VOLVO CONSTRUCTION EQUIPMENT

OPERATOR'S MANUAL

SD116DX/SD116F/SD122D/SD122DX SD122F/SD160F/SD190DX/SD200

SERIAL NO. SD116DX/SD116F ALL
SD122D/SD122DX/SD122F SERIAL NO. 177814- INCL. 177108
SD160DX/SD160F SERIAL NO. 180042-
SD190DX SERIAL NO. ALL
SD200DX/SD200F SERIAL NO. 180684-

OPERATOR´S MANUAL VOLVO SD116DX/SD116F/SD122D/SD122DX/SD122F/SD160F/SD190DX/SD200

VOLVO

Volvo Construction Equipment
www.volvo.com

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California
Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

California
Proposition 65 Warning

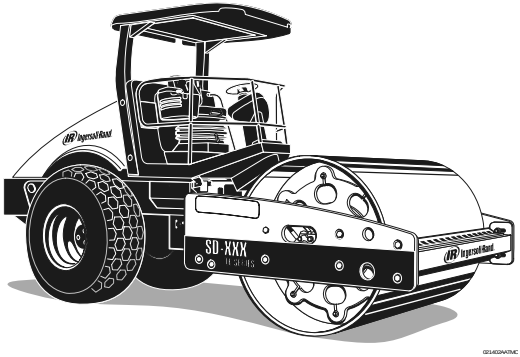
Battery posts, terminals and other related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and other reproductive harm.

Wash hands after handling.

Ingersoll Rand
Construction Technologies

Operation and Maintenance Manual

SD-116 TF Series Effective All Serial Numbers
SD-122 TF Series Effective S/N 177814 including S/N 177108
SD-160 TF Series Effective S/N 180042
SD-190 TF Series Effective All Serial Numbers
SD-200 TF Series Effective S/N 180684



CPN 43816586 **November 6, 2006**

Read and understand this manual before operating or servicing this equipment.

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Genuine Parts

For Genuine Ingersoll Rand Parts, Service And Nearest Distributor
http://www.road-development.irco.com

800-227-0573 (US and Canada)
717-532-9181(Latin America - Ingersoll Rand)
49-5151-209-0 (Europe)
852-2527-0183 (Asia)

Genuine Ingersoll Rand Protective Lubricants

See Your Authorized Ingersoll Rand Dealer For Details

INTRODUCTION

INTRODUCTION

OVERVIEW

CONGRATULATIONS! You have just acquired an Ingersoll Rand compactor, an application-designed product built with your needs in mind.

The primary purpose of this manual is to provide the operator and site maintenance personnel with knowledge of the fundamental rules and criteria to be followed for the on-site use and maintenance of the following Terra Firma series compactors.

- SD-116 DX
- SD-116 F
- SD-122 D
- SD-122 DX
- SD-122 F
- SD-160 DX
- SD-160 F
- SD-190 DX
- SD-200 DX
- SD-200 F

This instruction manual must have been read and fully understood by the operator before operating the machine. The instruction manual consists of

- INTRODUCTION
- SECTION 1 - SAFETY
- SECTION 2 - SYMBOL IDENTIFICATION
- SECTION 3 - CONTROLS AND INSTRUMENTS
- SECTION 4 - OPERATING INSTRUCTIONS
- SECTION 5 - MAINTENANCE INSTRUCTIONS
- SECTION 6 - TROUBLESHOOTING
- SECTION 7 - TECHNICAL SPECIFICATIONS
- SECTION 8 - FUEL AND LUBRICATION SPECIFICATIONS
- SECTION 9 - TORQUE SPECIFICATIONS
- SECTION 10 - SCHEMATICS
- SECTION 11 - RECOMMENDED SPARE PARTS LISTS

Always keep the *Operation and Maintenance Manual* on the machine and within reach of the operating position.

If any part of this manual cannot be understood, contact your supervisor or local Ingersoll Rand Distributor. This is an essential condition for working safely with this machine.

The correct machine operation, use and regular maintenance are also essential elements to provide the highest performance and safety.

The present manual is accompanied with an engine instruction manual. You are therefore advised to follow the operation and maintenance instructions as specified in both the engine and the machine instruction manuals.

Some illustrations in this manual may show machines with optional equipment installed. This optional equipment maybe purchased from your local Ingersoll Rand Road Machinery Equipment Distributor.

Each manual is reviewed and revised regularly to include all necessary changes. Ingersoll Rand reserves the right to modify or make changes within a specific model group without notice, and without incurring any liability to retrofit machines previously shipped from the factory. Contact your Ingersoll Rand Road Machinery Equipment Distributor for non-routine maintenance that is not covered in this manual.

IDENTIFICATION DATA

An exact description of the model type and serial number of your machine will facilitate fast and efficient response from our parts and service support operations.

Always provide the model of your machine and it's serial number when you contact the local Ingersoll Rand service or parts office.

We advise you to enter your machine data in the following lines to maintain machine and engine information:

Model.....

Serial No.....

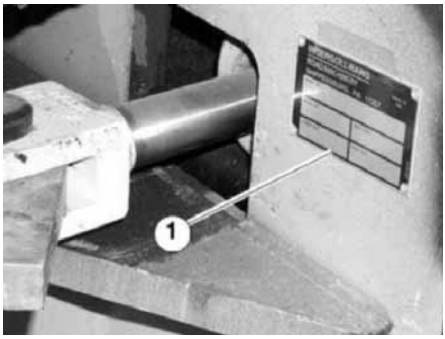
Year of manufacture.....

Engine Serial No. and type of engine.....

MACHINE IDENTIFICATION

The machine identification plate (1, Figure 1) is located on the forward left side of the rear frame.

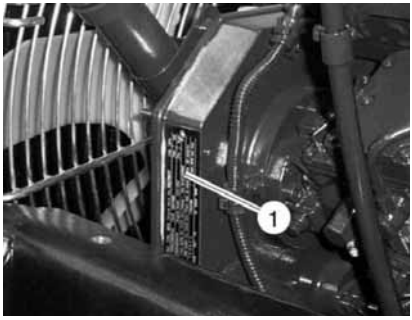
Figure 1



ENGINE IDENTIFICATION

The Cummins engine number can be found on the engine data plate (1, Figure 2).

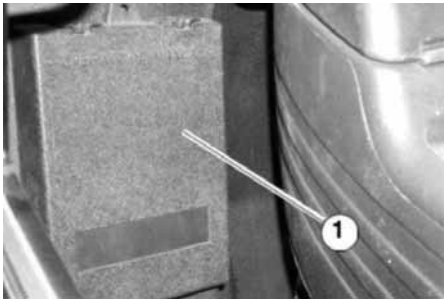
Figure 2



INSTRUCTION MANUAL STORAGE

A storage pouch (1, Figure 3) provides space for the machine manuals. The manuals are located to the right side of the operator's seat and provides space for the operation and Maintenance Manual.

Figure 3



GENERAL INFORMATION

All safety rules in Section 1 must be observed.

If further information is required concerning the recommended use on soil applications, contact your local Ingersoll Rand Distributor.

Ingersoll Rand Construction Technologies

Road Development Division

312 Ingersoll Drive

Shippensburg, PA 17257 USA

Tel:717-532-9181

Fax:717-530-3402 (Service and Warranty)

717-530-3403 (Customer Service Parts)

Ingersoll Rand reserves the right to make any changes or modifications without prior notice and without incurring any liability to retrofit machines previously shipped from the factory.

MACHINE DESCRIPTION

The SD 116, 122, 160, 190, and 200 TF Series of single-drum vibratory roller soil compactors are powered by a Cummins diesel engine driving three hydraulic pumps. One pump powers the vibration drive motor, a second pump powers the steering control valve and cylinders and a third pump powers the drum and differential/wheel propulsion systems. Direction and speed are controlled by a propulsion control lever, engine idle speed selector switch and a compactor speed selector switch.

The compactor uses the positioning of the propulsion lever to the S, stop position, as an operating brake. An independent spring applied hydraulically released drum drive brake and an independent spring applied hydraulically released axle differential drive brake serve as a unit as a parking brake.

