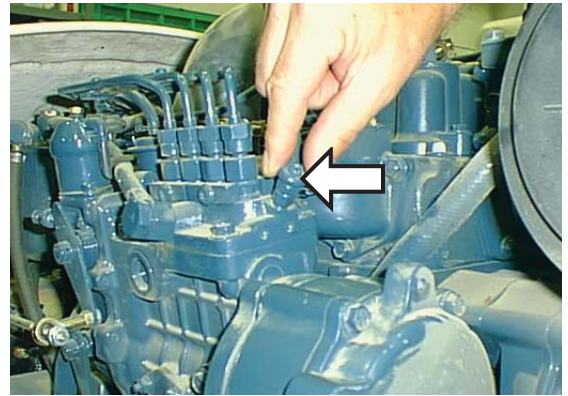
Loosen the air vent valve where the fuel line from the pump goes to the injectors.

Turn the ignition key to RUN position so that the electric pump will pump fuel to the engine.

Close vent valve when air has been purged.

The engine can now be started.

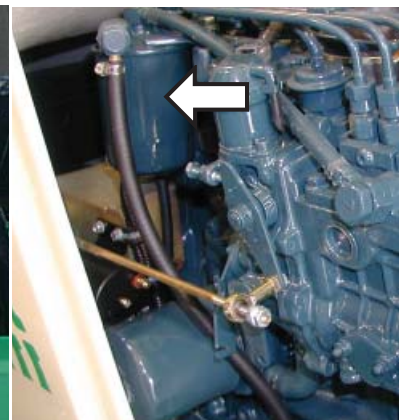
TX02747-11-15-07



PH017048-19-99

Replace Fuel Filter

Replace Fuel Filters every 400 hours, both engine and prefilter/water separator.



PH017448-19-99

PH017378-19-99

TX01787-11-15-07

Facer Blades

Blades bolt directly to the blade holder and should be inspected for damage and sharpness.

Dull or chipped blades must be replaced.



PH016978-19-99

TX00439-9-13-94

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.



PH00666-1-15-96

TX00433-9-15-94



Grease

Keep moving parts well lubricated daily with high temperature grease.

Jaw pivot pin

Facer pivot bushings

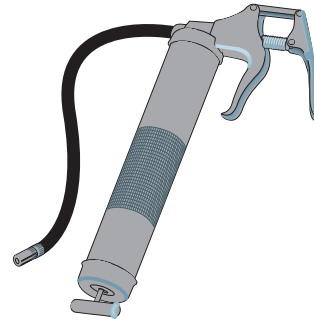
Heater pivot bushings

Hydraulic cylinder pivot pins

Indexer shaft housing

Facer

TX04252-12-1-10



CD00183-11-6-95

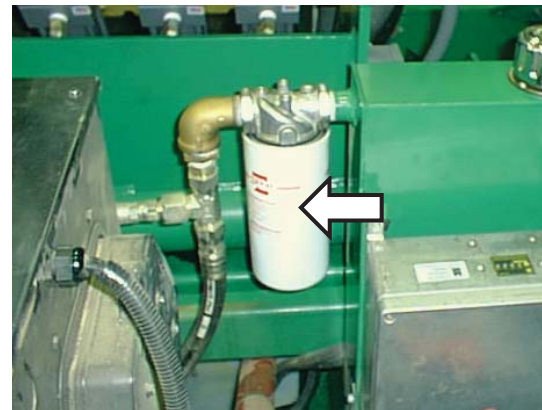
Change Hydraulic Fluid and Filter

The hydraulic fluid and filter should be replaced after every 400 hours of operation.

Fluid should also be changed as extreme weather conditions dictate.

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

Disconnect the carriage before draining the unit. Couple the carriage hoses together. After replacing oil, circulate oil 5 minutes to remove all air before reconnecting carriage.



PH01716-8-19-99

TX00431-2-2-00

Bleeding Air From Hydraulic System

Tilt machine so the fixed jaw end is higher than the opposite end.

Shift the directional control and move the carriage to the fixed jaw end. Adjust the pressure to approximately 50-100 psi.

Loosen the bleed plug on one cylinder next to the fixed jaw.

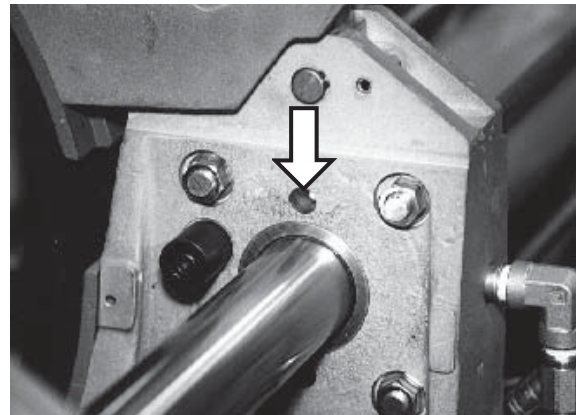
Hold pressure on the cylinder until no air is indicated and quickly retighten the plug.

Repeat bleeding operation on the opposite cylinder.

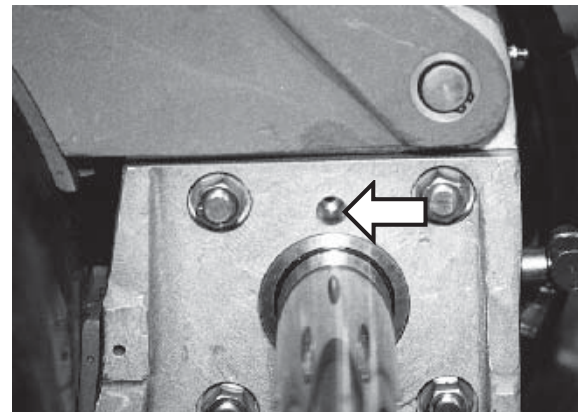
Tilt the machine so the opposite end is higher than the fixed jaw end.

Move the carriage to the end opposite the fixed jaw end.

Repeat the bleeding procedures for the remaining cylinder.



PH00627-12-13-95



PH00628-12-13-95

TX00761-11-15-07

Installing Butt Fusion Heater Plates

Coated butt fusion heater plates are available for all non-coated heaters.

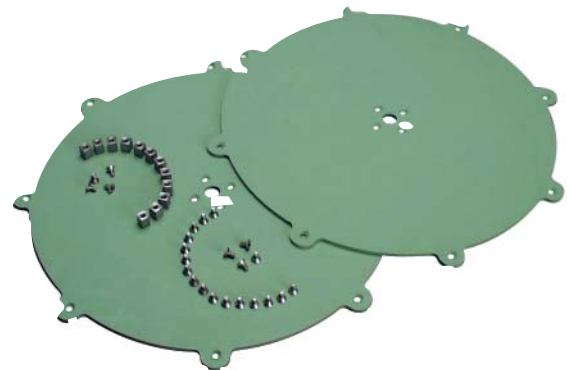
Butt fusion heater plates are installed with stainless steel cap screws.

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.



PH01297-3-4-98

TX02716-11-30-10



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.

TX00440-8-14-08

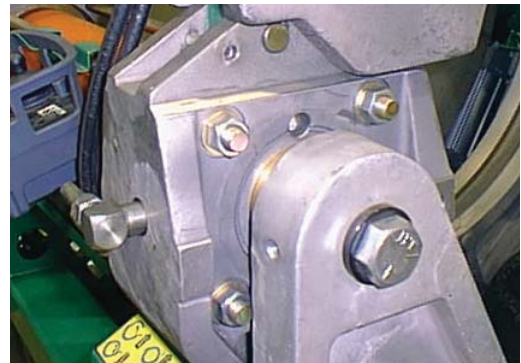


PH01718-8-19-99

Fasteners Must Be Tight

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

TX00437-9-13-94



PH01709-8-19-99

Hydraulic Cylinder Cushion

Most hydraulic cylinders are equipped with a cushion which slows the motion of the cylinder near the end of the stroke. There is a set screw near either end of the cylinder to adjust this cushion.

To adjust, turn the set screw making fine adjustments until the cushion is correct.

TX02749-11-15-07



PH00608-12-8-95

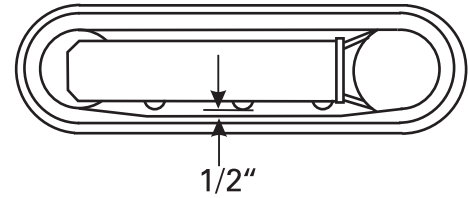
Checking Track Tension

Park the machine on a flat solid surface.

Use the spreader bar or hydraulic jacks to raise machine off the ground.

Place adequate supports under the bottom frame after lifting.

Measure the deflection between the bottom center roller and the inside surface of the rubber track. Track tension is normal when this distance is about 1/2". If the deflection is more or less than this, the tension needs to be adjusted.



CD00463-2-25-98

TX01472-2-25-98

Adjusting Track Tension



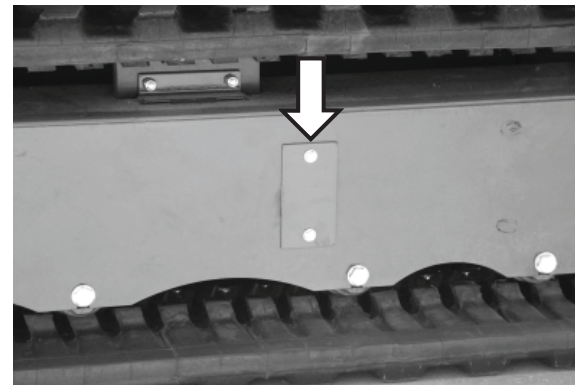
The grease in the hydraulics of the track is pressurized. If the grease valve is loosened too much, grease can be expelled at high pressure and cause serious injury. Injury could also result if the grease nipple is loosened. Never loosen the grease nipple.

Remove screws and cover to access the adjustment system.

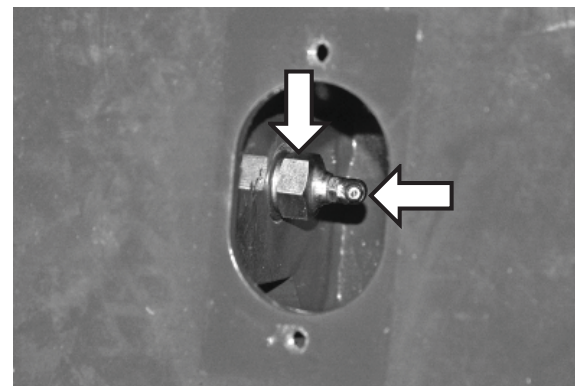
To tighten the track, connect a grease gun to the nipple and add grease to the system. When the track stretches to the correct tension, stop adding grease. Clean off any excess grease.

To loosen the track, turn hex shaped valve counterclockwise until grease comes out. When correct track tension is obtained, turn valve clockwise and tighten it. Clean off any expelled grease.

Replace access cover and tighten down with screws.



PH03254-6-20-06



PH03255-6-20-06

TX02632-6-20-06



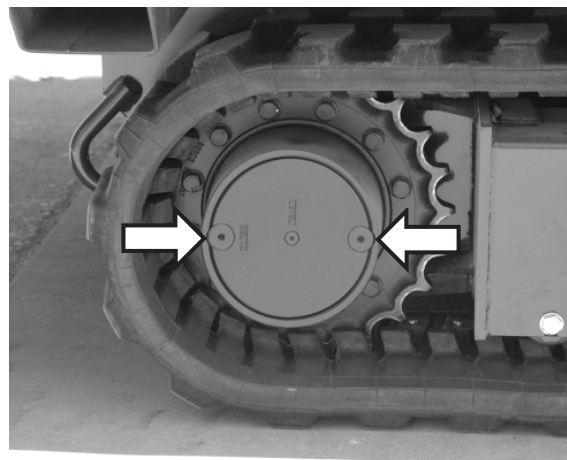
Check Oil Level in Gearbox

Check the oil level in the gearbox every 100 hours of operation.

