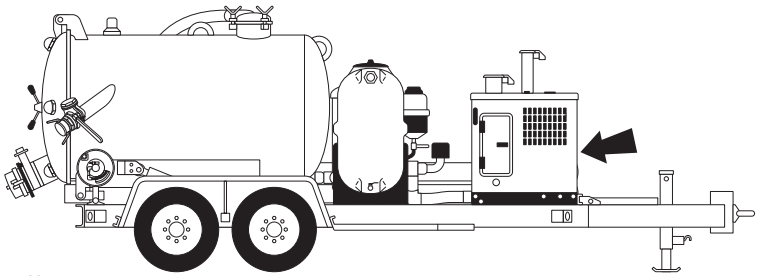
SERVICE

SERIAL NUMBER

Record the serial numbers and date of purchase of your equipment in the spaces below.



om2357a.eps

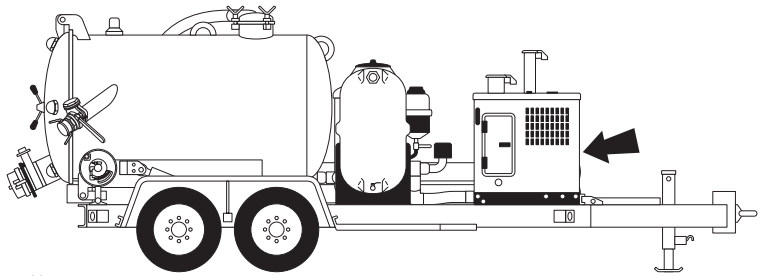
Date of manufacture:	
Date of purchase:	
Machine serial number (shown):	
Engine serial number:	
Blower serial number:	
Pressure washer serial number:	
DC hydraulic pump serial number:	

FX30 - SERVICE 1
SERIAL NUMBER

SERVICE

SERIAL NUMBER

Record the serial numbers and date of purchase of your equipment in the spaces below.



om2357a.eps

Date of manufacture:	
Date of purchase:	
Machine serial number (shown):	
Engine serial number:	
Blower serial number:	
Pressure washer serial number:	
DC hydraulic pump serial number:	

SUPPORT PROCEDURE

Notify your dealer immediately of any malfunction or failure of Ditch Witch equipment.

Always give model, serial number, and approximate date of your equipment purchase. This information should be recorded and placed on file by the owner at the time of purchase.

Return damaged parts to dealer for inspection and warranty consideration if in warranty time frame.

Order genuine Ditch Witch replacement or repair parts from your authorized Ditch Witch dealer. Use of another manufacturer's parts may void warranty consideration.

RESOURCES

Publications

Contact your Ditch Witch dealer for publications and videos covering safety, operation, service, and repair of your equipment.

Ditch Witch Training

For information about on-site, individualized training, contact your Ditch Witch dealer.

2 FX30 - SERVICE
SUPPORT PROCEDURE

SUPPORT PROCEDURE

Notify your dealer immediately of any malfunction or failure of Ditch Witch equipment.

Always give model, serial number, and approximate date of your equipment purchase. This information should be recorded and placed on file by the owner at the time of purchase.

Return damaged parts to dealer for inspection and warranty consideration if in warranty time frame.

Order genuine Ditch Witch replacement or repair parts from your authorized Ditch Witch dealer. Use of another manufacturer's parts may void warranty consideration.

RESOURCES

Publications

Contact your Ditch Witch dealer for publications and videos covering safety, operation, service, and repair of your equipment.

Ditch Witch Training

For information about on-site, individualized training, contact your Ditch Witch dealer.

FOREWORD

This manual is an important part of your equipment. It provides safety information and operation instructions to help you use and maintain your Ditch Witch equipment.

Read this manual before using your equipment. Keep it with the equipment at all times for future reference. If you sell your equipment, be sure to give this manual to the new owner.

If you need a replacement copy, contact your Ditch Witch dealer. If you need assistance in locating a dealer, visit our website at **www.ditchwitch.com** or write to the following address:

The Charles Machine Works, Inc.
Attn: Marketing Department
PO Box 66
Perry, OK 73077-0066
USA

The descriptions and specifications in this manual are subject to change. The Charles Machine Works, Inc. reserves the right to improve equipment. Some product improvements may have taken place after this manual was published. For the latest information on Ditch Witch equipment, see your Ditch Witch dealer.

Thank you for buying and using Ditch Witch equipment.

FX30 - FOREWORD 3

FOREWORD

This manual is an important part of your equipment. It provides safety information and operation instructions to help you use and maintain your Ditch Witch equipment.

Read this manual before using your equipment. Keep it with the equipment at all times for future reference. If you sell your equipment, be sure to give this manual to the new owner.

If you need a replacement copy, contact your Ditch Witch dealer. If you need assistance in locating a dealer, visit our website at **www.ditchwitch.com** or write to the following address:

The Charles Machine Works, Inc.
Attn: Marketing Department
PO Box 66
Perry, OK 73077-0066
USA

The descriptions and specifications in this manual are subject to change. The Charles Machine Works, Inc. reserves the right to improve equipment. Some product improvements may have taken place after this manual was published. For the latest information on Ditch Witch equipment, see your Ditch Witch dealer.

Thank you for buying and using Ditch Witch equipment.

Operator's Manual
FX30

Issue No. 4.0/OP-7/06
Part Number 054-071

4 FX30 - FOREWORD

Operator's Manual
FX30

Issue No. 4.0/OP-7/06
Part Number 054-071

Copyright 2000, 2001, 2002, 2003, 2004, 2005, 2006
by The Charles Machine Works, Inc.,
Perry, Oklahoma

Ditch Witch, CMW, AutoCrowd, Modularmatic, Jet Trac, Roto Witch, Subsite, Fluid Miser, Perma-Soil, Power Pipe, Super Witch, Super Witch II, Pierce Airrow, The Underground, and The Underground Authority Worldwide are registered trademarks of The Charles Machine Works, Inc.

CONTENTS

SERVICE. 1
Serial Number 1
Support Procedure 2
Resources 2

FOREWORD 3

OVERVIEW 9

CONTROLS 13
Console Overview 13
Console Descriptions 14
Tethered Tank Controller Overview 19
Tethered Tank Controller Descriptions 20
Machine Control Overview 22
Machine Control Desciptions. 25

SAFETY. 35
Accessories. 36
Underground Hazards 36
Emergency Procedures. 37
Jobsite Inspection 39
Safety Alert Classifications 40
Safety Alerts. 41

FX30 - CONTENTS 5

CONTENTS

SERVICE 1
Serial Number 1
Support Procedure. 2
Resources 2

FOREWORD 3

OVERVIEW. 9

CONTROLS. 13
Console Overview. 13
Console Descriptions 14
Tethered Tank Controller Overview. 19
Tethered Tank Controller Descriptions 20
Machine Control Overview. 22
Machine Control Desciptions 25

SAFETY 35
Accessories 36
Underground Hazards 36
Emergency Procedures 37
Jobsite Inspection 39
Safety Alert Classifications. 40
Safety Alerts 41

TRANSPORTATION 47
Lift 47
Haul 50

PREPARATION 53
Gather Information 53
Check Equipment and Supplies 54
Park Unit 55

OPERATION 57
Cold Start 58
Vacuum 59
Pothole 61
Drain Tank 65
Antifreeze the System 70

BREAKDOWN 71
Rinse Equipment 71
Disconnect 72
Stow Tools 72

LUBRICATION 73
Schedule 74
Engine 75
Blower 77
Hydraulics 80
Water Pump 82
Vacuum Tank 84

6 FX30 - CONTENTS

TRANSPORTATION 47
Lift 47
Haul 50

PREPARATION 53
Gather Information 53
Check Equipment and Supplies 54
Park Unit 55

OPERATION 57
Cold Start 58
Vacuum 59
Pothole 61
Drain Tank 65
Antifreeze the System 70

BREAKDOWN 71
Rinse Equipment 71
Disconnect 72
Stow Tools 72

LUBRICATION 73
Schedule 74
Engine 75
Blower 77
Hydraulics 80
Water Pump 82
Vacuum Tank 84

MAINTENANCE 87
Schedule 88
Engine. 89
Blower 95
Hydraulics 99
Water Pump 101
Vacuum Tank 105
Trailer 110
Electrical. 117

SPECIFICATIONS 119
500 119
800 123
1200 128

FX30 - CONTENTS *7*

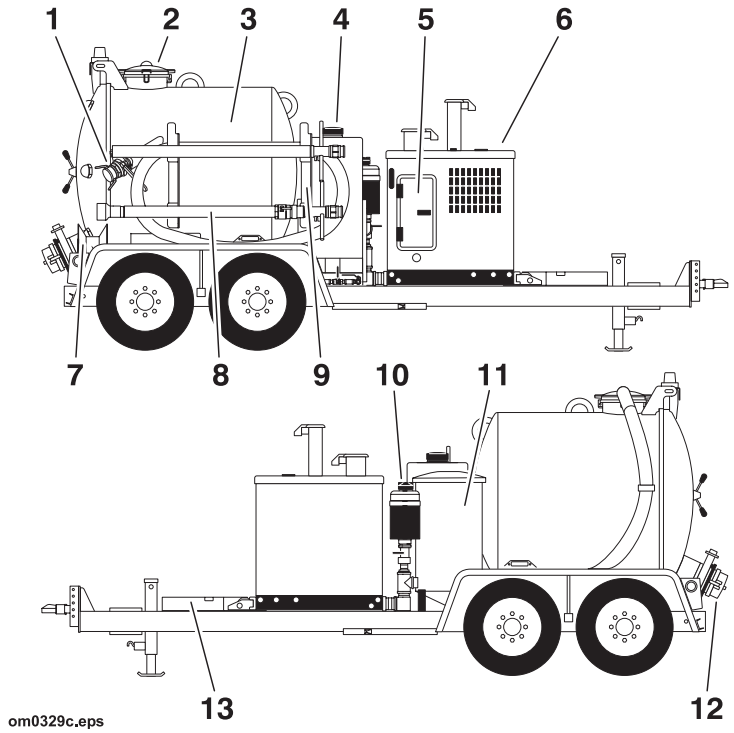
MAINTENANCE. 87
Schedule 88
Engine 89
Blower. 95
Hydraulics 99
Water Pump 101
Vacuum Tank 105
Trailer 110
Electrical 117

SPECIFICATIONS 119
500. 119
800. 123
1200. 128

8 FX30 - CONTENTS

OVERVIEW

500

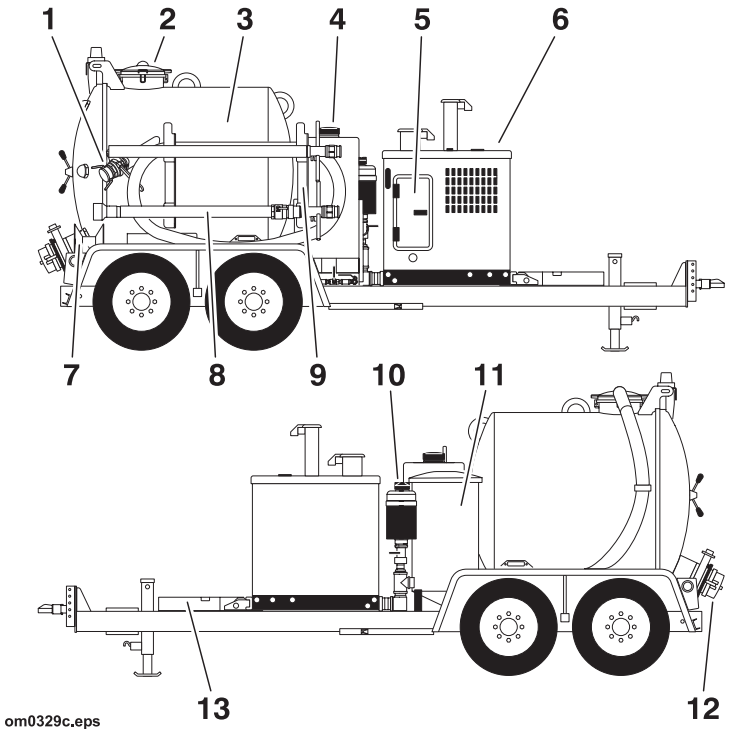


1. Inlet valve
2. Primary shutoff valve
3. Vacuum tank
4. Water tank
5. Operator’s station
6. Power pack
7. Hose reel
8. Potholing tools
9. Tool rack/hose storage
10. Antifreeze tank
11. Vacuum filter
12. Drain valve
13. Tool storage

FX30 - OVERVIEW 9
500

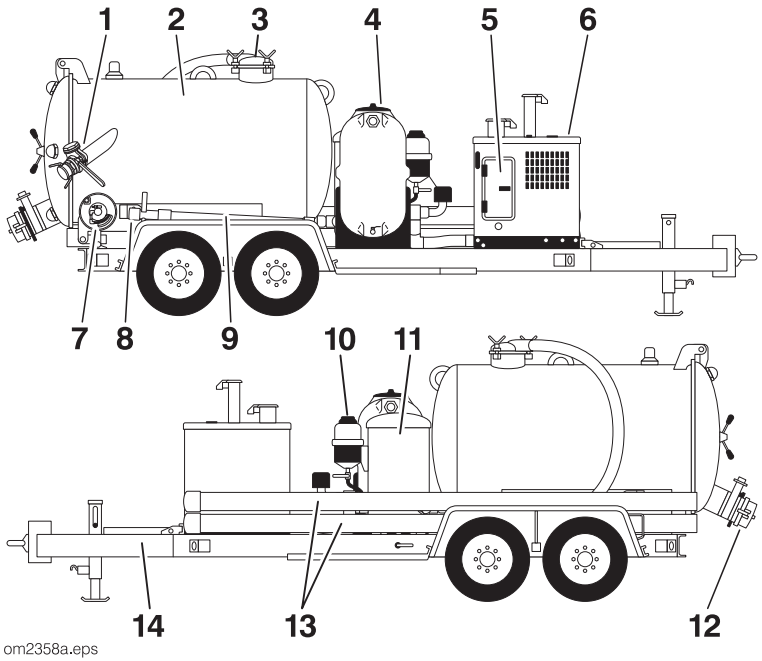
OVERVIEW

500



1. Inlet valve
2. Primary shutoff valve
3. Vacuum tank
4. Water tank
5. Operator’s station
6. Power pack
7. Hose reel
8. Potholing tools
9. Tool rack/hose storage
10. Antifreeze tank
11. Vacuum filter
12. Drain valve
13. Tool storage

800

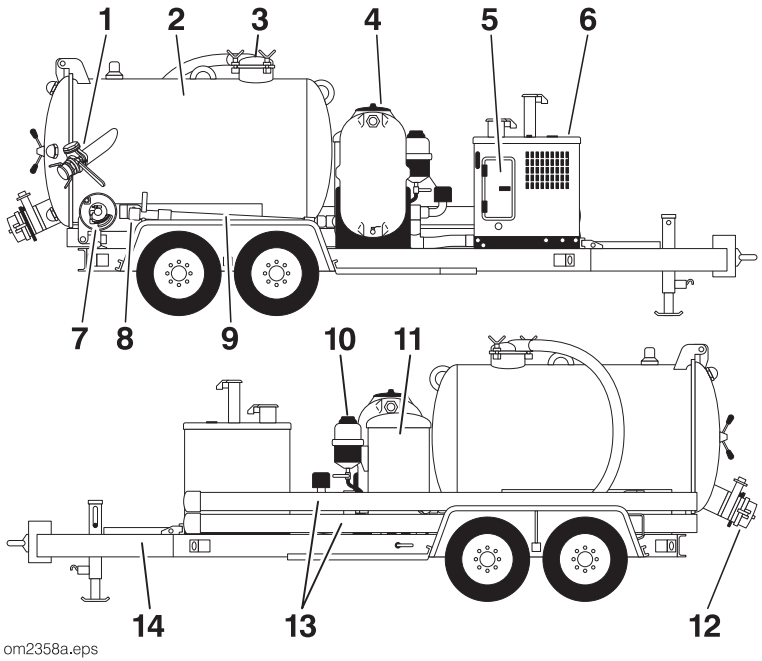


om2358a.eps

1. Inlet valve
2. Vacuum tank
3. Primary shutoff valve
4. Water tank
5. Operator’s station
6. Power pack
7. Hose reel
8. Water lance
9. Potholing tools
10. Antifreeze tank
11. Vacuum filter
12. Drain valve
13. Hose storage
14. Tool storage

10 FX30 - OVERVIEW
800

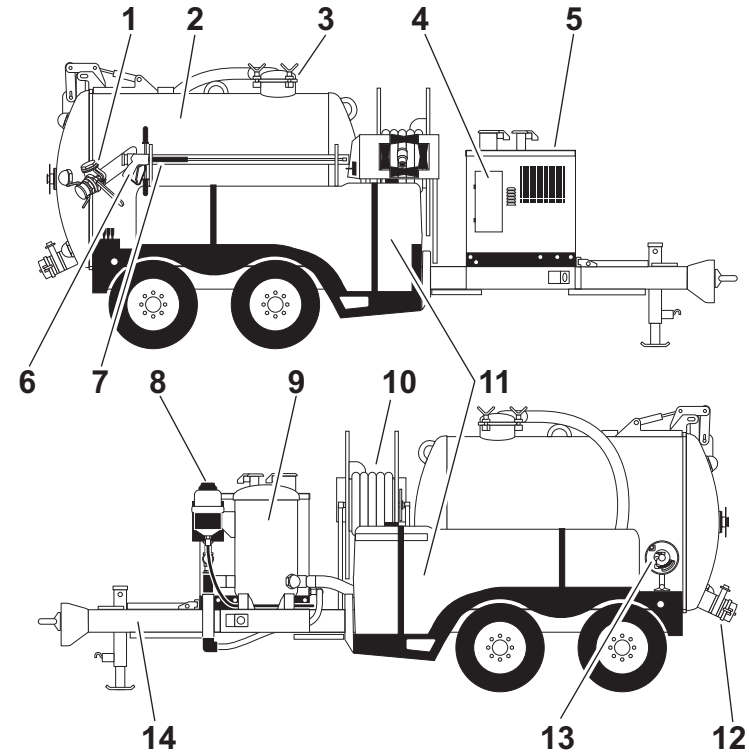
800



om2358a.eps

1. Inlet valve
2. Vacuum tank
3. Primary shutoff valve
4. Water tank
5. Operator’s station
6. Power pack
7. Hose reel
8. Water lance
9. Potholing tools
10. Antifreeze tank
11. Vacuum filter
12. Drain valve
13. Hose storage
14. Tool storage

1200

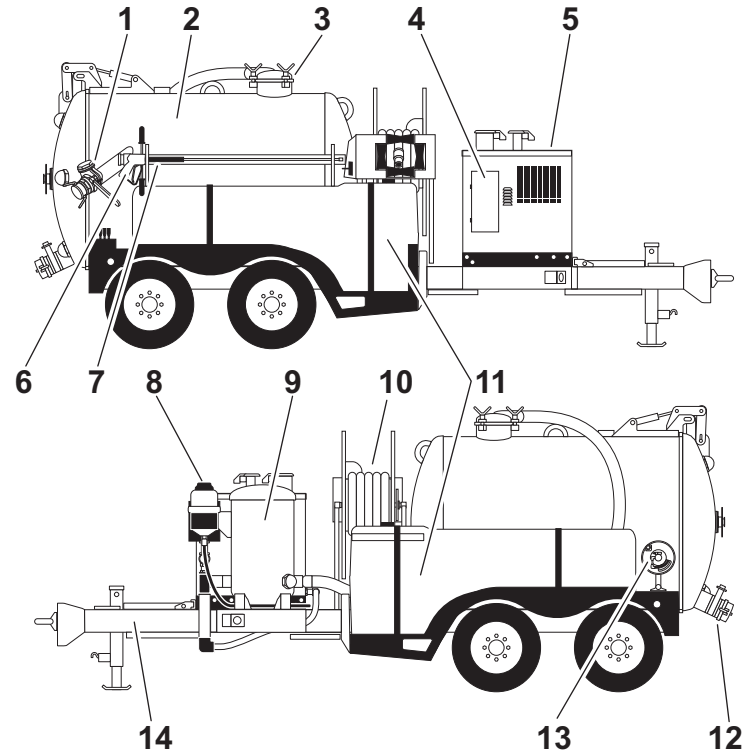


om0650h.eps

1. Inlet valve
2. Vacuum tank
3. Primary shutoff valve
4. Operator’s station
5. Power pack
6. Potholing tools
7. Water lance
8. Antifreeze tank
9. Vacuum filter
10. Vacuum hose reel
11. Water tank
12. Drain valve
13. Hose reel
14. Tool storage

FX30 - OVERVIEW *11*
1200

1200



om0650h.eps

1. Inlet valve
2. Vacuum tank
3. Primary shutoff valve
4. Operator’s station
5. Power pack
6. Potholing tools
7. Water lance
8. Antifreeze tank
9. Vacuum filter
10. Vacuum hose reel
11. Water tank
12. Drain valve
13. Hose reel
14. Tool storage

The FX30 fluid excavation unit is self-contained and is available trailer-mounted or loose configured. It features a fully enclosed and insulated power pack with engine and blower, a choice of a 500-gallon (1893-liter), 800-gallon (3028-liter), or 1200-gallon (5443-liter) tilting vacuum tank, an 80-gallon (302-liter), 200-gallon (757-liter), or 500-gallon (1893-liter) freshwater tank, potholing equipment, antifreeze system, water lance, work light kit, and curbside controls and drains.

The FX30 fluid excavation unit can be used with Ditch Witch directional drilling systems.

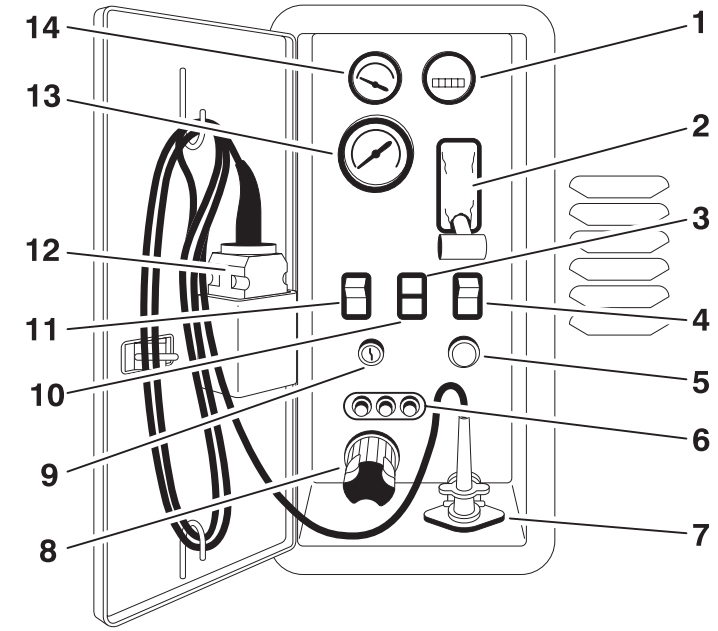
12 FX30 - OVERVIEW
1200

The FX30 fluid excavation unit is self-contained and is available trailer-mounted or loose configured. It features a fully enclosed and insulated power pack with engine and blower, a choice of a 500-gallon (1893-liter), 800-gallon (3028-liter), or 1200-gallon (5443-liter) tilting vacuum tank, an 80-gallon (302-liter), 200-gallon (757-liter), or 500-gallon (1893-liter) freshwater tank, potholing equipment, antifreeze system, water lance, work light kit, and curbside controls and drains.

The FX30 fluid excavation unit can be used with Ditch Witch directional drilling systems.

CONTROLS

CONSOLE OVERVIEW



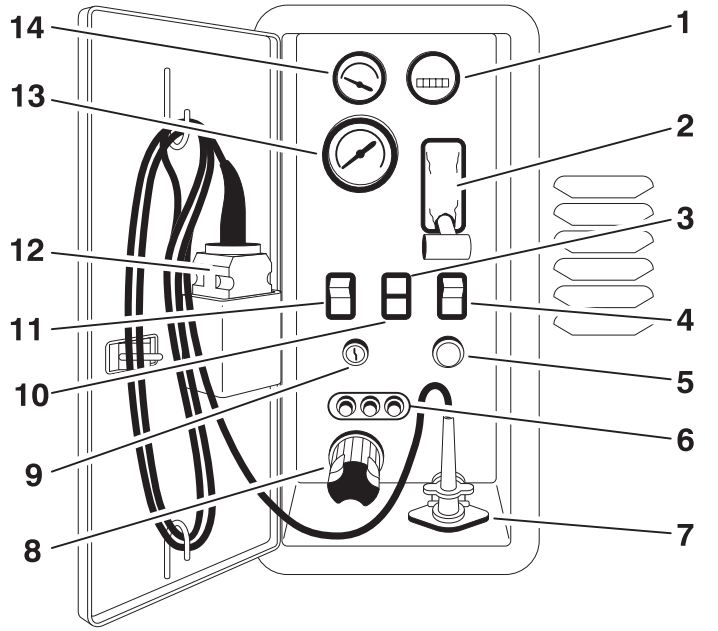
om0567h.eps

1. Hourmeter
2. Throttle
3. Engine oil pressure indicator
4. Water pressure switch
5. Glow plug indicator
6. Circuit breakers
7. Tethered tank controller outlet
8. Water pressure control
9. Ignition switch
10. Engine temperature indicator
11. Auxiliary outlet switch
12. Tethered tank controller (500 and 800 only)
13. Water pressure gauge
14. Fuel gauge

FX30 - CONTROLS 13
CONSOLE OVERVIEW

CONTROLS

CONSOLE OVERVIEW



om0567h.eps

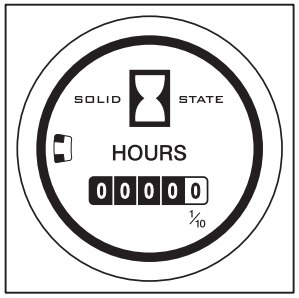
1. Hourmeter
2. Throttle
3. Engine oil pressure indicator
4. Water pressure switch
5. Glow plug indicator
6. Circuit breakers
7. Tethered tank controller outlet
8. Water pressure control
9. Ignition switch
10. Engine temperature indicator
11. Auxiliary outlet switch
12. Tethered tank controller (500 and 800 only)
13. Water pressure gauge
14. Fuel gauge

CONSOLE DESCRIPTIONS

Hourmeter

This gauge records engine operating time. Use to schedule lubrication and maintenance.

Hourmeter runs as long as ignition switch is in the on position.



ic1274a.eps

Throttle

This lever controls engine speed.

- Push up to increase speed.
- Push down to decrease speed.


ic1356a.eps

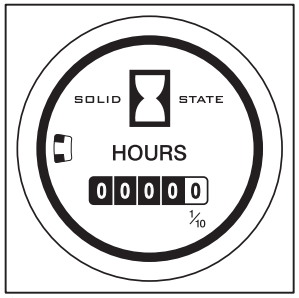
14
FX30 - CONTROLS
CONSOLE DESCRIPTIONS

CONSOLE DESCRIPTIONS

Hourmeter

This gauge records engine operating time. Use to schedule lubrication and maintenance.

Hourmeter runs as long as ignition switch is in the on position.



ic1274a.eps

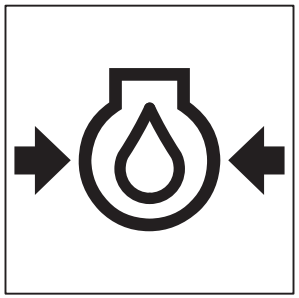
Throttle

This lever controls engine speed.

- Push up to increase speed.
- Push down to decrease speed.


ic1356a.eps

Engine Oil Pressure Indicator

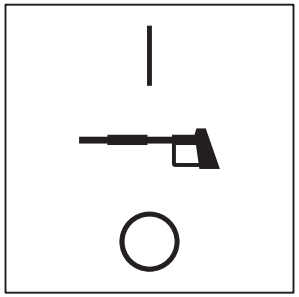

ic1294a.eps

This indicator lights when oil pressure is low. Light will come on briefly when engine is started.

If light remains on:

1. Turn off engine.
2. Check oil level.
3. Check for leaks before starting engine.

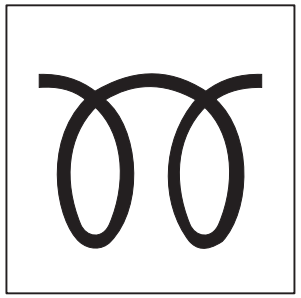
Water Pressure Switch


ic0256h.eps

This lever turns water pressure on or off.

- Press top to turn on.
- Press bottom to turn off.

Glow Plug Indicator

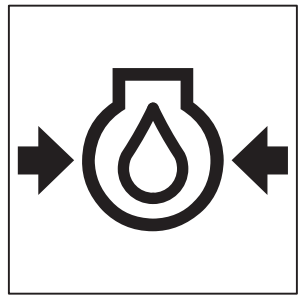

ic0219h.eps

This indicator lights when glow plugs are on.

For more information on this indicator, see “Ignition Switch.”

FX30 - CONTROLS 15
CONSOLE DESCRIPTIONS

Engine Oil Pressure Indicator

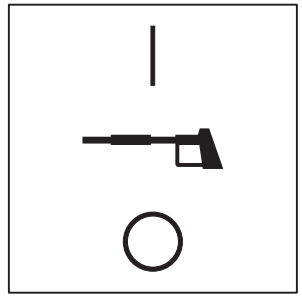

ic1294a.eps

This indicator lights when oil pressure is low. Light will come on briefly when engine is started.

If light remains on:

1. Turn off engine.
2. Check oil level.
3. Check for leaks before starting engine.

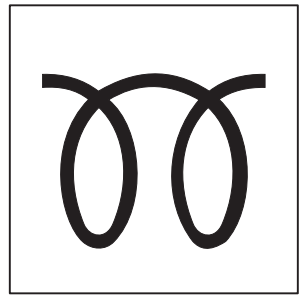
Water Pressure Switch


ic0256h.eps

This lever turns water pressure on or off.

- Press top to turn on.
- Press bottom to turn off.

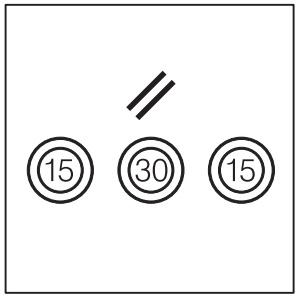
Glow Plug Indicator


ic0219h.eps

This indicator lights when glow plugs are on.

For more information on this indicator, see “Ignition Switch.”

Circuit Breakers



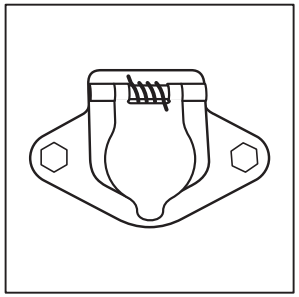
ic0257h.eps

These breakers protect three electrical circuits. From left to right, they are:

- ignition switch
- glow plug
- auxiliary

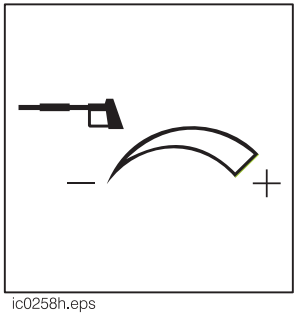
When a circuit is overloaded, breaker will extend. Press to reset circuit.

Tethered Tank Controller Outlet


om2456a.eps

Connect tethered tank controller here. For more information, see “Tethered Tank Controller Overview.”

Water Pressure Control

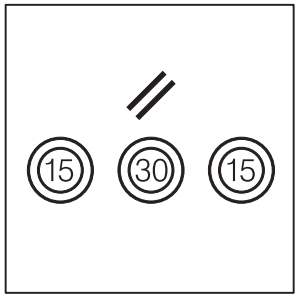

ic0258h.eps

This knob adjusts water lance water pressure from zero to maximum.