Standard equipment includes an Emergency Stop Push/Pull Control to shut down the engine and apply the mechanical brake/s in an emergency situation. In addition dual machine speed range capability and dual engine speed (rpm) capability are included.

ROPS “Rollover Protection Structure”, FOPS “Falling Objects Protection Structure” plus a seat belt and several additional standard items and numerous optional features are availabe.l

For a complete listing of currently supplied / available standard and option features contact your nearest Ingersol Rand distributor.

ENGINE

The SD-116 TF and SD 122 TF series compactors are powered via a 156 horsepower electronic Tier II fuel injected Cummins diesel engine. An optional 173 horsepower mechanical engine, standard on the SD 160 TF is available for the SD 122. SD 190 and 200 models prior to Serial Number 185573 are powered via a 205 horsepower electronic Tier II fuel injected Cummins diesel engine. SD 190 and 200 models effective with Serial Number 185573 are powered by a 203 horsepower electronic turbocharged Tier III Cummins diesel engine.

The 156 horsepower water cooled engine includes a long screw on cannister style fuel water separator with screw style drain, an in line fuel filter, and a second fuel filter with replaceable element.

The 173 horsepower water cooled engine includes a short screw on cannister style fuel filter, an in line fuel filter, and a second fuel filter with replaceable element.

Each engine includes a dry type two stage air cleaner which signals a operator console mounted air filter restrictor indicator light whenever the air filtration system needs attention. Unless this light is illuminated maintenance on the air cleaner system is not recommended.

The 205 horsepower water cooled Tier II engine includes a long screw-on cannister style fuel water separator with a lift tab drain, an in line fuel filter, and a second fuel filter with replaceable element.

The 203 horsepower water cooled Tier III engine includes a long screw-on cannister style fuel/ water separator with a lift tab drain and a primary fuel filter with a replaceable element. No in-line fuel filter is required.

Electric start and belt driven alternator charging are standard. Engine shutdown is by a key operated ignition switch or the emergency push/pull control.

Refer to the Cummins Engine Operation and Maintenance Manual and the Engine Parts Manual supplied with the compactor for additional engine operating and maintenance procedures. Note: Electronic and Mechanical Engines have separate Operation and Maintenance Manuals and separate Engine Parts Manuals.

MAIN FRAME

The SD TF series compactors include a rear frame assembly and a front frame assembly connected by an articulation pin and an oscillation pin. The rear frame assembly includes a frame weldment, hydraulic tank assembly, fuel tank, battery box plus the control components the engine and hydraulic drive components except for the drum drive and eccentric drive. The front frame assembly includes the drum, drum support and drive components plus the eccentric components and eccentric hydraulic drive motor.

DRUM

Drums available with these machines include smooth or footed plus optional scrapers for each. Vibration is supplied to the drum by an eccentric assembly mounted internally and powered by an hydraulic motor with amplitude and frequency of vibration controlled by the operator.

CONTROLS

All operator controls, gauges and indicator lights are located for operator convenience and comfort.

The machine propulsion direction, speed and braking controls plus vibration On/Off control and emergency stop push/pull control are located to the right of the operator.

The control console includes the following controls supplied as standard or optional equipment (dependent on model). The controls and indicator lights include: vibration frequency control, engine coolant temperature gauge, tachometer, hourmeter, engine speed selector switch, engine speed range selector switch, parking brake on/off switch, parking brake test switch, tilt steering, work light on/off switch, and a vibration amplitude selector switch.

Other lights include air filter restrictor indicator light, alternator (not) charging indicator light, low oil pressure indicator light stop engine indicator light (electronic engines only) and a check engine light (electronic engine only) plus the battery master switch located on the battery box.

Pre-programmed controls for the traction, frequency and auto vibration systems are available.

Refer to Section 3 of this manual for a complete description of the controls and indicator lights.

VIBRATION SYSTEM

he vibration system consists of an eccentric mounted in the drum and powered by an hydraulic motor. This system is has dual amplitude capability, is time proven and reliable. Selection of high or low is by the operator pressing a selector switch on the console. High amplitude is recommended for thick lift compaction, low amplitude for thinner lifts and sensitive compaction areas.

VIBRATION FREQUENCY

Drum vibration frequencies available to the operator includes a range of five frequencies when in the hi amplitude condition and a range of five frequencies when in the low amplitude condition. They are selected by a five position rotary selector switch on the console. Frequency ranges available for the SD TF Series Compactors is identified in the machine specifications in Section 7, Techical Specifications. A dual range feature is also available controlled by a two position switch.

OPERATOR'S STATION

The operator's station is designed for convenience, ease of control, comfort and safety while providing maximum visibility to the work area. The operator's station is isolated from vibration by four independent vibration isolators and can be equipped with several available options. The operator's station/cab can be tilted forward for maintenance by a jack assembly supplied with the machine.

GRADEABILITY

Superior gradeability of this machine is the result of A powerful torque-balanced hydrostatic propulsion system which includes dual machine speed range capability and use of the High engine rpm selection. Low rpm selection is for idling only. The low machine speed range is recommended for compacting and the high speed range for traveling.

BRAKES

The standard mechanical braking components located in the drum drive motor assembly and the axle assembly are designed for use as a parking brake/ emergency brake. The mechanical brake/s are spring applied and hydraulically released. Loss of engine power for any reason or loss of hydraulic pressure to the brake circuit will allow the mechanical brakes The positioning of the propulsion control lever the S (stop) position acts as a dynamic (operating brake). to apply.

Refer to Section 5 of this manual for additional information.

SERVICEABILITY

Machine maintenance and service, as described in Section 5 of this manual, will require raising of the spring loaded hood for access to the engine, air cleaner, oil filter, fuel filters and related service items. Tilting of the operator's platform / cab will be necessary for other particular items.

The battery, tilting jack, and control/s are located in the battery box behind the steps on the left side of the machine. Removal of two bolts and lifting on the front panel of the battery box will allow the front panel and attached steps to be pivoted down to the ground allowing easy access.

It is recommended the Maintenance Schedule located in Section 5 of this manual be followed.

ROPS/FOPS/SEAT BELT

All Ingersoll Rand SD-TF Series compactors are supplied with a ROPS (Rollover Protection Structure), FOPS (Falling Objects Protection Structure) and seat belt.

Use of the seat belt with the above will lessen the possibility of serious injury or death in the event of a rollover.

⚠ WARNING

Your life may be endangered if the following are not complied with:

DO NOT operate this machine if the Rollover Protection Structure (ROPS) or Falling Objects Protection Structure (FOPS) is structurally damaged, shows cracks, is not properly secured as originally installed, or has been involved in a rollover.

DO NOT repair, modify, drill, weld on or add attachments to the ROPS/ FOPS unless authorized in writing by the manufacturer.

DO NOT operate the machine unless the seat belt conforming to SAE and/ or ASAE standards is fastened.

Contact your dealer for complete inspection requirements and maintenance instructions.