To check the oil level, stop the machine with the gear motor plugs aligned horizontally. Remove the plugs and check that the oil level is up to the plug holes. If oil needs to be added, fill through one of the holes while checking the other hole for the oil level.

Use SAE-30-CD oil to fill the gearbox.

Replace the plugs and tighten.



PH03256-6-20-06

TX01474-11-30-10

Changing Oil in Gearbox

Replace the oil after the first 200 hours of operation. Subsequent oil changes should be scheduled at least once a year or every 1000 hours.

To replace the oil, stop the gearbox with the gear motor plugs aligned vertically.

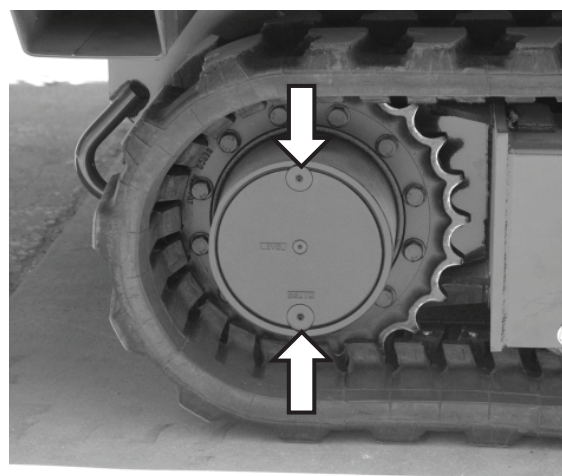
Remove both plugs and drain out all oil.

Move machine until the plug holes align horizontally.

Fill the gearbox through one of the holes while checking the other hole for the oil level. The oil level should be up to the plug holes.

Use SAE-30-CD oil to fill the gearbox.

Replace the plugs and tighten.



PH03257-6-20-06

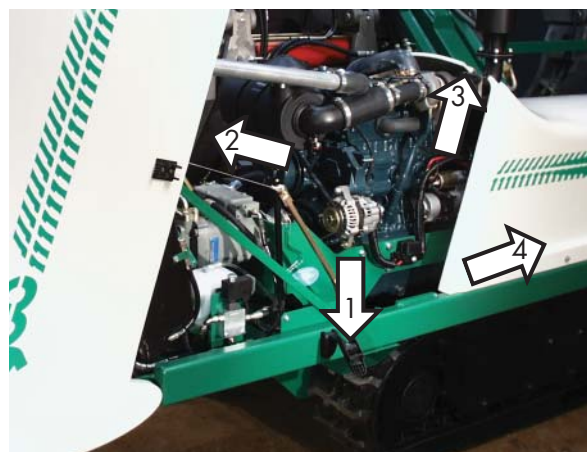
TX02633-6-20-06

Opening Rear Hood

Release latches on each side and pivot hood back.

Removing Front Hood

With Rear Hood open lift back end of hood 2" and slide hood forward and lift off.



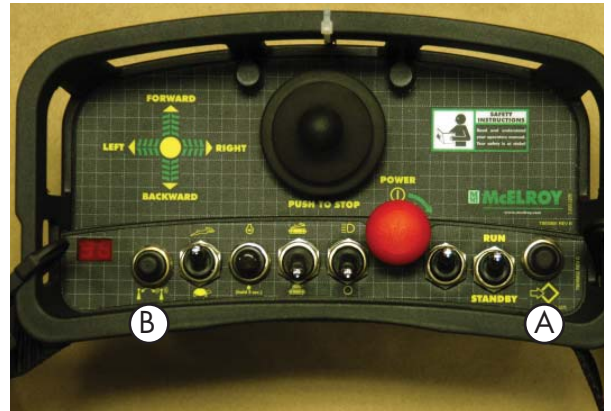
PH017288-19-99

TX01500-3-5-98

Changing Remote Channel

There may be a need to change the remote channel to improve communication between the remote and the machine.

To change channels on the remote, press and hold the channel button (A) on the right side of the remote and press the reset button (B) to change to the desired channel.



PH03740-1-21-09

TX04254-12-7-10

Remote Batteries

To replace the batteries in the remote:

Open the battery cover on the back of the remote.

Remove the used batteries.

Place two new AA batteries into the remote.

Close the battery cover on the back of the remote.



PH01742-8-19-99

TX02855-1-26-09



Maintenance Checklist



TracStar® 630 and 900

	TRACSTAR INSPECTION CHECKLIST	OK	Repairs Made	Date Repaired
1.	For engine maintenance & service, Review engine manual			
2.	Machine is clean			
3.	Inserts and inserts keeper pins are with machine			
4.	All nuts & bolts are tight			
5.	All identification placards are on unit			
6.	Wiring, battery cables, & all electrical terminals are in good condition			
7.	Tracks are in good repair			
8.	Hydraulic oil is visible in reservoir sight glass			
9.	No visual oil or water leaks (engine and hydraulic system)			
10.	Fuel tank is full (diesel only)			
11.	Engine crankcase is filled to correct level of oil			
12.	Cooling system level is correct			
13.	Hydraulic hoses are in good condition			
14.	Engine starts and runs properly			
15.	Facer works properly			
16.	Heater in good condition (no nicks or gouges)			
17.	Surface temperature check with a pyrometer			
18.	Switches and buttons operate properly			
19.	Two position throttle control works properly			
20.	Low oil / voltage & high water temperature alarm works			
21.	System pressure (2300 psi)			
22.	Hydraulic carriage works smoothly			
23.	Remote functions properly			
24.	Hydraulic valves function properly			
25.	No damage to fusion machine			
26.	Tracks are tensioned properly			