- Turn clockwise for greater pressure.
- Turn counterclockwise for less pressure.

16
FX30 - CONTROLS
CONSOLE DESCRIPTIONS

Circuit Breakers



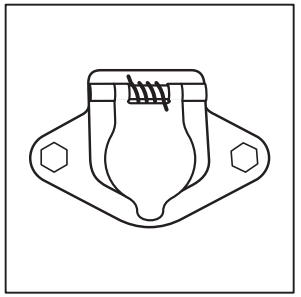
ic0257h.eps

These breakers protect three electrical circuits. From left to right, they are:

- ignition switch
- glow plug
- auxiliary

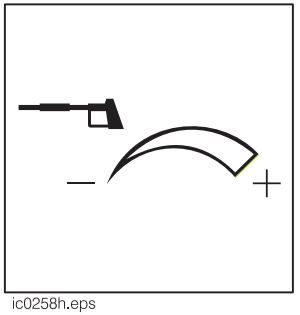
When a circuit is overloaded, breaker will extend. Press to reset circuit.

Tethered Tank Controller Outlet


om2456a.eps

Connect tethered tank controller here. For more information, see “Tethered Tank Controller Overview.”

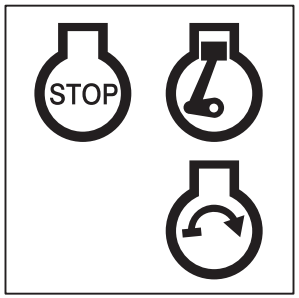
Water Pressure Control


ic0258h.eps

This knob adjusts water lance water pressure from zero to maximum.

- Turn clockwise for greater pressure.
- Turn counterclockwise for less pressure.

Ignition Switch



ic1271a.eps

This switch has three positions.

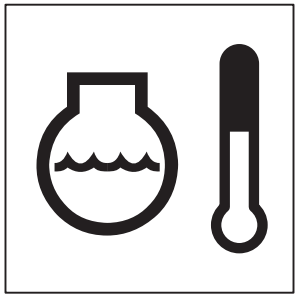
1. Insert key and turn clockwise to first position. Glow plug indicator will light.
2. When indicator light turns off, turn switch all the way clockwise.
3. Release when engine starts. Key willl return to on position.

   IMPORTANT: If engine does not start in cold weather, see “Cold Start” in **OPERATION**.

4. Turn counterclockwise to STOP position to stop engine.

IMPORTANT: When engine is on, blower operates and vacuum is present at tank inlet.

Engine Temperature Indicator

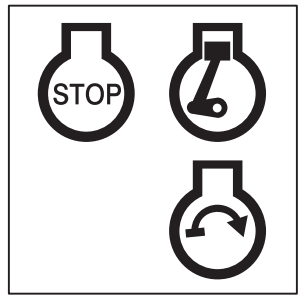

ic1293a.eps

This indicator lights if cooling system fluid overheats.

1. Turn off engine and let cool.
2. Check cooling system fluid level.

FX30 - CONTROLS 17
CONSOLE DESCRIPTIONS

Ignition Switch



ic1271a.eps

This switch has three positions.

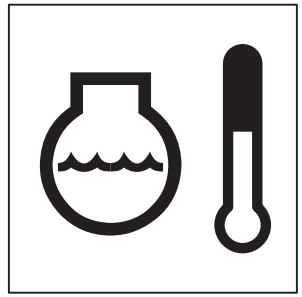
1. Insert key and turn clockwise to first position. Glow plug indicator will light.
2. When indicator light turns off, turn switch all the way clockwise.
3. Release when engine starts. Key willl return to on position.

   IMPORTANT: If engine does not start in cold weather, see “Cold Start” in **OPERATION**.

4. Turn counterclockwise to STOP position to stop engine.

IMPORTANT: When engine is on, blower operates and vacuum is present at tank inlet.

Engine Temperature Indicator


ic1293a.eps

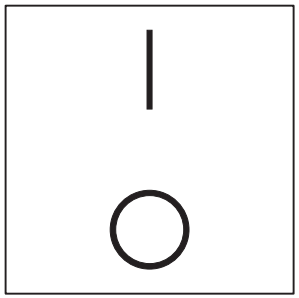
This indicator lights if cooling system fluid overheats.

1. Turn off engine and let cool.
2. Check cooling system fluid level.

Auxiliary Outlet Switch

This switch powers auxiliary outlet which can be used for work lights.

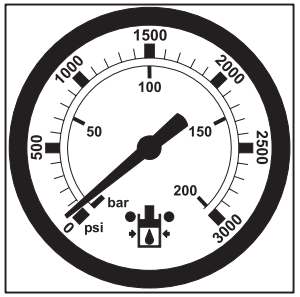
- Press top to turn on.
- Press bottom to turn off.



ic0259h.eps

Water Pressure Gauge

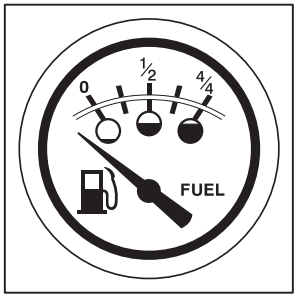
This gauge displays water pressure when water pressure switch is on and water lance is in use.



ic0260h.eps

Fuel Guage

This gauge indicates fuel level in tank. Use only #2 diesel fuel. Tank holds 15 gal (57 L).



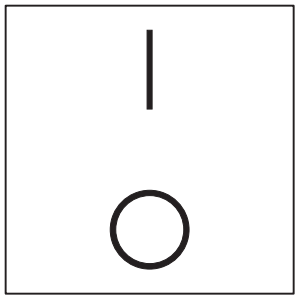
ic1301a.eps

18
FX30 - CONTROLS
CONSOLE DESCRIPTIONS

Auxiliary Outlet Switch

This switch powers auxiliary outlet which can be used for work lights.

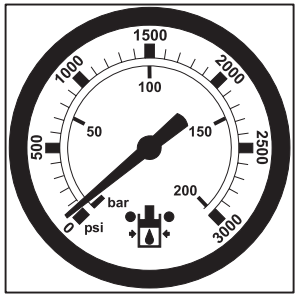
- Press top to turn on.
- Press bottom to turn off.



ic0259h.eps

Water Pressure Gauge

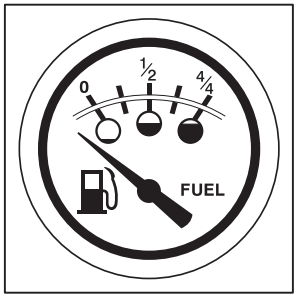
This gauge displays water pressure when water pressure switch is on and water lance is in use.



ic0260h.eps

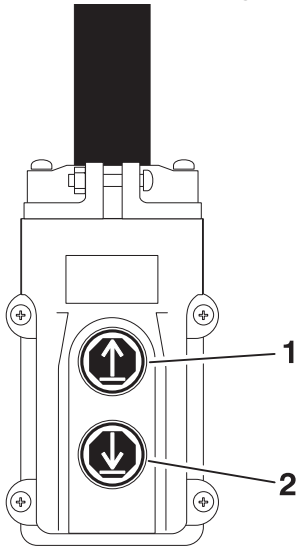
Fuel Guage

This gauge indicates fuel level in tank. Use only #2 diesel fuel. Tank holds 15 gal (57 L).



ic1301a.eps

TETHERED TANK CONTROLLER OVERVIEW (500 and 800 only)

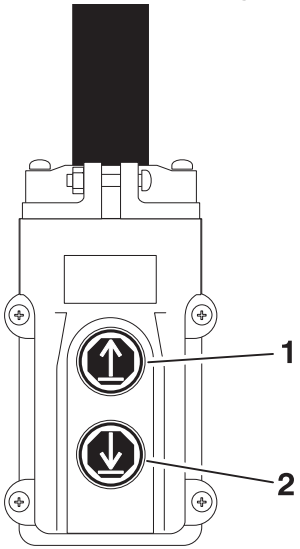


om0568h.eps

1. Tank up switch
2. Tank down switch

FX30 - CONTROLS *19*
TETHERED TANK CONTROLLER OVERVIEW (500 and 800 only)

TETHERED TANK CONTROLLER OVERVIEW (500 and 800 only)



om0568h.eps

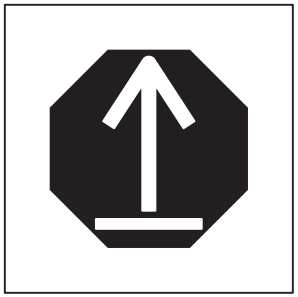
1. Tank up switch
2. Tank down switch

TETHERED TANK CONTROLLER DESCRIPTIONS (500 and 800 only)

Tank Up Switch

This switch tilts tank up for draining or cleaning.

- Ensure that unit is hitched to towing vehicle.
- Press to tilt tank to desired angle.
- Release to stop.



ic1357a.eps

WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICE: Do not haul or move unit with tank raised or raising. Damage to machine or serious injury could occur.

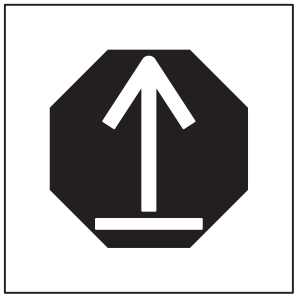
20 FX30 - CONTROLS
TETHERED TANK CONTROLLER DESCRIPTIONS (500 and 800 only)

TETHERED TANK CONTROLLER DESCRIPTIONS (500 and 800 only)

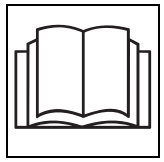
Tank Up Switch

This switch tilts tank up for draining or cleaning.

- Ensure that unit is hitched to towing vehicle.
- Press to tilt tank to desired angle.
- Release to stop.



ic1357a.eps



WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

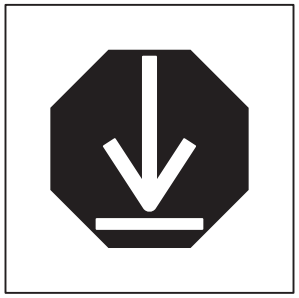
NOTICE: Do not haul or move unit with tank raised or raising. Damage to machine or serious injury could occur.

Tank Down Switch

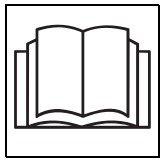
This switch tilts tank down for cleaning or driving.

- Press to tilt tank to desired angle.
- Release to stop.

IMPORTANT: Be sure to release switch once tank has stopped.



ic1358a.eps



WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICE: Do not haul or move unit unless tank is fully lowered and horizontal. Damage to machine or serious injury could occur.

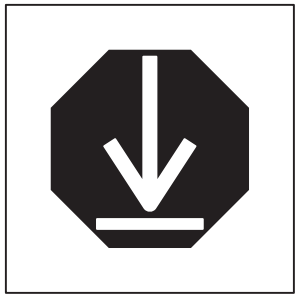
FX30 - CONTROLS 21
TETHERED TANK CONTROLLER DESCRIPTIONS (500 and 800 only)

Tank Down Switch

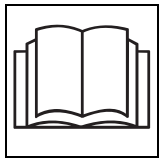
This switch tilts tank down for cleaning or driving.

- Press to tilt tank to desired angle.
- Release to stop.

IMPORTANT: Be sure to release switch once tank has stopped.



ic1358a.eps

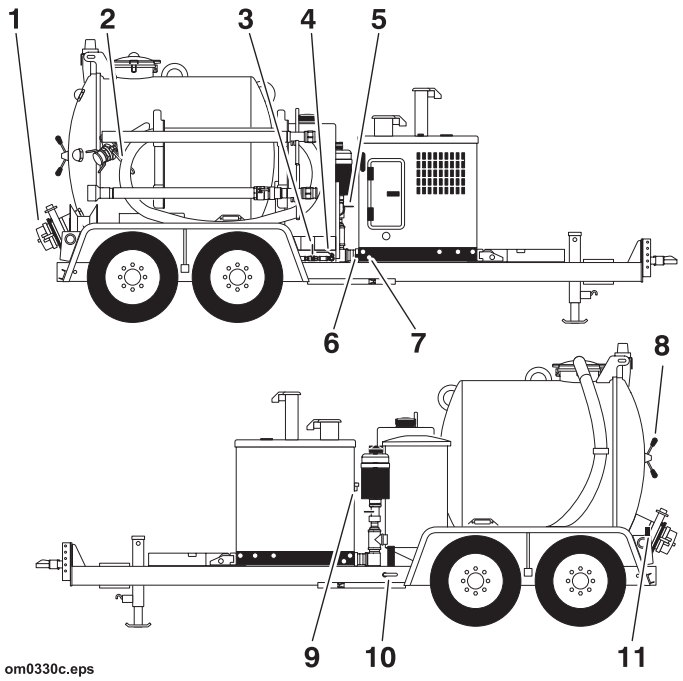


WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICE: Do not haul or move unit unless tank is fully lowered and horizontal. Damage to machine or serious injury could occur.

MACHINE CONTROL OVERVIEW

500

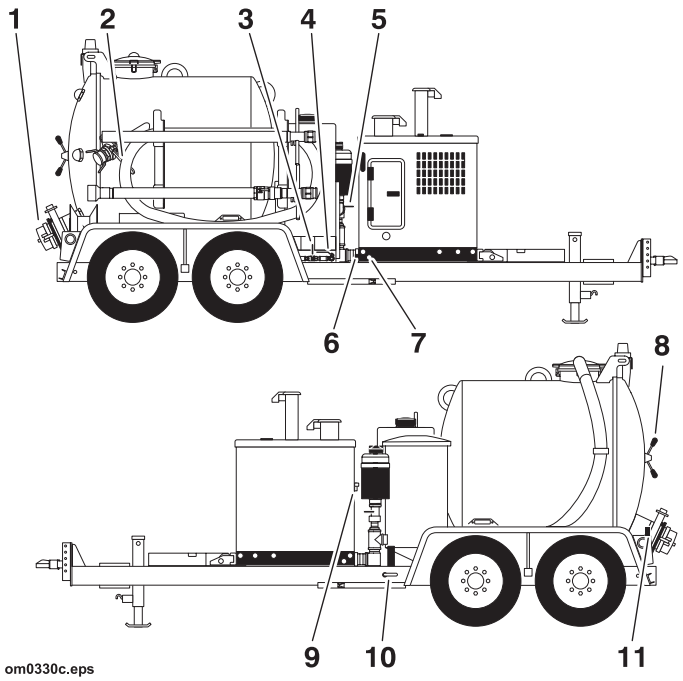


1. Drain valve
2. Inlet valve
3. Water tank supply valve
4. Water tank drain
5. Antifreeze tank supply valve
6. Auxiliary outlet
7. Power pack pan drain
8. Tank door handle
9. Battery disconnect
10. Vacuum filter drain
11. Vacuum gauge

22
FX30 - CONTROLS
MACHINE CONTROL OVERVIEW

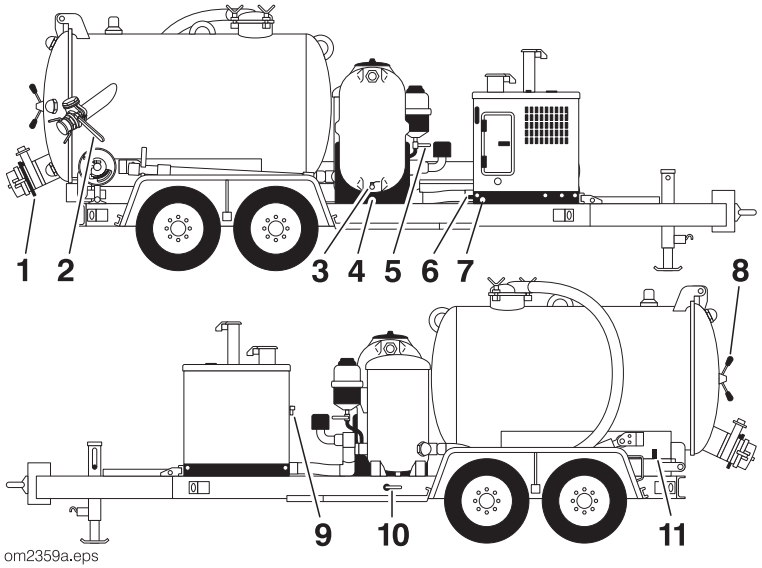
MACHINE CONTROL OVERVIEW

500



1. Drain valve
2. Inlet valve
3. Water tank supply valve
4. Water tank drain
5. Antifreeze tank supply valve
6. Auxiliary outlet
7. Power pack pan drain
8. Tank door handle
9. Battery disconnect
10. Vacuum filter drain
11. Vacuum gauge

800



1. Drain valve
2. Inlet valve
3. Water tank drain
4. Water tank supply valve
5. Antifreeze tank supply valve
6. Auxiliary outlet
7. Power pack pan drain
8. Tank door handle
9. Battery disconnect
10. Vacuum filter drain
11. Vacuum gauge

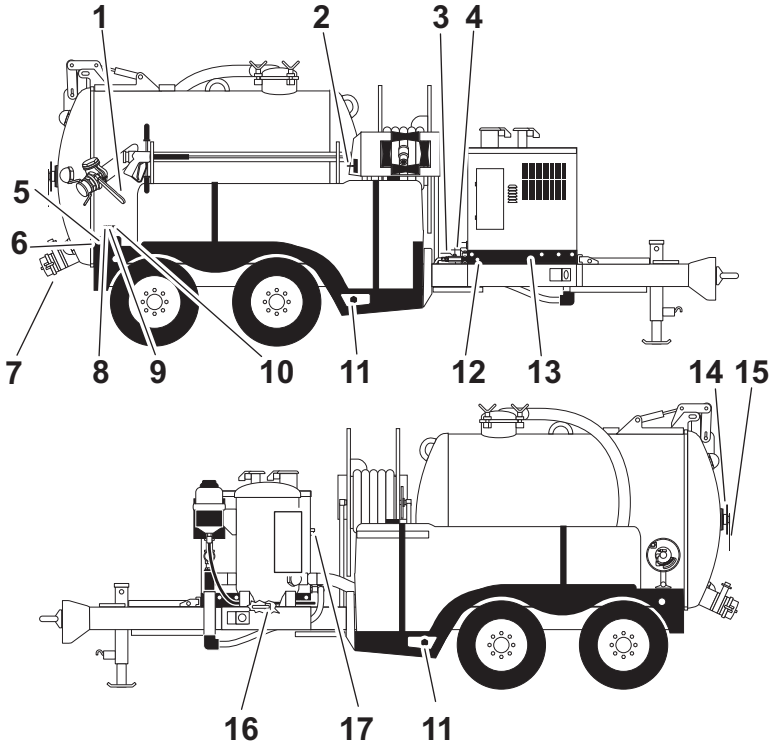
FX30 - CONTROLS 23
MACHINE CONTROL OVERVIEW

800

om2359a.eps

1. Drain valve
2. Inlet valve
3. Water tank drain
4. Water tank supply valve
5. Antifreeze tank supply valve
6. Auxiliary outlet
7. Power pack pan drain
8. Tank door handle
9. Battery disconnect
10. Vacuum filter drain
11. Vacuum gauge

1200

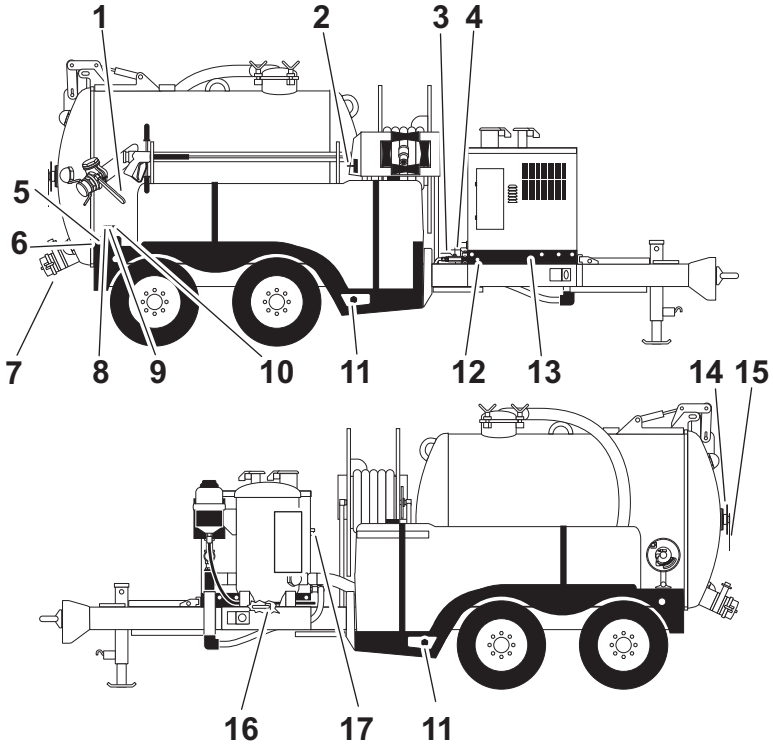


om0651h.eps

1. Inlet valve
2. Vacuum hose reel control
3. Water tank supply valve
4. Antifreeze tank supply valve
5. Vacuum gauge
6. Door seal pressure gauge
7. Drain valve
8. Tank lift control
9. Tank door lift control
10. Door seal control
11. Water tank drain
12. Auxiliary outlet
13. Power pack pan drain
14. Tank door handle
15. Tank door lock
16. Vacuum filter drain
17. Battery disconnect switch

24
FX30 - CONTROLS
MACHINE CONTROL OVERVIEW

1200



om0651h.eps

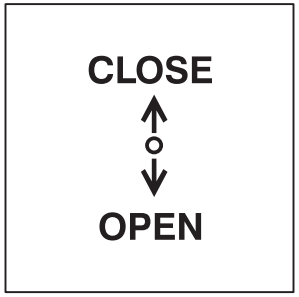
1. Inlet valve
2. Vacuum hose reel control
3. Water tank supply valve
4. Antifreeze tank supply valve
5. Vacuum gauge
6. Door seal pressure gauge
7. Drain valve
8. Tank lift control
9. Tank door lift control
10. Door seal control
11. Water tank drain
12. Auxiliary outlet
13. Power pack pan drain
14. Tank door handle
15. Tank door lock
16. Vacuum filter drain
17. Battery disconnect switch

MACHINE CONTROL DESCRIPTIONS

Inlet Valve

This valve opens to allow suction into the vacuum tank.

- Rotate up to close.
- Rotate down to open.

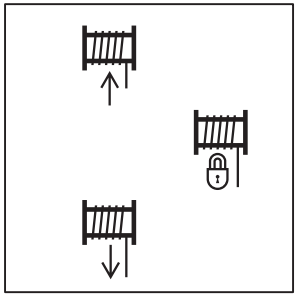


ic1359a.eps

Vacuum Hose Reel Control (1200 only)

This lever controls vacuum hose reel.

- Push up to wind vacuum hose.
- Pull down to unwind vacuum hose.


ic0274h.eps

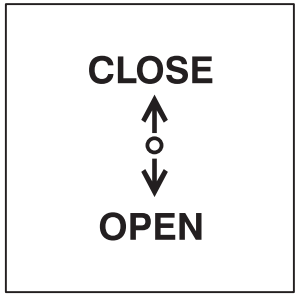
FX30 - CONTROLS 25
MACHINE CONTROL DESCRIPTIONS

MACHINE CONTROL DESCRIPTIONS

Inlet Valve

This valve opens to allow suction into the vacuum tank.

- Rotate up to close.
- Rotate down to open.

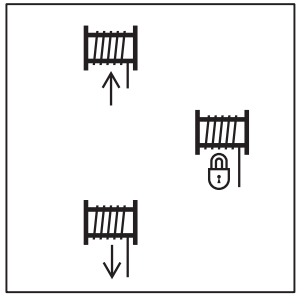


ic1359a.eps

Vacuum Hose Reel Control (1200 only)

This lever controls vacuum hose reel.

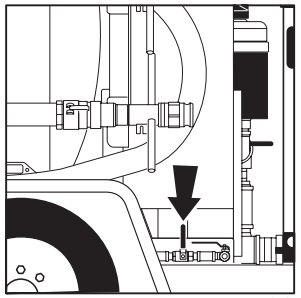
- Push up to wind vacuum hose.
- Pull down to unwind vacuum hose.

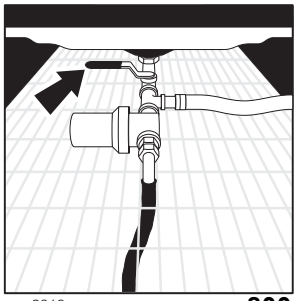

ic0274h.eps

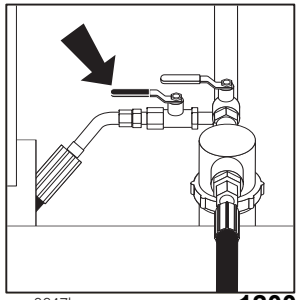
Water Tank Supply Valve

This valve sends water from the water tank through the pump and water lance.

- Rotate counterclockwise to open.
- Rotate clockwise to close.


om0332c.eps **500**


om2319a.eps **800**

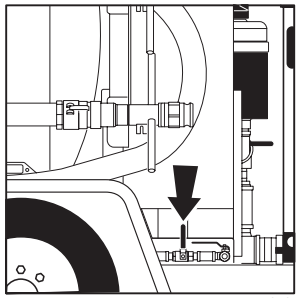

om0647h.eps **1200**

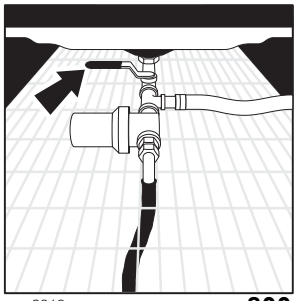
26
FX30 - CONTROLS
MACHINE CONTROL DESCRIPTIONS

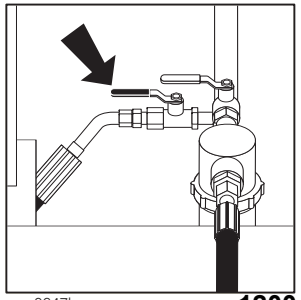
Water Tank Supply Valve

This valve sends water from the water tank through the pump and water lance.

- Rotate counterclockwise to open.
- Rotate clockwise to close.


om0332c.eps **500**

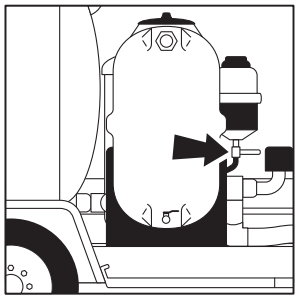

om2319a.eps **800**


om0647h.eps **1200**

Antifreeze Tank Supply Valve

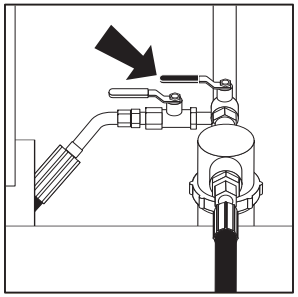
This valve sends antifreeze from the antifreeze tank through the pump and water lance when operating in cold conditions. See **OPERATION** for more information.

- Turn counterclockwise to open.
- Turn clockwise to close.



om2452a.eps

500 and 800



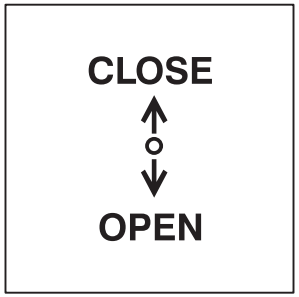
om0648h.eps

1200

Drain Valve

This valve opens to drain the vacuum tank.

- Rotate up to close.
- Rotate down to open.



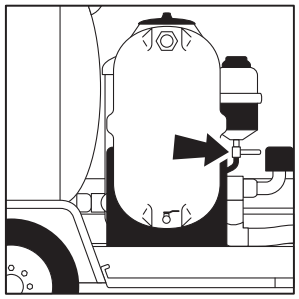
ic1359a.eps

FX30 - CONTROLS 27
MACHINE CONTROL DESCRIPTIONS

Antifreeze Tank Supply Valve

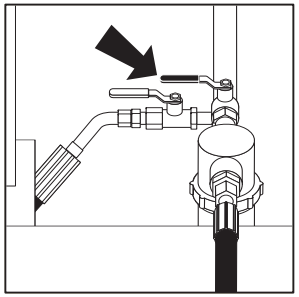
This valve sends antifreeze from the antifreeze tank through the pump and water lance when operating in cold conditions. See **OPERATION** for more information.

- Turn counterclockwise to open.
- Turn clockwise to close.



om2452a.eps

500 and 800



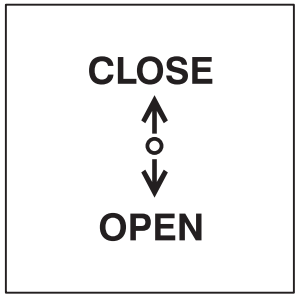
om0648h.eps

1200

Drain Valve

This valve opens to drain the vacuum tank.

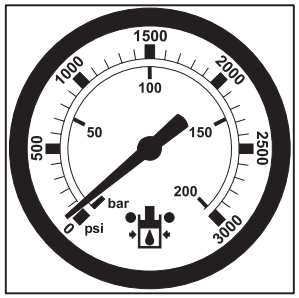
- Rotate up to close.
- Rotate down to open.



ic1359a.eps

Door Seal Gauge (1200 only)

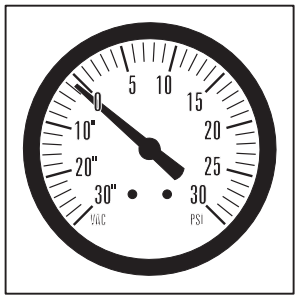
This gauge displays door seal pressure reading. When door seal pressure reaches 2400 psi (165 bar), door is fully sealed.



ic0260h.eps

Vacuum Gauge

This gauge displays blower vacuum reading in inches of mercury. When vacuum reaches 15 in (381 mm), the vacuum relief valve opens.

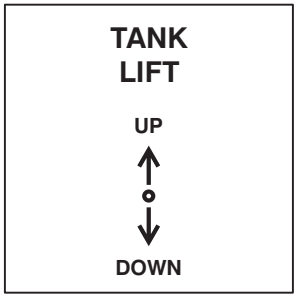


ic0261h.eps

Tank Lift Control (1200 only)

This lever raises and lowers vacuum tank.

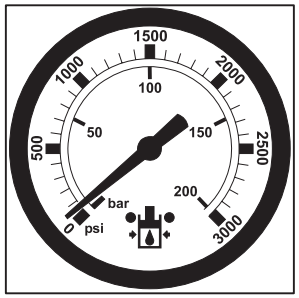
- Push up to lift tank.
- Pull down to lower tank.



28
FX30 - CONTROLS
MACHINE CONTROL DESCRIPTIONS

Door Seal Gauge (1200 only)

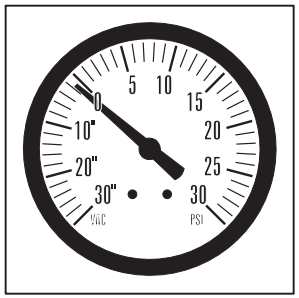
This gauge displays door seal pressure reading. When door seal pressure reaches 2400 psi (165 bar), door is fully sealed.



ic0260h.eps

Vacuum Gauge

This gauge displays blower vacuum reading in inches of mercury. When vacuum reaches 15 in (381 mm), the vacuum relief valve opens.