IDENTIFICATION OF MAJOR COMPONENTS

Figure 4

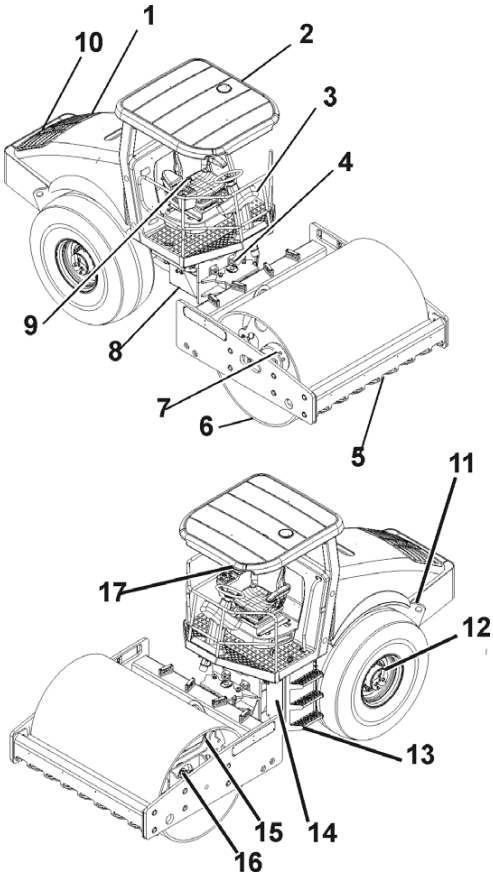


Table 1:

1.	Engine and Hydraulic Pumps Assembly
2.	ROPS/FOPS See WARNING on Page 7
3.	Operator Control Console
4.	Articulation Pin
5.	Universal Drum Scraper
6.	Drum - Smooth / Padfoot
7.	Drum Drive and Brake
8.	Hydraulic Tank
9.	Propulsion /Speed /Vibration Control
10.	Fuel Tank Fill Point
11.	Lifting Lug
12.	Axle and Brake Assembly
13.	Batteries / Jack / Controls
14.	Batteries Master Switch
15.	Isolators
16.	Eccentric Drive
17.	Emergency Stop Switch

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SECTION 1 - SAFETY

SAFETY

BE AWARE OF SAFETY INFORMATION

This is the Safety Alert Symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word - DANGER, WARNING, or CAUTION - is used with the safety-alert symbol. DANGER identifies the most serious hazard.

DANGER, WARNING, or CAUTION safety labels are located near specific hazards.

NOTICE labels are for general information.

SAFETY ALERT SYMBOL

⚠ DANGER

RED BACKGROUND

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

⚠ WARNING

ORANGE BACKGROUND

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

⚠ CAUTION

YELLOW BACKGROUND

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

CAUTION

YELLOW BACKGROUND

CAUTION used without the Safety Alert Symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

BLUE BACKGROUND

NOTICE is used to notify people of installation, operation, or maintenance information which is important but not hazard related.

OVERVIEW

BEFORE YOU OPERATE, MAINTAIN, OR IN ANY OTHER WAY USE THIS COMPACTOR:

READ and STUDY this manual. KNOW how to safely use the compactor's controls and what you must do for safe maintenance.

ALWAYS wear or use the proper safety items required for your personal protection.

If you have ANY QUESTIONS about the safe use or maintenance of this compactor, ASK YOUR SUPERVISOR OR CONTACT ANY Ingersoll Rand DISTRIBUTOR. NEVER GUESS-ALWAYS CHECK!

NOTE: Refers to special information on the efficient use of the machine.

GENERAL

Ingersoll Rand cannot ensure for all possible circumstances that might lead up to a potential hazard. Therefore, the combination of warnings listed in this manual and those placed on the machine itself are not intended to be all inclusive.

Operators and maintenance personnel must be alert to recognize and avoid potential hazards. They should also have comprehensive training, required skills and necessary tools to properly perform their functions.

The machine was built in accordance with state-of-the-art standards and recognized safety rules. Nevertheless, its misuse may constitute a risk to life and limb of the user or of third parties, and may cause damage to the machine or other material property.

The machine must be used in accordance with its designated use as described in the operating manual. The machine must only be operated by safety-conscious persons who are fully aware of the risks involved in operating the machine. Any functional disorders, especially those affecting the safety of the machine, must be corrected immediately.

The machine is designed exclusively for the compaction of soil. Use of the machine for purposes other than that mentioned (such as for towing other vehicles/equipment) is considered contrary to its designated use. The manufacturer/supplier cannot be held liable for any damage resulting from such use. The risk of such misuse lies entirely with the user.

Operating the machine within the limits of its designated use also involves compliance with the inspection and maintenance directives contained in the operating manual.

SELECTION AND QUALIFICATION OF PERSONNEL

Work on and with the machine must be performed by qualified personnel only. Statutory minimum age limits must be observed.

Individual responsibilities of the personnel responsible for operation, setup, maintenance and repair of the machine should be stated clearly.

Define the machine operator’s responsibilities - also with regard to observing traffic regulations - the operator should have the authority to refuse instructions by third parties that are contrary to safety.

Do not allow persons being trained or instructed in the operation or maintenance of the machine to work without permanent supervision by an experienced person.

Work on the electrical system and equipment of the machine must be done only by a skilled electrician or by instructed persons under the supervision and guidance of a skilled electrician and must be in accordance with electrical engineering rules and regulations.

Work on the chassis, brake, hydraulic and steering systems must be performed by skilled personnel with special knowledge and training for such work.

ORGANIZATIONAL MEASURES

STOW manuals in the manual pouch provided on the machine. Manuals must always be available at the site where the machine is used.

OBSERVE AND INSTRUCT the user in all other generally applicable legal and mandatory regulations relevant to accident prevention and environmental protection. These compulsory regulations may also deal with the handling of hazardous substances, issuing and/or wearing of personal protective equipment, and traffic regulations.

SUPPLEMENT operating instructions with detailed working instructions pertaining to the specific work location.

ALWAYS be sure that persons entrusted with work on the machine have read the operating instructions and in particular the chapter on safety before beginning work. Reading the instructions after work has begun is too late. This is especially important for persons who work only occasionally on the machine, e.g. during set up or maintenance.

MAKE CERTAIN personnel are working in compliance with the operating instructions and are alert to risks and safety factors.

ALWAYS tie back or otherwise secure long hair, wear close-fitting garments and avoid wearing jewelry such as rings. Injury may result from clothing, hair, or jewelry being caught up in the machinery.

USE protective equipment wherever required by the circumstances or by law.

OBSERVE all safety instructions and warnings attached to the machine.

BE SURE all safety instructions and warnings attached to the machine are complete and perfectly legible.

STOP the machine immediately in the event of any malfunction. REPORT the malfunction to the proper authority/person.

NEVER provide service or maintenance to the machine unless the drum and wheels are adequately chocked, articulation lock bar/pin is in locked position, and parking brake is applied.

NEVER make any modifications to the machine which might affect safety without the manufacturer's approval. This applies to the installation and adjustment of safety devices and valves as well as to welding work on load bearing elements.

ALWAYS ADHERE to prescribed intervals or those specified in the operating instructions for routine checks and inspections.

PRE START INSPECTION

INSPECT your compactor daily. Ensure that the routine maintenance and lubrication are being dutifully performed. Have any malfunctioning, broken, or missing parts repaired or replaced before use. Refer to the Maintenance Schedule located in Section 5 of this manual.

VERIFY that all instruction and safety labels are in place and readable. These are as important as any other equipment on the compactor. Refer to the decal location drawing in Section 1 in this manual.

NEVER fill the fuel tank with the engine running, while near an open flame, or while smoking.

ALWAYS wipe up any spilled fuel.

CHECK for WARNING tags placed on the compactor. DO NOT operate the compactor until repairs have been made and the WARNING tags have been removed by authorized personnel.

Check the seat belt regularly for wear or damage. Inspect belt hardware and fabric. replace if hardware is damaged or if strap is nicked, frayed or loose stitching is found. Check that mounting hardware is tight.

CLEAN any foreign material from the operator's platform to reduce the danger of slipping.

KNOW the location of the Emergency Shut-Down Control if compactor is so equipped.

ALWAYS know the capabilities and limitations of your equipment-speed, gradeability, steering, and braking.

BE AWARE of the dimensions of your compactor-height and weight-as well as your transporter dimensions and weight.

CHECK for any conditions that could be dangerous-holes, banks, underground culverts, manhole covers, water meter pits, curb and/or street boxes.

SAFETY INSTRUCTIONS

AVOID any operational mode that might sacrifice safety.

TAKE all necessary precautions to ensure that the machine is used only when in a safe and reliable condition.

OPERATE the machine only if all protective and safety oriented devices, such as removable safety devices, emergency shut off equipment, soundproofing elements and exhausts, are in place and fully functional.

START the machine from the driver's seat only and always wear the seat belt.

WATCH the indicators during start up and shutdown procedures in accordance with the operating instructions.