TX02751-11-30-10

Inspector: _____ Date: _____

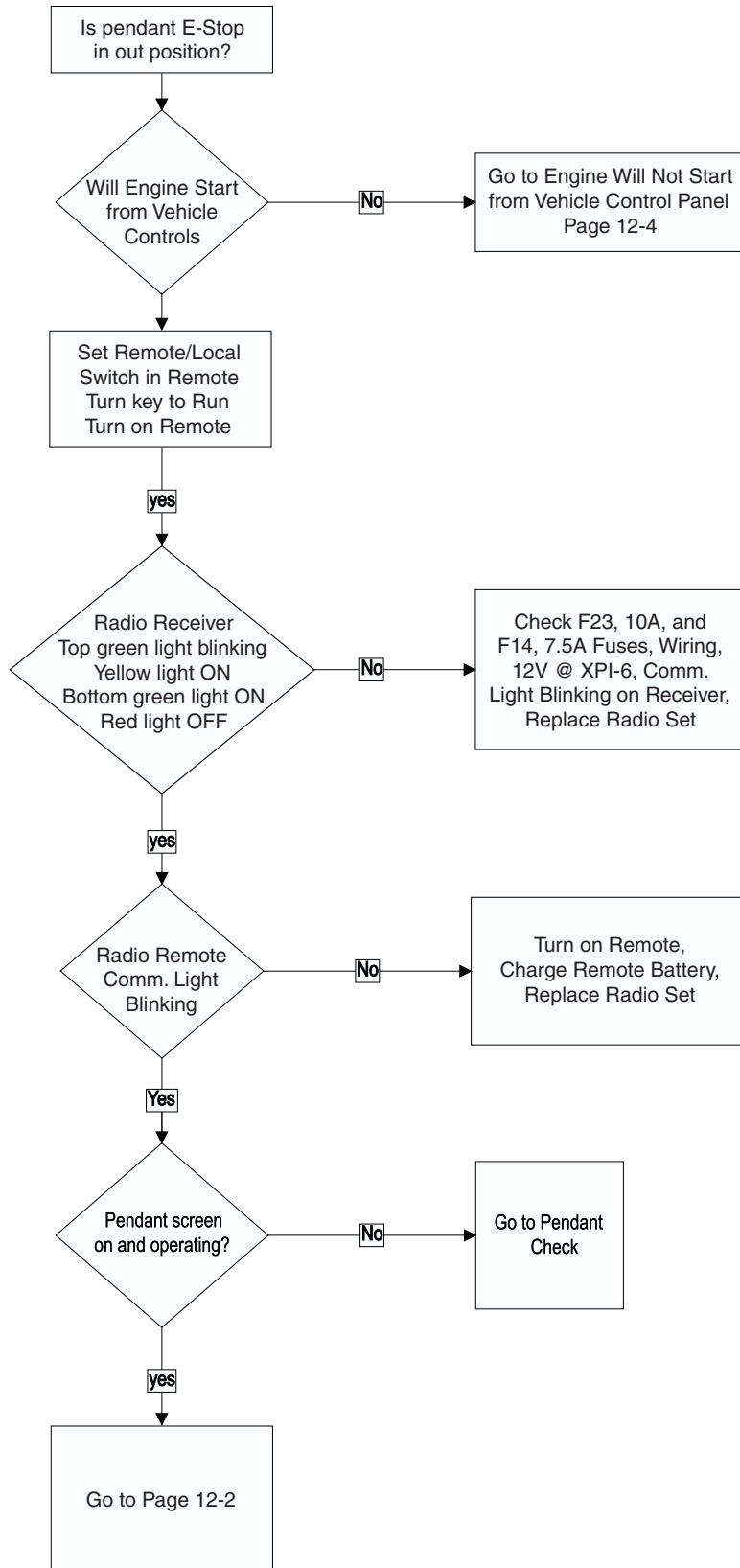
Comments: _____



Troubleshooting



Engine will not Start from Radio Remote



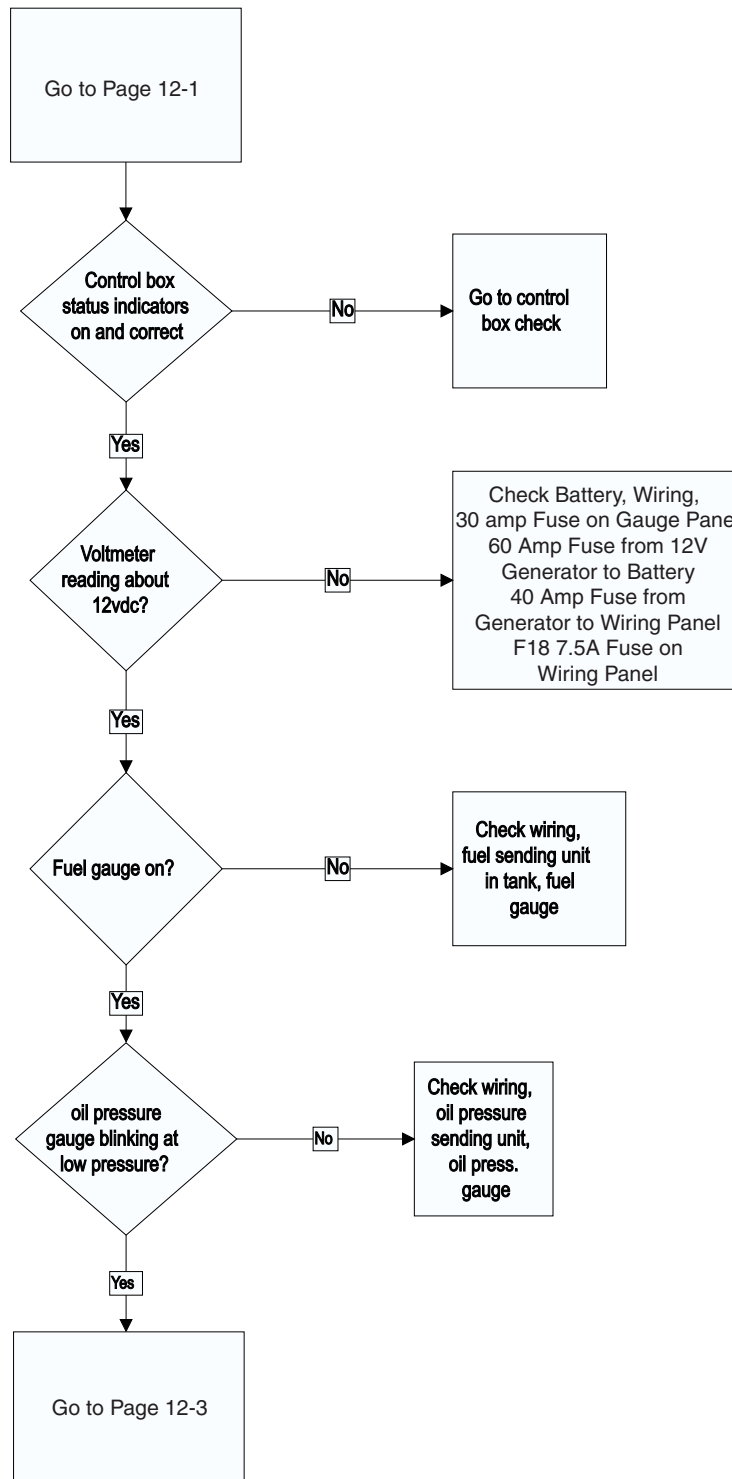
CD00550-8-19-99



Troubleshooting



Engine will not
Start from
Radio Remote



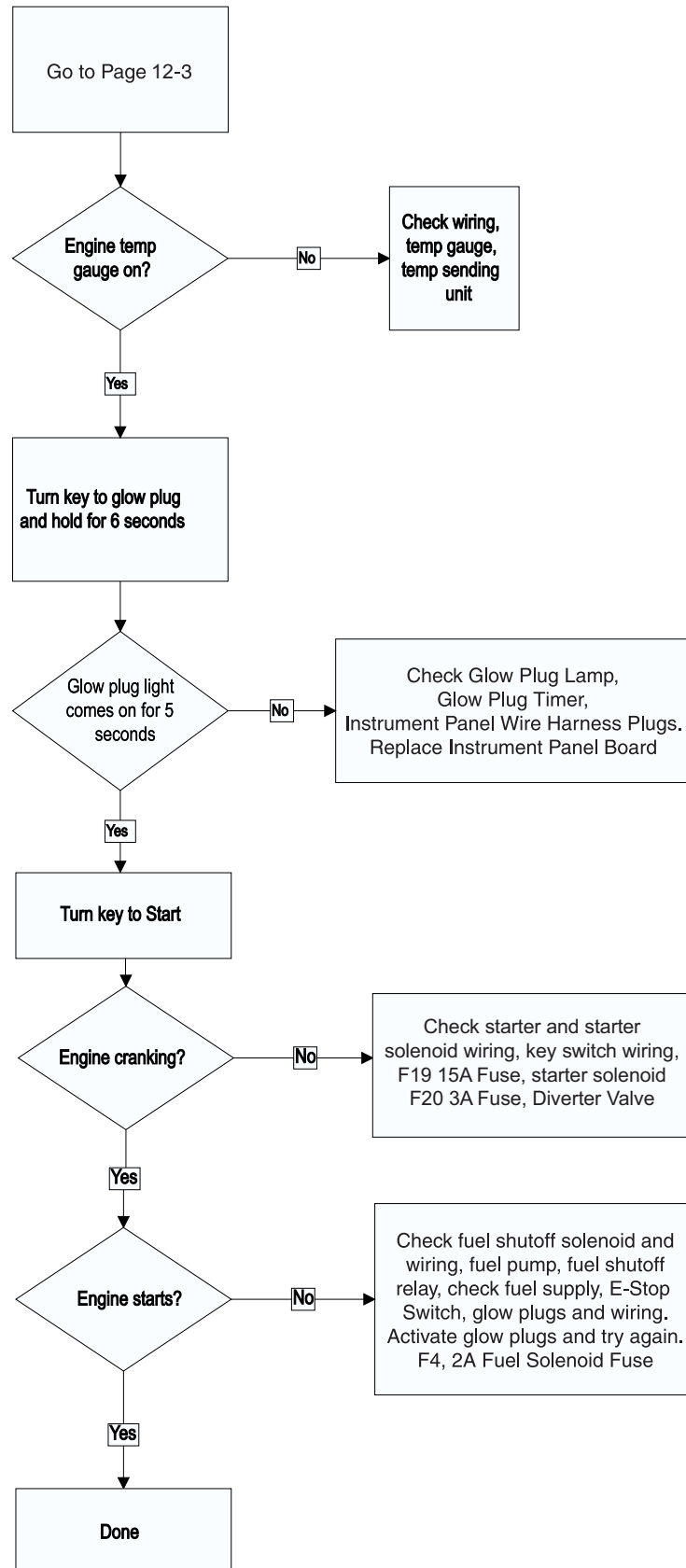
CD00551-8-19-99



Troubleshooting



Engine will not
Start from
Radio Remote



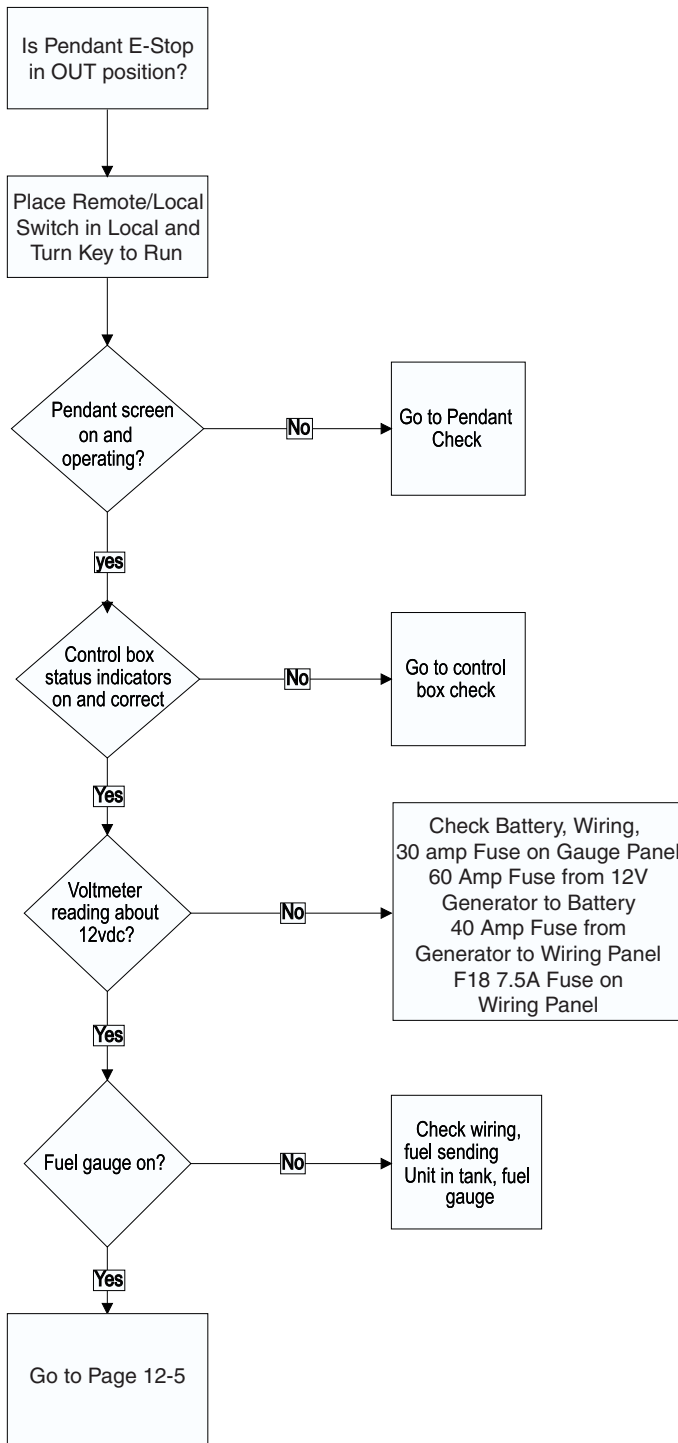
CD00552-8:19-99



Troubleshooting



Engine will not Start from From Vehicle Control Panel



CD00553-8-19-99

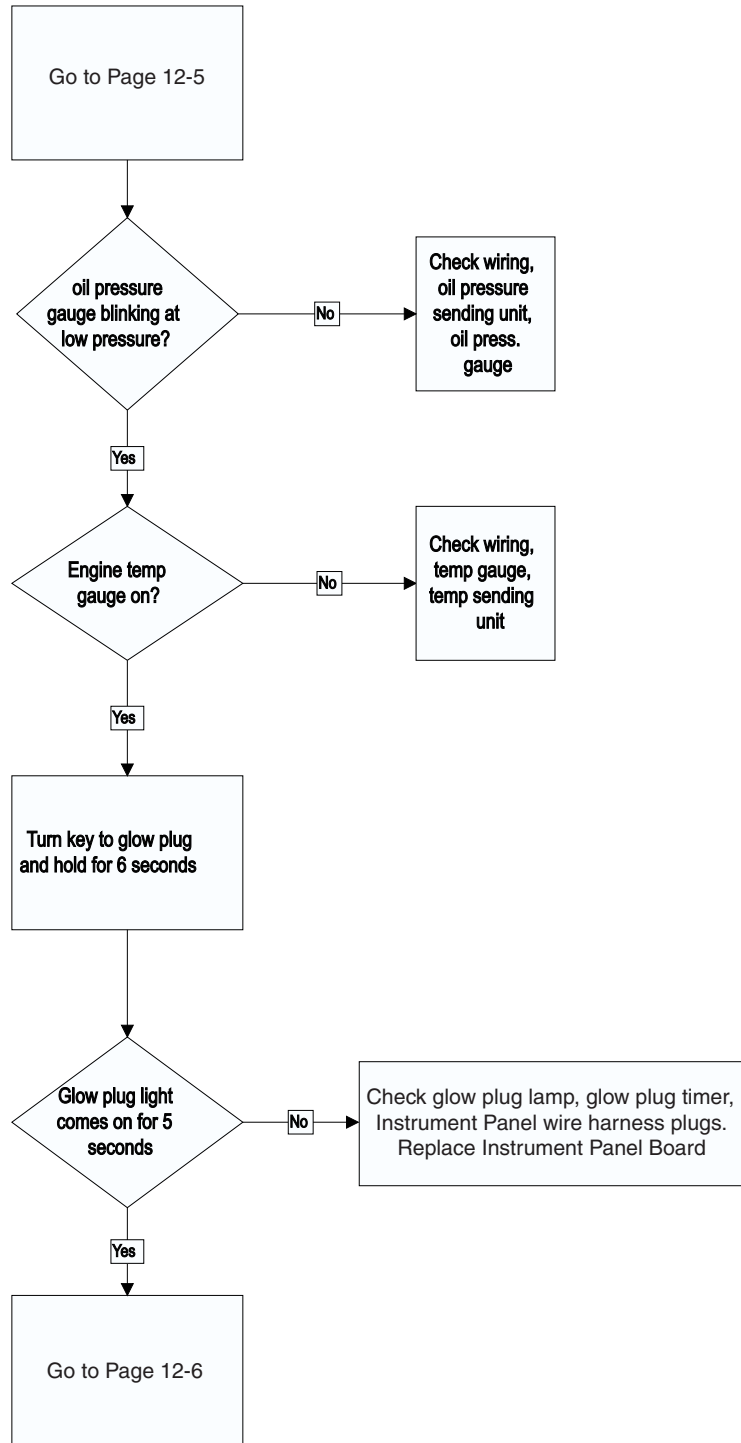


Troubleshooting



CD00554-8:19-99

Engine will not
Start from
From Vehicle
Control Panel