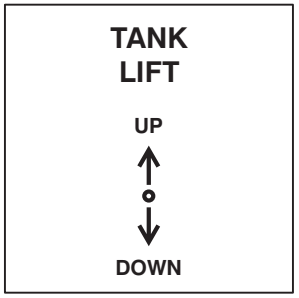


ic0261h.eps

Tank Lift Control (1200 only)

This lever raises and lowers vacuum tank.

- Push up to lift tank.
- Pull down to lower tank.

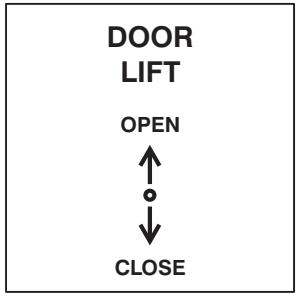


Tank Door Lift Control (1200 only)

This lever raises and lower tank door.

- Push up to open.
- Pull down to close.

IMPORTANT: For tank door operation, see “Drain Tank” in **OPERATION**.



ic0272h.eps

Tank Door Seal Control (1200 only)

This lever seals and unseals tank door.

- Push up to seal.
- Pull down to release.

IMPORTANT: For tank door operation, see “Drain Tank” in **OPERATION**.

ic0273h.eps

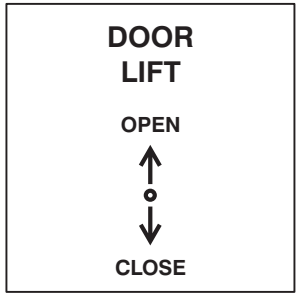
FX30 - CONTROLS 29
MACHINE CONTROL DESCRIPTIONS

Tank Door Lift Control (1200 only)

This lever raises and lower tank door.

- Push up to open.
- Pull down to close.

IMPORTANT: For tank door operation, see “Drain Tank” in **OPERATION**.



ic0272h.eps

Tank Door Seal Control (1200 only)

This lever seals and unseals tank door.

- Push up to seal.
- Pull down to release.

IMPORTANT: For tank door operation, see “Drain Tank” in **OPERATION**.

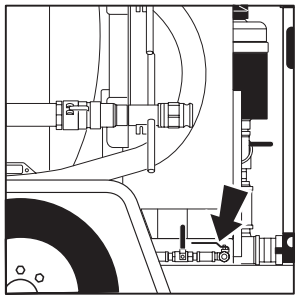
ic0273h.eps

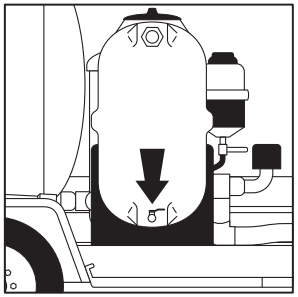
Water Tank Drain

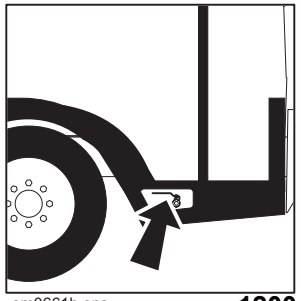
This drain opens to drain water tank.

- Open valve to drain.
- Close valve when finished.

IMPORTANT: Drain fluids into a container suitable for disposal.


om0331c.eps **500**


om2469a.eps **800**


om0661h.eps **1200**

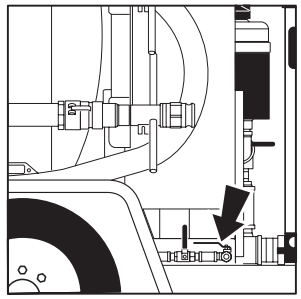
30
FX30 - CONTROLS
MACHINE CONTROL DESCRIPTIONS

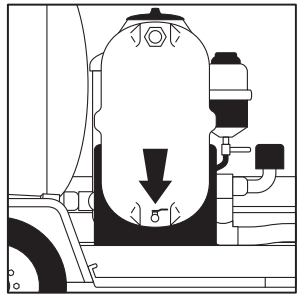
Water Tank Drain

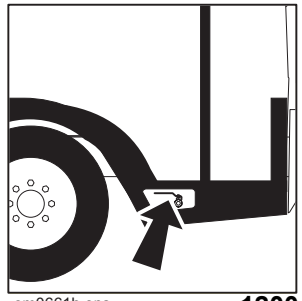
This drain opens to drain water tank.

- Open valve to drain.
- Close valve when finished.

IMPORTANT: Drain fluids into a container suitable for disposal.

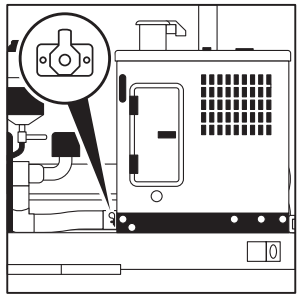

om0331c.eps **500**


om2469a.eps **800**


om0661h.eps **1200**

Auxiliary Outlet

Outlet can be used to plug in work lights or other devices. Outlet has power only when auxiliary outlet switch is in the on position.

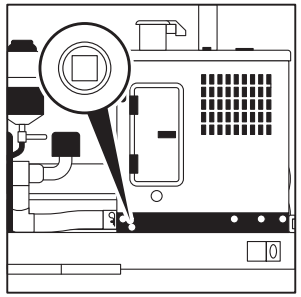


om2453a.eps

Power Pack Pan Drain

This plug opens to drain the power pack drain pan.

- Remove plug to drain.
- Replace plug when pan has drained.

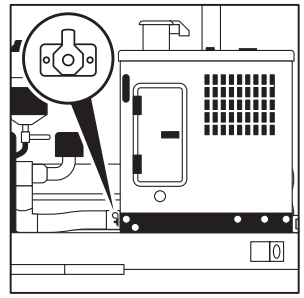


om2454a.eps

FX30 - CONTROLS 31
MACHINE CONTROL DESCRIPTIONS

Auxiliary Outlet

Outlet can be used to plug in work lights or other devices. Outlet has power only when auxiliary outlet switch is in the on position.

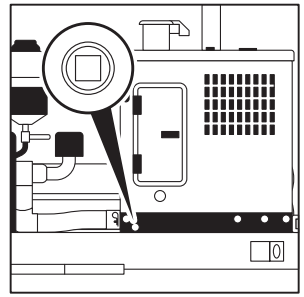


om2453a.eps

Power Pack Pan Drain

This plug opens to drain the power pack drain pan.

- Remove plug to drain.
- Replace plug when pan has drained.

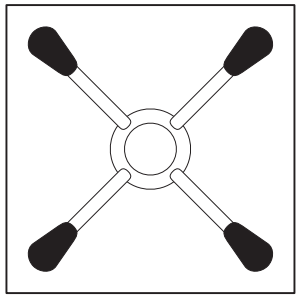


om2454a.eps

Tank Door Handle (500 and 800 only)

This handle opens or closes vacuum tank door.

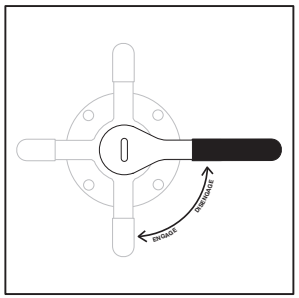
- Turn counterclockwise to loosen.
- Turn clockwise approximately 9-11 turns to tighten.


om2455a.eps

Tank Door Handle (1200 only)

This handle engages or disengages tank door after tank door lock is unlocked.

- Turn 90° counterclockwise and pull to DISENGAGE.
- Push and turn 90° clockwise to ENGAGE.



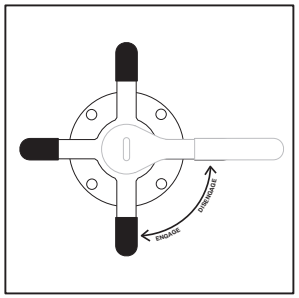
om0646h.eps

IMPORTANT: Door handle must be horizontal to push/pull door handle.

Tank Door Lock (1200 only)

This handle locks vaccum tank door.

- Turn counterclockwise to unlock.
- Turn clockwise until it stops to lock.



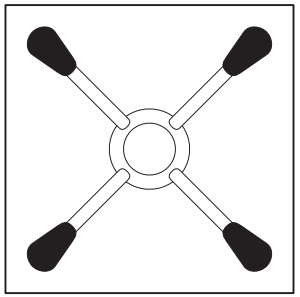
om0645h.eps

32
FX30 - CONTROLS
MACHINE CONTROL DESCRIPTIONS

Tank Door Handle (500 and 800 only)

This handle opens or closes vacuum tank door.

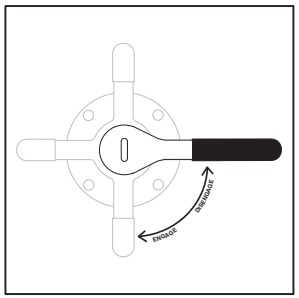
- Turn counterclockwise to loosen.
- Turn clockwise approximately 9-11 turns to tighten.


om2455a.eps

Tank Door Handle (1200 only)

This handle engages or disengages tank door after tank door lock is unlocked.

- Turn 90° counterclockwise and pull to DISENGAGE.
- Push and turn 90° clockwise to ENGAGE.



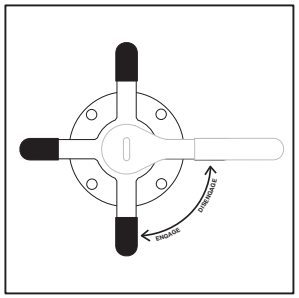
om0646h.eps

IMPORTANT: Door handle must be horizontal to push/pull door handle.

Tank Door Lock (1200 only)

This handle locks vaccum tank door.

- Turn counterclockwise to unlock.
- Turn clockwise until it stops to lock.

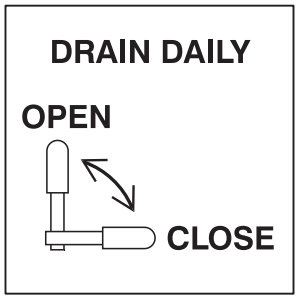


om0645h.eps

Vacuum Filter Drain

This valve opens to drain the vacuum filter canister.

- Rotate up to open.
- Rotate down to close.

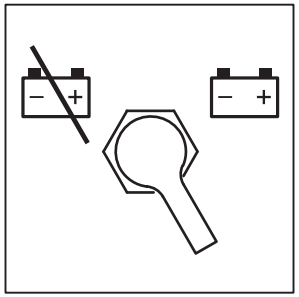


ic1360a.eps

Battery Disconnect

This switch disconnects battery when servicing, welding, and storing long-term.

- Move handle left to connect.
- Move handle right to disconnect.



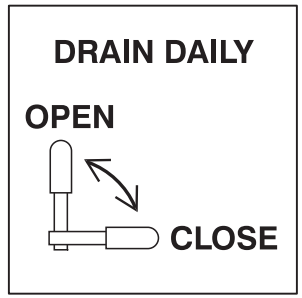
ic1331a.eps

FX30 - CONTROLS 33

Vacuum Filter Drain

This valve opens to drain the vacuum filter canister.

- Rotate up to open.
- Rotate down to close.

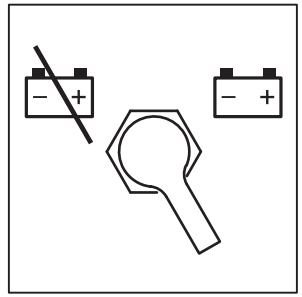


ic1360a.eps

Battery Disconnect

This switch disconnects battery when servicing, welding, and storing long-term.

- Move handle left to connect.
- Move handle right to disconnect.



ic1331a.eps

34 FX30 - CONTROLS

SAFETY

Follow these guidelines before operating any jobsite equipment:

- Complete proper training and read operator’s manual before using equipment.
- Contact One-Call (888-258-0808) and any utility companies which do not subscribe to One-Call. Have all underground pipes and cables located and marked before operating equipment. If you damage a utility, contact utility company.
- Review jobsite hazards and use correct tools and machinery, safety equipment, and work methods for jobsite.
- Mark jobsite clearly and keep spectators away.
- Wear personal protective equipment.
- Review jobsite hazards, safety and emergency procedures, and individual responsibilities with all personnel before work begins. Safety videos are available from your Ditch Witch dealer.
- Replace missing or damaged safety shields and safety signs.
- Use equipment carefully. Stop operation and investigate anything that does not look or feel right.
- Do not operate unit where flammable gas is present.
- Contact your Ditch Witch dealer if you have any question about operation, maintenance, or equipment use.

FX30 - SAFETY 35

SAFETY

Follow these guidelines before operating any jobsite equipment:

- Complete proper training and read operator’s manual before using equipment.
- Contact One-Call (888-258-0808) and any utility companies which do not subscribe to One-Call. Have all underground pipes and cables located and marked before operating equipment. If you damage a utility, contact utility company.
- Review jobsite hazards and use correct tools and machinery, safety equipment, and work methods for jobsite.
- Mark jobsite clearly and keep spectators away.
- Wear personal protective equipment.
- Review jobsite hazards, safety and emergency procedures, and individual responsibilities with all personnel before work begins. Safety videos are available from your Ditch Witch dealer.
- Replace missing or damaged safety shields and safety signs.
- Use equipment carefully. Stop operation and investigate anything that does not look or feel right.
- Do not operate unit where flammable gas is present.
- Contact your Ditch Witch dealer if you have any question about operation, maintenance, or equipment use.

ACCESSORIES

Fire Extinguisher

If required, a fire extinguisher should be mounted near the power unit but away from possible points of ignition. The fire extinguisher should always be classified for both oil and electric fires. It should meet legal and regulatory requirements.

Lighting Kit

If you need additional light, plug lighting kit into provided outlet. Contact your Ditch Witch dealer for further information.

UNDERGROUND HAZARDS

Striking underground hazards can cause explosion, electrocution, fire, and exposure to hazardous materials.

Hazards include:

- Electric lines
- Natural gas lines
- Fiber optic cables
- Water lines
- Sewer lines
- Pipes carrying other chemicals, liquids, or gases
- Storage tanks

36 FX30 - SAFETY
ACCESSORIES

ACCESSORIES

Fire Extinguisher

If required, a fire extinguisher should be mounted near the power unit but away from possible points of ignition. The fire extinguisher should always be classified for both oil and electric fires. It should meet legal and regulatory requirements.

Lighting Kit

If you need additional light, plug lighting kit into provided outlet. Contact your Ditch Witch dealer for further information.

UNDERGROUND HAZARDS

Striking underground hazards can cause explosion, electrocution, fire, and exposure to hazardous materials.

Hazards include:

- Electric lines
- Natural gas lines
- Fiber optic cables
- Water lines
- Sewer lines
- Pipes carrying other chemicals, liquids, or gases
- Storage tanks

EMERGENCY PROCEDURES

Before operating any equipment, review emergency procedures and check that all safety precautions have been taken.

EMERGENCY SHUTDOWN - Turn ignition switch to stop position or push remote engine stop button.

Electric Strike Description

When working near electric cables, remember the following:

- Electricity follows all paths to ground, not just path of least resistance.
- Pipes, hoses, and cables will conduct electricity back to all equipment.
- Low voltage current can injure or kill. Almost one-third of work-related electrocutions result from contact with less than 440 volts.

If an Electric Line is Damaged

1. DO NOT TOUCH ANY EQUIPMENT.
2. Stay where you are unless you are wearing electric insulating boots. If you leave, do not return to area or allow anyone into area until given permission by electric company.
3. Contact utility company immediately.

FX30 - SAFETY 37
EMERGENCY PROCEDURES

EMERGENCY PROCEDURES

Before operating any equipment, review emergency procedures and check that all safety precautions have been taken.

EMERGENCY SHUTDOWN - Turn ignition switch to stop position or push remote engine stop button.

Electric Strike Description

When working near electric cables, remember the following:

- Electricity follows all paths to ground, not just path of least resistance.
- Pipes, hoses, and cables will conduct electricity back to all equipment.
- Low voltage current can injure or kill. Almost one-third of work-related electrocutions result from contact with less than 440 volts.

If an Electric Line is Damaged

1. DO NOT TOUCH ANY EQUIPMENT.
2. Stay where you are unless you are wearing electric insulating boots. If you leave, do not return to area or allow anyone into area until given permission by electric company.
3. Contact utility company immediately.

If a Gas Line is Damaged

If you suspect a gas line has been damaged, take the following actions. The order and degree of action will depend upon the situation.

- Immediately shut off engine(s), if this can be done safely and quickly.
- Remove any ignition source(s), if this can be done safely and quickly.
- Warn others that a gas line has been cut and that they should leave the area.
- Leave jobsite as quickly as possible.
- Immediately call your local emergency phone number and utility company.
- If jobsite is along street, stop traffic from driving near jobsite.
- Do not return to the jobsite until given permission by emergency personnel and utility company.

If a Fiber Optic Cable is Damaged

Do not look into cut ends of fiber optic or unidentified cable. Vision damage can occur.

If Machine Catches on Fire

1. Perform emergency shutdown procedure.
2. Immediately move battery disconnect switch to disconnect postition.
3. If fire is small and fire extinguisher is available, attempt to extinguish fire.
4. If fire cannot be extinguished, leave area as quickly as possible and contact emergency personnel.

38
FX30 - SAFETY
EMERGENCY PROCEDURES

If a Gas Line is Damaged

If you suspect a gas line has been damaged, take the following actions. The order and degree of action will depend upon the situation.

- Immediately shut off engine(s), if this can be done safely and quickly.
- Remove any ignition source(s), if this can be done safely and quickly.
- Warn others that a gas line has been cut and that they should leave the area.
- Leave jobsite as quickly as possible.
- Immediately call your local emergency phone number and utility company.
- If jobsite is along street, stop traffic from driving near jobsite.
- Do not return to the jobsite until given permission by emergency personnel and utility company.

If a Fiber Optic Cable is Damaged

Do not look into cut ends of fiber optic or unidentified cable. Vision damage can occur.

If Machine Catches on Fire

1. Perform emergency shutdown procedure.
2. Immediately move battery disconnect switch to disconnect postition.
3. If fire is small and fire extinguisher is available, attempt to extinguish fire.
4. If fire cannot be extinguished, leave area as quickly as possible and contact emergency personnel.

JOBSITE INSPECTION

- Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.
- Contact One-Call (888-258-0808) and any utility companies which do not subscribe to One-Call.
- Inspect jobsite and perimeter for evidence of underground hazards, such as:
  - – “Buried utility” notices
  - – Utility facilities without overhead lines
  - – Gas or water meters
  - – Junction boxes
  - – Drop boxes
  - – Light poles
  - – Manhole covers
  - – Sunken ground
- Mark location of all buried utilities and obstructions.

FX30 - SAFETY 39
JOBSITE INSPECTION

JOBSITE INSPECTION

- Follow U.S. Department of Labor regulations on excavating and trenching (Part 1926, Subpart P) and other similar regulations.
- Contact One-Call (888-258-0808) and any utility companies which do not subscribe to One-Call.
- Inspect jobsite and perimeter for evidence of underground hazards, such as:
  - – “Buried utility” notices
  - – Utility facilities without overhead lines
  - – Gas or water meters
  - – Junction boxes
  - – Drop boxes
  - – Light poles
  - – Manhole covers
  - – Sunken ground
- Mark location of all buried utilities and obstructions.

SAFETY ALERT CLASSIFICATIONS

These classifications and the icons defined on the following pages work together to alert you to situations which could be harmful to you, jobsite bystanders or your equipment. When you see these words and icons in the book or on the machine, carefully read and follow all instructions. YOUR SAFETY IS AT STAKE.

Watch for the three safety alert levels: **DANGER**, **WARNING** and **CAUTION**. Learn what each level means.

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

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

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

Watch for two other words: **NOTICE** and **IMPORTANT**.

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

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

40
FX30 - SAFETY
SAFETY ALERT CLASSIFICATIONS

SAFETY ALERT CLASSIFICATIONS

These classifications and the icons defined on the following pages work together to alert you to situations which could be harmful to you, jobsite bystanders or your equipment. When you see these words and icons in the book or on the machine, carefully read and follow all instructions. YOUR SAFETY IS AT STAKE.

Watch for the three safety alert levels: **DANGER**, **WARNING** and **CAUTION**. Learn what each level means.

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

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

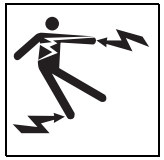
CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Watch for two other words: **NOTICE** and **IMPORTANT**.

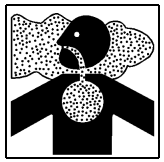
NOTICE can keep you from doing something that might damage the machine or someone's property. It can also alert you against unsafe practices.

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

SAFETY ALERTS



⚠ DANGER Electric shock. Contacting electric lines will cause death or serious injury. Know location of lines and stay away.



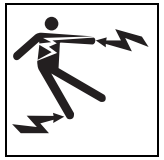
⚠ DANGER Deadly gases. Lack of oxygen or presence of gas will cause sickness or death. Provide ventilation.

⚠ DANGER Confined space will cause suffocation. Use proper procedures for entering or stay away.

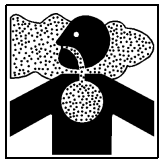
⚠ DANGER Vacuum will suffocate. Maintain distance between face and vacuum inlets.

FX30 - SAFETY 41
SAFETY ALERTS

SAFETY ALERTS



⚠ DANGER Electric shock. Contacting electric lines will cause death or serious injury. Know location of lines and stay away.



⚠ DANGER Deadly gases. Lack of oxygen or presence of gas will cause sickness or death. Provide ventilation.

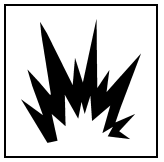
⚠ DANGER Confined space will cause suffocation. Use proper procedures for entering or stay away.

⚠ DANGER Vacuum will suffocate. Maintain distance between face and vacuum inlets.


⚠WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.


⚠WARNING Crushing weight could cause death or serious injury. Use proper procedures and equipment or stay away.


⚠WARNING Moving parts could cut off hand or foot. Stay away.



⚠WARNING Explosion possible. Serious injury or equipment damage could occur. Follow directions carefully.

42
FX30 - SAFETY
SAFETY ALERTS

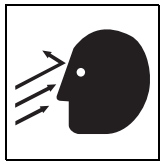

⚠WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.


⚠WARNING Crushing weight could cause death or serious injury. Use proper procedures and equipment or stay away.

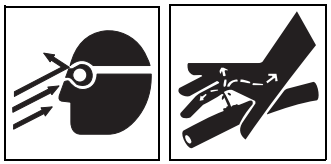

⚠WARNING Moving parts could cut off hand or foot. Stay away.

⚠WARNING Explosion possible. Serious injury or equipment damage could occur. Follow directions carefully.

⚠WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.



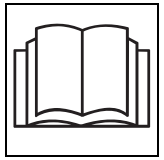
⚠WARNING Looking into fiber optic cable could result in permanent vision damage. Do not look into ends of fiber optic or unidentified cable.



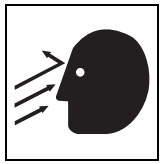
⚠WARNING Fluid or air pressure could pierce skin and cause injury or death. Stay away.

⚠WARNING Moving traffic - hazardous situation. Death or serious injury could result. Avoid moving vehicles, wear high visibility clothing, post appropriate warning signs.

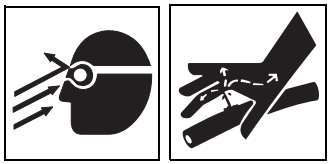
FX30 - SAFETY 43
SAFETY ALERTS



⚠WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.



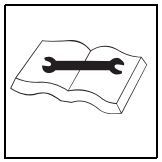
⚠WARNING Looking into fiber optic cable could result in permanent vision damage. Do not look into ends of fiber optic or unidentified cable.



⚠WARNING Fluid or air pressure could pierce skin and cause injury or death. Stay away.

⚠WARNING Moving traffic - hazardous situation. Death or serious injury could result. Avoid moving vehicles, wear high visibility clothing, post appropriate warning signs.

⚠ WARNING Hot pressurized cooling system fluid could cause serious burns. Allow to cool before servicing.



⚠ WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.

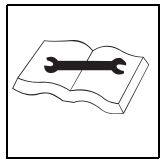
⚠ CAUTION Flying objects may cause injury. Wear hard hat and safety glasses.

⚠ CAUTION Hot parts may cause burns. Do not touch until cool.

⚠ CAUTION Exposure to high noise levels may cause hearing loss. Wear hearing protection.

44
FX30 - SAFETY
SAFETY ALERTS

⚠ WARNING Hot pressurized cooling system fluid could cause serious burns. Allow to cool before servicing.



⚠ WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.

⚠ CAUTION Flying objects may cause injury. Wear hard hat and safety glasses.

⚠ CAUTION Hot parts may cause burns. Do not touch until cool.

⚠ CAUTION Exposure to high noise levels may cause hearing loss. Wear hearing protection.

⚠ CAUTION Fall possible. Slips or trips may result in injury. Keep area clean.

⚠ CAUTION Battery acid may cause burns. Avoid contact.

⚠ CAUTION Improper handling or use of chemicals may result in illness, injury, or equipment damage. Follow instructions on labels and in material safety data sheets (MSDS).

FX30 - SAFETY 45
SAFETY ALERTS

⚠ CAUTION Fall possible. Slips or trips may result in injury. Keep area clean.

⚠ CAUTION Battery acid may cause burns. Avoid contact.

⚠ CAUTION Improper handling or use of chemicals may result in illness, injury, or equipment damage. Follow instructions on labels and in material safety data sheets (MSDS).

46 FX30 - SAFETY

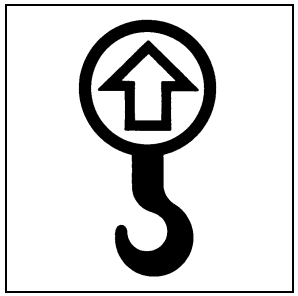
TRANSPORTATION

WARNING Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

LIFT

Points

Lifting points are identified by lifting decals. Lifting at other points is unsafe and can damage machinery.



FX30 - TRANSPORTATION 47
LIFT

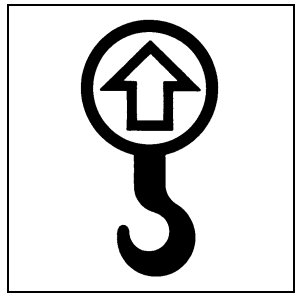
TRANSPORTATION

WARNING Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

LIFT

Points

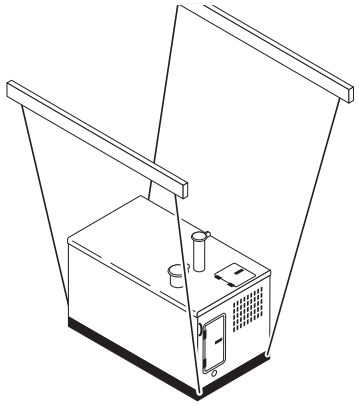
Lifting points are identified by lifting decals. Lifting at other points is unsafe and can damage machinery.



Procedure

Power Pack

Use a crane capable of supporting the equipment's size and weight. See **SPECIFICATIONS** or measure and weigh equipment before lifting. Use four lift points as shown.



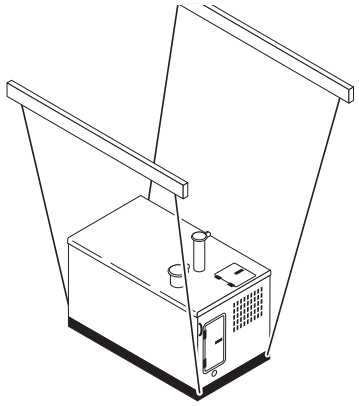
om2361a.eps

48 FX30 - TRANSPORTATION
LIFT

Procedure

Power Pack

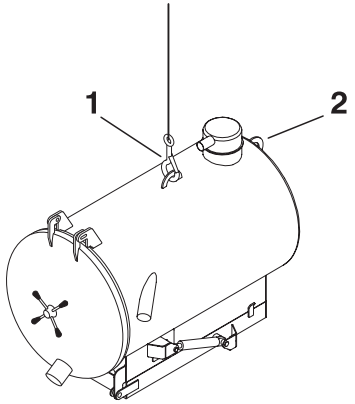
Use a crane capable of supporting the equipment's size and weight. See **SPECIFICATIONS** or measure and weigh equipment before lifting. Use four lift points as shown.



om2361a.eps

Tank

Use a crane capable of supporting the equipment's size and weight. See **SPECIFICATIONS** or measure and weigh equipment before lifting. Use top lift point (1) as shown. Use end lift point (2) to drain tank if machine is disabled.

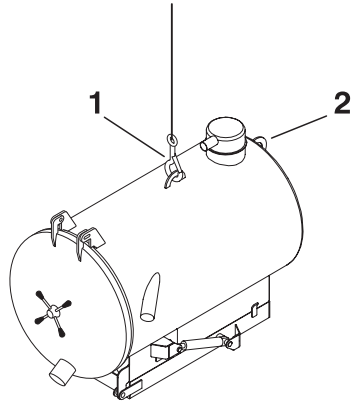


om2362a.eps

FX30 - TRANSPORTATION 49
LIFT

Tank

Use a crane capable of supporting the equipment's size and weight. See **SPECIFICATIONS** or measure and weigh equipment before lifting. Use top lift point (1) as shown. Use end lift point (2) to drain tank if machine is disabled.



om2362a.eps

HAUL

WARNING Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

NOTICE: Do not haul or move trailer unless tank is fully lowered and horizontal. Damage to machine or injury to personnel could occur.

Before Each Trip

- Check hitch for wear and cracks. Lubricate if needed.
- Check torque of drawbar bolts. Adjust if needed.
- Check battery for 12 volt charge.
- Inspect lights for cleanliness and correct operation.
- Check tire pressure. Check lug nut torque with a torque wrench. Adjust if needed.
- Ensure trailer brakes are adjusted properly (see **LUBRICATION & MAINTENANCE**).
- Ensure trailer brakes are adjusted to come on with tow vehicle brakes.

50 FX30 - TRANSPORTATION
HAUL

HAUL

WARNING Crushing weight. If load falls or moves it could kill or crush you. Use proper procedures and equipment or stay away.

NOTICE: Do not haul or move trailer unless tank is fully lowered and horizontal. Damage to machine or injury to personnel could occur.

Before Each Trip

- Check hitch for wear and cracks. Lubricate if needed.
- Check torque of drawbar bolts. Adjust if needed.
- Check battery for 12 volt charge.
- Inspect lights for cleanliness and correct operation.
- Check tire pressure. Check lug nut torque with a torque wrench. Adjust if needed.
- Ensure trailer brakes are adjusted properly (see **LUBRICATION & MAINTENANCE**).
- Ensure trailer brakes are adjusted to come on with tow vehicle brakes.

Hitch to Tow Vehicle

1. Back tow vehicle to trailer.
2. Put manual transmission into first or reverse gear or automatic transmission into park. Turn off ignition. Set parking brake.
3. Connect trailer drawbar to tow vehicle pintle hook and lock in place with hitch lock pin. If needed, adjust drawbar height to level load.
4. Connect safety chains to tow vehicle chain keepers (cross-shaped slots on bumper of tow vehicle). Attach left chain to right side of tow vehicle and vice versa to cradle hitch.
5. Connect breakaway switch cable to tow vehicle. Do not connect to pintle hook.
6. Plug trailer electrical connector into tow vehicle connector.
7. Use jack crank to raise jack base and stow handle.
8. Remove wheel blocks.

Unhitch From Tow Vehicle

1. Stop tow vehicle and trailer on level ground.
2. Put manual transmission into first or reverse gear or automatic transmission into park. Turn off ignition. Set parking brake.
3. Block trailer wheels.
4. Reverse “Hitch to Tow Vehicle“ steps to unhitch trailer from tow vehicle.