MAKE SURE no one is at danger or risk before starting up or setting the machine in motion.

CHECK that braking, steering, signalling and lighting systems are fully functional before starting work or travelling with the machine.

CHECK that accessories have been safely stowed away before setting the machine in motion.

OBSERVE the valid traffic regulations when traveling on public roads and ways and MAKE SURE the machine is in a condition compatible with these regulations.

ALWAYS SWITCH ON the lighting system in conditions of poor visibility and after dark.

MAKE SURE there is sufficient clearance when crossing underpasses, bridges and tunnels or when passing under overhead lines.

ALWAYS KEEP at a distance from the edges of building pits and slopes.

AVOID any operation that might be a risk to machine stability.

NEVER CHANGE to a lower gear on a slope; always change before reaching it. On sloping terrain, always adapt your travelling speed to the prevailing ground conditions.

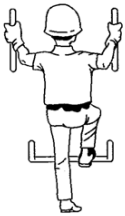
ALWAYS SECURE the machine against inadvertent movement and unauthorized use before leaving the driver's seat.

Starting

ALWAYS USE hand rails and steps (if equipped) to get on and off the compactor.

ALWAYS MAINTAIN a three-point contact when climbing onto or off of compactor. Refer to (Figure 1-1).

Figure 1-1



READ and FOLLOW ALL instruction decals.

ALWAYS be seated with the seat belt on when operating the machine.

BEFORE starting the engine, ENSURE that the propulsion (travel) control is in the "STOP" position.

BEFORE starting the engine, ENSURE that the parking brake control is in the "Applied" position.

START the engine from the operator's position only.

⚠ WARNING

Never jump start the compactor directly to the starter or starter solenoid. Severe injury or death could result from the compactor lurching forward or backward and running over the person/s attempting to jump start the compactor. Normal safety devices are bypassed when jump starting directly to the starter or starter solenoid.

AVOID personnel injury by making sure the compactor does not touch the other machine while it is being jump started.

NEVER jump start a frozen battery, as it will explode. While charging, lead acid batteries generate explosive gases.

KEEP SPARKS, flames and lighted smoking materials away from batteries. While charging, lead acid batteries generate explosive gases.

ALWAYS wear safety glasses when working on or near batteries.

PROCEED as follows when jump starting the compactor.

- Connect the Positive (+) terminal of the booster battery to the Positive (+) terminal of the discharged battery
- Connect the Negative (-) terminal of the booster battery to the best ground point of the compactor away from the battery.
- Follow all recommended engine starting procedures.
- Remove the jumper cables in the reverse order of their connection as soon as the engine has started.

Operating

ALWAYS make sure that no person or obstruction is in your line of travel before starting the compactor in motion.

NEVER CLIMB onto or off of the compactor while it is in motion.

ALWAYS remain seated with the seat belt on when operating the compactor whether compacting, traveling, or loading/unloading.

USE EXTREME CAUTION and be very observant when operating in close quarters or congested areas.

NEVER carry passengers.

CLOSE all sound baffles during operation.

KNOW the area in which you are working. Familiarize yourself with work site obstructions and any other potential hazards in the area.

KNOW and USE the hand signals required for particular jobs and know who has the responsibility for signaling.

DO NOT work in the vicinity of overhanging banks or on grades that could cause the compactor to slide or roll over.

AVOID side hill travel. ALWAYS operate up and down slopes. ALWAYS keep the propulsion (travel) control lever in low speed range close to the “STOP” position when climbing or descending hills.

NEVER allow anyone to stand within the compactor’s articulation area when the engine is running.

USE the rear window or the right hand window as an emergency exit in case of a rollover of a machine with a factory installed cab if the cab access door is cannot be opened.

ALWAYS LOOK in all directions BEFORE changing your direction of travel.

DO NOT attempt to control compactor travel speed with the throttle control. When operating the compactor maintain the engine speed at full “Operating rpm.”

DO NOT tow or push the compactor except as explained in SECTION 4 of this manual.

DO NOT run the engine in a closed building for an extended length of time. EXHAUST FUMES CAN KILL.

Stopping

ALWAYS park the compactor on solid level ground. If this is not possible, always park the compactor at a right angle to the slope and chock the drum and wheels.

AVOID leaving the operator's platform with the engine running. ALWAYS move the propulsion (travel) control to "STOP", apply the parking brake, install the articulation lock bar/lock pin, position the throttle control to "idle rpm", pull the fuel shut-off control (if so equipped), turn ignition switch to OFF, and lock all lockable compartments.

USE proper flags, barriers, and warning devices, especially when parking in areas of heavy traffic.

Maintenance

In any work concerning the operation, conversion or adjustment of the machine and its safety oriented devices or any work related to maintenance, inspection and repair, always observe the start up and shutdown procedures set out in the operating instructions and the information on maintenance work.

ENSURE that the maintenance area is adequately secured.

If the machine is completely shut down for maintenance and repair work, it must be secured against inadvertent starting by:

- locking the principal control elements and removing the ignition key and/or
- attaching a warning sign to the ignition or main switch

CARRY OUT maintenance and repair work only if the machine is positioned on stable and level ground and has been secured against inadvertent movement and buckling.

USE CARE when attaching and securing lifting tackle to individual parts and large assemblies being moved for replacement purposes to avoid the risk of accidents. USE lifting gear that is in perfect condition and with adequate lifting capacity. NEVER work or stand under suspended loads.

ALWAYS USE the correct tools and workshop equipment when performing maintenance to the machine.

ALWAYS USE specially designed or otherwise safety oriented ladders and working platforms when doing overhead assembly work. Never use machine parts as a climbing aid.

KEEP all handles, steps, handrails, platforms, landings and ladders free from mud, dirt, snow and ice.

CLEAN the machine, especially connections and threaded unions, of any traces of oil, fuel or preservatives before carrying out maintenance/repair. NEVER use aggressive detergents. Use lint free cleaning rags.

COVER OR TAPE all openings which - for safety and functional reasons - must be protected against water, steam or detergent penetration before cleaning the machine with water, steam jet (high pressure cleaning) or detergents. Special care must be taken with electric motors and switch gear cabinets.

ENSURE during cleaning of the machine that temperature sensors do not come into contact with hot cleaning agents.

REMOVE all covers and tapes applied for that purpose after cleaning machine.

EXAMINE all fuel, lubricant, and hydraulic fluid lines for leaks, loose connections, chafe marks and damage after cleaning.

REPAIR or REPLACE defective parts immediately.

TIGHTEN any screwed connections that have been loosened during maintenance and repair.

REPLACE any safety devices removed for setup, maintenance or repair purposes and checked immediately upon completion of the maintenance and repair work.

ENSURE that all consumables and replaced parts are disposed of safely and with minimum environmental impact.

AVOID, whenever possible, servicing, cleaning, or examining the compactor with the engine running.

AVOID, whenever possible, servicing or providing maintenance to the compactor unless the drum and wheels are adequately chocked, the articulation lock bar/lock pin is in the locked position, and parking brake is applied.

NEVER fill the fuel tank with the engine running, while near an open flame, or while smoking. ALWAYS wipe up any spilled fuel.

DO NOT alter the engine governor settings from those indicated in the engine manual and the engine option plate.

ALWAYS replace damaged or lost decals. Refer to the parts manual for the proper location and part number for all decals.

ENSURE the safe operation, optimum performance and safety of your warranty by using only genuine Ingersoll Rand replacement parts.

DISCONNECT the battery cables when working on the electrical system or when welding on the compactor.

BE SURE the battery area is well ventilated (clear of fumes) should it be necessary to connect a jump battery or battery charger. Fumes from the battery can ignite by a spark and explode.

BE SURE the battery charger is “Off” when making the connections if battery charging is required.

USE only original fuses with the specified current rating. Switch off the machine immediately if trouble occurs in the electrical system.

WORK on the electrical system or equipment may only be carried out by a skilled electrician or by specially instructed personnel under the control and supervision of an electrician and in accordance with the applicable electrical engineering.