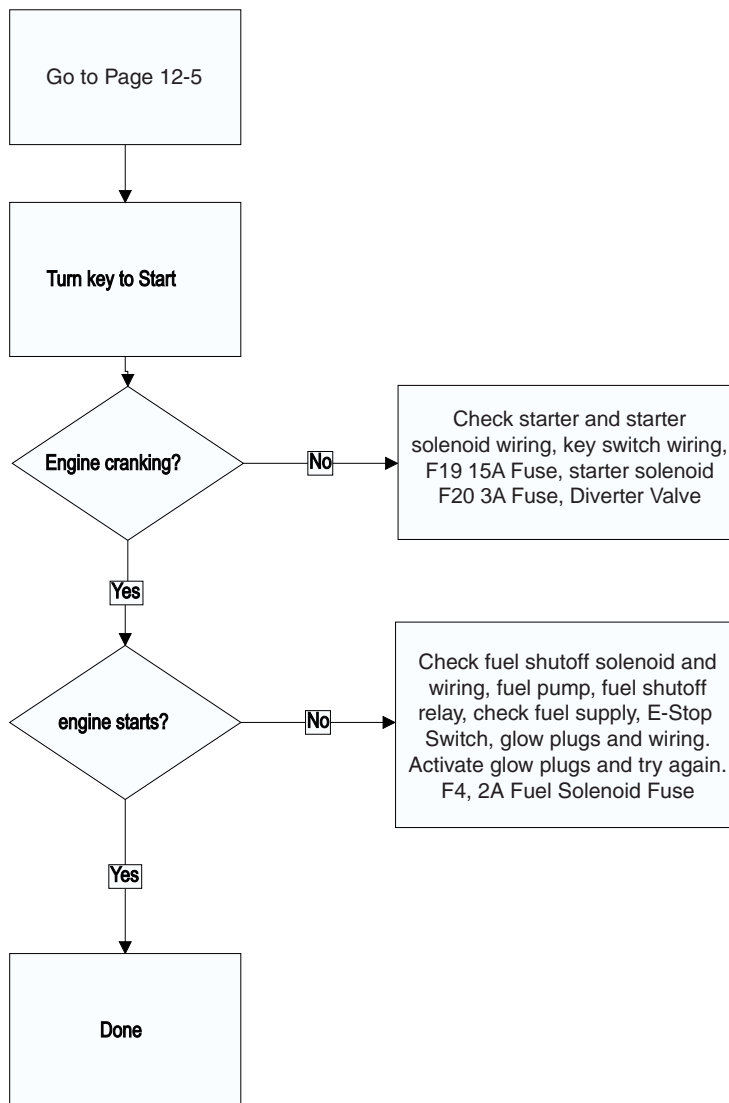




Troubleshooting



Engine will not Start from Vehicle Control Panel



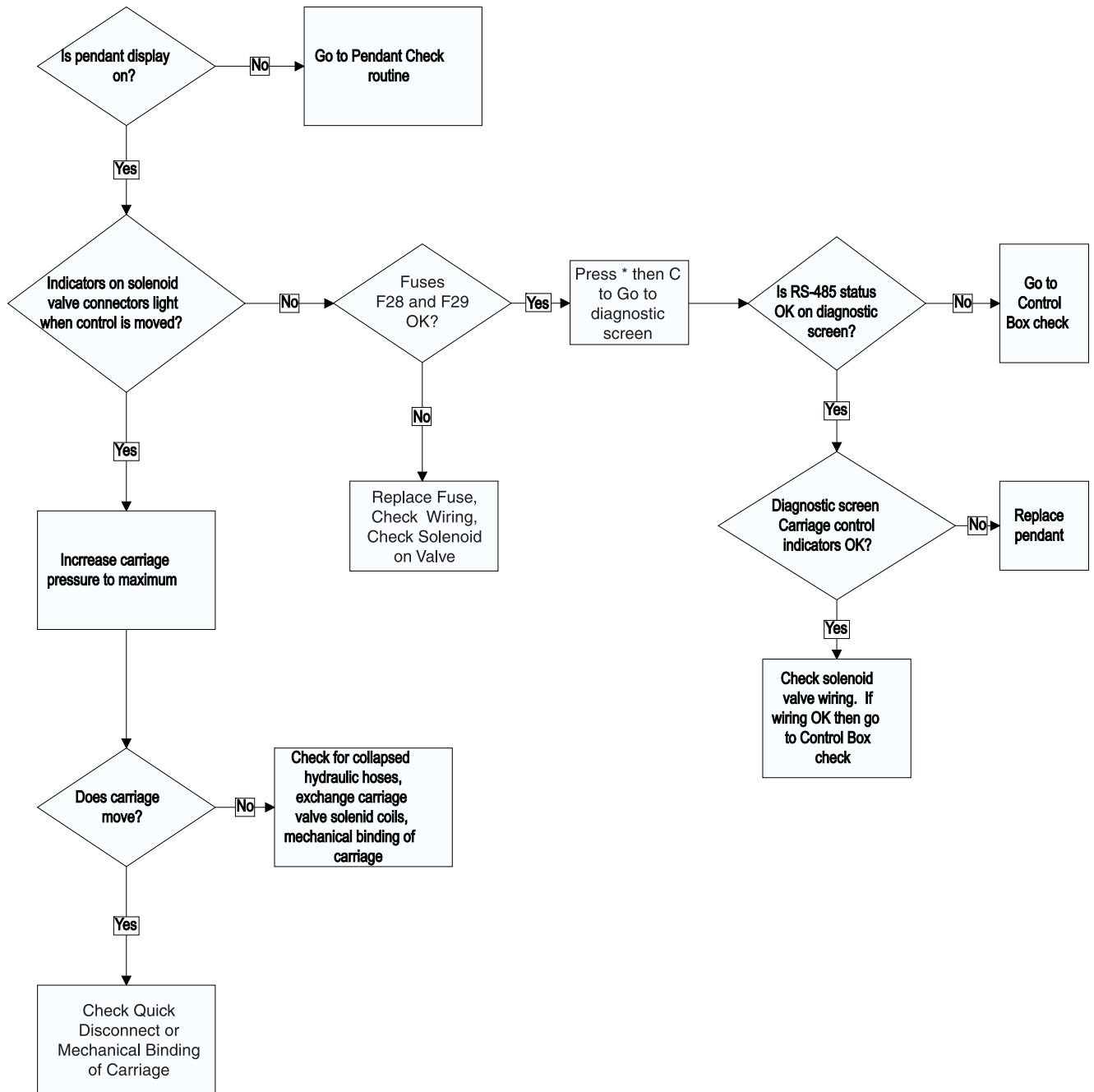
CD00555-8-19-99



Troubleshooting



Carriage Will Not Move



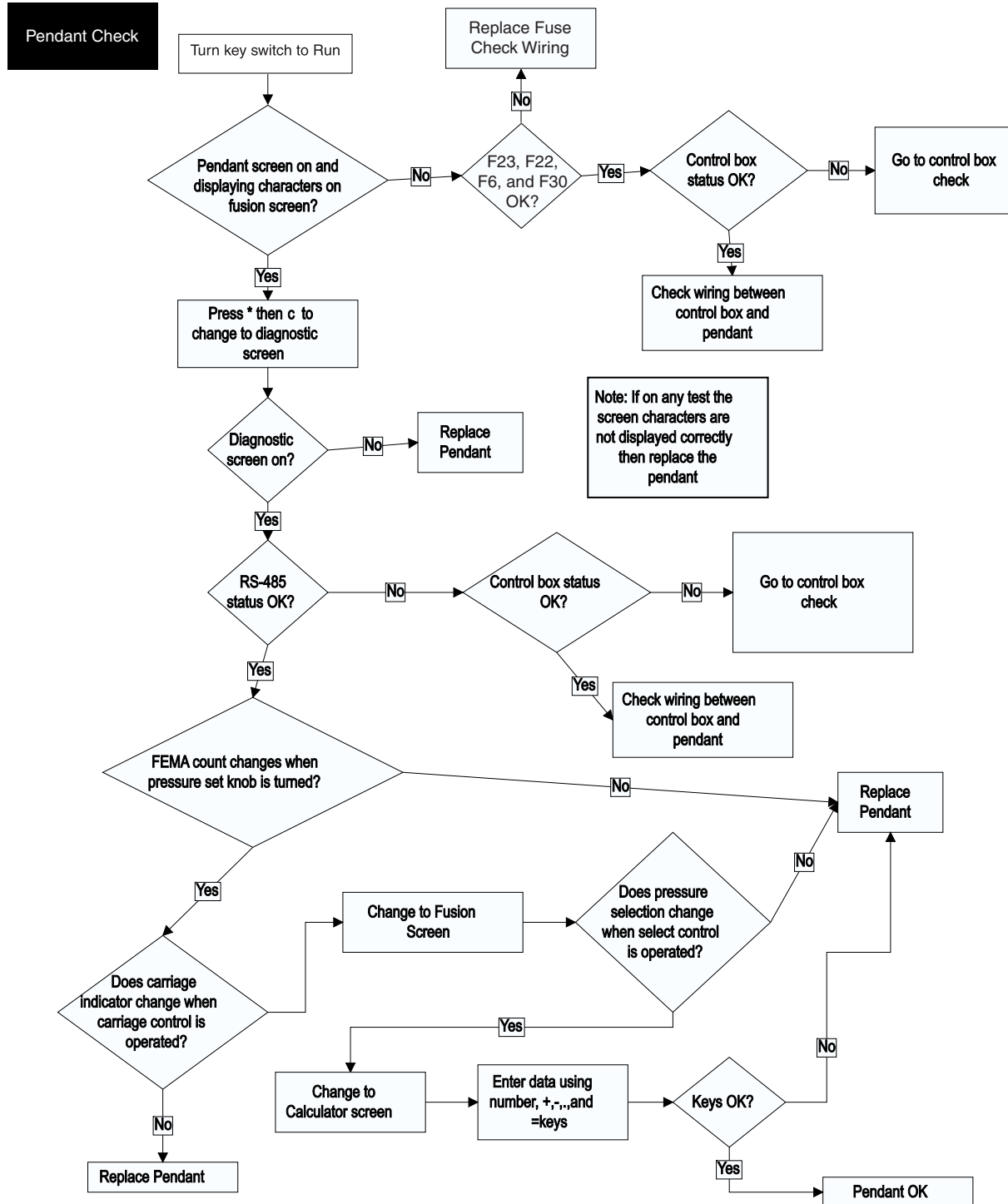
CD00556-8:19.99



Troubleshooting



CD00537-8-19-99

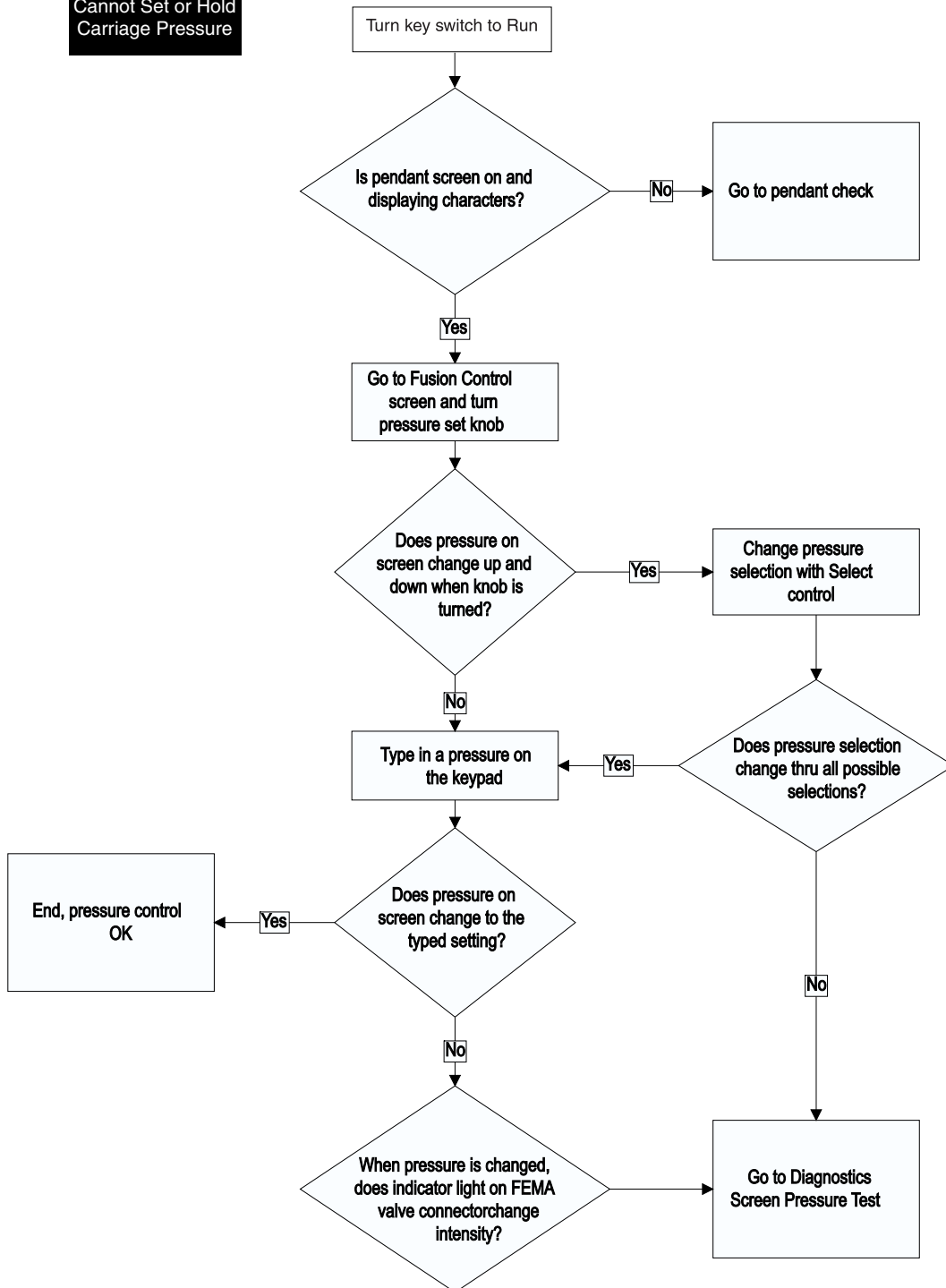




Troubleshooting

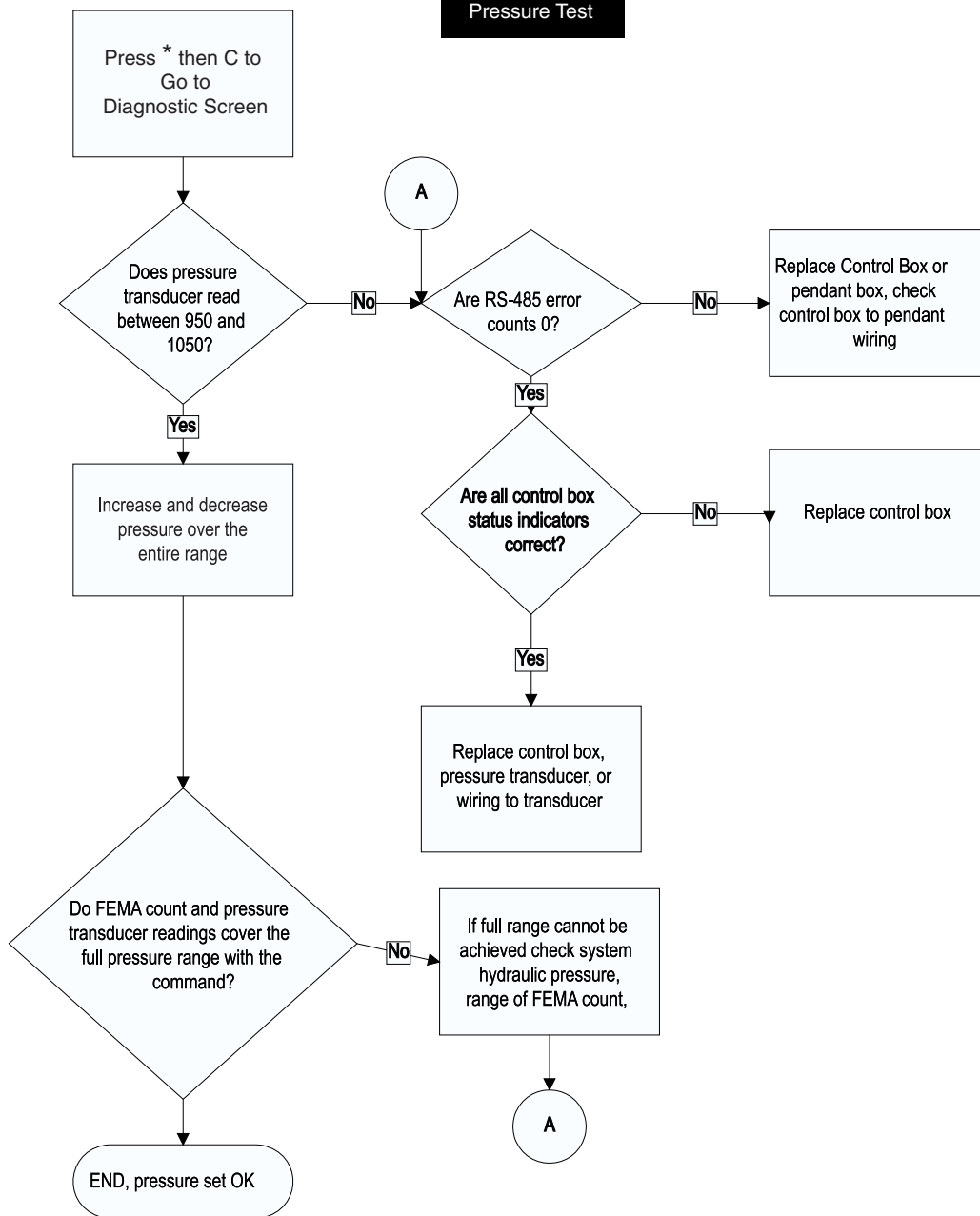


Cannot Set or Hold Carriage Pressure



CD00558-8:19.99

Diagnostic Screen Pressure Test

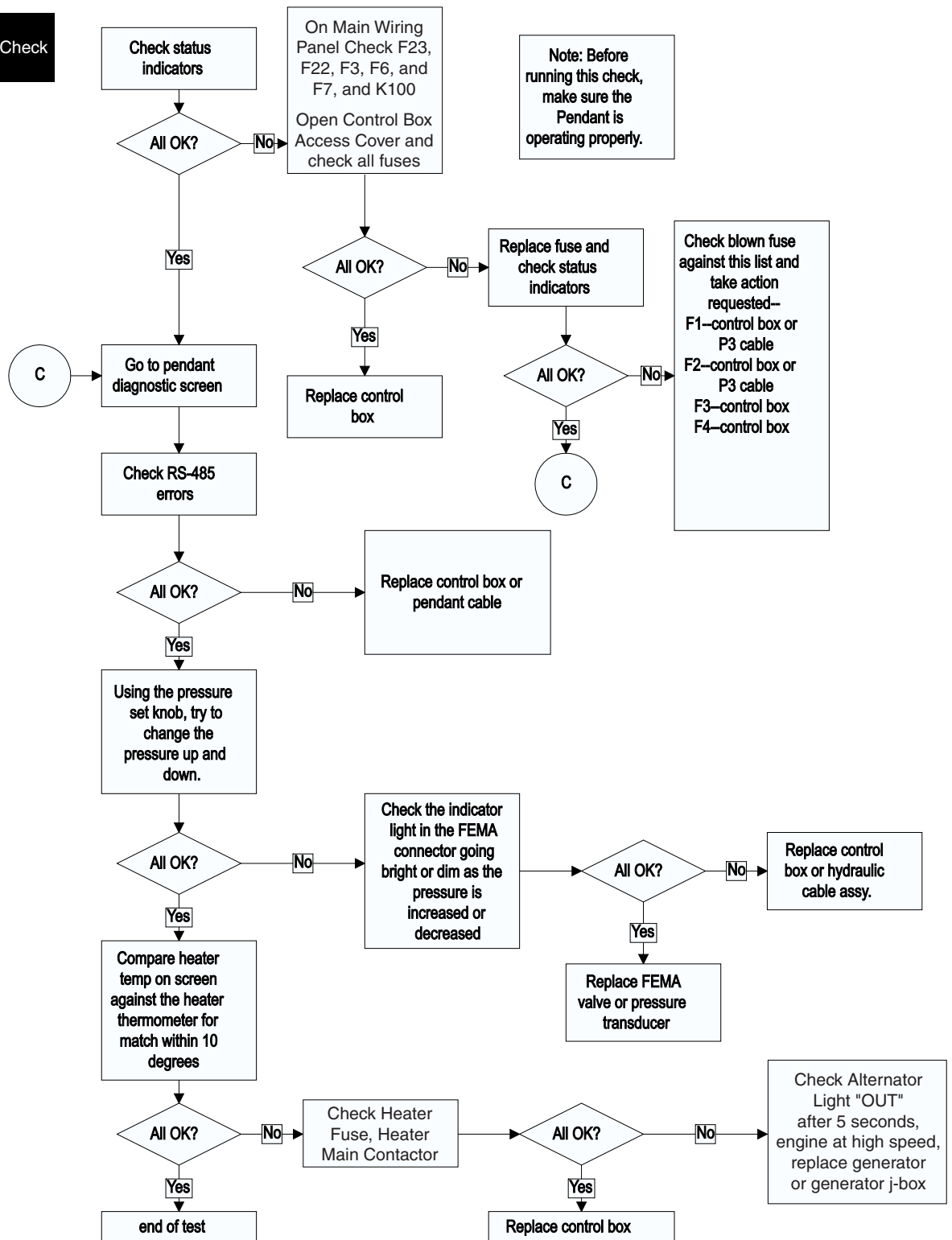




Troubleshooting



Control Box Check



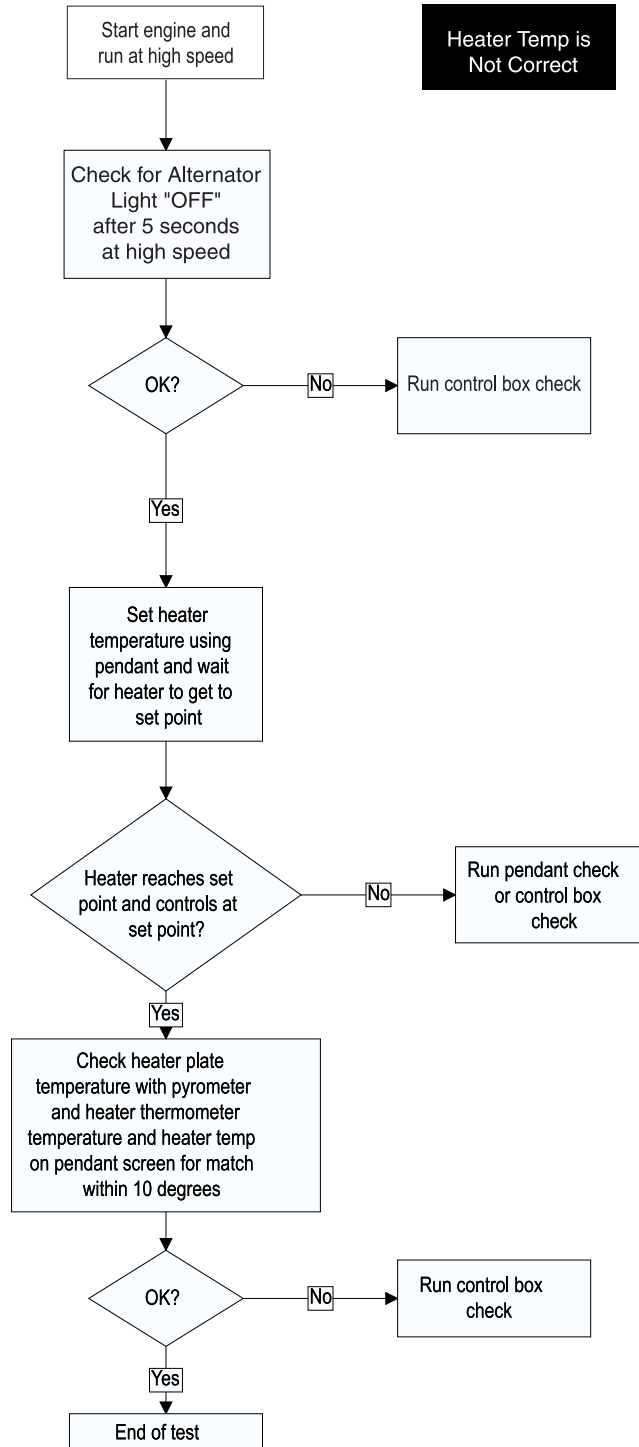
CD00560-8-19-99



Troubleshooting



CD00561-8-19-99



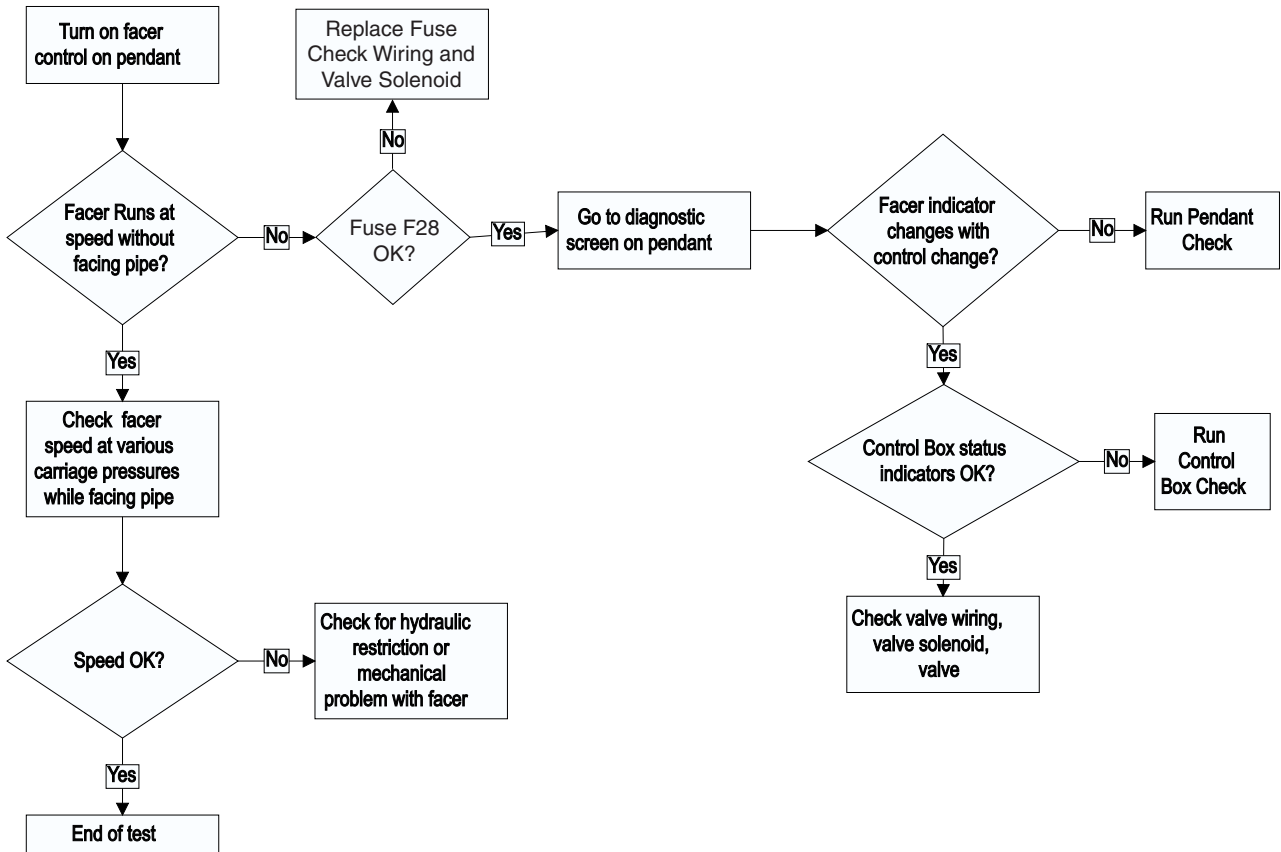