FX30 - TRANSPORTATION *51*
HAUL

Hitch to Tow Vehicle

1. Back tow vehicle to trailer.
2. Put manual transmission into first or reverse gear or automatic transmission into park. Turn off ignition. Set parking brake.
3. Connect trailer drawbar to tow vehicle pintle hook and lock in place with hitch lock pin. If needed, adjust drawbar height to level load.
4. Connect safety chains to tow vehicle chain keepers (cross-shaped slots on bumper of tow vehicle). Attach left chain to right side of tow vehicle and vice versa to cradle hitch.
5. Connect breakaway switch cable to tow vehicle. Do not connect to pintle hook.
6. Plug trailer electrical connector into tow vehicle connector.
7. Use jack crank to raise jack base and stow handle.
8. Remove wheel blocks.

Unhitch From Tow Vehicle

1. Stop tow vehicle and trailer on level ground.
2. Put manual transmission into first or reverse gear or automatic transmission into park. Turn off ignition. Set parking brake.
3. Block trailer wheels.
4. Reverse “Hitch to Tow Vehicle“ steps to unhitch trailer from tow vehicle.

52 FX30 - TRANSPORTATION

PREPARATION

GATHER INFORMATION

A successful job begins before the excavation. The first step in planning is reviewing information already available about the job and jobsite.

Traffic Control

If working near a road or other traffic area, contact local authorities about safety procedures and regulations.

Existing Utilities

If jobsite may contain electrical lines, wear protective boots and gloves meeting the following standards:

- Boots must have high tops and meet the electric hazard protection requirements of ANSI Z-41, 1991, when tested at 14,000 volts. Tuck legs of pants completely inside boots.
- Gloves must have 17,000 AC maximum use voltage, according to ASTM specification D120-87.

If working around higher voltage, use gloves and boots with appropriately higher ratings.

Emergency Services

Have the telephone numbers for local emergency and medical facilities on hand. Check that you will have access to a telephone.

FX30 - PREPARATION 53
GATHER INFORMATION

PREPARATION

GATHER INFORMATION

A successful job begins before the excavation. The first step in planning is reviewing information already available about the job and jobsite.

Traffic Control

If working near a road or other traffic area, contact local authorities about safety procedures and regulations.

Existing Utilities

If jobsite may contain electrical lines, wear protective boots and gloves meeting the following standards:

- Boots must have high tops and meet the electric hazard protection requirements of ANSI Z-41, 1991, when tested at 14,000 volts. Tuck legs of pants completely inside boots.
- Gloves must have 17,000 AC maximum use voltage, according to ASTM specification D120-87.

If working around higher voltage, use gloves and boots with appropriately higher ratings.

Emergency Services

Have the telephone numbers for local emergency and medical facilities on hand. Check that you will have access to a telephone.

CHECK EQUIPMENT AND SUPPLIES

Check the following before each day's work. Refer to **LUBRICATION** and **MAINTENANCE** for additional information and locations.

Check Levels

- Fuel
- Hydraulic fluid
- Engine coolant
- Battery charge
- Engine oil
- Blower oil

Check Condition and Function

- Filters
- Belts
- Hydraulic pump
- Blower
- Tires
- Hoses and valves
- Couplers and fittings
- Water tanks

54 FX30 - PREPARATION
CHECK EQUIPMENT AND SUPPLIES

CHECK EQUIPMENT AND SUPPLIES

Check the following before each day's work. Refer to **LUBRICATION** and **MAINTENANCE** for additional information and locations.

Check Levels

- Fuel
- Hydraulic fluid
- Engine coolant
- Battery charge
- Engine oil
- Blower oil

Check Condition and Function

- Filters
- Belts
- Hydraulic pump
- Blower
- Tires
- Hoses and valves
- Couplers and fittings
- Water tanks

Check Supplies

- Water and additional hoses
- Fuel
- Keys
- Lubricant

PARK UNIT

Follow instructions in **TRANSPORTATION** to correctly park unit and unhitch if necessary.

FX30 - PREPARATION 55
PARK UNIT

Check Supplies

- Water and additional hoses
- Fuel
- Keys
- Lubricant

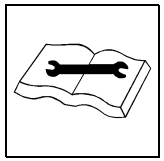
PARK UNIT

Follow instructions in **TRANSPORTATION** to correctly park unit and unhitch if necessary.

56 FX30 - PREPARATION

OPERATION

This section covers basic operation. For questions about specific situations, contact your Ditch Witch dealer.



⚠WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.

⚠WARNING Crushing weight. If load falls or moves, it could kill or crush you. Use proper procedures and equipment or stay away.

NOTICES:

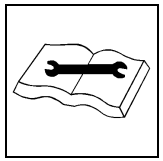
- Do not haul or move unit with tank raised or raising.
- Ensure that unit is hitched to vehicle before raising tank.

EMERGENCY SHUTDOWN: Turn ignition switch to STOP.

FX30 - OPERATION 57

OPERATION

This section covers basic operation. For questions about specific situations, contact your Ditch Witch dealer.



⚠WARNING Improper control function could cause death or serious injury. If control does not work as described in instructions, stop machine and have it serviced.

⚠WARNING Crushing weight. If load falls or moves, it could kill or crush you. Use proper procedures and equipment or stay away.

NOTICES:

- Do not haul or move unit with tank raised or raising.
- Ensure that unit is hitched to vehicle before raising tank.

EMERGENCY SHUTDOWN: Turn ignition switch to STOP.

COLD START

First follow the steps in **CONTROLS** for “Ignition Switch.” If engine still will not start in cold weather, follow these steps:

1. Insert key and turn clockwise to first position. Glow plug indicator will light.
2. When indicator light turns off, turn key all the way clockwise.
3. If engine does not start, turn key to off position. Wait 5 to 30 seconds.
4. Repeat steps 1-3.

   IMPORTANT: Glow plug indicator light will turn off after approximately 6 seconds. Do not hold key in first position after light turns off.

5. Turn key all the way clockwise.
6. Release when engine starts. Key will return to on position.

58 FX30 - OPERATION
COLD START

COLD START

First follow the steps in **CONTROLS** for “Ignition Switch.” If engine still will not start in cold weather, follow these steps:

1. Insert key and turn clockwise to first position. Glow plug indicator will light.
2. When indicator light turns off, turn key all the way clockwise.
3. If engine does not start, turn key to off position. Wait 5 to 30 seconds.
4. Repeat steps 1-3.

   IMPORTANT: Glow plug indicator light will turn off after approximately 6 seconds. Do not hold key in first position after light turns off.

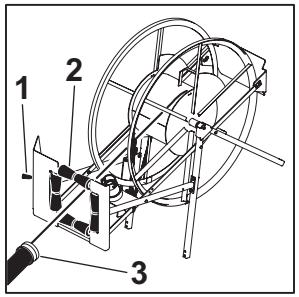
5. Turn key all the way clockwise.
6. Release when engine starts. Key will return to on position.

VACUUM

1. Ensure that unit is hitched to vehicle or properly stabilized. Block the wheels.
2. Remove vacuum hoses from storage.

   If using 1200:

   - Disconnect hose end from hose catch.
   - Insert hose through rollers (2).
   - Pull vacuum hose reel control (1) down to unwind hose.
   - Disconnect hose end (3) from hose reel.



om0658h.eps

3. Connect hoses. Secure locking clamps on inlet valve.

   IMPORTANT: Inlet valve can be open or closed before starting engine. If valve is closed, vacuum will build faster.

4. Ensure that drain valve is closed.
5. Position vacuum hose in area to be excavated.

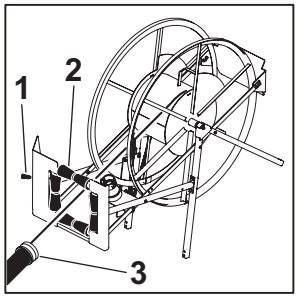
FX30 - OPERATION 59
VACUUM

VACUUM

1. Ensure that unit is hitched to vehicle or properly stabilized. Block the wheels.
2. Remove vacuum hoses from storage.

   If using 1200:

   - Disconnect hose end from hose catch.
   - Insert hose through rollers (2).
   - Pull vacuum hose reel control (1) down to unwind hose.
   - Disconnect hose end (3) from hose reel.



om0658h.eps

3. Connect hoses. Secure locking clamps on inlet valve.

   IMPORTANT: Inlet valve can be open or closed before starting engine. If valve is closed, vacuum will build faster.

4. Ensure that drain valve is closed.
5. Position vacuum hose in area to be excavated.

6. Start engine.

DANGER Vacuum will suffocate. Maintain distance between face and vacuum inlets.

WARNING Fire or explosion possible. Do not vacuum flammable or combustible substances.

7. Open inlet valve if necessary to begin excavation.

WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICE: Do not excavate hazardous or toxic materials. Unit is designed to excavate only soil cuttings, drilling fluids, and other non-toxic waste.

8. Use sight glasses to monitor fluid level in tank. Vacuum will shut off when tank is full. Engine will remain running.

60 FX30 - OPERATION
VACUUM

6. Start engine.

DANGER Vacuum will suffocate. Maintain distance between face and vacuum inlets.

WARNING Fire or explosion possible. Do not vacuum flammable or combustible substances.

7. Open inlet valve if necessary to begin excavation.

WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICE: Do not excavate hazardous or toxic materials. Unit is designed to excavate only soil cuttings, drilling fluids, and other non-toxic waste.

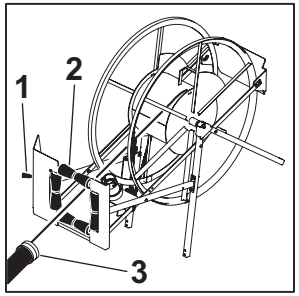
8. Use sight glasses to monitor fluid level in tank. Vacuum will shut off when tank is full. Engine will remain running.

POTHOLE

1. Ensure that unit is hitched to vehicle or properly stabilized. Block the wheels.
2. Remove vacuum hoses from storage.

   If using 1200:

   - Disconnect hose from hose catch.
   - Insert hose through rollers (2).
   - Pull vacuum hose reel control (1) down to unwind hose.
   - Disconnect hose end (3) from hose reel.

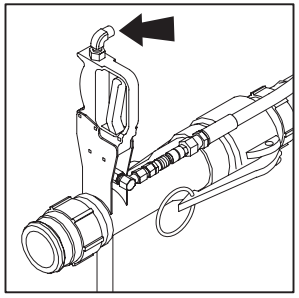


om0658h.eps

3. Remove 2-in-1 potholing tool or basic potholing tool from storage.
4. Connect hoses. Secure locking clamps on inlet valve and potholing tool.

   IMPORTANT: Inlet valve can be open or closed before starting engine. If valve is closed, vacuum will build faster.

5. Ensure that drain valve is closed.
6. If using 2-in-1 potholing tool, connect water pressure hose to fitting as shown.


om2363a.eps

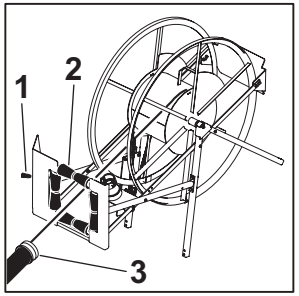
FX30 - OPERATION 61
POTHOLE

POTHOLE

1. Ensure that unit is hitched to vehicle or properly stabilized. Block the wheels.
2. Remove vacuum hoses from storage.

   If using 1200:

   - Disconnect hose from hose catch.
   - Insert hose through rollers (2).
   - Pull vacuum hose reel control (1) down to unwind hose.
   - Disconnect hose end (3) from hose reel.

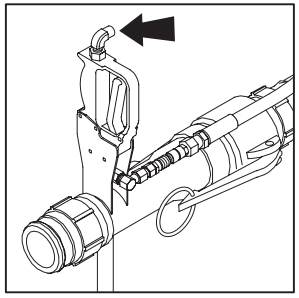


om0658h.eps

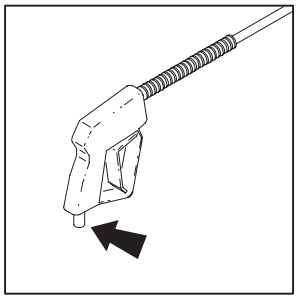
3. Remove 2-in-1 potholing tool or basic potholing tool from storage.
4. Connect hoses. Secure locking clamps on inlet valve and potholing tool.

   IMPORTANT: Inlet valve can be open or closed before starting engine. If valve is closed, vacuum will build faster.

5. Ensure that drain valve is closed.
6. If using 2-in-1 potholing tool, connect water pressure hose to fitting as shown.


om2363a.eps

7. If using basic potholing tool, connect water pressure hose to water lance.
8. Start engine.


om2457a.eps

DANGER Vacuum will suffocate. Maintain distance between face and vacuum inlets.

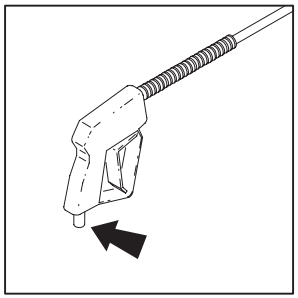
9. Open water tank valve.
10. Move water pressure switch to on.
11. Open inlet valve if necessary.

WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

NOTICE: High pressure water can cut utility lines. Test water pressure on a sample of the material to be located. Adjust pressure until no damage occurs to the material.

62 FX30 - OPERATION
POTHOLE

7. If using basic potholing tool, connect water pressure hose to water lance.
8. Start engine.


om2457a.eps

DANGER Vacuum will suffocate. Maintain distance between face and vacuum inlets.

9. Open water tank valve.
10. Move water pressure switch to on.
11. Open inlet valve if necessary.

WARNING Jobsite hazards could cause death or serious injury. Use correct equipment and work methods. Use and maintain proper safety equipment.

NOTICE: High pressure water can cut utility lines. Test water pressure on a sample of the material to be located. Adjust pressure until no damage occurs to the material.

12. Position tool over area to be excavated and begin pothole.

DANGER Electric shock. Contacting electric lines will cause death or serious injury. Know location of lines and stay away.

NOTICE: Do not direct water lance at overhead lines. Water conducts electricity.

If using 2-in-1 potholing tool:

- Squeeze water pressure lever to start water pressure.
- Work pressurized water in a rocking or circular motion to loosen and excavate soil until hole is at the desired diameter and depth.

If using basic potholing tool:

- First use water lance to loosen soil.
- Work pressurized water in a rocking or circular motion to excavate soil.
- Use water lance and tool alternately until hole is at the desired diameter and depth.

13. Adjust water pressure as needed to match soil conditions and/or material of utility being exposed.

FX30 - OPERATION 63
POTHOLE

12. Position tool over area to be excavated and begin pothole.

DANGER Electric shock. Contacting electric lines will cause death or serious injury. Know location of lines and stay away.

NOTICE: Do not direct water lance at overhead lines. Water conducts electricity.

If using 2-in-1 potholing tool:

- Squeeze water pressure lever to start water pressure.
- Work pressurized water in a rocking or circular motion to loosen and excavate soil until hole is at the desired diameter and depth.

If using basic potholing tool:

- First use water lance to loosen soil.
- Work pressurized water in a rocking or circular motion to excavate soil.
- Use water lance and tool alternately until hole is at the desired diameter and depth.

13. Adjust water pressure as needed to match soil conditions and/or material of utility being exposed.

14. Ensure that water sprays from nozzle in a fan pattern. If it does not, nozzle may be clogged and pump will not function properly. Clean or replace nozzle as necessary.
15. When freshwater tank is empty, stop operation and turn water pressure switch to off.

    NOTICE: Do **not** continue to operate with freshwater tank empty. Running water pump with no water will damage pump.

64 FX30 - OPERATION
POTHOLE

14. Ensure that water sprays from nozzle in a fan pattern. If it does not, nozzle may be clogged and pump will not function properly. Clean or replace nozzle as necessary.
15. When freshwater tank is empty, stop operation and turn water pressure switch to off.

    NOTICE: Do **not** continue to operate with freshwater tank empty. Running water pump with no water will damage pump.

DRAIN TANK

1. Ensure that unit is hitched to vehicle. Follow instructions in **TRANSPORTATION**.
2. Haul unit to approved dumping area.

⚠WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Do **not** unhitch unit from tow vehicle before or during dumping. A freestanding unit can become unstable when tilting tank.
- Do not unlatch door with tank tilted up.

3. Open drain valve and inlet valve.
4. Allow tank to drain in the horizontal position until tank is approximately half drained. Monitor sight glasses.
5. When tank is half drained, start engine.

FX30 - OPERATION 65
DRAIN TANK

DRAIN TANK

1. Ensure that unit is hitched to vehicle. Follow instructions in **TRANSPORTATION**.
2. Haul unit to approved dumping area.

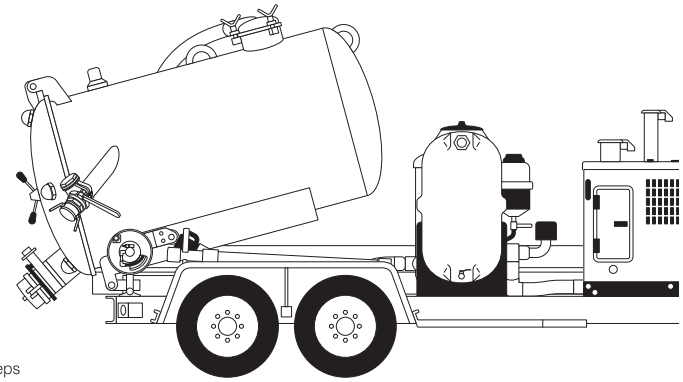
⚠WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Do **not** unhitch unit from tow vehicle before or during dumping. A freestanding unit can become unstable when tilting tank.
- Do not unlatch door with tank tilted up.

3. Open drain valve and inlet valve.
4. Allow tank to drain in the horizontal position until tank is approximately half drained. Monitor sight glasses.
5. When tank is half drained, start engine.

6. Tilt tank up to help flush solids from tank.



om2364a.eps

7. Lower tank to the full horizontal position.
8. Close drain valve and inlet valve.
9. If further draining is necessary, open tank door.

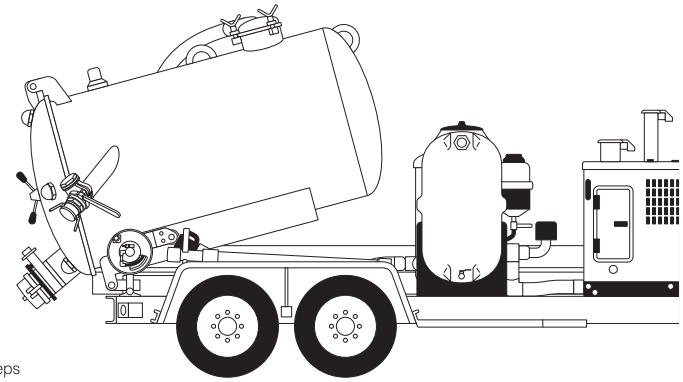
If using 500 or 800:

- Turn tank door handle counterclockwise to loosen door.
- Turn off engine. Tank door will open when vacuum is relieved.

NOTICE: Do not raise tank with door held closed only by vacuum. Door may suddenly open and possibly injure someone.

66 FX30 - OPERATION
DRAIN TANK

6. Tilt tank up to help flush solids from tank.



om2364a.eps

7. Lower tank to the full horizontal position.
8. Close drain valve and inlet valve.
9. If further draining is necessary, open tank door.

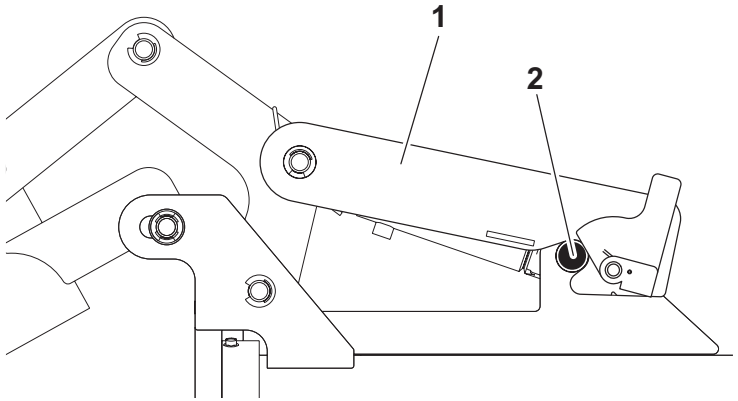
If using 500 or 800:

- Turn tank door handle counterclockwise to loosen door.
- Turn off engine. Tank door will open when vacuum is relieved.

NOTICE: Do not raise tank with door held closed only by vacuum. Door may suddenly open and possibly injure someone.

If using 1200:

- Push door seal control to SEAL.
- Turn tank door lock counterclockwise.
- Pull door seal control to RELEASE.
- Turn door handle to DISENGAGE and pull out.
- Push door lift control to OPEN.
- Ensure door lift latch (1) engages properly. Door lift latch (1) should be fully seated on pin (2).



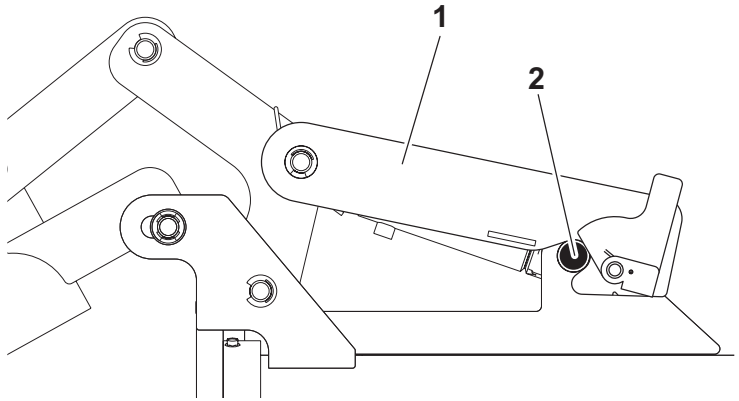
om0663h.eps

NOTICE: If door latch is not fully seated on pin, door will close and possibly injure someone.

FX30 - OPERATION 67
DRAIN TANK

If using 1200:

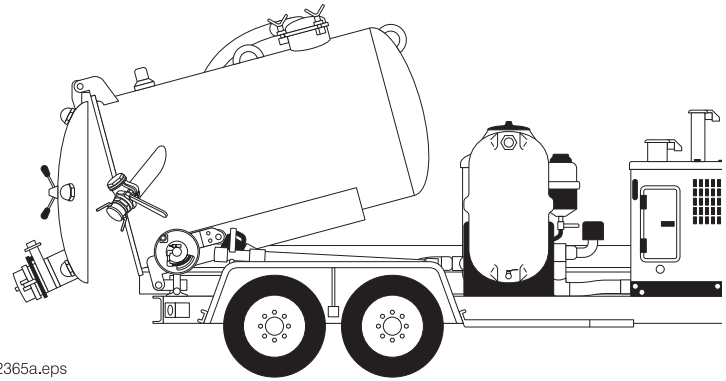
- Push door seal control to SEAL.
- Turn tank door lock counterclockwise.
- Pull door seal control to RELEASE.
- Turn door handle to DISENGAGE and pull out.
- Push door lift control to OPEN.
- Ensure door lift latch (1) engages properly. Door lift latch (1) should be fully seated on pin (2).



om0663h.eps

NOTICE: If door latch is not fully seated on pin, door will close and possibly injure someone.

10. Tilt tank up. Allow tank to drain completely.



om2365a.eps

11. Connect water pressure hose to water lance.
12. Turn water pressure switch on. Adjust water pressure.
13. Use water lance to thoroughly rinse inside of tank and around door seal.

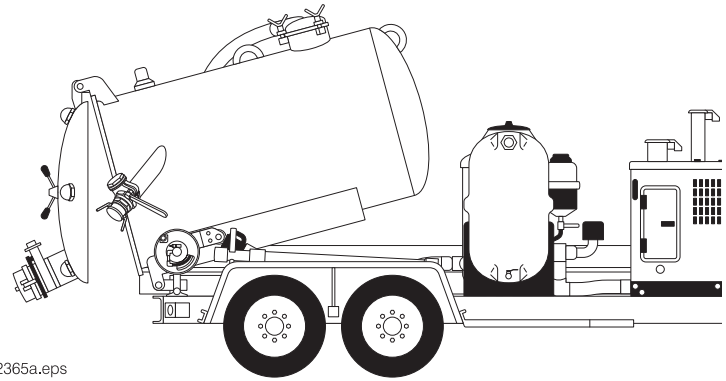
⚠ DANGER Confined space will cause suffocation. Use proper procedures for entering or stay away.

NOTICE: Enter tank only if necessary. Follow U.S. Department of Labor guidelines for entering confined spaces.

14. Return tank to the fully lowered horizontal position.

68 FX30 - OPERATION
DRAIN TANK

10. Tilt tank up. Allow tank to drain completely.



om2365a.eps

11. Connect water pressure hose to water lance.
12. Turn water pressure switch on. Adjust water pressure.
13. Use water lance to thoroughly rinse inside of tank and around door seal.

⚠ DANGER Confined space will cause suffocation. Use proper procedures for entering or stay away.

NOTICE: Enter tank only if necessary. Follow U.S. Department of Labor guidelines for entering confined spaces.

14. Return tank to the fully lowered horizontal position.

15. If necessary, close tank door.

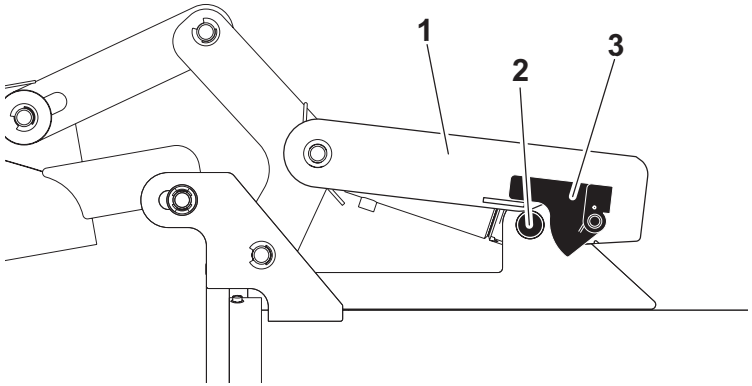
If using 500 or 800:

- Start engine. This will pull a vacuum and cause door to pull toward tank.
- Turn door handle clockwise 9-11 turns to tighten door against seal.

If using 1200:

- Fully open door to disengage door lift latch (1) from pin (2).

  Latch cover (3) must be down for tank door to close.



om0664h.eps

- Pull door lift control to CLOSE.
- Turn door handle to DISENGAGE, push in and turn to ENGAGE.
- Push door seal control to SEAL.
- Turn tank door lock clockwise until it stops to lock.
- Pull door seal control to RELEASE

FX30 - OPERATION 69
DRAIN TANK

15. If necessary, close tank door.

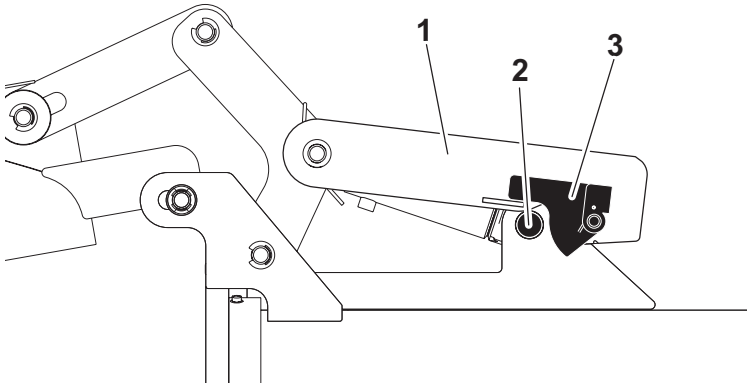
If using 500 or 800:

- Start engine. This will pull a vacuum and cause door to pull toward tank.
- Turn door handle clockwise 9-11 turns to tighten door against seal.

If using 1200:

- Fully open door to disengage door lift latch (1) from pin (2).

  Latch cover (3) must be down for tank door to close.



om0664h.eps

- Pull door lift control to CLOSE.
- Turn door handle to DISENGAGE, push in and turn to ENGAGE.
- Push door seal control to SEAL.
- Turn tank door lock clockwise until it stops to lock.
- Pull door seal control to RELEASE

ANTIFREEZE THE SYSTEM

Follow these steps for overnight or long-term storage of unit during cold weather.

1. Fill antifreeze tank with a propylene-glycol based antifreeze.
2. Ensure that water tank valve is closed.
3. Open antifreeze tank valve.
4. Connect water pressure hose to water lance.
5. Start engine.
6. Move water pressure switch to on.
7. Squeeze water lance handle and run until antifreeze runs through the water lance.
8. Move water pressure switch to off.
9. Close antifreeze tank supply valve.
10. Turn ignition switch to off.
11. Drain water tank completely.

70
FX30 - OPERATION
ANTIFREEZE THE SYSTEM

ANTIFREEZE THE SYSTEM

Follow these steps for overnight or long-term storage of unit during cold weather.

1. Fill antifreeze tank with a propylene-glycol based antifreeze.
2. Ensure that water tank valve is closed.
3. Open antifreeze tank valve.
4. Connect water pressure hose to water lance.
5. Start engine.
6. Move water pressure switch to on.
7. Squeeze water lance handle and run until antifreeze runs through the water lance.
8. Move water pressure switch to off.
9. Close antifreeze tank supply valve.
10. Turn ignition switch to off.
11. Drain water tank completely.

BREAKDOWN

RINSE EQUIPMENT

Spray water onto equipment to remove dirt and mud. Use water lance. Thoroughly rinse inside of tank and around door seal.

DANGER Confined space will cause suffocation. Use proper procedures for entering or stay away.

NOTICES:

- Enter tank only if necessary. Follow U.S. Department of Labor guidelines for entering confined spaces.
- Do not spray water onto operator's console. Electrical components could be damaged. Wipe down instead.

FX30 - BREAKDOWN *71*
RINSE EQUIPMENT

BREAKDOWN

RINSE EQUIPMENT

Spray water onto equipment to remove dirt and mud. Use water lance. Thoroughly rinse inside of tank and around door seal.

DANGER Confined space will cause suffocation. Use proper procedures for entering or stay away.

NOTICES:

- Enter tank only if necessary. Follow U.S. Department of Labor guidelines for entering confined spaces.
- Do not spray water onto operator's console. Electrical components could be damaged. Wipe down instead.

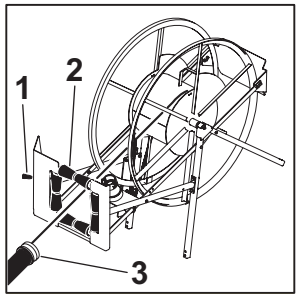
DISCONNECT

Disconnect and store the following hoses and cables (if used):

- vacuum hoses

  If using 1200:

  - Connect hose end (3) to hose reel.
  - Push vacuum hose reel control (1) up to wind hose.
  - Connect hose end to hose catch.
- water pressure hose
- tethered tank controller (500 and 800)



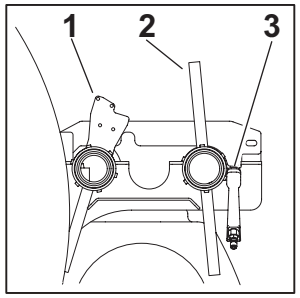
om0658h.eps

STOW TOOLS

Make sure potholing tools, water lance, and other tools are properly stowed.

If using 1200, failure to stow tools as indicated could result in damage to water tank.