CUT off the power supply to parts of the machine on which inspection, maintenance and repair work is to be carried out.

CHECK the de-energized parts for the presence of power and ground or short circuit them in addition to insulating adjacent live parts and elements before starting work.

INSPECT the electrical equipment of machines at regular intervals. Defects such as loose connections or scorched cables must be rectified immediately.

DO NOT weld, flame cut or peform any grinding operations on the machine unless expressly authorized as there may be a risk of explosion and fire.

CLEAN the machine and its surroundings from dust and other flammable substances and make sure that the premises are adequately ventilated (risk of explosion) before beginning welding, flame cutting and grinding operations.

INSPECT hydraulic hoses at regular intervals and immediately replace if they show signs of chafing, cracking, brittleness, deformation, blistering, leakage, fitting separation, corrosion or other damage which may affect their function or strength.

DO NOT work on hydraulic lines while the engine is running and the system is under pressure. The hydraulic fluid remains pressurized long after the engine has stopped.

DO NOT work on any hydraulic hose or fitting until the pressure has been properly relieved.

WAIT for fluid to cool down before disconnecting. Hot hydraulic fluid will cause severe burns.

NEVER use your hands to check for leaks when inspecting an hydraulic system. Use a piece of cardboard and always wear gloves and safety glasses.

GET immediate attention if fluid has been injected under your skin. Fluid penetration from a pin hole leak can cause severe injury or death.

ENSURE hydraulic lines are laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths and quality of the hoses must comply with the technical requirements.

OBSERVE the product related safety regulations when handling oil, grease and other chemical substances. Be careful when handling hot consumables (risk of burning or scalding).

TRANSPORTING, TOWING AND ROADING

USE only appropriate means of transport and lifting gear of adequate capacity.

ENTRUST to experienced persons only the fastening of loads and the instructing of crane operators. The personnel giving the instructions must be within sight or sound of the operator.

DO NOT attempt to load the compactor on the transporters without knowledge and experience with the operation of the compactor.

ALWAYS use a ramp when loading the compactor on the transporter. Be sure ramps are of adequate strength, low angle, and proper height and width.

USE proper chock blocks in front and rear of the wheels of the transporter when loading the compactor.

ENSURE the trailer is on level ground and approach the transporter loading ramps squarely to make sure the compactor does not drop off the side of the ramp.

KEEP the transporter deck clean of clay, oil, mud, ice, frost and other material that can become slippery.

USE proper chock blocks on the front of the drum and rear of the wheels once loaded onto the transporter.

SHUT the engine OFF, apply the parking brake, and lock all lockable compartments.

ENSURE the articulation lock bar/lock pin is secured in the locked position before transporting the compactor.

KNOW the overall height of the compactor and hauling vehicle. Observe height and weight regulations and at overhead objects be sure you can safely pass beneath them.

Refer to Section 4 - OPERATING INSTRUCTIONS for proper brake release and towing procedures.

OBEY all traffic regulations and be sure that the proper clearance flags, lights, and warning signs, including the “Slow Moving Vehicle” emblem, are properly displayed when moving the compactor on public access roads.

KNOW your approximate stopping distance at any given speed.

NEVER turn corners at excessive speeds. Look in all directions before reversing your direction of travel.

POSITION the compactor on the transporter or hauling vehicle centered from side to side and apply the brake.

REFER to Section 4 of this manual for proper towing instructions.

WARNING OF SPECIAL DANGERS

When working with the machine, maintain a safe distance from overhead electric lines. If work is to be carried out close to overhead lines, the working equipment must be kept well away from them. CAUTION! DANGER! Check out the prescribed safety distances.

⚠ WARNING

If your machine comes in contact with a live wire:

Do not touch any part of the machine.

Warn others against approaching and touching the machine.

Have the live wire de-energized.

Do not leave the machine until the damaged line has been safely de-energized.

OPERATE internal combustion engines and fuel operated heating systems only in adequately ventilated premises. Before starting the machine in enclosed premises, make sure that there is sufficient ventilation.

HAZARDOUS SUBSTANCE PRECAUTION

The following information is provided to assist the owners and operators of Ingersoll Rand Road Machinery Equipment. Further information may be obtained by contacting your Ingersoll Rand Road Machinery Equipment Distributor.

The following substances are contained in this machine and may be hazardous to health if exposed to or used incorrectly.

Table 1:

SUBSTANCE	PRECAUTION
Antifreeze (Water-Cooled Engine)	Avoid ingestion, skin contact and breathing fumes.
Hydraulic Oil	Avoid ingestion, skin contact and breathing fumes.
Engine Lubricating Oil	Avoid ingestion, skin contact and breathing fumes
Preservative Grease	Avoid ingestion, skin contact and breathing fumes
Rust Preventative	Avoid ingestion, skin contact and breathing fumes
Engine Fuel	Avoid ingestion, skin contact and breathing fumes
Battery Electrolyte	Avoid ingestion, skin contact and breathing fumes
SAE Gear Oil	Avoid ingestion, skin contact and breathing fumes

The following will be produced during the operation of this machine and may be hazardous to health.

Table 2:

SUBSTANCE	PRECAUTION
Engine Exhaust Fumes	Avoid breathing and buildup of fumes in confined spaces

SAFETY RELATED DECALS

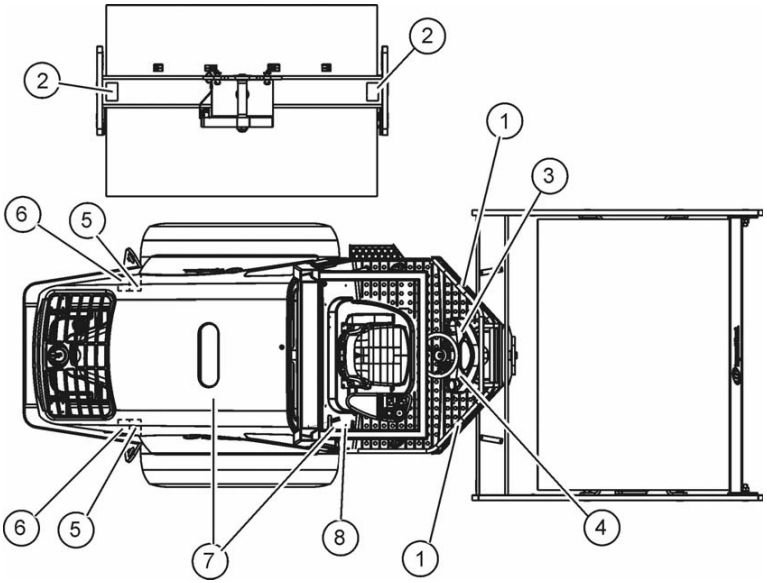


Table 3:

REF NO.	DECAL	NO REQ'D	LOCATION
1	WARNING: Do Not Sit On Rail	2	Both Sides of Railing
2	WARNING: Crushing Hazard	2	Both Sides of Drum Frame
3	WARNING: Rollover	1	Left Side Console
4	WARNING: Improper Operation	2	Both Sides of Cowling
5	WARNING: Hot Pressurized Fluid	2	Left Side of Frame
6	WARNING: Rotating Fan Blade	1	Top of Cowling Near Radiator Cap
7	Checklist	1	ROPS Support
8	WARNING:Use Of Ether	1	Shroud or Air Cleaner
9	WARNING: Towing Tag - OPTIONAL BRAKE RELEASE VALVE ONLY	1	Tow Valve in Battery Box - OPTIONAL BRAKE RELEASE VALVE ONLY
10	WARNING: Runaway Machine	1	Above Hand Pump In Batt Box