Troubleshooting



CD00562-8:19:99

Facer will Not Run

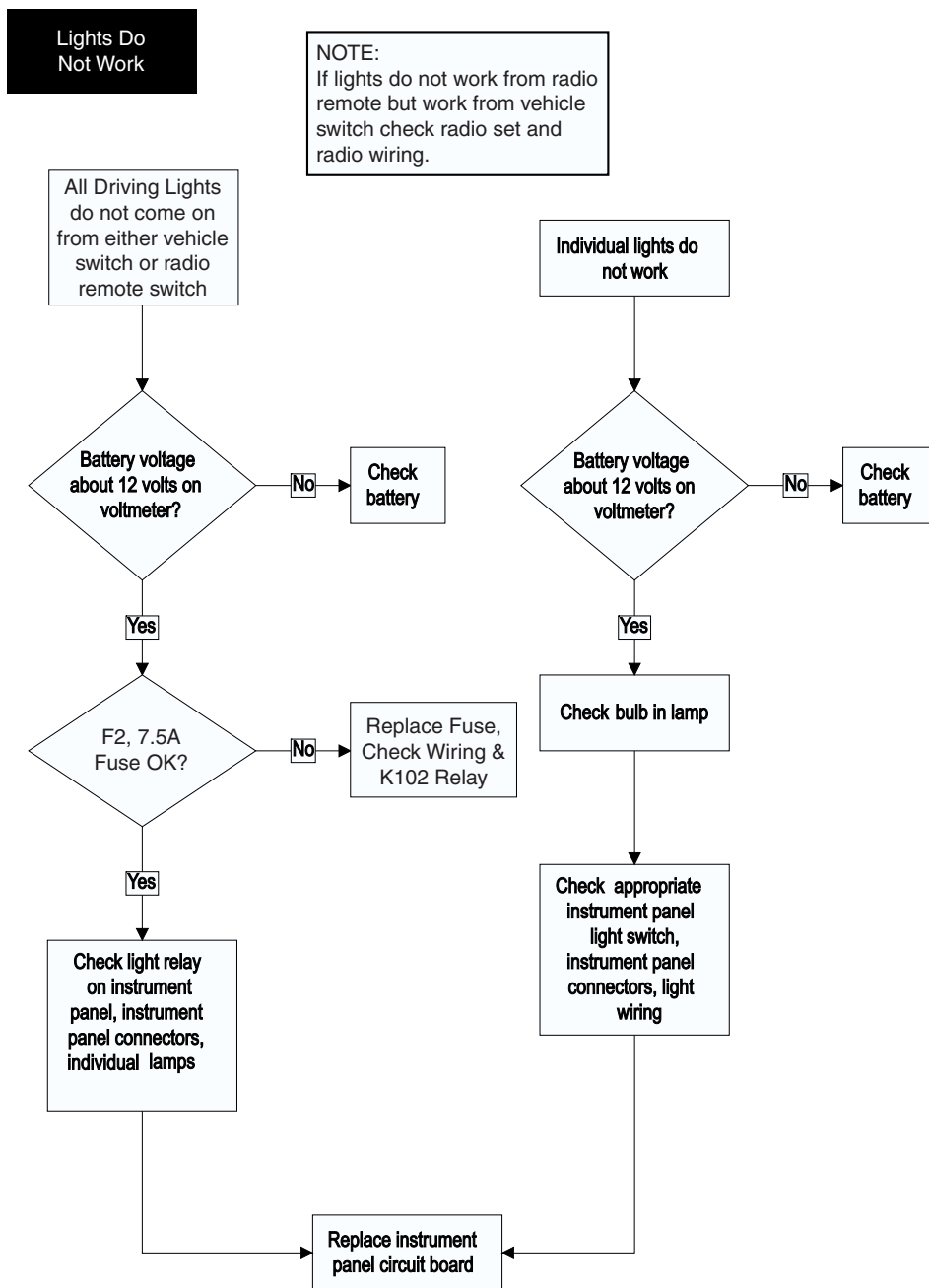




Troubleshooting



CD00563-8-19-99

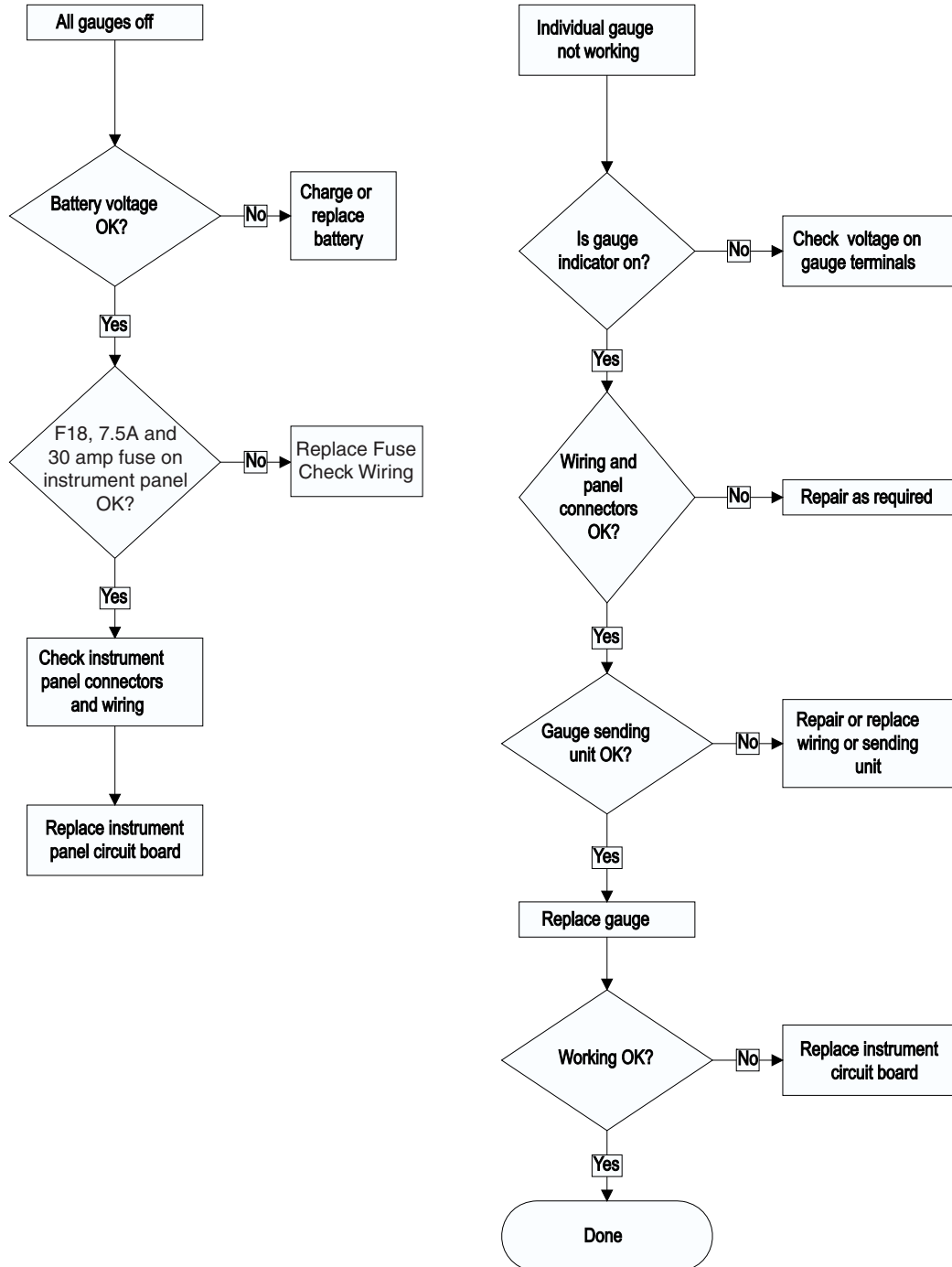




Troubleshooting



Engine Instruments



CD00564-8:19-99

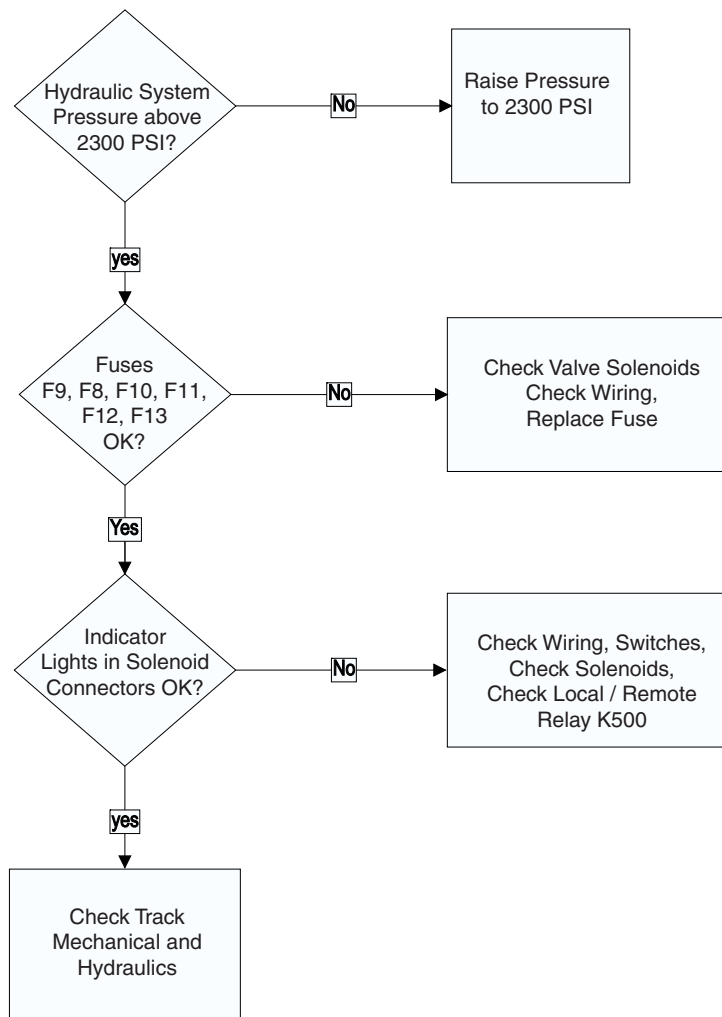


Troubleshooting



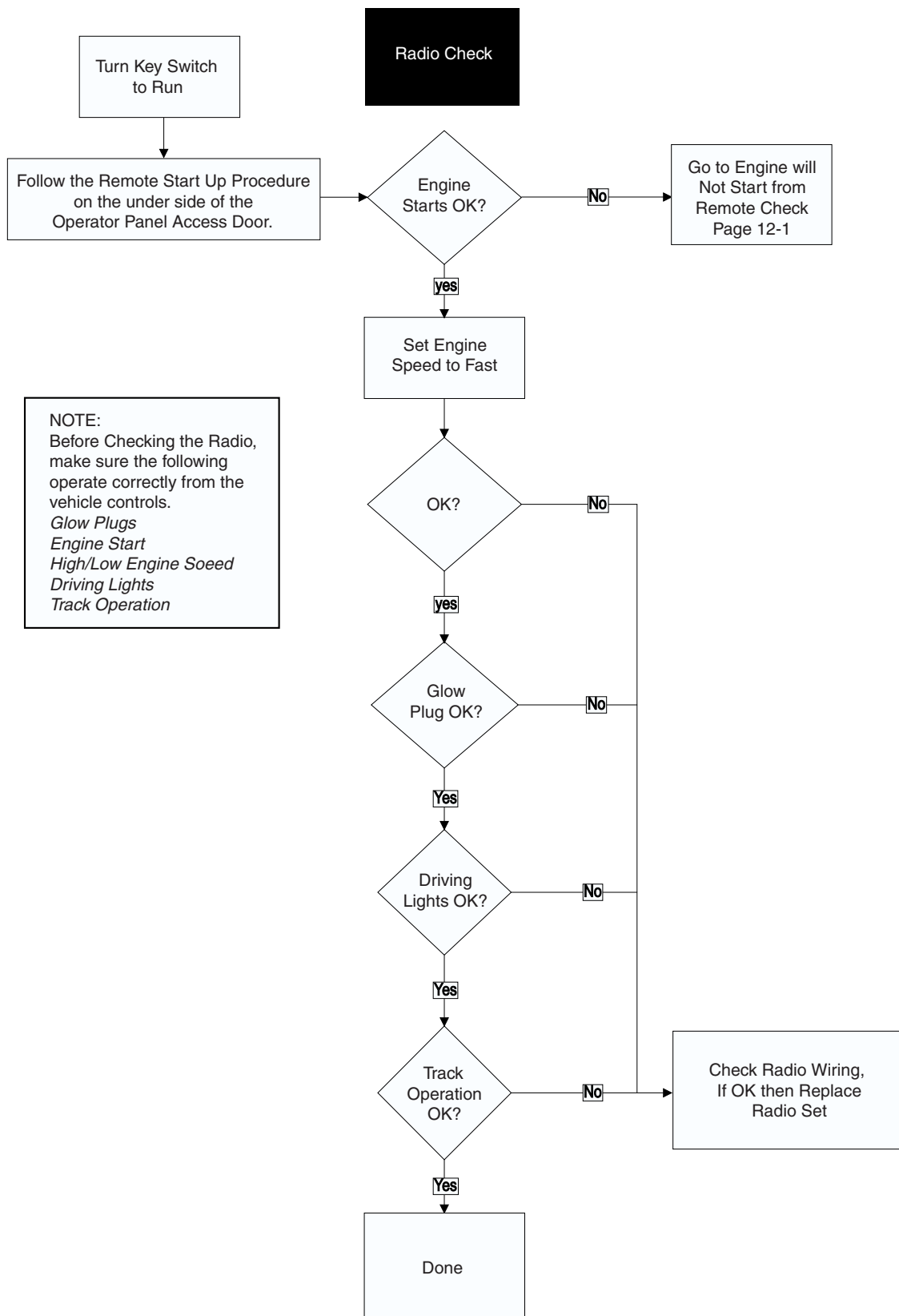
Tracks will not
move using
vehicle switches

CD00565-8-19-99





Troubleshooting



CD00566-8:19:99



Troubleshooting



TracStar® 630 and 900 AutoMc® Diagnostic Screen (Press * then C)

```

1 T900 LgT9a1.00 (c)2005 14/10/05 13:01:24
2 1RS-485 Err: BM=123 RG=123 M1=123 M2=123
3     Fac Htr Inx Car     9000mV=457.2mm
4 switch:   OUT R   L     100.5mm/s (-)