1. 2-in-1 potholing tool
2. Basic potholing tool
3. Water lance



om0659h.eps

72 FX30 - BREAKDOWN
DISCONNECT

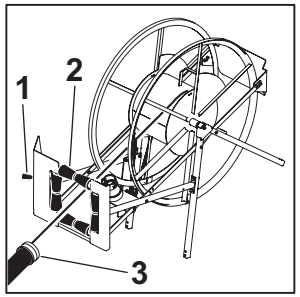
DISCONNECT

Disconnect and store the following hoses and cables (if used):

- vacuum hoses

  If using 1200:

  - Connect hose end (3) to hose reel.
  - Push vacuum hose reel control (1) up to wind hose.
  - Connect hose end to hose catch.
- water pressure hose
- tethered tank controller (500 and 800)



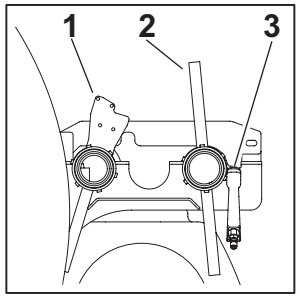
om0658h.eps

STOW TOOLS

Make sure potholing tools, water lance, and other tools are properly stowed.

If using 1200, failure to stow tools as indicated could result in damage to water tank.

1. 2-in-1 potholing tool
2. Basic potholing tool
3. Water lance



om0659h.eps

LUBRICATION

Proper lubrication and maintenance protects Ditch Witch equipment from damage and failure. In extreme conditions, lubricate more frequently.

Use only recommended lubricants. Fill to capacities listed in **SPECIFICATIONS**.

Recommended Lubricants	
DEO	Diesel engine oil (SAE 10W40) meeting API engine service classification SF/CD or CE
HTG	NLGI #2 premium grade, petroleum-based grease with high temperature resistance and good mechanical stability
MPL	Multipurpose gear oil SAE 40
NDO	30W non-detergent oil
MPG	Multipurpose grease
THF	Tractor hydraulic fluid, similar to Phillips 66 HG, Mobilfluid 423, Chevron Tractor Hydraulic Fluid, Texaco TDH Oil, or equivalent

sf1027

⚠ WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Unless otherwise instructed, all service should be performed with engine off.
- Refer to engine manufacturer’s manual for engine maintenance instructions.

FX30 - LUBRICATION 73

LUBRICATION

Proper lubrication and maintenance protects Ditch Witch equipment from damage and failure. In extreme conditions, lubricate more frequently.

Use only recommended lubricants. Fill to capacities listed in **SPECIFICATIONS**.

Recommended Lubricants	
DEO	Diesel engine oil (SAE 10W40) meeting API engine service classification SF/CD or CE
HTG	NLGI #2 premium grade, petroleum-based grease with high temperature resistance and good mechanical stability
MPL	Multipurpose gear oil SAE 40
NDO	30W non-detergent oil
MPG	Multipurpose grease
THF	Tractor hydraulic fluid, similar to Phillips 66 HG, Mobilfluid 423, Chevron Tractor Hydraulic Fluid, Texaco TDH Oil, or equivalent

sf1027

⚠ WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Unless otherwise instructed, all service should be performed with engine off.
- Refer to engine manufacturer’s manual for engine maintenance instructions.

SCHEDULE

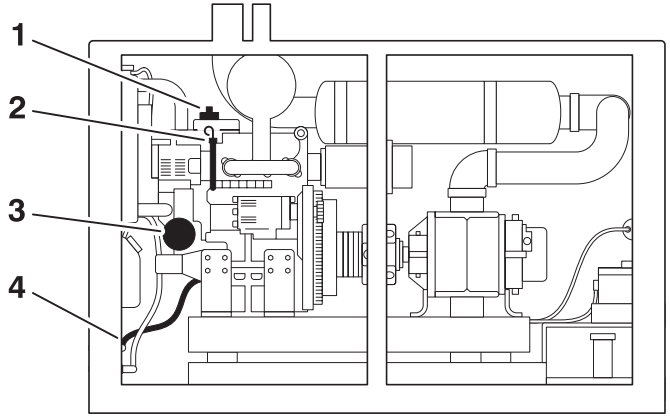
Interval	Task	Page
10 hours	Check engine oil	76
	Check blower oil	78
	Check hydraulic oil	81
	Check water pump oil	83
25 hours	Change water pump oil (initial)	83
40 hours	Lube door handle screw (500 and 800)	84
	Lube door lock screw (1200)	85
50 hours	Change engine oil and filter (initial)	76
	Lube blower bearings	79
	Lube tank pivot pins (500 and 800)	84
100 hours	Change blower oil (initial)	78
	Change hydraulic oil (initial)	81
	Change water pump oil	83
150 hours	Change engine oil and filter	76
1000 hours	Change blower oil	78
	Change hydraulic oil	81
as needed	Lube blower for long-term storage	79

74 FX30 - LUBRICATION
SCHEDULE

SCHEDULE

Interval	Task	Page
10 hours	Check engine oil	76
	Check blower oil	78
	Check hydraulic oil	81
	Check water pump oil	83
25 hours	Change water pump oil (initial)	83
40 hours	Lube door handle screw (500 and 800)	84
	Lube door lock screw (1200)	85
50 hours	Change engine oil and filter (initial)	76
	Lube blower bearings	79
	Lube tank pivot pins (500 and 800)	84
100 hours	Change blower oil (initial)	78
	Change hydraulic oil (initial)	81
	Change water pump oil	83
150 hours	Change engine oil and filter	76
1000 hours	Change blower oil	78
	Change hydraulic oil	81
as needed	Lube blower for long-term storage	79

ENGINE

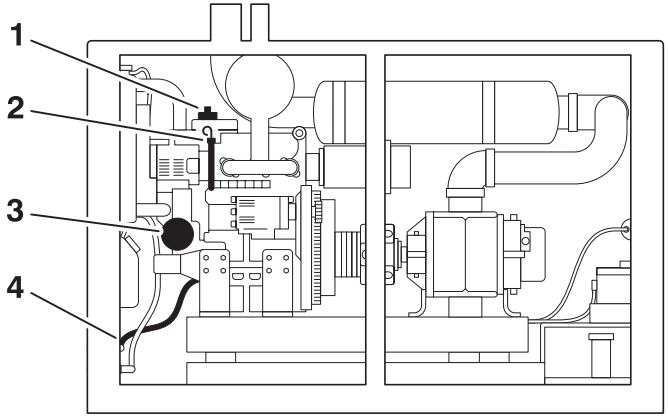


om2367a.eps

Ref.	Task	Hours	Lubricant
2	Check engine oil	10	DEO
1, 3, 4	Change engine oil and filter (initial)	50	DEO
1, 3, 4	Change engine oil and filter	150	DEO

FX30 - LUBRICATION 75
ENGINE

ENGINE



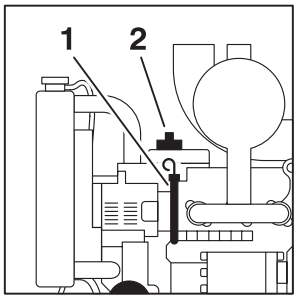
om2367a.eps

Ref.	Task	Hours	Lubricant
2	Check engine oil	10	DEO
1, 3, 4	Change engine oil and filter (initial)	50	DEO
1, 3, 4	Change engine oil and filter	150	DEO

Check

Check engine oil at dipstick (1) before operation and every 10 hours thereafter.

Add DEO at fill (2) as necessary to keep oil level at highest line on dipstick.



om2458a.eps

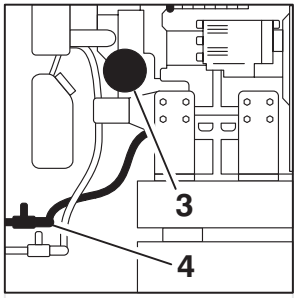
Change

Change oil and filter after first 50 hours of operation and every 150 hours thereafter. Change oil more frequently if working in dusty conditions.

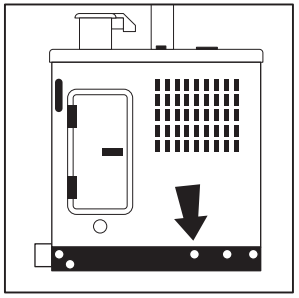
1. Drain crankcase through drain (4) while oil is warm.

   IMPORTANT: Note location of remote drain (shown).

2. Replace filter (3) each time oil is changed.
3. Refill with DEO at fill neck.



om2459a.eps

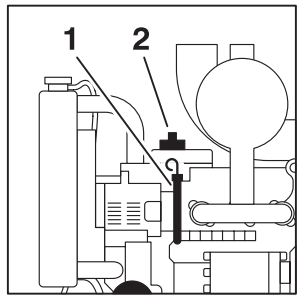

om2460a.eps

76 FX30 - LUBRICATION
ENGINE

Check

Check engine oil at dipstick (1) before operation and every 10 hours thereafter.

Add DEO at fill (2) as necessary to keep oil level at highest line on dipstick.



om2458a.eps

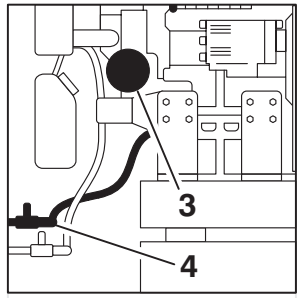
Change

Change oil and filter after first 50 hours of operation and every 150 hours thereafter. Change oil more frequently if working in dusty conditions.

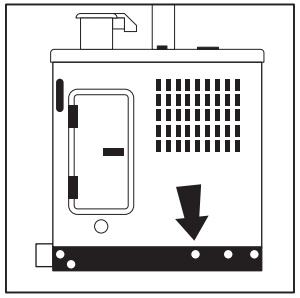
1. Drain crankcase through drain (4) while oil is warm.

   IMPORTANT: Note location of remote drain (shown).

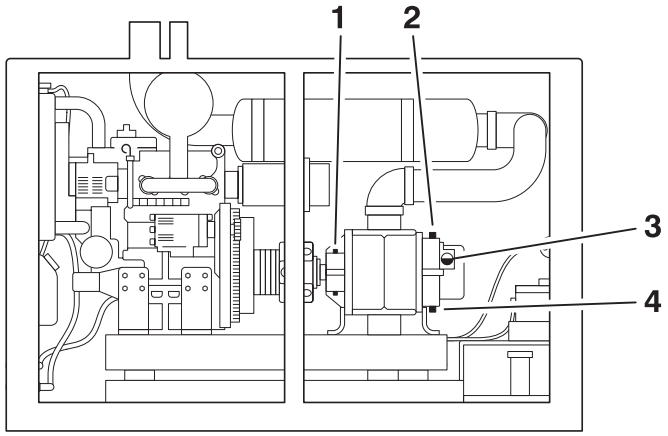
2. Replace filter (3) each time oil is changed.
3. Refill with DEO at fill neck.



om2459a.eps


om2460a.eps

BLOWER

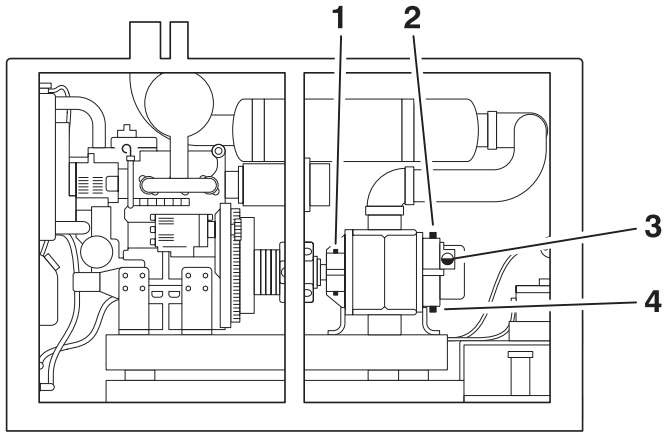


om2429a.eps

Ref.	Task	Hours	Lubricant
3	Check blower oil	10	MPL
1	Lube bearings	50	HTG
2, 3, 4	Change blower oil (initial)	100	MPL
2, 3, 4	Change blower oil	1000	MPL

FX30 - LUBRICATION 77
BLOWER

BLOWER



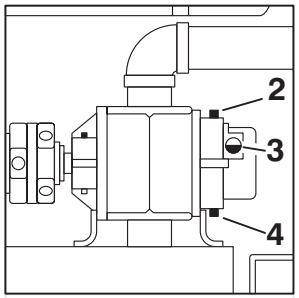
om2429a.eps

Ref.	Task	Hours	Lubricant
3	Check blower oil	10	MPL
1	Lube bearings	50	HTG
2, 3, 4	Change blower oil (initial)	100	MPL
2, 3, 4	Change blower oil	1000	MPL

Blower Oil

Check

With frame level, check blower oil at sight glass (3) every 10 hours. Add MPL at breather (2) as necessary to maintain oil level at halfway point on sight glass (3). Do not overfill.



om2431a.eps

Change

Change oil after first 100 hours of operation and every 1000 hours thereafter. Change oil more frequently if working in dusty conditions.

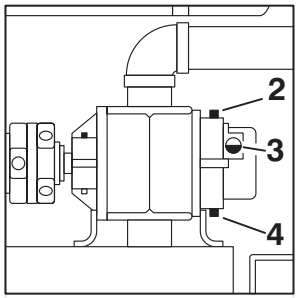
- Drain at drain plug (4) while oil is warm.
- Refill with MPL at breather (2) until oil is at halfway point on sight glass (3).

78 FX30 - LUBRICATION
BLOWER

Blower Oil

Check

With frame level, check blower oil at sight glass (3) every 10 hours. Add MPL at breather (2) as necessary to maintain oil level at halfway point on sight glass (3). Do not overfill.



om2431a.eps

Change

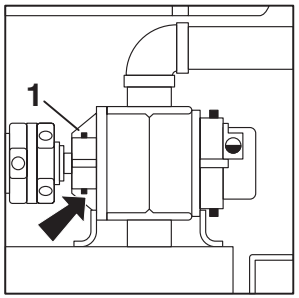
Change oil after first 100 hours of operation and every 1000 hours thereafter. Change oil more frequently if working in dusty conditions.

- Drain at drain plug (4) while oil is warm.
- Refill with MPL at breather (2) until oil is at halfway point on sight glass (3).

Bearings

Wipe two zerks (1) clean and lube every 50 hours with HTG. Inject grease into zerk until clean grease comes out of relief fittings.

NOTICE: Do not inject grease too quickly. Drive shaft seal damage could occur.

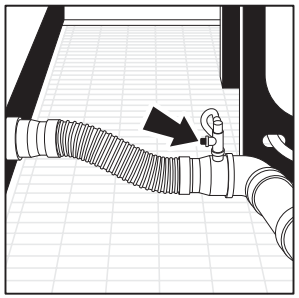


om2432a.eps

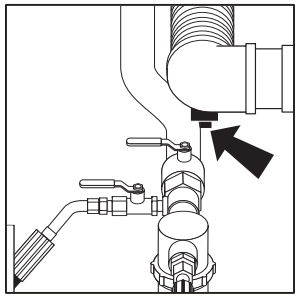
Long-Term Storage

Lubricate blower before long-term storage to help prevent rust and lockup.

1. Remove plug from fitting at filter (shown).
2. Start engine.
3. Spray light oil into port and run unit for 1-2 minutes.
4. Turn off engine.


om2471a.eps

500 and 800


om0656h.eps

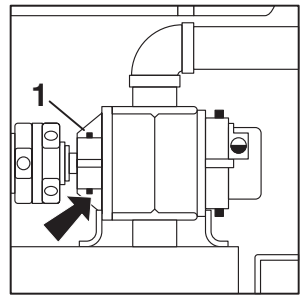
1200

FX30 - LUBRICATION 79
BLOWER

Bearings

Wipe two zerks (1) clean and lube every 50 hours with HTG. Inject grease into zerk until clean grease comes out of relief fittings.

NOTICE: Do not inject grease too quickly. Drive shaft seal damage could occur.

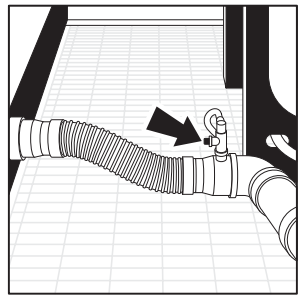


om2432a.eps

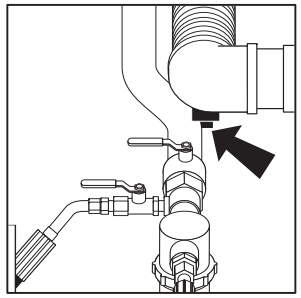
Long-Term Storage

Lubricate blower before long-term storage to help prevent rust and lockup.

1. Remove plug from fitting at filter (shown).
2. Start engine.
3. Spray light oil into port and run unit for 1-2 minutes.
4. Turn off engine.

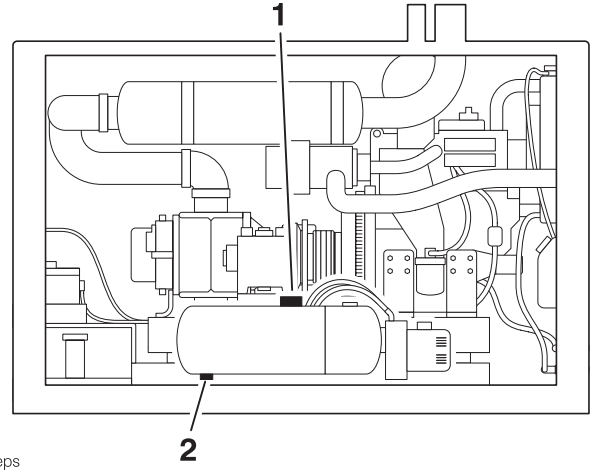

om2471a.eps

500 and 800


om0656h.eps

1200

HYDRAULICS

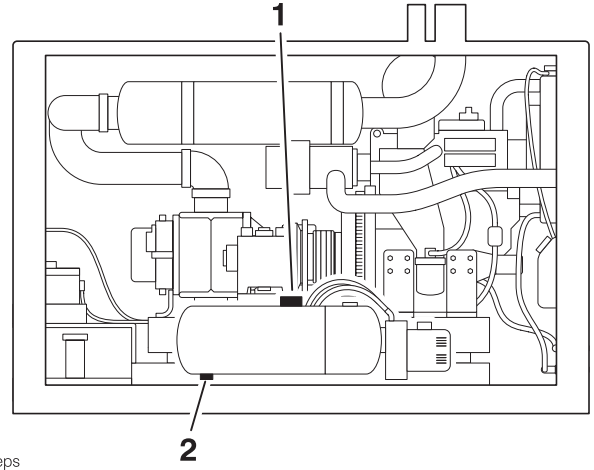


om2433a.eps

Ref.	Task	Hours	Lubricant
1	Check hydraulic oil	10	THF
1, 2	Change hydraulic oil (initial)	100	THF
	Change hydraulic oil	1000	THF

80 FX30 - LUBRICATION
HYDRAULICS

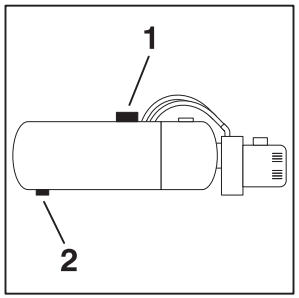
HYDRAULICS



om2433a.eps

Ref.	Task	Hours	Lubricant
1	Check hydraulic oil	10	THF
1, 2	Change hydraulic oil (initial)	100	THF
	Change hydraulic oil	1000	THF

Check



om2435a.eps

With frame level, check oil at dipstick (1) every 10 hours.

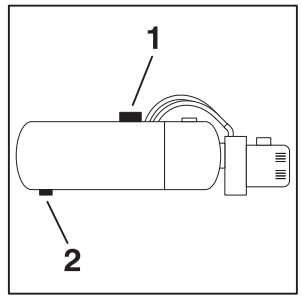
Add THF at fill (1) as necessary. Clean dust from cap by blowing with low-pressure air.

Change

Drain hydraulic oil (2) and refill with THF after first 100 hours of operation and every 1000 hours thereafter. Change oil every 500 hours if jobsite temperature exceeds 100°F (38°C) more than 50% of the time.

FX30 - LUBRICATION 81
HYDRAULICS

Check



om2435a.eps

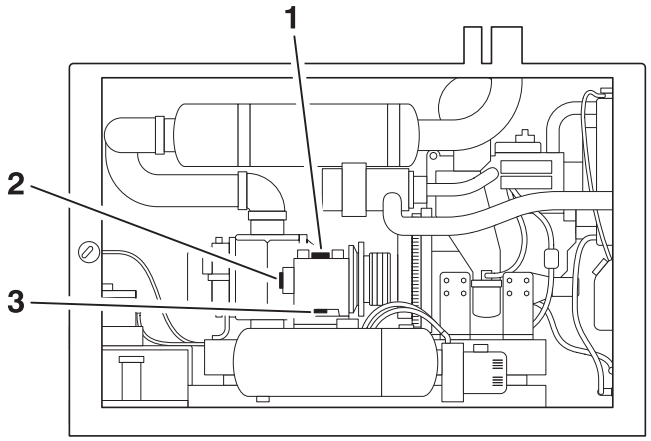
With frame level, check oil at dipstick (1) every 10 hours.

Add THF at fill (1) as necessary. Clean dust from cap by blowing with low-pressure air.

Change

Drain hydraulic oil (2) and refill with THF after first 100 hours of operation and every 1000 hours thereafter. Change oil every 500 hours if jobsite temperature exceeds 100°F (38°C) more than 50% of the time.

WATER PUMP

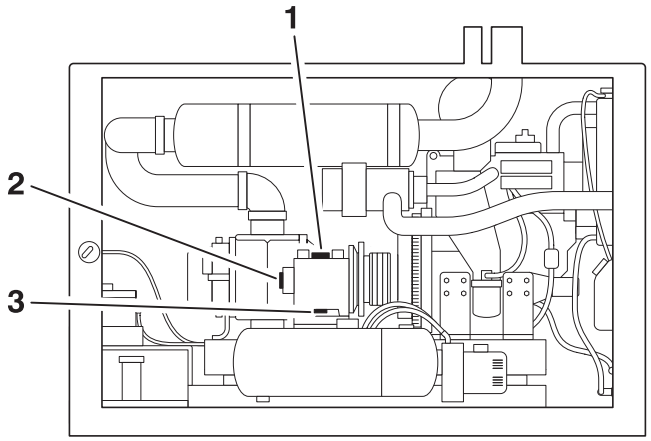


om2436a.eps

Ref.	Task	Hours	Lubricant
2	Check water pump oil	10	NDO
1, 2, 3	Change water pump oil (initial)	25	NDO
	Change water pump oil	100	NDO

82 FX30 - LUBRICATION
WATER PUMP

WATER PUMP



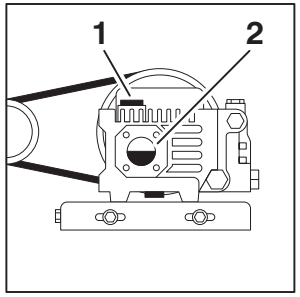
om2436a.eps

Ref.	Task	Hours	Lubricant
2	Check water pump oil	10	NDO
1, 2, 3	Change water pump oil (initial)	25	NDO
	Change water pump oil	100	NDO

Check

With frame level, check water pump oil at sight glass (2) every 10 hours. Oil should be at halfway mark on sight glass.

Add NDO at fill (1) as necessary to keep oil at halfway mark on sight glass.



om2438a.eps

Change

Change oil after the first 25 hours of operation and every 100 hours thereafter. Change oil more frequently if working in dusty conditions.

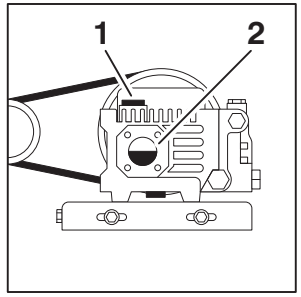
- Drain at drain plug (3) while oil is warm.
- Refill with NDO at fill (1) until oil is at halfway mark on sight glass (2).

FX30 - LUBRICATION 83
WATER PUMP

Check

With frame level, check water pump oil at sight glass (2) every 10 hours. Oil should be at halfway mark on sight glass.

Add NDO at fill (1) as necessary to keep oil at halfway mark on sight glass.



om2438a.eps

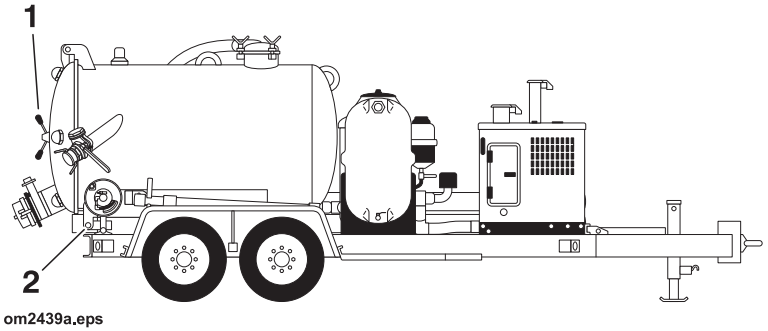
Change

Change oil after the first 25 hours of operation and every 100 hours thereafter. Change oil more frequently if working in dusty conditions.

- Drain at drain plug (3) while oil is warm.
- Refill with NDO at fill (1) until oil is at halfway mark on sight glass (2).

VACUUM TANK

500 and 800



Ref.	Task	Hours	Lubricant
1	Lube door handle screw	40	MPG
2	Lube tank pivot pins	50	MPG

Door Handle Screw

Lube every 40 hours with MPG.

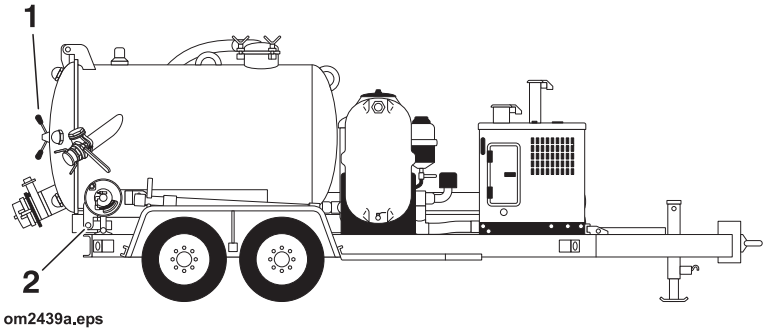
Tank Pivot Pins

Lube two pins every 50 hours with MPG.

84 FX30 - LUBRICATION
VACUUM TANK

VACUUM TANK

500 and 800



Ref.	Task	Hours	Lubricant
1	Lube door handle screw	40	MPG
2	Lube tank pivot pins	50	MPG

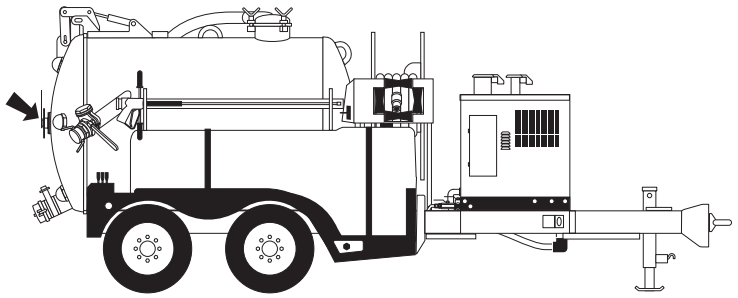
Door Handle Screw

Lube every 40 hours with MPG.

Tank Pivot Pins

Lube two pins every 50 hours with MPG.

1200



om0652h.eps

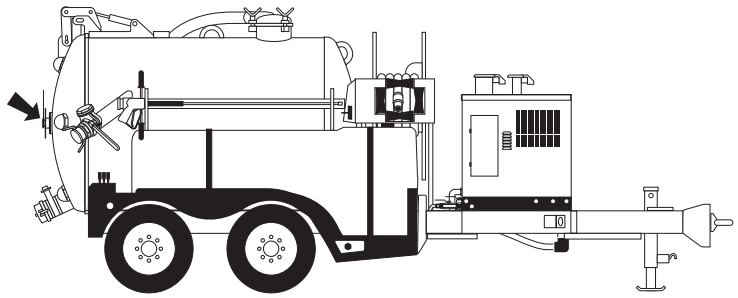
Ref.	Task	Hours	Lubricant
	Lube door lock screw	40	MPG

Door Lock Screw

Lube every 40 hours with MPG.

FX30 - LUBRICATION **85**

1200



om0652h.eps

Ref.	Task	Hours	Lubricant
	Lube door lock screw	40	MPG

Door Lock Screw

Lube every 40 hours with MPG.

86 FX30 - LUBRICATION

MAINTENANCE

⚠WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Unless otherwise instructed, all service should be performed with engine shut off.
- Refer to engine manufacturer’s manual for engine maintenance instructions.

FX30 - MAINTENANCE *87*

MAINTENANCE

⚠WARNING Incorrect procedures could result in death, injury, or property damage. Learn to use equipment correctly.

NOTICES:

- Unless otherwise instructed, all service should be performed with engine shut off.
- Refer to engine manufacturer’s manual for engine maintenance instructions.

SCHEDULE

Interval	Task	Page
10 hours	Check coolant level	92
	Check blower unit	96
	Drain vacuum air filter canister	97
	Clean vacuum air filter	97
	Check hydraulic hoses	99
	Check water pump unit	102
	Check regulator	102
	Check water pump belt tension	103
	Check spray nozzle	104
	Check vacuum tank door seal and fittings	108
	Check strobe light	108
	Check vacuum tank hoses	108
	Clean water pump filter	
50 hours	Check fan belt	91
	Check engine air filter	94
	Check vacuum air filter and hoses	97
	Check relief valve	98
	Check water pressure hoses	102
100 hours	Change fuel filter	90
	Change in-line fuel filter	90
	Check blower drive components	98
	Check tank deflector	
250 hours	Change engine air filter	94
500 hours	Replace fan belt	91
2000 hours	Replace water pump belts	103
	Change coolant	93
as needed	Change relief air filter	96
	Clean water pump filter	104
	Clean primary shutoff valve	104

For trailer service intervals, see “Trailer.”

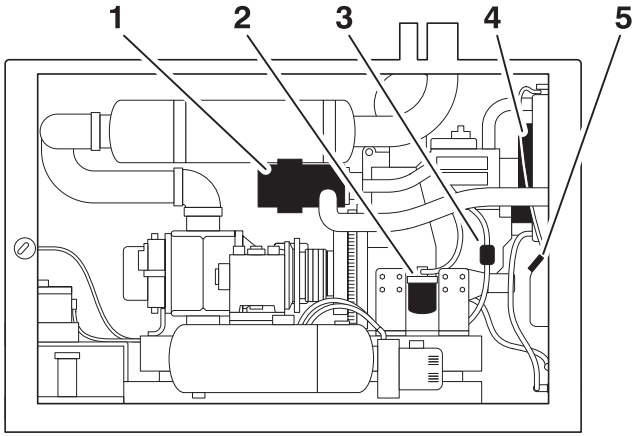
88 FX30 - MAINTENANCE
SCHEDULE

SCHEDULE

Interval	Task	Page
10 hours	Check coolant level	92
	Check blower unit	96
	Drain vacuum air filter canister	97
	Clean vacuum air filter	97
	Check hydraulic hoses	99
	Check water pump unit	102
	Check regulator	102
	Check water pump belt tension	103
	Check spray nozzle	104
	Check vacuum tank door seal and fittings	108
	Check strobe light	108
	Check vacuum tank hoses	108
	Clean water pump filter	
50 hours	Check fan belt	91
	Check engine air filter	94
	Check vacuum air filter and hoses	97
	Check relief valve	98
	Check water pressure hoses	102
100 hours	Change fuel filter	90
	Change in-line fuel filter	90
	Check blower drive components	98
	Check tank deflector	
250 hours	Change engine air filter	94
500 hours	Replace fan belt	91
2000 hours	Replace water pump belts	103
	Change coolant	93
as needed	Change relief air filter	96
	Clean water pump filter	104
	Clean primary shutoff valve	104

For trailer service intervals, see “Trailer.”