U.S. Decals

1. Do Not Sit On Rail

2. Crush Area

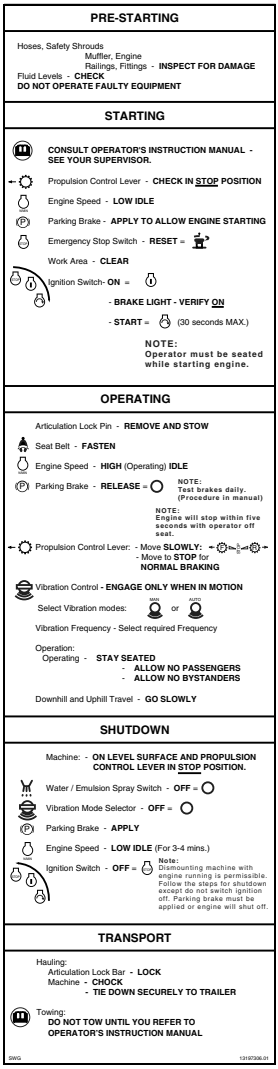
3. Rollover

4. Improper Operation

5. Hot Pressurized Fluid

6.Rotating Fan Blade

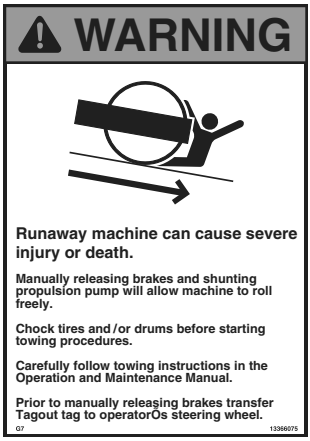
7. Checklist


PRE-STARTING
Hoses, Safety Shrouds
Muffler, Engine
Railings, Fittings - INSPECT FOR DAMAGE
Fluid Levels - CHECK
DO NOT OPERATE FAULTY EQUIPMENT
STARTING
CONSULT OPERATOR'S INSTRUCTION MANUAL - SEE YOUR SUPERVISOR.
Propulsion Control Lever - CHECK IN STOP POSITION
Engine Speed - LOW IDLE
Parking Brake - APPLY TO ALLOW ENGINE STARTING
Emergency Stop Switch - RESET =
Work Area - CLEAR
Ignition Switch- ON =
- BRAKE LIGHT - VERIFY ON
- START = (30 seconds MAX.)
NOTE:
Operator must be seated while starting engine.
OPERATING
Articulation Lock Pin - REMOVE AND STOW
Seat Belt - FASTEN
Engine Speed - HIGH (Operating) IDLE
Parking Brake - RELEASE =
NOTE:
Test brakes daily. (Procedure in manual)
NOTE:
Engine will stop within five seconds with operator off seat.
Propulsion Control Lever: - Move SLOWLY:
- Move to STOP for NORMAL BRAKING
Vibration Control - ENGAGE ONLY WHEN IN MOTION
Select Vibration modes: MAN or AUTO
Vibration Frequency - Select required Frequency
Operation:
Operating - STAY SEATED
- ALLOW NO PASSENGERS
- ALLOW NO BYSTANDERS
Downhill and Uphill Travel - GO SLOWLY
SHUTDOWN
Machine: - ON LEVEL SURFACE AND PROPULSION CONTROL LEVER IN STOP POSITION.
Water / Emulsion Spray Switch - OFF =
Vibration Mode Selector - OFF =
Parking Brake - APPLY
Engine Speed - LOW IDLE (For 3-4 mins.)
Ignition Switch - OFF =
Note:
Dismounting machine with engine running is permissible. Follow the steps for shutdown except do not switch ignition off. Parking brake must be applied or engine will shut off.
TRANSPORT
Hauling:
Articulation Lock Bar - LOCK
Machine - CHOCK
- TIE DOWN SECURELY TO TRAILER
Towing:
DO NOT TOW UNTIL YOU REFER TO OPERATOR'S INSTRUCTION MANUAL
SWG
1319730A.01

8. Use Of Ether

9.Towing Tag

10. Runaway Machine



INTERNATIONAL DECALS WITH INTERPRETATION

1. Do Not Sit On Rail

Never sit on railing around operator's compartment.

2. Crush Area

Crush Area. Can cause serious injury or death. Install lock pin before servicing.

3. Misoperation

Improper operation of this equipment can cause serious injury or death. Read and understand the operator's and safety instructions before operating or servicing.

4. Rotating Fan and Belt

Rotating Blade. Can cause severe injury. Do not operate with guards or shields removed. Stop machine before performing maintenance.

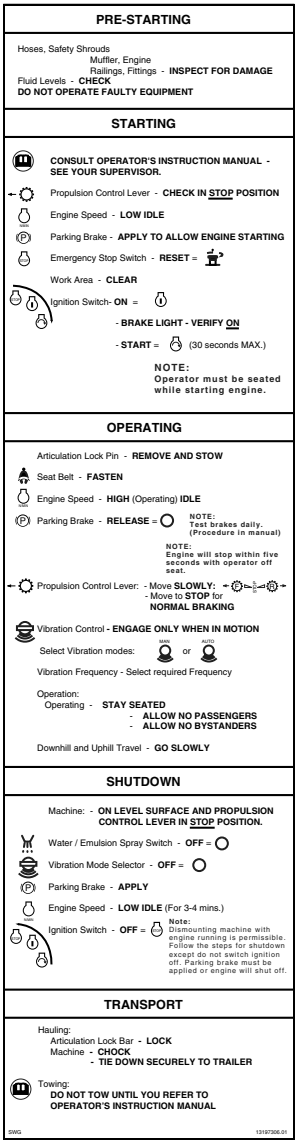
5. Rollover

Rollover of this machine can cause severe injury or death. Do not operate this machine near or on an inclined surface. A rollover can occur. If this machine has a Rollover Protective Structure (ROPS), seat belts must be worn to avoid severe injury or death from being thrown out.

6. Radiator

Injury can result when removing the radiator cap. Steam or fluid escaping from the radiator can burn. Inhibitor contains alkali. Avoid contact with skin and eyes. Always shut down the engine and allow to cool before removing the radiator cap. Remove the cap slowly to relieve pressure. Avoid contact with steam or escaping fluid.

7. Checklist


PRE-STARTING
Hoses, Safety Shrouds
Muffler, Engine
Railings, Fittings - INSPECT FOR DAMAGE
Fluid Levels - CHECK
DO NOT OPERATE FAULTY EQUIPMENT
STARTING
CONSULT OPERATOR'S INSTRUCTION MANUAL - SEE YOUR SUPERVISOR.
Propulsion Control Lever - CHECK IN STOP POSITION
Engine Speed - LOW IDLE
Parking Brake - APPLY TO ALLOW ENGINE STARTING
Emergency Stop Switch - RESET =
Work Area - CLEAR
Ignition Switch- ON =
- BRAKE LIGHT - VERIFY ON
- START = (30 seconds MAX.)
NOTE:
Operator must be seated while starting engine.
OPERATING
Articulation Lock Pin - REMOVE AND STOW
Seat Belt - FASTEN
Engine Speed - HIGH (Operating) IDLE
Parking Brake - RELEASE =
NOTE:
Test brakes daily. (Procedure in manual)
NOTE:
Engine will stop within five seconds with operator off seat.
Propulsion Control Lever: - Move SLOWLY:
- Move to STOP for NORMAL BRAKING
Vibration Control - ENGAGE ONLY WHEN IN MOTION
Select Vibration modes: MAN or AUTO
Vibration Frequency - Select required Frequency
Operation:
Operating - STAY SEATED
- ALLOW NO PASSENGERS
- ALLOW NO BYSTANDERS
Downhill and Uphill Travel - GO SLOWLY
SHUTDOWN
Machine: - ON LEVEL SURFACE AND PROPULSION CONTROL LEVER IN STOP POSITION.
Water / Emulsion Spray Switch - OFF =
Vibration Mode Selector - OFF =
Parking Brake - APPLY
Engine Speed - LOW IDLE (For 3-4 mins.)
Ignition Switch - OFF =
Note:
Dismounting machine with engine running is permissible. Follow the steps for shutdown except do not switch ignition off. Parking brake must be applied or engine will shut off.
TRANSPORT
Hauling:
Articulation Lock Bar - LOCK
Machine - CHOCK
- TIE DOWN SECURELY TO TRAILER
Towing:
DO NOT TOW UNTIL YOU REFER TO OPERATOR'S INSTRUCTION MANUAL
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SECTION 2 - SYMBOL IDENTIFICATION

SYMBOL IDENTIFICATION

INGERSOLL RAND MACHINE SYMBOLS

NOTE: Some symbols shown in this section may not appear on your machine.