5 sensor:OUT OUT RT   H     70 to 2030 psi
6 ctrl  :OFF OFF Lck 15.32in2 Htr-Dt:123°C
7 xdcr: 4095mV Fema: 9999mV 230-10°C   C

```

Line #1

T900 LgT9a1.00 (c)2005 14/10/05 13:01:24

Machine model, firmware version, copyright, date, time

Line #2

1RS-485 Err: BM=123 RG=123 M1=123 M2=123

Press "1" to clear all RS-485 errors

BM = temperature module error

RG = control box error

M1 = Switch Box i/o module error

M2 = Relay Box i/o module error

These numbers should remain constant to indicate normal operation. Any of these numbers could increment rapidly to indicate communications error with that module.

Line #3

Fac Htr Inx Car 9000mV=457.2mm

Fac Htr Inx Car are heading for Facer, Heater, Indexer, and Carriage

9000mV indicates carriage transducer reading in millivolts

457.2mm shows the carriage position in millimeters

Line #4

switch: OUT R L 100.5mm/s (-)

Switch status for Heater, Indexer and carriage

OUT/IN indicate heater out or in, and + indicates neutral

R/L indicate indexer or carriage right and left, and + indicates neutral

100.5mm/s indicates carriage speed

(-) indicates carriage not moving, (β) indicates left, and (à) right

Line #5

sensor:OUT OUT RT H 70 to 2030 psi

Proximity sensors for facer, heater, indexer, and carriage

OUT/IN indicate out or in, and + indicates neutral

R/L indicate indexer or carriage right and left, and + indicates neutral

H indicate indexer or carriage at "heater removal" position.