ENGINE

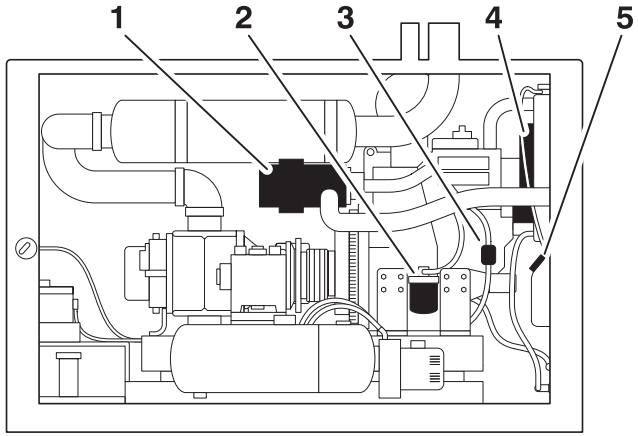


om2441a.eps

Ref.	Task	Hours
5	Check coolant level	10
4	Check fan belt	50
1	Check air filter	50
2	Change fuel filter	100
3	Change in-line fuel filter	100
1	Change air filter	250
4	Replace fan belt	500
5	Change coolant	2000

FX30 - MAINTENANCE 89
ENGINE

ENGINE



om2441a.eps

Ref.	Task	Hours
5	Check coolant level	10
4	Check fan belt	50
1	Check air filter	50
2	Change fuel filter	100
3	Change in-line fuel filter	100
1	Change air filter	250
4	Replace fan belt	500
5	Change coolant	2000

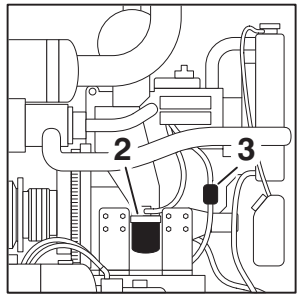
Fuel Filters

Fuel filters are located on rear side of engine.

Change

Change fuel filter (2) and inline fuel filter (3) every 100 hours. To change:

1. Remove filter.
2. Install new filter. Apply fuel oil thinly over the gasket and hand-tighten.
3. Bleed air from the injection pump.



om2464a.eps

90 FX30 - MAINTENANCE
ENGINE

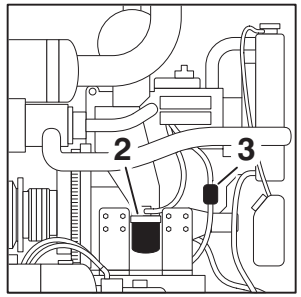
Fuel Filters

Fuel filters are located on rear side of engine.

Change

Change fuel filter (2) and inline fuel filter (3) every 100 hours. To change:

1. Remove filter.
2. Install new filter. Apply fuel oil thinly over the gasket and hand-tighten.
3. Bleed air from the injection pump.



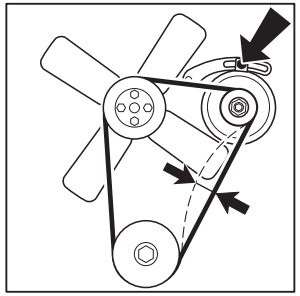
om2464a.eps

Fan Belt

Check

Check belt every 50 hours for damage or wear. Replace worn belt.

Adjust


om0466h.eps

1. Turn off engine and remove key.
2. Apply moderate thumb pressure to belt between pulleys, as shown.
3. Belt is properly tensioned when deflection is about 0.28 to 0.35 in (7 to 9 mm).
4. If needed, loosen alternator bolts (shown) and pull alternator out until correct tension is reached.
5. Tighten alternator bolts.

Replace

Replace belt every 500 hours.

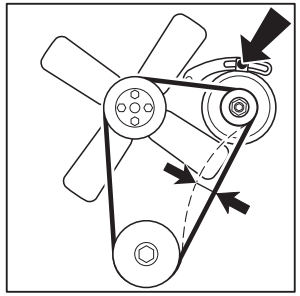
FX30 - MAINTENANCE 91
ENGINE

Fan Belt

Check

Check belt every 50 hours for damage or wear. Replace worn belt.

Adjust


om0466h.eps

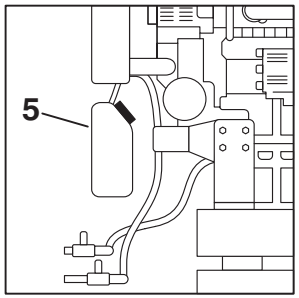
1. Turn off engine and remove key.
2. Apply moderate thumb pressure to belt between pulleys, as shown.
3. Belt is properly tensioned when deflection is about 0.28 to 0.35 in (7 to 9 mm).
4. If needed, loosen alternator bolts (shown) and pull alternator out until correct tension is reached.
5. Tighten alternator bolts.

Replace

Replace belt every 500 hours.

Cooling System

Check



om2461a.eps

Check coolant level in overflow tank (5) every 10 hours. Coolant should be between LOW and FULL marks on tank.

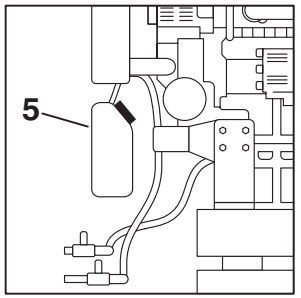
Fill as needed with Ditch Witch approved coolant (p/n 255-006), or other fully formulated ethylene-glycol-based heavy duty engine coolant meeting ASTM specification D6210, TMC RP329, or John Deere specification JDM H24A2. Do not fill over FULL mark on tank.

Check clamps and hoses for looseness or wear. Tighten loose clamps. Replace swollen, hardened, or cracked hoses.

92 FX30 - MAINTENANCE
ENGINE

Cooling System

Check



om2461a.eps

Check coolant level in overflow tank (5) every 10 hours. Coolant should be between LOW and FULL marks on tank.

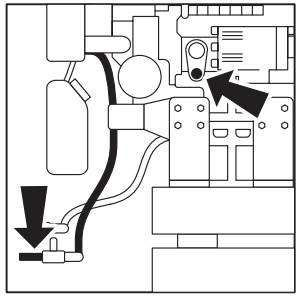
Fill as needed with Ditch Witch approved coolant (p/n 255-006), or other fully formulated ethylene-glycol-based heavy duty engine coolant meeting ASTM specification D6210, TMC RP329, or John Deere specification JDM H24A2. Do not fill over FULL mark on tank.

Check clamps and hoses for looseness or wear. Tighten loose clamps. Replace swollen, hardened, or cracked hoses.

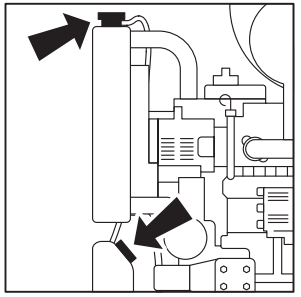
Change

Change coolant every 2000 hours.

1. Allow engine to cool.
2. Open two drains and radiator cap and drain coolant.
3. Drain overflow tank.


om2462a.eps

4. Close drains and fill with Ditch Witch approved coolant (p/n 255-006) or equivalent (see previous page).

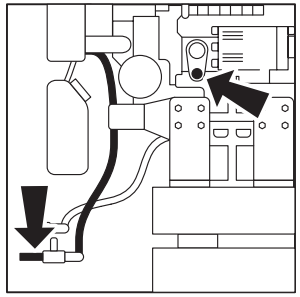

om2463a.eps

FX30 - MAINTENANCE 93
ENGINE

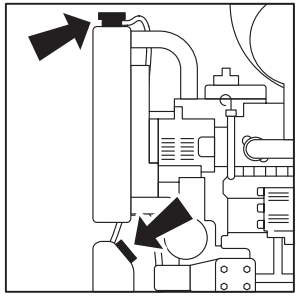
Change

Change coolant every 2000 hours.

1. Allow engine to cool.
2. Open two drains and radiator cap and drain coolant.
3. Drain overflow tank.


om2462a.eps

4. Close drains and fill with Ditch Witch approved coolant (p/n 255-006) or equivalent (see previous page).

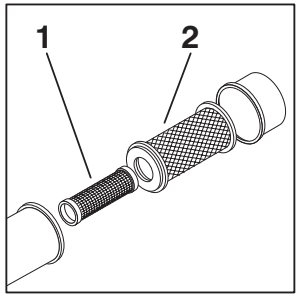

om2463a.eps

Air Filter

Check

Check filter and suction hose every 50 hours for wear or holes. Check more often if working in dusty conditions.

Change



om0465h.eps

Change air filter every 250 hours.

1. Open air filter housing.
2. Remove primary and safety elements.
3. Wipe inside of housing and wash end cup.
4. Insert new primary and safety elements.
5. Close air filter case.

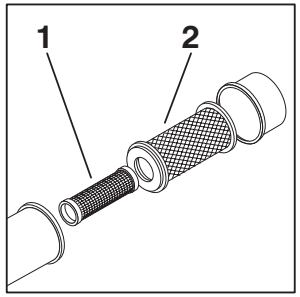
FX30 - MAINTENANCE *94*
ENGINE

Air Filter

Check

Check filter and suction hose every 50 hours for wear or holes. Check more often if working in dusty conditions.

Change

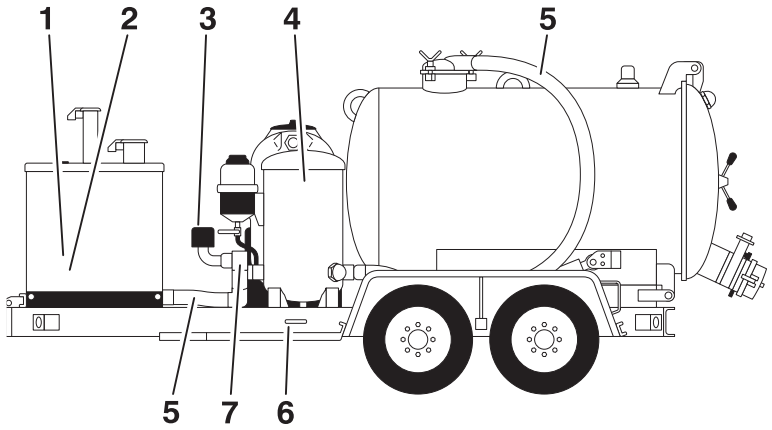


om0465h.eps

Change air filter every 250 hours.

1. Open air filter housing.
2. Remove primary and safety elements.
3. Wipe inside of housing and wash end cup.
4. Insert new primary and safety elements.
5. Close air filter case.

BLOWER

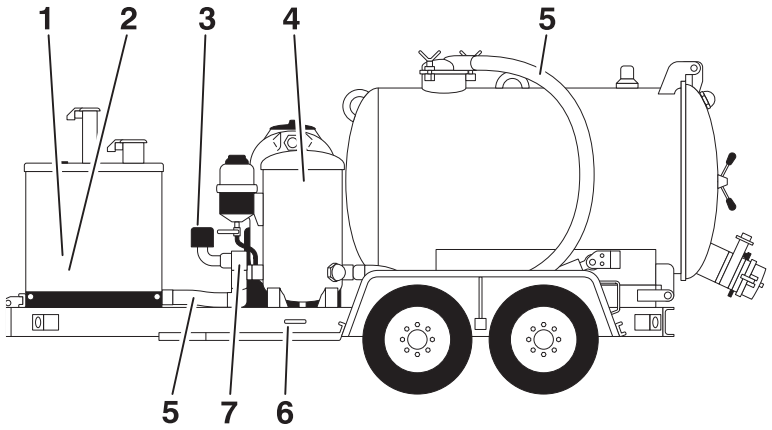


om2440a.eps

Ref.	Task	Hours
1, 2	Check blower unit	10
6	Drain vacuum air filter canister	10
4	Clean vacuum air filter	10
4, 5	Check vacuum air filter and hoses	50
7	Check relief valve	50
1, 2	Check drive components	100
3	Change relief air filter	as needed

FX30 - MAINTENANCE 95
BLOWER

BLOWER



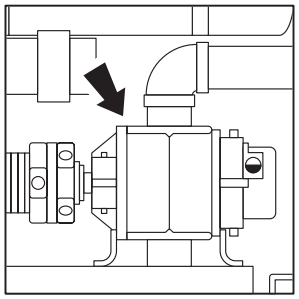
om2440a.eps

Ref.	Task	Hours
1, 2	Check blower unit	10
6	Drain vacuum air filter canister	10
4	Clean vacuum air filter	10
4, 5	Check vacuum air filter and hoses	50
7	Check relief valve	50
1, 2	Check drive components	100
3	Change relief air filter	as needed

Blower Unit

Check blower unit every 10 hours for unusual noise or vibration. If malfunction is detected:

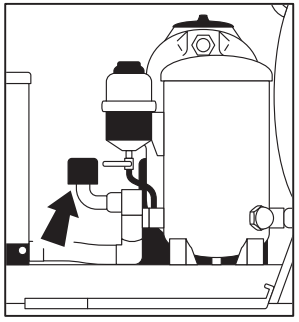
1. Stop engine.
2. Consult blower repair manual.


om2442a.eps

Relief Air Filter

Replace air filter whenever vacuum gauge goes over 15 in (381 mm) of mercury.

1. Remove clamp.
2. Remove filter and discard.
3. Install new filter.
4. Replace clamp.

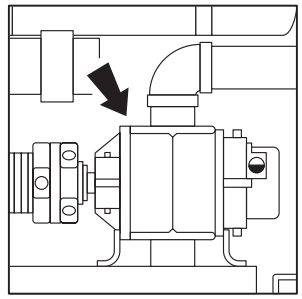

om2445a.eps

FX30 - MAINTENANCE 96
BLOWER

Blower Unit

Check blower unit every 10 hours for unusual noise or vibration. If malfunction is detected:

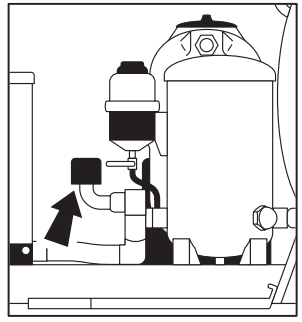
1. Stop engine.
2. Consult blower repair manual.


om2442a.eps

Relief Air Filter

Replace air filter whenever vacuum gauge goes over 15 in (381 mm) of mercury.

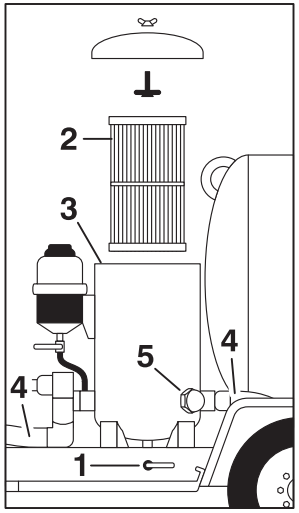
1. Remove clamp.
2. Remove filter and discard.
3. Install new filter.
4. Replace clamp.


om2445a.eps

Vacuum Air Filter

Drain

Drain filter canister at drain (1) every 10 hours or as needed. Drain when water is visible in sight glass (5).



om2443a.eps

Clean

Clean filter every 10 hours or daily. To clean filter:

1. Remove filter (2) from canister (3).
2. Clean only with low pressure water.

   NOTICE: Do not use high pressure water to clean filter. Filter will be damaged.

3. Allow filter to dry completely before returning to canister.

Check

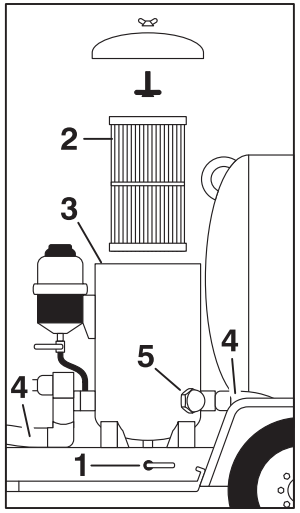
Check filter (2) and suction hose (4) every 50 hours for wear or holes. Check more often if working in dusty conditions. Clean or replace filter if necessary.

FX30 - MAINTENANCE 97
BLOWER

Vacuum Air Filter

Drain

Drain filter canister at drain (1) every 10 hours or as needed. Drain when water is visible in sight glass (5).



om2443a.eps

Clean

Clean filter every 10 hours or daily. To clean filter:

1. Remove filter (2) from canister (3).
2. Clean only with low pressure water.

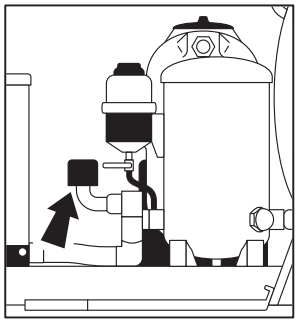
   NOTICE: Do not use high pressure water to clean filter. Filter will be damaged.

3. Allow filter to dry completely before returning to canister.

Check

Check filter (2) and suction hose (4) every 50 hours for wear or holes. Check more often if working in dusty conditions. Clean or replace filter if necessary.

Relief Valve

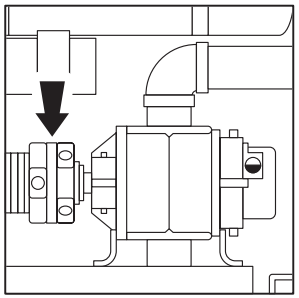

om2445a.eps

Check relief valve for proper operation every 50 hours. To check:

1. Ensure that vacuum inlet valve and drain valve are both closed.
2. Start engine. Vacuum will start to build.
3. When vacuum goes over relief, check for suction at the bottom of the relief air filter.
4. If suction is not present, stop engine and check relief valve.

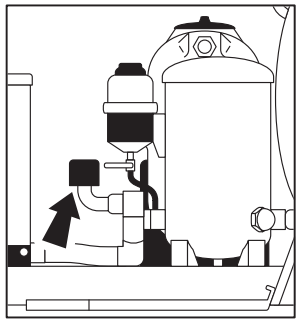
Drive Components

Check drive components every 100 hours. Adjust and tighten if necessary.


om2444a.eps

FX30 - MAINTENANCE 98
BLOWER

Relief Valve

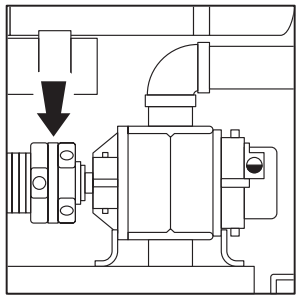

om2445a.eps

Check relief valve for proper operation every 50 hours. To check:

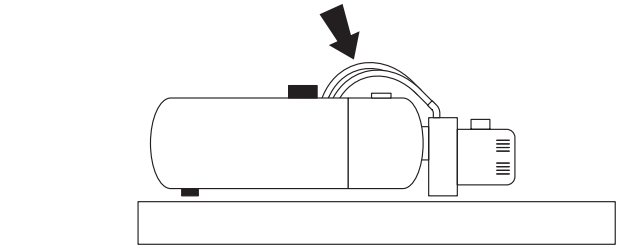
1. Ensure that vacuum inlet valve and drain valve are both closed.
2. Start engine. Vacuum will start to build.
3. When vacuum goes over relief, check for suction at the bottom of the relief air filter.
4. If suction is not present, stop engine and check relief valve.

Drive Components

Check drive components every 100 hours. Adjust and tighten if necessary.

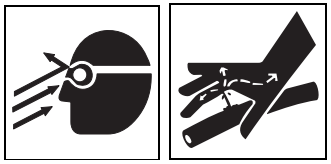

om2444a.eps

HYDRAULICS



om2446a.eps

Ref.	Task	Hours
	Check hydraulic hoses	10

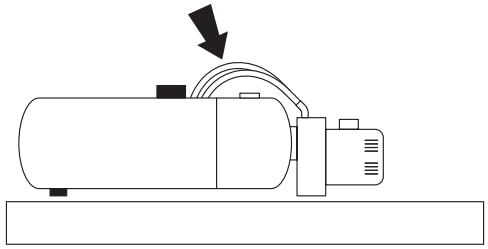


WARNING Fluid or air pressure could pierce skin and cause injury or death. Stay away.

NOTICE: Lower, block or support any raised component. Cover connection with heavy cloth and loosen connector nut slightly to relieve residual pressure. Catch all fluid in container.

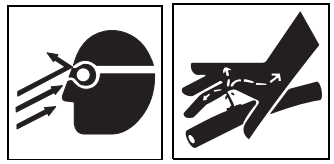
FX30 - MAINTENANCE 99
HYDRAULICS

HYDRAULICS



om2446a.eps

Ref.	Task	Hours
	Check hydraulic hoses	10



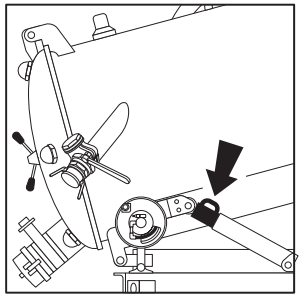
WARNING Fluid or air pressure could pierce skin and cause injury or death. Stay away.

NOTICE: Lower, block or support any raised component. Cover connection with heavy cloth and loosen connector nut slightly to relieve residual pressure. Catch all fluid in container.

Hoses

Check hoses every 10 hours for wear or damage. Replace as needed.

NOTICE: Use cylinder lockout tools (provided with unit) if hydraulic system must be serviced with tank tilted up.


om2470a.eps

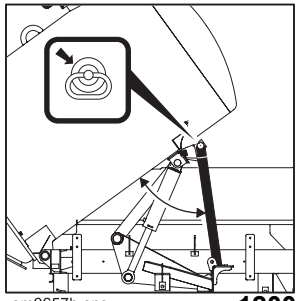
500 and 800

If 500 or 800:

- Raise vacuum tank.
- Remove cylinder lockout tool and place over extended cylinder rod.
- Lower vacuum tank until load is supported by cylinder lockout tool.

If 1200:

- Raise vacuum tank.
- Pull pin and move cylinder lockout tool down until it clicks.
- Lower vacuum tank until load is supported by cylinder lockout tool.


om0657h.eps

1200

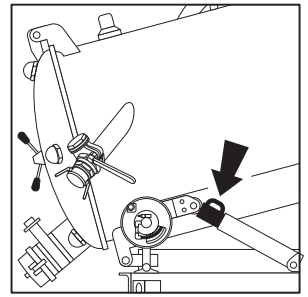
⚠WARNING Crushing weight could cause death or serious injury. Use proper procedures and equipment or stay away.

FX30 - MAINTENANCE *100*
HYDRAULICS

Hoses

Check hoses every 10 hours for wear or damage. Replace as needed.

NOTICE: Use cylinder lockout tools (provided with unit) if hydraulic system must be serviced with tank tilted up.


om2470a.eps

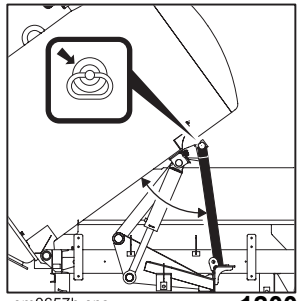
500 and 800

If 500 or 800:

- Raise vacuum tank.
- Remove cylinder lockout tool and place over extended cylinder rod.
- Lower vacuum tank until load is supported by cylinder lockout tool.

If 1200:

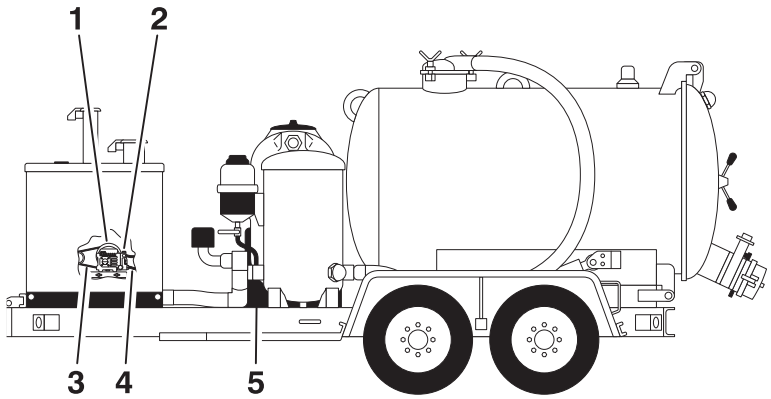
- Raise vacuum tank.
- Pull pin and move cylinder lockout tool down until it clicks.
- Lower vacuum tank until load is supported by cylinder lockout tool.


om0657h.eps

1200

⚠WARNING Crushing weight could cause death or serious injury. Use proper procedures and equipment or stay away.

WATER PUMP

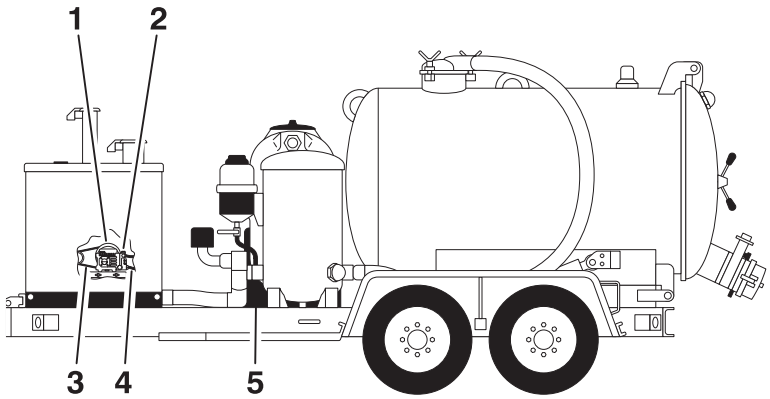


om2447a.eps

Ref.	Task	Hours
1	Check water pump unit	10
2	Check regulator	10
3	Check belt tension	10
	Check spray nozzle	10
5	Clean water pump filter	10
4	Check hoses	50
3	Replace belt	2000

FX30 - MAINTENANCE *101*
WATER PUMP

WATER PUMP



om2447a.eps

Ref.	Task	Hours
1	Check water pump unit	10
2	Check regulator	10
3	Check belt tension	10
	Check spray nozzle	10
5	Clean water pump filter	10
4	Check hoses	50
3	Replace belt	2000

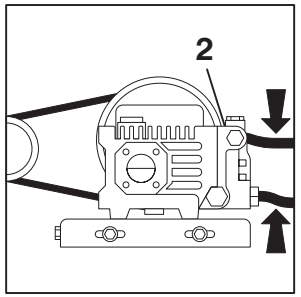
Water Pump

Check water pump unit every 10 hours for leaks, loose fittings, unusual noise or vibration. Repair if necessary.

Regulator

Check for proper operation of regulator every 10 hours. To check:

1. Start engine.
2. Connect water pressure hose to water lance.
3. Move water pressure switch to on.
4. Squeeze water lance handle. Water pump should engage.
5. Release water lance handle. Water pump should disengage.
6. If pump does not engage and disengage with movement of water lance handle, regulator (2) is not functioning properly. See water pump manual for more information.



om2448a.eps

Hoses

Check hoses every 50 hours for wear or damage. Replace as needed.

102 FX30 - MAINTENANCE
WATER PUMP

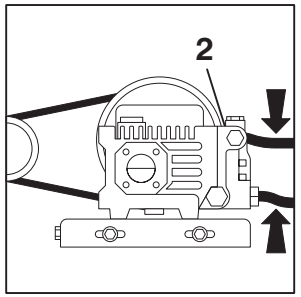
Water Pump

Check water pump unit every 10 hours for leaks, loose fittings, unusual noise or vibration. Repair if necessary.

Regulator

Check for proper operation of regulator every 10 hours. To check:

1. Start engine.
2. Connect water pressure hose to water lance.
3. Move water pressure switch to on.
4. Squeeze water lance handle. Water pump should engage.
5. Release water lance handle. Water pump should disengage.
6. If pump does not engage and disengage with movement of water lance handle, regulator (2) is not functioning properly. See water pump manual for more information.



om2448a.eps

Hoses

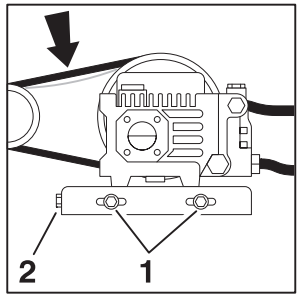
Check hoses every 50 hours for wear or damage. Replace as needed.

Belt

Check

Check belt every 10 hours for correct tension, damage or wear. Replace worn belt.

Adjust



om2449a.eps

1. Turn off engine and remove key.
2. Apply moderate thumb pressure to belt between pulleys. (shown)
3. Belt is properly tensioned when deflection is about .125-.25 in (3-6 mm).
4. If needed, loosen four bolts (1) and turn adjustment screw (2) clockwise or counterclockwise until correct tension is reached.
5. Tighten four bolts.

Replace

Replace belt every 2000 hours.

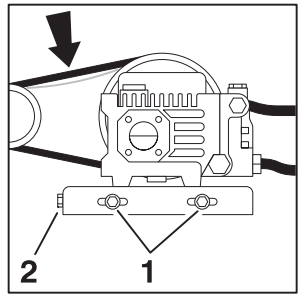
FX30 - MAINTENANCE *103*
WATER PUMP

Belt

Check

Check belt every 10 hours for correct tension, damage or wear. Replace worn belt.

Adjust



om2449a.eps

1. Turn off engine and remove key.
2. Apply moderate thumb pressure to belt between pulleys. (shown)
3. Belt is properly tensioned when deflection is about .125-.25 in (3-6 mm).
4. If needed, loosen four bolts (1) and turn adjustment screw (2) clockwise or counterclockwise until correct tension is reached.
5. Tighten four bolts.

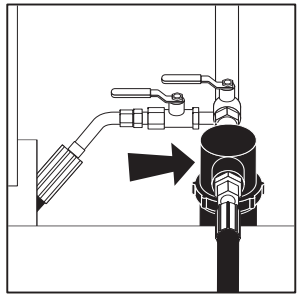
Replace

Replace belt every 2000 hours.

Filter

Clean filter every 10 hours.

1. Open filter housing.
2. Remove element and rinse thoroughly with water.
3. Replace element and close filter housing.


om0649h.eps

Spray Nozzle

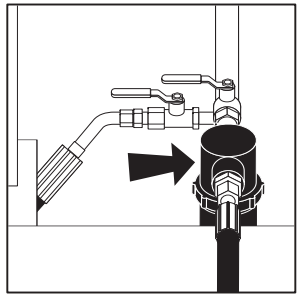
Check spray nozzle every 10 hours. Ensure that water sprays from nozzle in a fan pattern. Clean or replace nozzle as necessary.

104 FX30 - MAINTENANCE
WATER PUMP

Filter

Clean filter every 10 hours.

1. Open filter housing.
2. Remove element and rinse thoroughly with water.
3. Replace element and close filter housing.

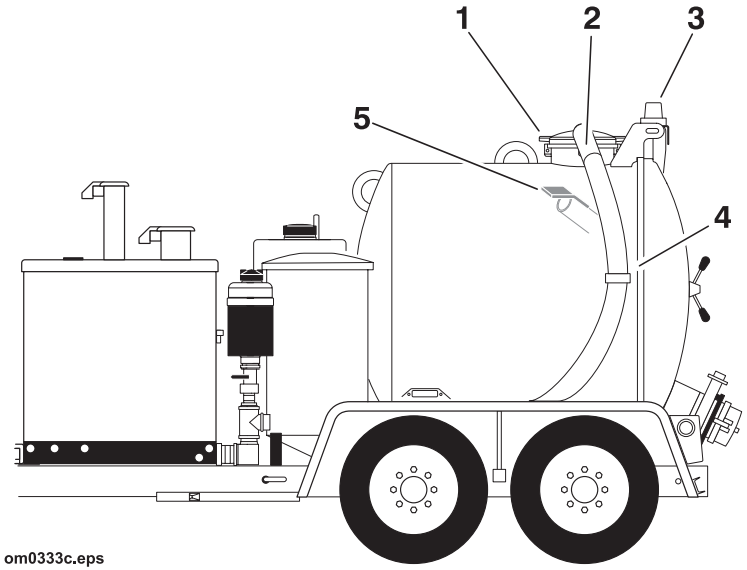

om0649h.eps

Spray Nozzle

Check spray nozzle every 10 hours. Ensure that water sprays from nozzle in a fan pattern. Clean or replace nozzle as necessary.