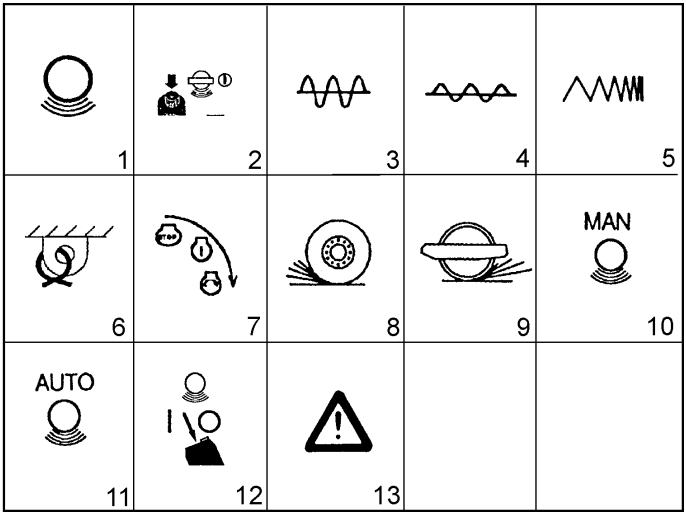


Table 1: IR Machine Symbols

1. Drum Vibration	9. Anti-Drum Spin
2. Drum Vibration Control	10. Manual Vibration Control
3. High Amplitude	11. Automatic Vibration Control
4. Low Amplitude	12. Vibration Control Mode
5. Frequency (Vibration)	13. Caution
6. Tiedown Point	
7. Ignition Switch	
8. Anti-Wheel Spin	

INTERNATIONAL ROAD MACHINE SYMBOLS

NOTE: Some symbols shown in this section may not appear on your machine.

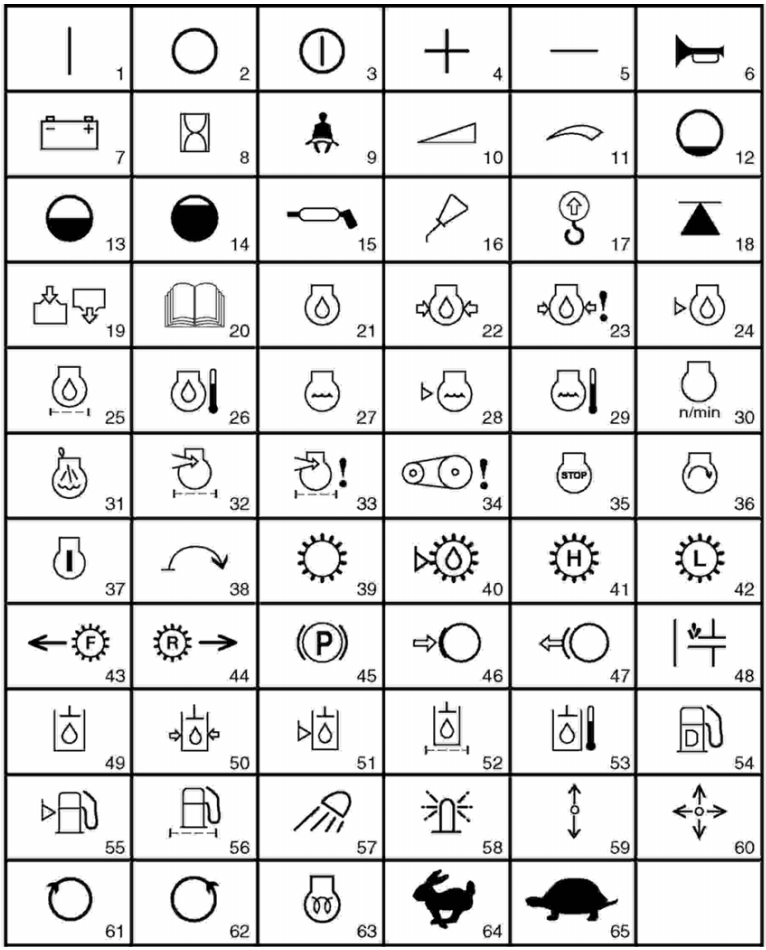


Table 2: Standard International Symbols

1. On/Start	23. Engine Oil Pressure - Failure	45. Parking Brake
2. Off/Stop	24. Engine Oil Level	46. Brake On
3. On/Off	25. Engine Oil Filter	47. Brake Off
4. Plus/Positive	26. Engine Oil Temperature	48. Primer (Start Aid)
5. Minus/Negative	27. Engine Coolant	49. Hydraulic Oil
6. Horn	28. Engine Coolant Level	50. Hydraulic Oil Pressure
7. Battery Condition	29. Coolant Temperature	51. Hydraulic Oil Level
8. Hour Meter	30. Engine Rotations (RPM)	52. Hydraulic Oil Filter
9. Seat (Lap) Belt	31. Gas Inject (Cold Start)	53. Hydraulic Oil Temperature
10. Linear	32. Engine Air Filter	54. Fuel (Diesel)
11. Rotational	33. Engine Air Filter - Failure	55. Fuel Level
12. Volume (Empty)	34. Fan Belt - Failure	56. Fuel Filter
13. Volume (Half-Full)	35. Emergency Engine Stop	57. Work Light
14. Volume (Full)	36. Engine Start	58. Flashing Beacon
15. Grease	37. Engine On/Run	59. Control Lever - Dual Direction
16. Oil Lubrication Point	38. Start Switch	60. Control Lever - Multi-Direction
17. Lift Point	39. Transmission	61. Clockwise Direction
18. Jack or Support Point	40. Transmission Oil Level	62. Counterclockwise Direction
19. Filling/Emptying	41. High Gear	63. Engine Electrical Preheat
20. Read Operator's Manual	42. Low Gear	64. Fast Speed
21. Engine Oil	43. Forward Direction	65. Slow Speed
22. Engine Oil Pressure	44. Reverse Direction	

SECTION 3 - OPERATING CONTROLS AND INSTRUMENTS

OPERATING CONTROLS AND INSTRUMENTS

⚠ WARNING

For your safety and the safety of others, please ensure you thoroughly read and understand this section before operating the machine.

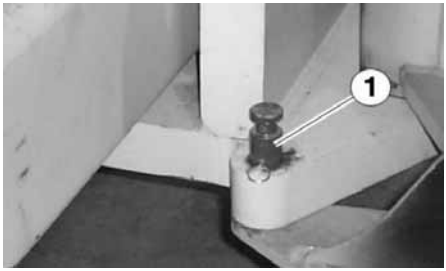
ARTICULATION LOCK PIN

⚠ WARNING

During shipment and before performing any checks or service operations, place the articulation lock pin in the locked position.

The articulation lock pin (1, Figure 3-1) is used to prevent accidental articulation of the compactor. The lock pin must be in the locked position prior to shipment and before performing any checks or service operations.