Line #6

ctrl :OFF OFF Lck 15.32in2 Htr-Dt:123°C

Facer and heater control outputs: ON or OFF

Indexer control: Lck or UnL (Lock or Unlock)

Heater attached (AT) / Detached (Dt) sensor



Troubleshooting



Line #7

xdcr: 4095mV Fema: 9999mV 290-60°C C

Pressure transducer (xdcr) reading in millivolts

Fema pressure control valve output (Fema) in millivolts

290 indicates heater core temperature

60 indicates heater reading offset to adjust for surface temperature

Press "C" to exit the diagnostic screen.



Hydraulic Fluids



Hydraulic Fluids

The use of proper hydraulic oil is mandatory to achieve maximum performance and machine life. Use a clean, high quality, anti-wear hydraulic oil 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 oil temperature (generally 80°F above ambient). Using hydraulic oils that do not meet these criteria may cause poor operation and/or damage to the hydraulic components.

The following table specifies the oil temperature at various viscosities. Temperature rise of the hydraulic oil 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 oil is installed at our factory. The advantage of this oil is a wider temperature range, however, this oil should not be used for continuous operation below 24°F.

NOTE: The Mobil DTE 10 Excel series replaced the DTE 10M Series. The Exxon Univis N series are now Mobil Univis N.

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	10 Excel 15	15.8	4.1	168	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	-16 - 113	-27 - 45
	10 Excel 32	32.7	6.6	164				*****	*****	*****	*****	*****	*****	*****	*****	12 - 154	-11 - 68
	10 Excel 46	45.6	8.5	164					*****	*****	*****	*****	*****	*****	*****	23-173	-5 - 78
	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

TX03082-2-23-10

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

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

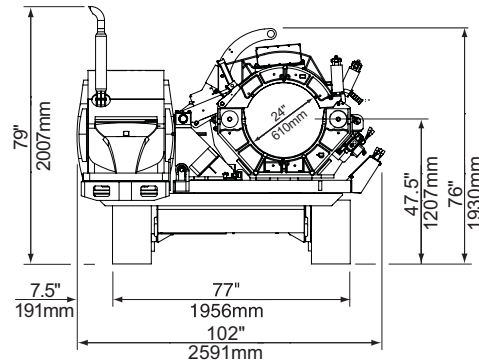


Specifications



TracStar 630 Fusion Machine Dimensions

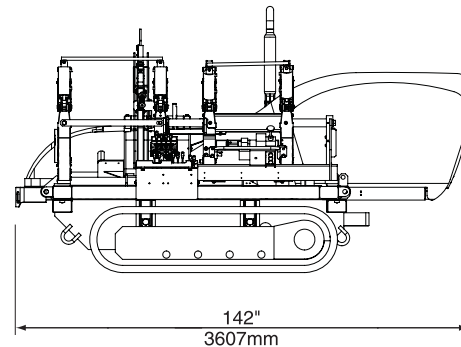
- Length: 142" (3,607mm)
- Track Width: 77" (1,956mm)
- Overall Width: 102" (2,591mm)
- Centerline Height, Carriage: 47.5" (1,207mm)
- Overall Height: 79" (2,007mm)



CD00723-6-20-06

Fusion Machine Weights

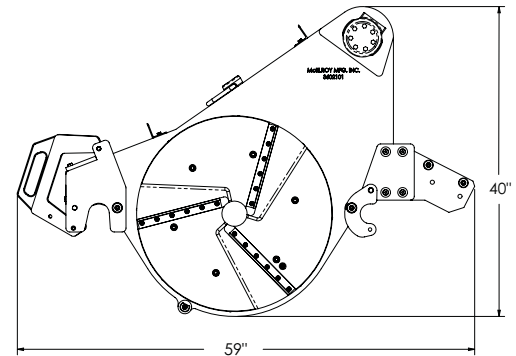
- Total Vehicle Weight: 8,600 lbs (3,900 kg)
- Carriage, 4 Jaws 3,790 lbs (1,719 kg)
- Carriage, 3 Jaws 1,350 lbs (612 kg)
- Facer 390 lbs (177 kg)
- Heater 240 lbs (109 kg)



Carriage Specifications

- Maximum Pipe Diameter: 24" OD (630mm)
- Minimum Pipe Diameter: 8" IPS (225mm)

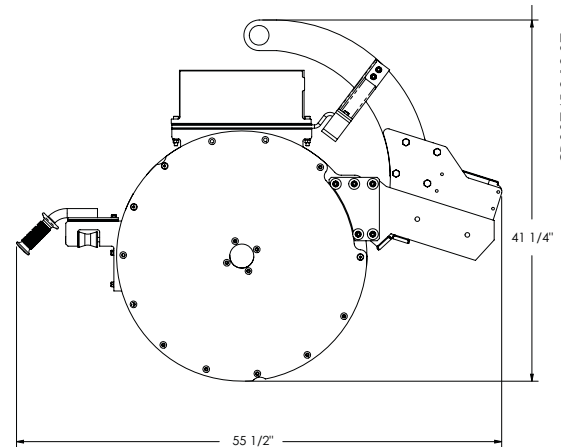
- | | |
|---------------------|--|
| Low Force | Effective Piston Area: 9.45 sq in (60.8 sq cm) |
| | Maximum Force: 21,689 lbs (9,836 kg) |
| Medium Force | Effective Piston Area: 15.32 sq in (98.8 sq cm) |
| | Maximum Force: 35,236 lbs (15,980 kg) |
| High Force | Effective Piston Area: 29.44 sq in (189.9 sq cm) |
| | Maximum Force: 67,712 lbs (30,708 kg) |



CD00744-3-12-07

Power Pack Specifications

- 84.5 hp (62kW) 3600 cc, 4-cylinder, Liquid Cooled Turbo Diesel Engine
- 23 gal (87 liters) Fuel Capacity
- 2,300 PSI (158 bar) Operating System pressure
- 12 gal (45 liters) Hydraulic Reservoir
- 25,000 W Direct Drive Alternator - 240V-3Ph.-60Hz
- Heater Power: 10,950 Watt
- Travel Speed: Low Speed - 1.04 mph
- High Speed - 1.68 mph.



CD00745-3-12-07



Specifications



TracStar 900 Fusion Machine Dimensions

Length: 142" (3,607mm)

Width: 102" (2,591mm)

Height: 85" (2,159mm)

Centerline Height, Carriage: 52.375" (1,330mm)

Track Width: 77" (1,956mm)

Fusion Machine Weights

Total Vehicle Weight: 9,527 lbs (4,321 kg)

Carriage, 4 Jaws: 3,865 lbs (1,753 kg)*

Carriage, 3 Jaws: 1,820 lbs (825 kg)*

Facer: 480 lbs (218 kg)

Heater: 382 lbs (173 kg)

* All carriage weights without heater and facer.

Carriage Specifications

Maximum Pipe Diameter: 36" OD (900mm)

Minimum Pipe Diameter: 12" IPS (340mm)

Low Force Effective Piston Area: 9.45 sq in (60.8 sq cm)

Maximum Force: 21,689 lbs (9,836 kg)

Medium Force Effective Piston Area: 15.32 sq in (98.8 sq cm)

Maximum Force: 35,236 lbs (15,980 kg)

High Force Effective Piston Area: 29.44 sq in (189.9 sq cm)

Maximum Force: 67,712 lbs (30,708 kg)

General Specifications

84.5 hp (62kW) 3600 cc, 4-cylinder, Liquid Cooled Turbo Diesel Engine

12 gal (45 liters) Hydraulic Reservoir Capacity

2,300 PSI (158 bar) Operating System pressure

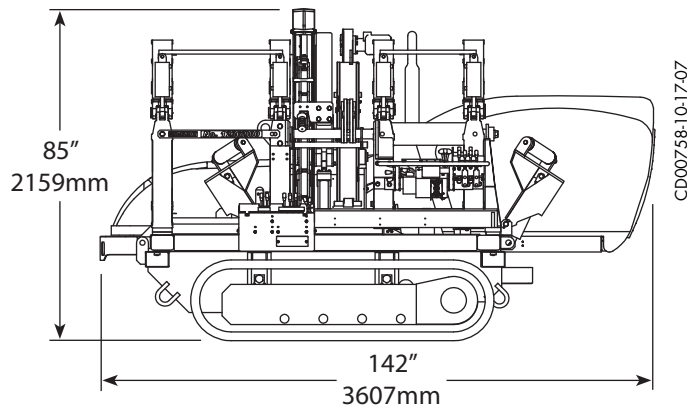
25,000 W Direct Drive Alternator - 240V-3Ph.-60Hz

23 gal (87 liters) Fuel Capacity

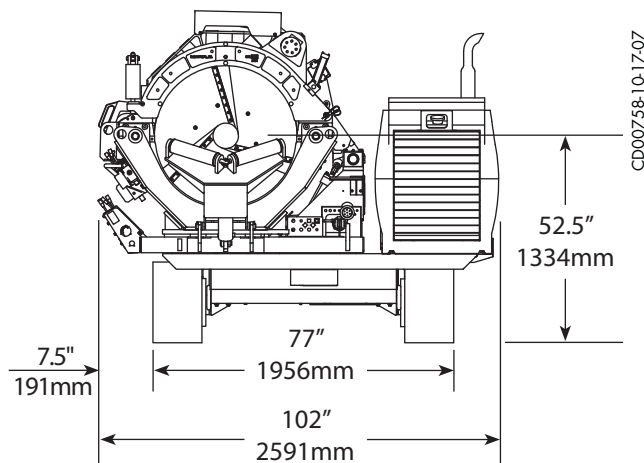
Heater Power: 20,461 Watt

Travel Speed: Low Speed - 1.04 mph

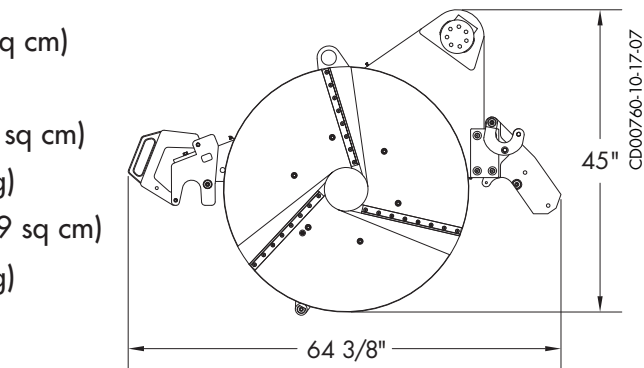
High Speed - 1.68 mph.



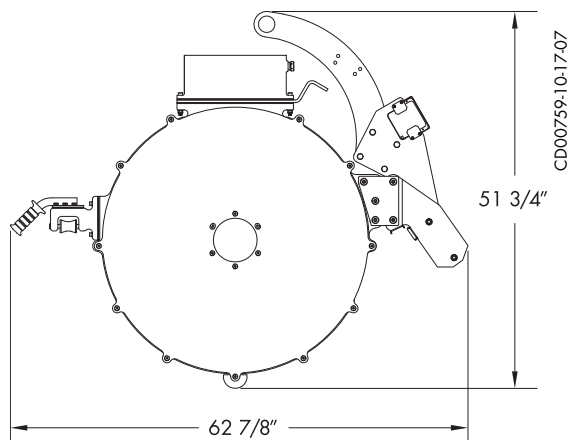
CD00758-10-17-07



CD00758-10-17-07



CD00760-10-17-07



CD00759-10-17-07

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



The leader by design.

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