VACUUM TANK

500



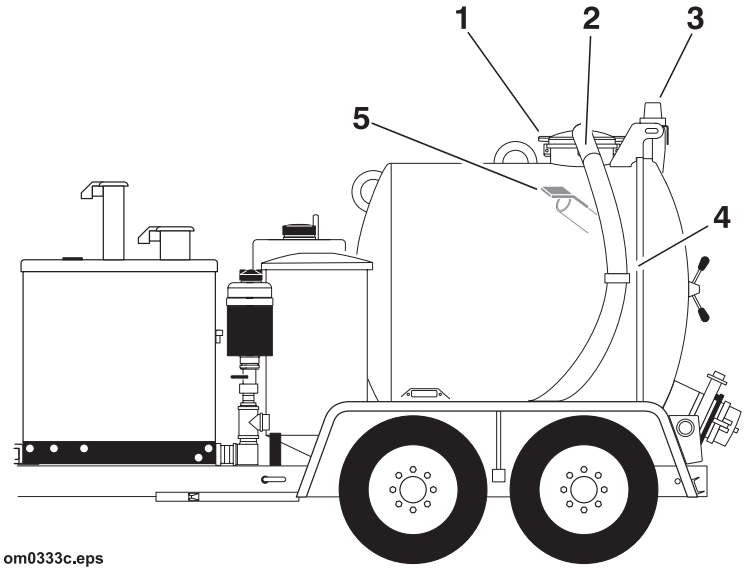
om0333c.eps

Ref.	Task	Hours
4	Check door seal and fittings	10
3	Check strobe light	10
2	Check hoses	10
5	Check tank deflector	100
1	Clean primary shutoff valve	as needed

FX30 - MAINTENANCE *105*
VACUUM TANK

VACUUM TANK

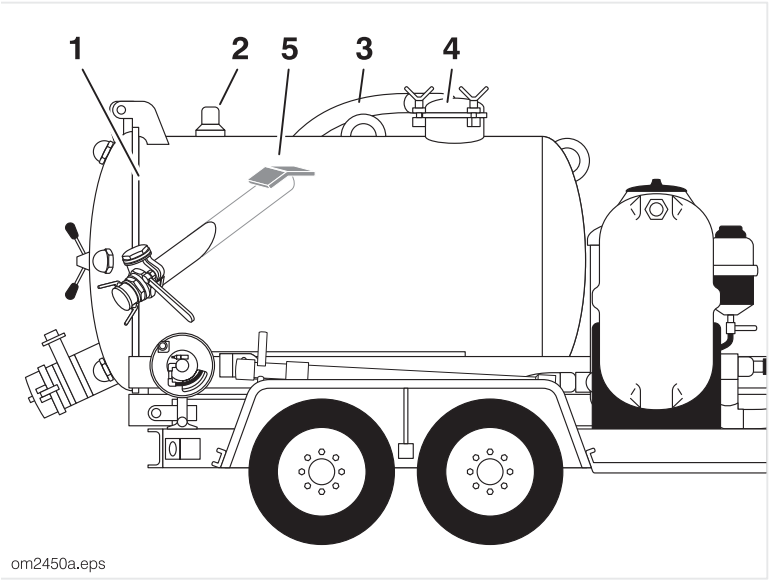
500



om0333c.eps

Ref.	Task	Hours
4	Check door seal and fittings	10
3	Check strobe light	10
2	Check hoses	10
5	Check tank deflector	100
1	Clean primary shutoff valve	as needed

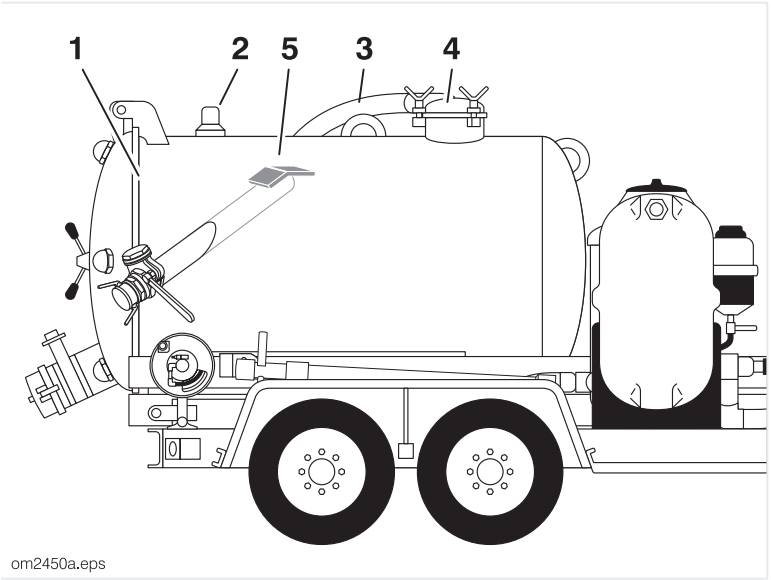
800



Ref.	Task	Hours
1	Check door seal and fittings	10
2	Check strobe light	10
3	Check hoses	10
5	Check tank deflector	100
4	Clean primary shutoff valve	as needed

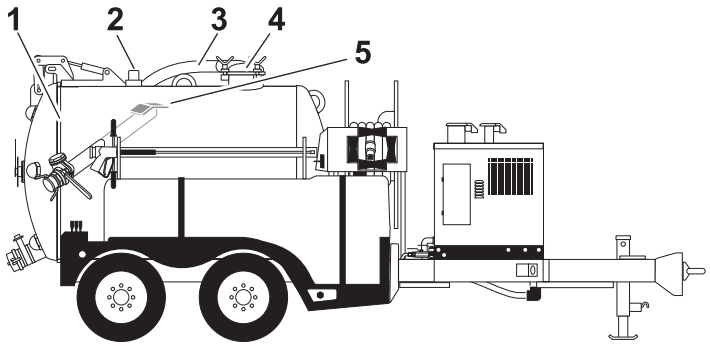
106 FX30 - MAINTENANCE
VACUUM TANK

800



Ref.	Task	Hours
1	Check door seal and fittings	10
2	Check strobe light	10
3	Check hoses	10
5	Check tank deflector	100
4	Clean primary shutoff valve	as needed

1200

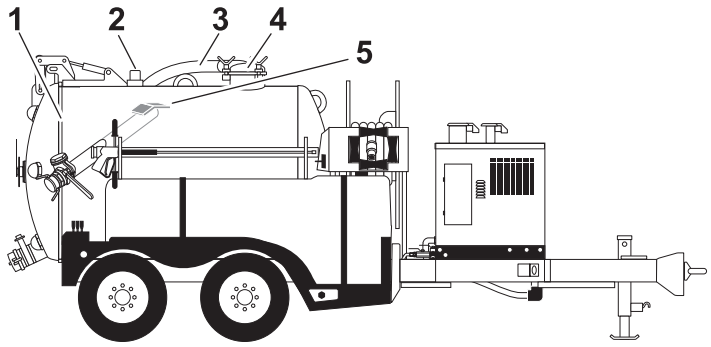


om0653h.eps

Ref.	Task	Hours
1	Check door seal and fittings	10
2	Check strobe light	10
2	Check hoses	10
5	Check tank deflector	100
4	Clean primary shutoff valve	as needed

FX30 - MAINTENANCE *107*
VACUUM TANK

1200



om0653h.eps

Ref.	Task	Hours
1	Check door seal and fittings	10
2	Check strobe light	10
2	Check hoses	10
5	Check tank deflector	100
4	Clean primary shutoff valve	as needed

Door Seal and Fittings

Check door seal every 10 hours for wear or damage. Repair if necessary.

Check for leaks and loose fittings every 10 hours. Repair or replace if necessary.

Strobe Light

Check strobe light for proper function every 10 hours. When ignition is on, strobe light should be flashing. Repair if necessary.

Hoses

Check hoses every 10 hours for wear or damage. Replace as needed.

Tank Deflector

Check tank deflector every 100 hours for wear or damage. Replace as needed.

108 FX30 - MAINTENANCE
VACUUM TANK

Door Seal and Fittings

Check door seal every 10 hours for wear or damage. Repair if necessary.

Check for leaks and loose fittings every 10 hours. Repair or replace if necessary.

Strobe Light

Check strobe light for proper function every 10 hours. When ignition is on, strobe light should be flashing. Repair if necessary.

Hoses

Check hoses every 10 hours for wear or damage. Replace as needed.

Tank Deflector

Check tank deflector every 100 hours for wear or damage. Replace as needed.

Primary Shutoff Valve

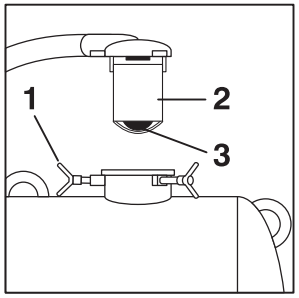
Clean primary shutoff valve as needed. Replace primary shutoff valve as needed.

To clean:

1. Start engine.
2. Open tank door. See **OPERATION** for correct procedure.
3. Connect water pressure hose to water lance.
4. Move water pressure switch to on.
5. Squeeze water lance handle and spray valve housing inside vacuum tank.
6. Release water lance handle.
7. Move water pressure switch to off.
8. Store water pressure hose.
9. Close tank door. See **OPERATION** for correct procedure.

To remove:

1. Loosen three wingnuts (1) and pull out valve housing (2).
2. Remove ball (3).
3. Clean ball and housing with high pressure water.
4. Replace ball and housing.
5. Tighten wingnuts.



om2473a.eps

FX30 - MAINTENANCE *109*
VACUUM TANK

Primary Shutoff Valve

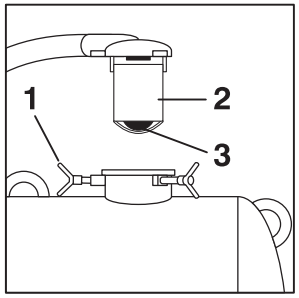
Clean primary shutoff valve as needed. Replace primary shutoff valve as needed.

To clean:

1. Start engine.
2. Open tank door. See **OPERATION** for correct procedure.
3. Connect water pressure hose to water lance.
4. Move water pressure switch to on.
5. Squeeze water lance handle and spray valve housing inside vacuum tank.
6. Release water lance handle.
7. Move water pressure switch to off.
8. Store water pressure hose.
9. Close tank door. See **OPERATION** for correct procedure.

To remove:

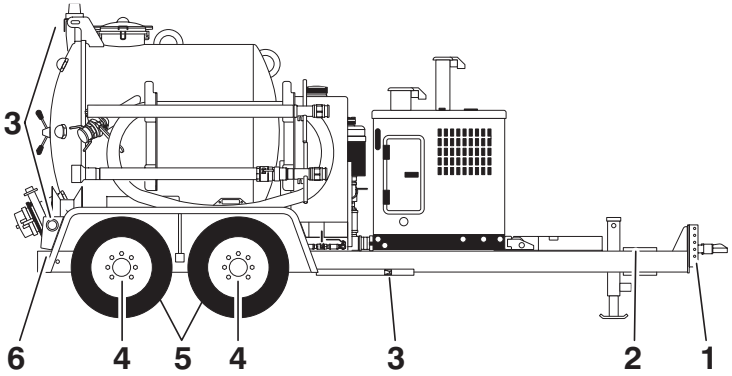
1. Loosen three wingnuts (1) and pull out valve housing (2).
2. Remove ball (3).
3. Clean ball and housing with high pressure water.
4. Replace ball and housing.
5. Tighten wingnuts.



om2473a.eps

TRAILER

500



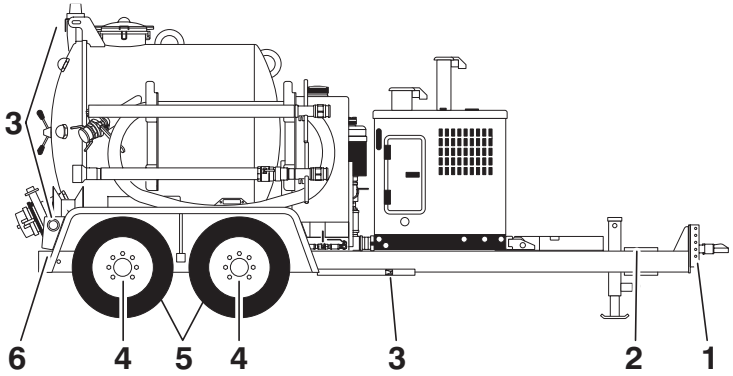
om0334c.eps

Ref.	Task	Interval
5	Check tire pressure and lug nut torques. See **SPECIFICATIONS** for correct pressure. Torque should be 95 ft•lb (129 N•m).	each use
3	Check tail lights and reflectors for correct operation and cleanliness.	
1	Check torque of drawbar bolts. Torque should be 200 ft•lb (271 N•m).	
2	Check battery charge.	
4	Adjust electric brakes (initial).	300 mi (500 km)
4	Adjust electric brakes.	every 3000 mi (5000 km)
4	Inspect brake shoes and lining.	12,000 mi (20 000 km)
4	Inspect and lubricate bearings.	
2	Test battery.	as needed

110 FX30 - MAINTENANCE
TRAILER

TRAILER

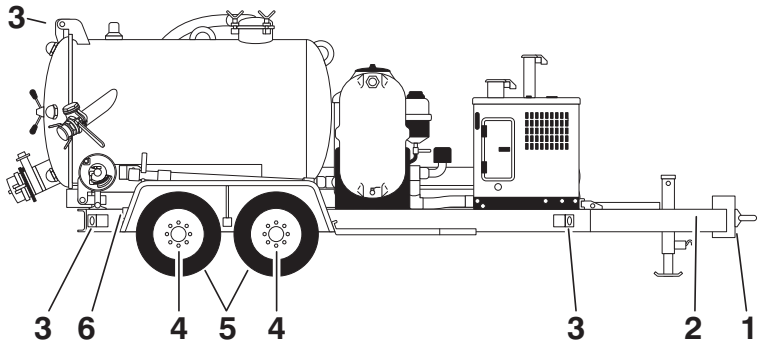
500



om0334c.eps

Ref.	Task	Interval
5	Check tire pressure and lug nut torques. See **SPECIFICATIONS** for correct pressure. Torque should be 95 ft•lb (129 N•m).	each use
3	Check tail lights and reflectors for correct operation and cleanliness.	
1	Check torque of drawbar bolts. Torque should be 200 ft•lb (271 N•m).	
2	Check battery charge.	
4	Adjust electric brakes (initial).	300 mi (500 km)
4	Adjust electric brakes.	every 3000 mi (5000 km)
4	Inspect brake shoes and lining.	12,000 mi (20 000 km)
4	Inspect and lubricate bearings.	
2	Test battery.	as needed

800

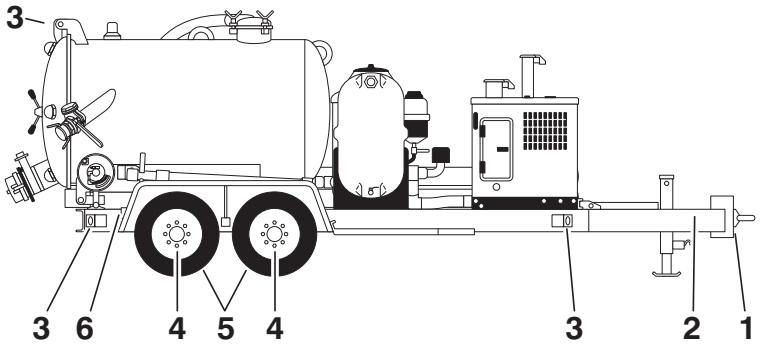


om2451a.eps

Ref.	Task	Interval
5	Check tire pressure and lug nut torques. See **SPECIFICATIONS** for correct pressure. Torque should be 300 ft•lb (407 N•m).	each use
3	Check tail lights and reflectors for correct operation and cleanliness.	
1	Check torque of drawbar bolts. Torque should be 200 ft•lb (271 N•m).	
2	Check battery charge.	
4	Adjust electric brakes (initial).	300 mi (500 km)
4	Adjust electric brakes.	every 3000 mi (5000 km)
4	Inspect brake shoes and lining.	12,000 mi (20 000 km)
4	Inspect and lubricate bearings.	
2	Test battery.	as needed

FX30 - MAINTENANCE *111*
TRAILER

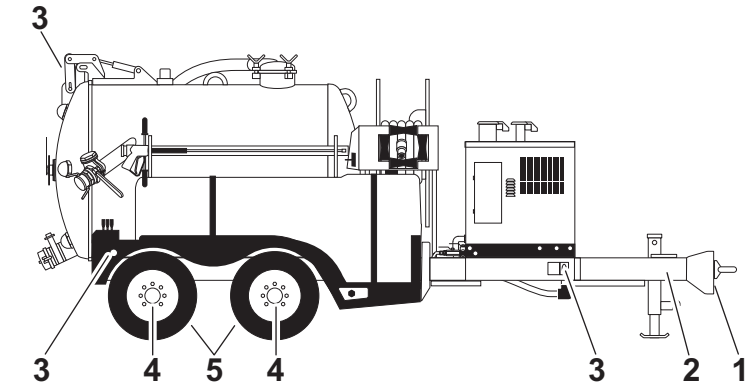
800



om2451a.eps

Ref.	Task	Interval
5	Check tire pressure and lug nut torques. See **SPECIFICATIONS** for correct pressure. Torque should be 300 ft•lb (407 N•m).	each use
3	Check tail lights and reflectors for correct operation and cleanliness.	
1	Check torque of drawbar bolts. Torque should be 200 ft•lb (271 N•m).	
2	Check battery charge.	
4	Adjust electric brakes (initial).	300 mi (500 km)
4	Adjust electric brakes.	every 3000 mi (5000 km)
4	Inspect brake shoes and lining.	12,000 mi (20 000 km)
4	Inspect and lubricate bearings.	
2	Test battery.	as needed

1200

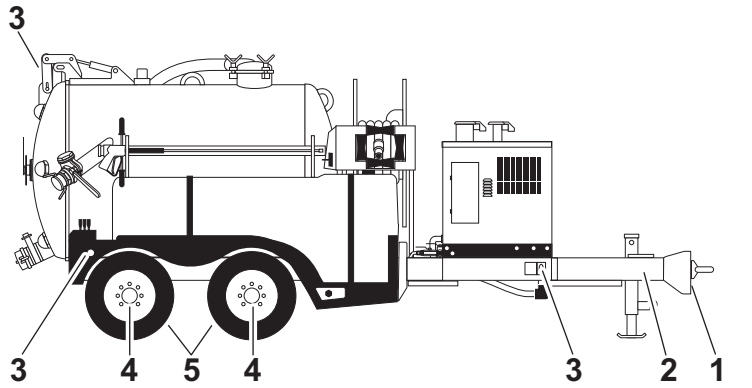


om0654h.eps

Ref.	Task	Interval
5	Check tire pressure and lug nut torques. See **SPECIFICATIONS** for correct pressure. Torque should be 200 ft•lb (271 N•m).	each use
3	Check tail lights and reflectors for correct operation and cleanliness.	
1	Check torque of drawbar bolts. Torque should be 200 ft•lb (271 N•m).	
2	Check battery charge.	
4	Inspect brake shoes and lining.	12,000 mi (20 000 km)
4	Inspect and lubricate bearings.	
2	Test battery.	as needed

112 FX30 - MAINTENANCE
TRAILER

1200



om0654h.eps

Ref.	Task	Interval
5	Check tire pressure and lug nut torques. See **SPECIFICATIONS** for correct pressure. Torque should be 200 ft•lb (271 N•m).	each use
3	Check tail lights and reflectors for correct operation and cleanliness.	
1	Check torque of drawbar bolts. Torque should be 200 ft•lb (271 N•m).	
2	Check battery charge.	
4	Inspect brake shoes and lining.	12,000 mi (20 000 km)
4	Inspect and lubricate bearings.	
2	Test battery.	as needed

Brake Shoes

Inspect shoes and linings every 12 months or 12,000 miles (20 000 km) for wear. When lining is worn to 1/16 in (2 mm) or less, replace linings. Replace shoe and lining if contaminated by oil.

Brake Adjustment

500 and 800 only

Adjust brakes after 300 miles (500 km) and then every 3000 miles (5000 km).

1. Place adequate jack stands under frame rails and remove wheels.
2. Remove cover from adjusting slot on bottom of backing plate.
3. Rotate adjuster starwheel with screwdriver or brake spoon to expand brake shoes. Adjust until drum is very difficult to turn by hand.
4. Rotate starwheel the other direction until drum turns with slight drag.
5. Replace adjusting slot cover and replace wheel.
6. Repeat procedure for all remaining brakes.
7. Remove jack stands and lower wheels to ground.

Brake Shoes

Inspect shoes and linings every 12 months or 12,000 miles (20 000 km) for wear. When lining is worn to 1/16 in (2 mm) or less, replace linings. Replace shoe and lining if contaminated by oil.

Brake Adjustment

500 and 800 only

Adjust brakes after 300 miles (500 km) and then every 3000 miles (5000 km).

1. Place adequate jack stands under frame rails and remove wheels.
2. Remove cover from adjusting slot on bottom of backing plate.
3. Rotate adjuster starwheel with screwdriver or brake spoon to expand brake shoes. Adjust until drum is very difficult to turn by hand.
4. Rotate starwheel the other direction until drum turns with slight drag.
5. Replace adjusting slot cover and replace wheel.
6. Repeat procedure for all remaining brakes.
7. Remove jack stands and lower wheels to ground.

Bearing Lubrication and Adjustment

500 and 800

Inspect and lubricate bearings every 12 months or 12,000 miles (20 000 km).

1. Place adequate jack stands under frame rails and remove wheels.
2. Remove grease cap by prying loose with screwdriver. Remove cotter pin from spindle nut. Unscrew spindle nut and remove spindle washer.
3. Slide hub off spindle. Do not drop outer bearing cone.
4. Pry seal from hub and remove inner bearing cone.
5. Clean all grease from bearing cups, cones, hardware, and hub bore using suitable solvent. Dry components with lint free cloth.
6. Inspect bearing cups and cones for pitting, spalling and corrosion. Replace if damaged.
7. Pack all cones using an extreme pressure, water resistant, lithium complex grease. Apply light coating of grease to bearing cones.
8. Install inner bearing cone into its race and tap new seal into place using a wooden block and hammer.
9. Install bearings and hub on spindle. Install spindle washer and spindle nut.
10. Rotate hub while tightening spindle nut to 50 lb•ft (68 N•m).
11. Loosen spindle nut without rotating hub and then tighten it by hand.
12. Back spindle nut out until first castellation lines up with cotter pin hole and insert cotter pin.
13. Install grease cap using soft face mallet.

Bearing Lubrication and Adjustment

500 and 800

Inspect and lubricate bearings every 12 months or 12,000 miles (20 000 km).

1. Place adequate jack stands under frame rails and remove wheels.
2. Remove grease cap by prying loose with screwdriver. Remove cotter pin from spindle nut. Unscrew spindle nut and remove spindle washer.
3. Slide hub off spindle. Do not drop outer bearing cone.
4. Pry seal from hub and remove inner bearing cone.
5. Clean all grease from bearing cups, cones, hardware, and hub bore using suitable solvent. Dry components with lint free cloth.
6. Inspect bearing cups and cones for pitting, spalling and corrosion. Replace if damaged.
7. Pack all cones using an extreme pressure, water resistant, lithium complex grease. Apply light coating of grease to bearing cones.
8. Install inner bearing cone into its race and tap new seal into place using a wooden block and hammer.
9. Install bearings and hub on spindle. Install spindle washer and spindle nut.
10. Rotate hub while tightening spindle nut to 50 lb•ft (68 N•m).
11. Loosen spindle nut without rotating hub and then tighten it by hand.
12. Back spindle nut out until first castellation lines up with cotter pin hole and insert cotter pin.
13. Install grease cap using soft face mallet.

1200

1. Place adequate jack stands under frame rails and remove wheels.
2. Unscrew grease cap counterclockwise while hold the hub stationary.
3. Bend locking tang down from outer spindle nut and remove spindle nut.
4. Remove tang washer, unscrew inner spindle nut and remove spindle washer.
5. Remove hub from spindle. Do not drop outer bearing cone.
6. Pry seal from hub and remove inner bearing cone.
7. Inspect brake drum for excessive wear or heavy scoring.

Condition	Recommended Action
Brake drum worn more than .020 in (5 mm).	Remachine drum surface
Brake drum worn out of round more than .015 in (.39 mm).	
Brake drum has scoring and other wear greater than .090 in (2.29 mm)	Replace drum

8. Clean all grease from bearing cups, cones, hardware, and hub bore using suitable solvent. Dry components with lint free cloth.
9. Inspect bearing cups and cones for pitting, spalling, and corrosion. Replace if damaged.
10. Pack all cones using and extreme pressure, water resistant lithium complex grease. Apply light coating of grease to gearing cones.
11. Install the bearing and washer into the hub. Thread on the inner nut, rotate the hub, and tighten the nut until the hub will not rotate. This requires a minimum of 100 ft•lb (136 N•m) of torque.

FX30 - MAINTENANCE *115*
TRAILER

1200

1. Place adequate jack stands under frame rails and remove wheels.
2. Unscrew grease cap counterclockwise while hold the hub stationary.
3. Bend locking tang down from outer spindle nut and remove spindle nut.
4. Remove tang washer, unscrew inner spindle nut and remove spindle washer.
5. Remove hub from spindle. Do not drop outer bearing cone.
6. Pry seal from hub and remove inner bearing cone.
7. Inspect brake drum for excessive wear or heavy scoring.

Condition	Recommended Action
Brake drum worn more than .020 in (5 mm).	Remachine drum surface
Brake drum worn out of round more than .015 in (.39 mm).	
Brake drum has scoring and other wear greater than .090 in (2.29 mm)	Replace drum

8. Clean all grease from bearing cups, cones, hardware, and hub bore using suitable solvent. Dry components with lint free cloth.
9. Inspect bearing cups and cones for pitting, spalling, and corrosion. Replace if damaged.
10. Pack all cones using and extreme pressure, water resistant lithium complex grease. Apply light coating of grease to gearing cones.
11. Install the bearing and washer into the hub. Thread on the inner nut, rotate the hub, and tighten the nut until the hub will not rotate. This requires a minimum of 100 ft•lb (136 N•m) of torque.

12. Loosen the nut to remove preload torque.
13. Hand tighten the nut and back it off 1/4 to 3/4 of a turn.
14. Place tang washer on spindle and bend one tang inward over the nut. This will keep the inner nut from turning while torque is applied to the outer nut.
15. Install the outer nut and torque to 225-250 ft•lb (305-309 N•m). Ensure that inner nut does not turn. Bend two tangs from the tang washer over the outer flats to secure.
16. Install cap with o-ring and plug installed. Rotate the hub and check bearing adjustment. Allowable end play is .001 in-.010 in (.025-.25 mm).

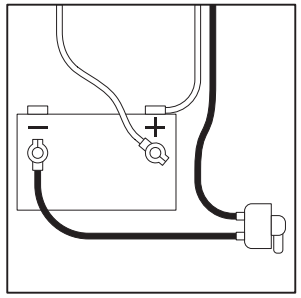
116 FX30 - MAINTENANCE
TRAILER

12. Loosen the nut to remove preload torque.
13. Hand tighten the nut and back it off 1/4 to 3/4 of a turn.
14. Place tang washer on spindle and bend one tang inward over the nut. This will keep the inner nut from turning while torque is applied to the outer nut.
15. Install the outer nut and torque to 225-250 ft•lb (305-309 N•m). Ensure that inner nut does not turn. Bend two tangs from the tang washer over the outer flats to secure.
16. Install cap with o-ring and plug installed. Rotate the hub and check bearing adjustment. Allowable end play is .001 in-.010 in (.025-.25 mm).

ELECTRICAL

Battery

Check battery connections for wear or corrosion. Keep connections clean and tight. Batteries supplied by factory are maintenance-free. Service replacement batteries according to manufacturer’s instructions.



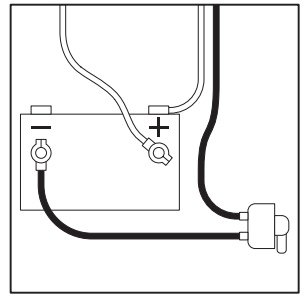
om2366a.eps

FX30 - MAINTENANCE *117*
ELECTRICAL

ELECTRICAL

Battery

Check battery connections for wear or corrosion. Keep connections clean and tight. Batteries supplied by factory are maintenance-free. Service replacement batteries according to manufacturer’s instructions.

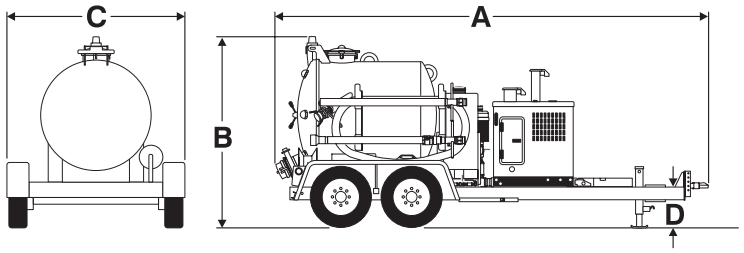


om2366a.eps

118 FX30 - MAINTENANCE

SPECIFICATIONS

500



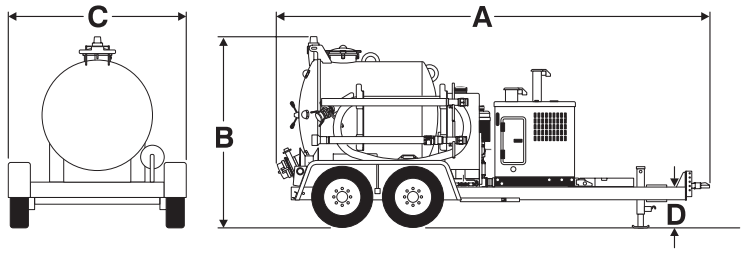
om2465a.eps

Dimensions	U.S.	Metric
(A) Length	200 in	5.1 m
(B) Height	91 in	2.3 m
(C) Width	96 in	2.2 m
(D) Deck height	19 in	483 mm
Dry weight	5400 lb	3718 kg
Weight with full tanks (water)	9950 lb	4523 kg
Tank	**U.S.**	**Metric**
Capacity	500 gal	1893 L
Length	66 in	1.68 m
Diameter	50 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm

FX30 - SPECIFICATIONS *119*
500

SPECIFICATIONS

500



om2465a.eps

Dimensions	U.S.	Metric
(A) Length	200 in	5.1 m
(B) Height	91 in	2.3 m
(C) Width	96 in	2.2 m
(D) Deck height	19 in	483 mm
Dry weight	5400 lb	3718 kg
Weight with full tanks (water)	9950 lb	4523 kg
Tank	**U.S.**	**Metric**
Capacity	500 gal	1893 L
Length	66 in	1.68 m
Diameter	50 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm

Engine		U.S.	Metric
Engine: Kubota D1105-ES diesel			
	Cooling medium	antifreeze, see **MAINTENANCE** for more information	
	Injection	1991 lbf/in^2	140 kgf/cm^2
	Number of cylinders	3	
	Displacement	68.6 in^3	1123 cm^3
	Bore	3.07 in	7.70 cm
	Stroke	3.09 in	7.86 cm
	*Maximum tilt angle fore & aft	30°	30°
	*Maximum tilt angle side	30°	30°
Engine manufacturer's gross power rating @ 3150 rpm		26 hp	19.4 kW
Maximum governed speed as installed (no load)		3160 rpm	3160 rpm
Flywheel power (full load)		22 hp	16.4 kW
Hydraulic tilt system		**U.S.**	**Metric**
Pressure		2500 psi	172 bar
Drive type		12 volt DC power	
Cylinder size (2)		3 in	76 mm
Maximum tilt angle		45°	45°
Time to tilt fully up		44 sec	44 sec
Time to tilt fully down		38 sec	38 sec
Battery: SAE cold crank @ 0°F (-18°C) 800 amp, 12 volt			
Noise Levels			
Operator 73 dBA sound pressure per ISO 6394, at operator ear 10 ft (3 m) behind vacuum tank. Exterior 103 dBA sound power per ISO 6393, at vacuum relief.			

*Exceeding these operating angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.

120 FX30 - SPECIFICATIONS
500

Engine		U.S.	Metric
Engine: Kubota D1105-ES diesel			
	Cooling medium	antifreeze, see **MAINTENANCE** for more information	
	Injection	1991 lbf/in^2	140 kgf/cm^2
	Number of cylinders	3	
	Displacement	68.6 in^3	1123 cm^3
	Bore	3.07 in	7.70 cm
	Stroke	3.09 in	7.86 cm
	*Maximum tilt angle fore & aft	30°	30°
	*Maximum tilt angle side	30°	30°
Engine manufacturer's gross power rating @ 3150 rpm		26 hp	19.4 kW
Maximum governed speed as installed (no load)		3160 rpm	3160 rpm
Flywheel power (full load)		22 hp	16.4 kW
Hydraulic tilt system		**U.S.**	**Metric**
Pressure		2500 psi	172 bar
Drive type		12 volt DC power	
Cylinder size (2)		3 in	76 mm
Maximum tilt angle		45°	45°
Time to tilt fully up		44 sec	44 sec
Time to tilt fully down		38 sec	38 sec
Battery: SAE cold crank @ 0°F (-18°C) 800 amp, 12 volt			
Noise Levels			
Operator 73 dBA sound pressure per ISO 6394, at operator ear 10 ft (3 m) behind vacuum tank. Exterior 103 dBA sound power per ISO 6393, at vacuum relief.			

*Exceeding these operating angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.

Vacuum system	**U.S.**	**Metric**
Drive type	direct drive	
Displacement	500 cfm	14.1 m^3/min
Maximum vacuum	15 in Hg	380 mm Hg
Vacuum tank door diameter	52 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm
Primary shutoff valve size	12 in	305 mm
Filter type	washable polyester	
Filter area	100 ft^2	9.3 m^2
Water trap capacity	8 gal	30.3 L
Suction hose size	3 in	76 mm
Suction hose length (total)	50 ft	15.25 m
Water pump system	**U.S.**	**Metric**
Maximum pressure	3000 psi	207 bar
Flow	4.2 gpm	15.9 L/min
Hose reel capacity with water lance	50 ft	15.2 m
Antifreeze	50/50 antifreeze/fresh water	
Clutch type	electric with auto de-clutch	
Fluid capacities	**U.S.**	**Metric**
Engine oil with filter	4.2 qt	4 L
Fuel tank	15 gal	57 L
Vacuum pump	22.8 oz	674 mL
DC hydraulic reservoir	2.5 gal	9.5 L
Water pump	14 oz	414 mL
Water tank	80 gal	303 L

FX30 - SPECIFICATIONS *121*
500

Vacuum system	**U.S.**	**Metric**
Drive type	direct drive	
Displacement	500 cfm	14.1 m^3/min
Maximum vacuum	15 in Hg	380 mm Hg
Vacuum tank door diameter	52 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm
Primary shutoff valve size	12 in	305 mm
Filter type	washable polyester	
Filter area	100 ft^2	9.3 m^2
Water trap capacity	8 gal	30.3 L
Suction hose size	3 in	76 mm
Suction hose length (total)	50 ft	15.25 m
Water pump system	**U.S.**	**Metric**
Maximum pressure	3000 psi	207 bar
Flow	4.2 gpm	15.9 L/min
Hose reel capacity with water lance	50 ft	15.2 m
Antifreeze	50/50 antifreeze/fresh water	
Clutch type	electric with auto de-clutch	
Fluid capacities	**U.S.**	**Metric**
Engine oil with filter	4.2 qt	4 L
Fuel tank	15 gal	57 L
Vacuum pump	22.8 oz	674 mL
DC hydraulic reservoir	2.5 gal	9.5 L
Water pump	14 oz	414 mL
Water tank	80 gal	303 L

Trailer		U.S.	Metric
Dimensions			
	Bed length	134 in	3.4 m
	Clearance (at jack foot pad)	12 in	305 mm
	Adj. coupler heights	18-24 in	457-610 mm
	Width between fenders	76 in	1.9 m
	Width outside fenders	96 in	2.4 m
	Bed height (at full load)	17.5 in	445 mm
General			
	Number of axles	2	
	Coupler (square mount drawbar)	3 in or 2.5 in	76 mm or 64 mm
	Type of brakes	electric	
	Lug nut torque	95 ft•lb	129 N•m
	Hitch bolt torque	200 ft•lb	271 N•m
	Electrical system	12 volt DC	
Tire			
	LT215/85R16 load range E	80 psi	5.5 bar
Load Rating			
	Tongue weight (empty)	1200 lb	545 kg
	Tongue weight (full water)	1250 lb	568 kg
	Max. tongue load	1500 lb	682 kg
	GVWR (gross vehicle weight rating)	9950 lb	4523 kg
	GAWR (gross axle weight rating)	9000 lb	4091 kg

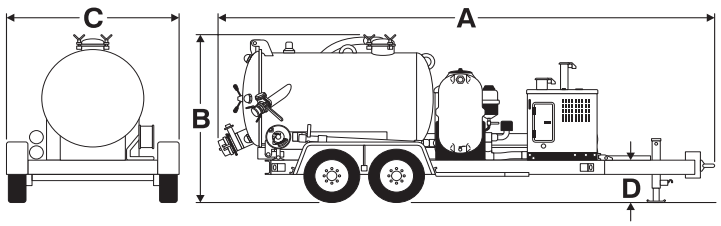
Load ratings for speeds up to 65 mph (104 km/h).

122 FX30 - SPECIFICATIONS
500

Trailer		U.S.	Metric
Dimensions			
	Bed length	134 in	3.4 m
	Clearance (at jack foot pad)	12 in	305 mm
	Adj. coupler heights	18-24 in	457-610 mm
	Width between fenders	76 in	1.9 m
	Width outside fenders	96 in	2.4 m
	Bed height (at full load)	17.5 in	445 mm
General			
	Number of axles	2	
	Coupler (square mount drawbar)	3 in or 2.5 in	76 mm or 64 mm
	Type of brakes	electric	
	Lug nut torque	95 ft•lb	129 N•m
	Hitch bolt torque	200 ft•lb	271 N•m
	Electrical system	12 volt DC	
Tire			
	LT215/85R16 load range E	80 psi	5.5 bar
Load Rating			
	Tongue weight (empty)	1200 lb	545 kg
	Tongue weight (full water)	1250 lb	568 kg
	Max. tongue load	1500 lb	682 kg
	GVWR (gross vehicle weight rating)	9950 lb	4523 kg
	GAWR (gross axle weight rating)	9000 lb	4091 kg

Load ratings for speeds up to 65 mph (104 km/h).

800

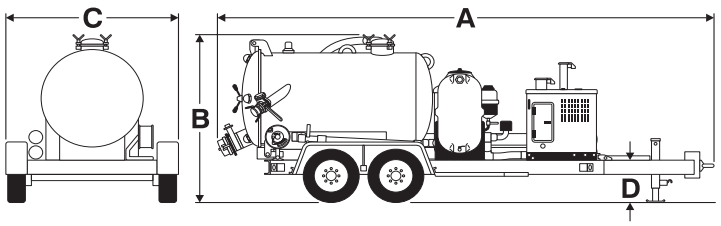


om2465a.eps

Dimensions	**U.S.**	**Metric**
(A) Length	233 in	5.9 m
(B) Height	92 in	2.3 m
(C) Width	100.5 in	2.55 m
(D) Deck height	23 in	584 mm
Dry weight	8190 lb	3715 kg
Weight with full tanks (water)	14,940 lb	6777 kg
Tank	**U.S.**	**Metric**
Capacity	800 gal	3028 L
Length	98 in	2.5 m
Diameter	50 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm

FX30 - SPECIFICATIONS *123*
800

800



om2465a.eps

Dimensions	**U.S.**	**Metric**
(A) Length	233 in	5.9 m
(B) Height	92 in	2.3 m
(C) Width	100.5 in	2.55 m
(D) Deck height	23 in	584 mm
Dry weight	8190 lb	3715 kg
Weight with full tanks (water)	14,940 lb	6777 kg
Tank	**U.S.**	**Metric**
Capacity	800 gal	3028 L
Length	98 in	2.5 m
Diameter	50 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm

Engine		U.S.	Metric
Engine: Kubota D1105-B diesel			
	Cooling medium	antifreeze, see **MAINTENANCE** for more information	
	Injection	1991 lbf/in^2	140 kgf/cm^2
	Number of cylinders	3	
	Displacement	68.53 in^3	1123 cm^3
	Bore	3.07 in	7.70 cm
	Stroke	3.09 in	7.86 cm
	*Maximum tilt angle fore & aft	30°	30°
	*Maximum tilt angle side	30°	30°
Engine manufacturer's gross power rating @ 3150 rpm		28 hp	20.9 kW
Maximum governed speed as installed (no load)		3160 rpm	3160 rpm
Flywheel power (full load)		22 hp	16.4 kW
Hydraulic tilt system		**U.S.**	**Metric**
Pressure		2500 psi	172 bar
Drive type		12 volt DC power	
Cylinder size (2)		3 in	76 mm
Maximum tilt angle		45°	45°
Time to tilt fully up		44 sec	44 sec
Time to tilt fully down		38 sec	38 sec
Battery: SAE cold crank @ 0°F (-18°C) 800 amp, 12 volt			
Noise Levels			
Operator 73 dBA sound pressure per ISO 6394, at operator ear 10 ft (3 m) behind vacuum tank. Exterior 103 dBA sound power per ISO 6393, at vacuum relief.			

*Exceeding these operating angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.

124 FX30 - SPECIFICATIONS
800

Engine		U.S.	Metric
Engine: Kubota D1105-B diesel			
	Cooling medium	antifreeze, see **MAINTENANCE** for more information	
	Injection	1991 lbf/in^2	140 kgf/cm^2
	Number of cylinders	3	
	Displacement	68.53 in^3	1123 cm^3
	Bore	3.07 in	7.70 cm
	Stroke	3.09 in	7.86 cm
	*Maximum tilt angle fore & aft	30°	30°
	*Maximum tilt angle side	30°	30°
Engine manufacturer's gross power rating @ 3150 rpm		28 hp	20.9 kW
Maximum governed speed as installed (no load)		3160 rpm	3160 rpm
Flywheel power (full load)		22 hp	16.4 kW
Hydraulic tilt system		**U.S.**	**Metric**
Pressure		2500 psi	172 bar
Drive type		12 volt DC power	
Cylinder size (2)		3 in	76 mm
Maximum tilt angle		45°	45°
Time to tilt fully up		44 sec	44 sec
Time to tilt fully down		38 sec	38 sec
Battery: SAE cold crank @ 0°F (-18°C) 800 amp, 12 volt			
Noise Levels			
Operator 73 dBA sound pressure per ISO 6394, at operator ear 10 ft (3 m) behind vacuum tank. Exterior 103 dBA sound power per ISO 6393, at vacuum relief.			

*Exceeding these operating angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.

Vacuum system	**U.S.**	**Metric**
Drive type	direct drive	
Displacement	500 cfm	14.1 m^3/min
Maximum vacuum	15 in Hg	380 mm Hg
Vacuum tank door diameter	52 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm
Primary shutoff valve size	12 in	305 mm
Filter type	washable polyester	
Filter area	100 ft^2	9.3 m^2
Water trap capacity	8 gal	30.3 L
Suction hose size	3 in	76 mm
Suction hose length (total)	30 ft	9.1 m
Water pump system	**U.S.**	**Metric**
Maximum pressure	3000 psi	207 bar
Flow	4.2 gpm	15.9 L/min
Hose reel capacity with water lance	50 ft	15.2 m
Antifreeze	50/50 antifreeze/fresh water	
Clutch type	electric with auto de-clutch	
Fluid capacities	**U.S.**	**Metric**
Engine oil with filter	4.2 qt	4 L
Fuel tank	15 gal	57 L
Vacuum pump	22.8 oz	674 mL
DC hydraulic reservoir	2.5 gal	9.5 L
Water pump	14 oz	414 mL
Water tank	200 gal	757 L

FX30 - SPECIFICATIONS *125*
800

Vacuum system	**U.S.**	**Metric**
Drive type	direct drive	
Displacement	500 cfm	14.1 m^3/min
Maximum vacuum	15 in Hg	380 mm Hg
Vacuum tank door diameter	52 in	1.3 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm
Primary shutoff valve size	12 in	305 mm
Filter type	washable polyester	
Filter area	100 ft^2	9.3 m^2
Water trap capacity	8 gal	30.3 L
Suction hose size	3 in	76 mm
Suction hose length (total)	30 ft	9.1 m
Water pump system	**U.S.**	**Metric**
Maximum pressure	3000 psi	207 bar
Flow	4.2 gpm	15.9 L/min
Hose reel capacity with water lance	50 ft	15.2 m
Antifreeze	50/50 antifreeze/fresh water	
Clutch type	electric with auto de-clutch	
Fluid capacities	**U.S.**	**Metric**
Engine oil with filter	4.2 qt	4 L
Fuel tank	15 gal	57 L
Vacuum pump	22.8 oz	674 mL
DC hydraulic reservoir	2.5 gal	9.5 L
Water pump	14 oz	414 mL
Water tank	200 gal	757 L

Trailer		U.S.	Metric
Dimensions			
	Bed length	177.3 in	4.5 m
	Clearance (at jack foot pad)	12 in	305 mm
	Adj. coupler heights	17-26 in	432-660 mm
	Width between fenders	80.5 in	2 m
	Width outside fenders	100.5 in	2.6 m
	Bed height (at full load)	22.3 in	566 mm
General			
	Number of axles	2	
	Coupler (square mount drawbar)	3 in or 2.5 in	76 mm or 64 mm
	Type of brakes	electric	
	Lug nut torque	300 ft•lb	407 N•m
	Hitch bolt torque	200 ft•lb	271 N•m
	Electrical system	12 volt DC	
Tire			
	LT215/75R17.5 load range H	125 psi	8.6 bar

126 FX30 - SPECIFICATIONS
800

Trailer		U.S.	Metric
Dimensions			
	Bed length	177.3 in	4.5 m
	Clearance (at jack foot pad)	12 in	305 mm
	Adj. coupler heights	17-26 in	432-660 mm
	Width between fenders	80.5 in	2 m
	Width outside fenders	100.5 in	2.6 m
	Bed height (at full load)	22.3 in	566 mm
General			
	Number of axles	2	
	Coupler (square mount drawbar)	3 in or 2.5 in	76 mm or 64 mm
	Type of brakes	electric	
	Lug nut torque	300 ft•lb	407 N•m
	Hitch bolt torque	200 ft•lb	271 N•m
	Electrical system	12 volt DC	
Tire			
	LT215/75R17.5 load range H	125 psi	8.6 bar

Load Rating			
	Tongue weight (empty)	1930 lb	876 kg
	Tongue weight (full water)	1440 lb	654 kg
	Max. tongue load	2700 lb	1225 kg
	GVWR (gross vehicle weight rating)	18,000 lb	8165 kg
	GAWR (gross axle weight rating)	16,000 lb	7257 kg
	MLWR (max load weight rating @ max tongue load)	14,125 lb	6407 kg

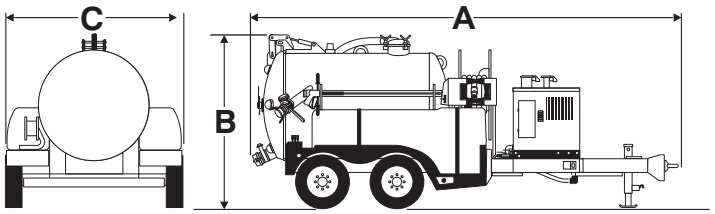
Load ratings for speeds up to 65 mph (104 km/h).

FX30 - SPECIFICATIONS *127*
800

Load Rating			
	Tongue weight (empty)	1930 lb	876 kg
	Tongue weight (full water)	1440 lb	654 kg
	Max. tongue load	2700 lb	1225 kg
	GVWR (gross vehicle weight rating)	18,000 lb	8165 kg
	GAWR (gross axle weight rating)	16,000 lb	7257 kg
	MLWR (max load weight rating @ max tongue load)	14,125 lb	6407 kg

Load ratings for speeds up to 65 mph (104 km/h).

1200

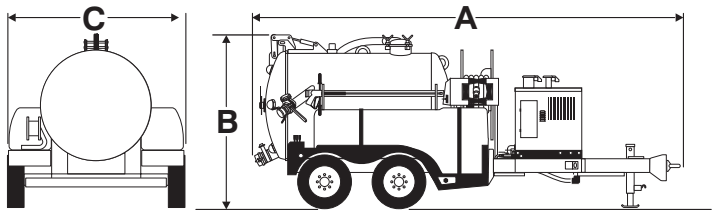


om0655h.eps

Dimensions	U.S.	Metric
(A) Length	245 in	6.2 m
(B) Height	99 in	2.5 m
(C) Width	100.5 in	2.55 m
Dry weight	9440 lb	4282 kg
Weight with full tanks (water)	22,440 lb	10 179 kg
Tank	**U.S.**	**Metric**
Capacity	1200 gal	4542 L
Length	106 in	2.7 m
Diameter	60 in	1.5 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm

128 FX30 - SPECIFICATIONS
1200

1200



om0655h.eps

Dimensions	U.S.	Metric
(A) Length	245 in	6.2 m
(B) Height	99 in	2.5 m
(C) Width	100.5 in	2.55 m
Dry weight	9440 lb	4282 kg
Weight with full tanks (water)	22,440 lb	10 179 kg
Tank	**U.S.**	**Metric**
Capacity	1200 gal	4542 L
Length	106 in	2.7 m
Diameter	60 in	1.5 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm

Engine		**U.S.**	**Metric**
Engine: Kubota D1105-B diesel			
	Cooling medium	antifreeze, see **MAINTENANCE** for more information	
	Injection	1991 lbf/in^2	140 kgf/cm^2
	Number of cylinders	3	
	Displacement	68.53 in^3	1123 cm^3
	Bore	3.07 in	7.70 cm
	Stroke	3.09 in	7.86 cm
	*Maximum tilt angle fore & aft	30°	30°
	*Maximum tilt angle side	30°	30°
Engine manufacturer's gross power rating @ 3150 rpm		28 hp	20.9 kW
Maximum governed speed as installed (no load)		3160 rpm	3160 rpm
Flywheel power (full load)		22 hp	16.4 kW
Hydraulic system		**U.S.**	**Metric**
Pressure		2500 psi	172 bar
Drive type		12 volt DC power	
Tank lift cylinder size (1)		4 in	102 mm
Maximum tilt angle		50°	50°
Time to tilt fully up (empty)		28 seconds	28 seconds
Time to tilt fully down (empty)		23 seconds	23 seconds
Battery: SAE cold crank @ 0°F (-18°C) 800 amp, 12 volt			
Noise Levels			
Operator 79 dBA sound pressure per ISO 6394, at operator ear 10 ft (3 m) behind vacuum tank. Exterior 105 dBA sound power per ISO 6393, at vacuum relief.			

*Exceeding these operating angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.

FX30 - SPECIFICATIONS **129**
1200

Engine		**U.S.**	**Metric**
Engine: Kubota D1105-B diesel			
	Cooling medium	antifreeze, see **MAINTENANCE** for more information	
	Injection	1991 lbf/in^2	140 kgf/cm^2
	Number of cylinders	3	
	Displacement	68.53 in^3	1123 cm^3
	Bore	3.07 in	7.70 cm
	Stroke	3.09 in	7.86 cm
	*Maximum tilt angle fore & aft	30°	30°
	*Maximum tilt angle side	30°	30°
Engine manufacturer's gross power rating @ 3150 rpm		28 hp	20.9 kW
Maximum governed speed as installed (no load)		3160 rpm	3160 rpm
Flywheel power (full load)		22 hp	16.4 kW
Hydraulic system		**U.S.**	**Metric**
Pressure		2500 psi	172 bar
Drive type		12 volt DC power	
Tank lift cylinder size (1)		4 in	102 mm
Maximum tilt angle		50°	50°
Time to tilt fully up (empty)		28 seconds	28 seconds
Time to tilt fully down (empty)		23 seconds	23 seconds
Battery: SAE cold crank @ 0°F (-18°C) 800 amp, 12 volt			
Noise Levels			
Operator 79 dBA sound pressure per ISO 6394, at operator ear 10 ft (3 m) behind vacuum tank. Exterior 105 dBA sound power per ISO 6393, at vacuum relief.			

*Exceeding these operating angles will cause engine damage. This DOES NOT IMPLY machine is stable to maximum angle of safe engine operation.

Vacuum system	U.S.	Metric
Drive type	direct drive	
Displacement	500 cfm	14.1 m^3/min
Maximum vacuum	15 in Hg	380 mm Hg
Vacuum tank door diameter	60 in	1.5 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm
Primary shutoff valve size	12 in	305 mm
Filter type	washable polyester	
Filter area	100 ft^2	9.3 m^2
Water trap capacity	8 gal	30.3 L
Suction hose size	3-4 in	76-102 mm
Hose reel capacity with 3 in (76 mm)	150 ft	46 m
Hose reel capacity with 4 in (102 mm) hose	100 ft	30 m
Water pump system	**U.S.**	**Metric**
Maximum pressure	3000 psi	207 bar
Flow	4.2 gpm	15.9 L/min
Hose reel capacity with water lance	50 ft	15.2 m
Antifreeze	50/50 antifreeze/fresh water	
Clutch type	electric with auto de-clutch	
Fluid capacities	**U.S.**	**Metric**
Engine oil with filter	4.2 qt	4 L
Fuel tank	15 gal	57 L
Vacuum pump	22.8 oz	674 mL
DC hydraulic reservoir	2.5 gal	9.5 L
Water pump	14 oz	414 mL
Water tanks (2 @ 250 gal [946 L] each)	500 gal	1893 L

130 FX30 - SPECIFICATIONS
1200

Vacuum system	U.S.	Metric
Drive type	direct drive	
Displacement	500 cfm	14.1 m^3/min
Maximum vacuum	15 in Hg	380 mm Hg
Vacuum tank door diameter	60 in	1.5 m
Drain valve size	6 in	152 mm
Inlet valve size	4 in	102 mm
Primary shutoff valve size	12 in	305 mm
Filter type	washable polyester	
Filter area	100 ft^2	9.3 m^2
Water trap capacity	8 gal	30.3 L
Suction hose size	3-4 in	76-102 mm
Hose reel capacity with 3 in (76 mm)	150 ft	46 m
Hose reel capacity with 4 in (102 mm) hose	100 ft	30 m
Water pump system	**U.S.**	**Metric**
Maximum pressure	3000 psi	207 bar
Flow	4.2 gpm	15.9 L/min
Hose reel capacity with water lance	50 ft	15.2 m
Antifreeze	50/50 antifreeze/fresh water	
Clutch type	electric with auto de-clutch	
Fluid capacities	**U.S.**	**Metric**
Engine oil with filter	4.2 qt	4 L
Fuel tank	15 gal	57 L
Vacuum pump	22.8 oz	674 mL
DC hydraulic reservoir	2.5 gal	9.5 L
Water pump	14 oz	414 mL
Water tanks (2 @ 250 gal [946 L] each)	500 gal	1893 L

Trailer		**U.S.**	**Metric**
Dimensions			
	Clearance (at jack foot pad)	12 in	305 mm
	Adj. coupler heights	18-27 in	457-686 mm
	Width between fenders	50 in	1.3 m
	Width outside fenders	100.5 in	2.6 m
General			
	Number of axles	2	
	Coupler (square mount drawbar)	3 in or 2.5 in	76 mm or 64 mm
	Type of brakes	electric	
	Lug nut torque	200 ft•lb	271 N•m
	Hitch bolt torque	200 ft•lb	271 N•m
	Electrical system	12 volt DC	
Tire			
	LT235/85R16 load range G	110 psi	7.6 bar

FX30 - SPECIFICATIONS **131**
1200

Trailer		**U.S.**	**Metric**
Dimensions			
	Clearance (at jack foot pad)	12 in	305 mm
	Adj. coupler heights	18-27 in	457-686 mm
	Width between fenders	50 in	1.3 m
	Width outside fenders	100.5 in	2.6 m
General			
	Number of axles	2	
	Coupler (square mount drawbar)	3 in or 2.5 in	76 mm or 64 mm
	Type of brakes	electric	
	Lug nut torque	200 ft•lb	271 N•m
	Hitch bolt torque	200 ft•lb	271 N•m
	Electrical system	12 volt DC	
Tire			
	LT235/85R16 load range G	110 psi	7.6 bar

Load Rating			
	Tongue weight (empty)	1600 lb	726 kg
	Tongue weight (full water)	2160 lb	980 kg
	Max. tongue load	2600 lb	1179 kg
	GVWR (gross vehicle weight rating)	26,000 lb	11 794 kg
	GAWR (gross axle weight rating)	23,400 lb	10 614 kg

Load ratings for speeds up to 65 mph (104 km/h).

132 FX30 - SPECIFICATIONS
1200

Load Rating			
	Tongue weight (empty)	1600 lb	726 kg
	Tongue weight (full water)	2160 lb	980 kg
	Max. tongue load	2600 lb	1179 kg
	GVWR (gross vehicle weight rating)	26,000 lb	11 794 kg
	GAWR (gross axle weight rating)	23,400 lb	10 614 kg

Load ratings for speeds up to 65 mph (104 km/h).

WARRANTY

Ditch Witch Equipment and Parts Limited Warranty Policy

Subject to the limitations and exclusions herein, free replacement parts will be provided at any authorized Ditch Witch dealership for any Ditch Witch equipment or parts manufactured by The Charles Machine Works, Inc. (CMW) that fail due to a defect in material or workmanship within one (1) year of first commercial use (Exception: 2 years for all SK500 attachments). Free labor will be provided at any authorized Ditch Witch dealership for installation of parts under this warranty during the first year following initial commercial use of the serial-numbered Ditch Witch equipment on which it is installed.

Exclusions from Product Warranty

- Wear-related failure of parts subject to ground contact including, but not limited to, digging teeth, digging chains, sprockets, backhoe buckets, plow blades, drill pipe, drill bits, backreamers, and swivels.
- All incidental or consequential damages.
- All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect, or uses other than those for which products were intended.
- All defects, damages, or injuries caused by improper training, operation, or servicing of products in a manner inconsistent with manufacturer's recommendations.
- All engines and engine accessories (these are covered by original manufacturer's warranty).
- Tires, belts, and other parts which may be subject to another manufacturer's warranty (such warranty will be available to purchaser).
- All implied warranties not expressly stated herein, including any warranty of fitness for a particular purpose and merchantability.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

FX30 - WARRANTY 133

WARRANTY

Ditch Witch Equipment and Parts Limited Warranty Policy

Subject to the limitations and exclusions herein, free replacement parts will be provided at any authorized Ditch Witch dealership for any Ditch Witch equipment or parts manufactured by The Charles Machine Works, Inc. (CMW) that fail due to a defect in material or workmanship within one (1) year of first commercial use (Exception: 2 years for all SK500 attachments). Free labor will be provided at any authorized Ditch Witch dealership for installation of parts under this warranty during the first year following initial commercial use of the serial-numbered Ditch Witch equipment on which it is installed.

Exclusions from Product Warranty

- Wear-related failure of parts subject to ground contact including, but not limited to, digging teeth, digging chains, sprockets, backhoe buckets, plow blades, drill pipe, drill bits, backreamers, and swivels.
- All incidental or consequential damages.
- All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect, or uses other than those for which products were intended.
- All defects, damages, or injuries caused by improper training, operation, or servicing of products in a manner inconsistent with manufacturer's recommendations.
- All engines and engine accessories (these are covered by original manufacturer's warranty).
- Tires, belts, and other parts which may be subject to another manufacturer's warranty (such warranty will be available to purchaser).
- All implied warranties not expressly stated herein, including any warranty of fitness for a particular purpose and merchantability.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

Ditch Witch products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, products should be operated under anticipated working conditions prior to purchase.

Defects will be determined by an inspection within thirty (30) days of the date of failure of the product or part by CMW or its authorized dealer. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacements parts under this warranty as it deems appropriate.

Extended warranties are available upon request from your local Ditch Witch dealer or CMW.

Some states do not allow exclusion or limitation of incidental or consequential damages, so above limitation of exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so the above limitation may not apply. This limited warranty gives product owner specific legal rights and the product owner may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW’s Product Support department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

First version: 1/91; Latest version: 1/03

134 FX30 - WARRANTY

Ditch Witch products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, products should be operated under anticipated working conditions prior to purchase.

Defects will be determined by an inspection within thirty (30) days of the date of failure of the product or part by CMW or its authorized dealer. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacements parts under this warranty as it deems appropriate.

Extended warranties are available upon request from your local Ditch Witch dealer or CMW.

Some states do not allow exclusion or limitation of incidental or consequential damages, so above limitation of exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so the above limitation may not apply. This limited warranty gives product owner specific legal rights and the product owner may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW’s Product Support department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

First version: 1/91; Latest version: 1/03

A Note To Ditch Witch Equipment Owners:

If your equipment was purchased through a Ditch Witch dealer, there is no need to read further.

However, if you purchased from any other source, please fill out the form on the reverse side and return it to us.

This will enable you to receive updates on this equipment as well as information on new products of interest.

Thanks for using Ditch Witch equipment.

(Please Fold Along This Line And Seal At Bottom With Tape)

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO 23 PERRY OKLAHOMA

POSTAGE WILL BE PAID BY

The Charles Machine Works, Inc.
P.O. Box 66
Perry, Oklahoma 73077-9989

A Note To Ditch Witch Equipment Owners:

If your equipment was purchased through a Ditch Witch dealer, there is no need to read further.

However, if you purchased from any other source, please fill out the form on the reverse side and return it to us.

This will enable you to receive updates on this equipment as well as information on new products of interest.

Thanks for using Ditch Witch equipment.

(Please Fold Along This Line And Seal At Bottom With Tape)

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO 23 PERRY OKLAHOMA

POSTAGE WILL BE PAID BY

The Charles Machine Works, Inc.
P.O. Box 66
Perry, Oklahoma 73077-9989

Ditch Witch® Registration Card

Please Type or Print All Information

Purchaser's Company Name

Attention

Street Address or P.O. Box

City County

State Zip Nation

( )

Phone Number With Area Code

Model Serial Number

Attachments/Accessories Serial Numbers

Attachments/Accessories Serial Numbers

Attachments/Accessories Serial Numbers

Name of Ditch Witch Dealership

Your Signature

Ditch Witch® Registration Card

Please Type or Print All Information

Purchaser's Company Name

Attention

Street Address or P.O. Box

City County

State Zip Nation

( )

Phone Number With Area Code

Model Serial Number

Attachments/Accessories Serial Numbers

Attachments/Accessories Serial Numbers

Attachments/Accessories Serial Numbers

Name of Ditch Witch Dealership

Your Signature

FX30 - 137