Figure 3-1



OPERATING CONTROLS

Figure 3-2

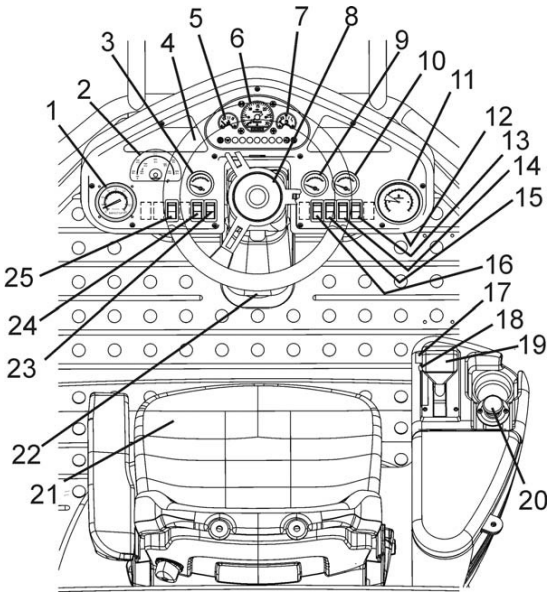


Table 1:

1. Impactmeter-Optional
2. Vibration Frequency Control
3. Voltmeter-Optional
4. Steering Wheel
5. Engine Coolant Temp. Gauge
6. Tachometer/Hourmeter
7. Fuel Gauge
8. Horn
9. Engine Oil Pressure Gauge
10. Hyd. Oil Temp. Gauge - Opt. Optional
11. Speedometer - Optional
12. Ignition Switch
13. High/Low Engine Speed Switch
    Throttle
14. Speed Range Selector Switch
15. Parking Brake ON/OFF Switch
16. Parking Brake Test Switch
17. Propulsion Cont. Release Pushbutton
18. Vibration ON/OFF Switch
19. Propulsion Control
20. Emergency Stop Switch
21 Operator's Seat
22. Tilt Steering Release Lever
23. Work Lights Switch
24. Auto/Manual Vib. Switch - Optional
25. Vibration Amplitude Switch

Instrument Cluster - See Page 3-7

The following descriptions refer to Figure 3-2.

IMPACTMETER

The impactmeter (1) displays the number of impacts per foot from (0 to 30) or impacts per meter from (0 to 98).

VIBRATION FREQUENCYCONTROL

Drum vibration frequencies available to the operator includes a range of five frequencies when in the hi amplitude condition and a range of five frequencies when in the low amplitude condition. They are selected by a five position rotary selector switch (2) on the console.

Frequency ranges available for the SD-116F/DX, SD-122D/F/DX, SD-160 F/DX, SD-190DX, and the SD-200F/DX are listed in Section 7 of this manual. A dual range feature is also available controlled by a two position switch not illustrated.

VOLTMETER

The voltmeter (3) indicates the battery condition when the ignition switch is at the On position. The normal (green) operating range is 12 to 15.5 volts.

STEERING WHEEL

The steering wheel (4) is used to steer the machine.

ENGINE COOLANT TEMPERATURE GAUGE

The temperature gauge (5) indicates engine coolant temperature. The gauge includes a blue (cool) range and a red (high temperature) range with normal operating temperatures occupying the range between them.

TACHOMETER/HOURMETER

The tachometer/hourmeter (6) indicates both engine speed and running time. The tachometer is calibrated in rpm x 100 with a range of 0 to 30.

FUEL GAUGE

The fuel gauge (7) displays the level of the fuel in the fuel tank. The tank should be filled with #2 filtered diesel fuel when the indicator needle moves below a 1/4 tank.

HORN BUTTON

Pressing the horn button (8) causes the horn to sound.

ENGINE OIL PRESSURE GAUGE

This gauge (9) displays engine oil pressure. The gauge includes a red (low oil pressure range) of 0 to 0.5 kg/cm^2 (0 to 10 psi) and a green (operating pressure range) of 0.5 to 7 kg/cm^2 (10 to 100 psi).

HYDRAULIC OIL TEMPERATURE GAUGE

The temperature gauge (10) indicates the temperature of the hydraulic oil. The gauge includes a green 38 to 82º C (100 to 180º F) normal operating range, yellow 82 to 104º C (180 to 220º F) above normal operating range and a red 104 to 121º C (220 to 250º F) high range.

NOTE: If the indicated temperature exceeds 104º C (220º F), shut down the engine and call for service assistance to correct the problem.

SPEEDOMETER

The speedometer (11) records the machine travel speed.

IGNITION SWITCH

The key operated, 3-position (STOP, Run, Start) ignition switch (12) controls the engine stopping, starting and run operations by selecting:

- STOP position =
- RUN position =
- START position =

Once the engine starts, release the switch immediately and it automatically returns to the Run position. If the engine does not start, attempt to restart.

NOTICE

Starter may overheat if operated longer than 30 seconds. Allow the starter to cool for 2 to 3 minutes before trying again.

HIGH/LOW ENGINE SPEED SWITCH (THROTTLE)

This two-position switch (13) is used to select high or low idle speed. Compacting must be done in high speed.

NOTE: Do not allow engine to idle for more than 10 minutes.

Always ensure that the engine speed is at Operating rpm before operating your compactor. Full engine power is necessary to obtain the proper component operation and maximum VIP for greatest efficiency.

SPEED RANGE SELECTOR SWITCH

This switch (14) controls selection of either Low travel speed range or High range.

All compacting must be done in low range. High range is used for traveling between site locations.

⚠ WARNING

Runaway machine can cause severe injury or death.

Never descend an incline in a gear higher or a speed greater than that which was used in ascending the incline.

Always use low range when going down hill. DO NOT shift speed range selector above 8 km/h (5 mph).

High range is only to be used in traveling to and from the job site. All compacting must be done in low range only.

NOTE: You will notice a slight pause when shifting before the speed actually changes. This is to prevent damage to the axle resulting from a sudden change in speed.

PARKING BRAKE SWITCH

This switch (15) controls the spring applied, hydraulically released parking brake. Apply the parking brake by pressing the switch at the end marked as below.

When the brake is On, the parking brake red warning light (switch) will be illuminated except following an e-stop.

Release by pressing the switch at the other end and the red warning light will extinguish.

NOTE: Brakes can only be released by this switch when the engine is running.

PARK BRAKE TEST SWITCH

The park brake test switch (16) is a momentary switch. When held in the On position, it allows the parking brake to be tested by positioning of the propulsion control lever forward.

PROPULSION CONTROL RELEASE PUSHBUTTON

This pushbutton (17) is used to release the propulsion control (19) to be moved from the Stop position in either the Forward or Reverse direction.

VIBRATION ON/OFF SWITCH

Button switch (18) on the propulsion control turns the drum vibration On and Off. Press the button to turn drum vibration On. Press the button again to turn drum vibration Off.

PROPULSION CONTROL

The propulsion control (19) controls machine direction, speed of travel, and braking function.

⚠ WARNING

Loss of machine control.

Moving the propulsion control (F - STOP - R) quickly may cause loss of machine control, lurching or severe injury.

Move the propulsion control slowly.

To propel the machine in either Forward ← (F) or Reverse (R) → direction, hold release pushbutton (17) in and gradually move the control in the required direction.

To slow and stop machine travel, move control slowly towards the STOP position arriving at the STOP position to halt machine travel.

NOTE: There is also an electrical interlock switch in the propulsion control which only permits engine starting when control is in the STOP position.

EMERGENCY STOP SWITCH

The Emergency Stop Switch (20) is a latching type switch that, when pressed, shuts down the engine and all other machine functions in the event of an emergency and applies the parking brake. To restart the machine after the e-stop has been activated, pull out on the switch and proceed with the start up procedure.

DO NOT USE THE EMERGENCY STOP CONTROL FOR NORMAL SERVICE BRAKING. USE THE EMERGENCY STOP CONTROL FOR EMERGENCY STOPPING AND ENGINE SHUT DOWN ONLY.

REFER TO SECTION 4 FOR THE PROCEDURE TO CHECK THE PARKING BRAKE USING THE PARK BRAKE TEST SWITCH.

TILT STEERING RELEASE LEVER (OPTIONAL)

The release lever (22) allows the steering wheel to be tilted up or down to suit the operator. To change the position of the steering wheel, press in and hold the release lever while tilting the steering wheel in the desired position, then release the lever.

WORK LIGHT SWITCH (OPTIONAL)

This switch (23) is used to turn the optional work lights On and Off.

AUTO/MANUAL VIBRATION SWITCH

This two position rocker switch (24) is used to select the vibration mode. Press the upper portion of the switch to activate AUTO vibration. Press the lower portion of the switch to select manual vibration. In AUTO mode, with the vibration pushbutton (18) switched On, vibration will start automatically when the machine reaches a speed of approximately 0.8 km/h (1/2 mph) In the manual position, vibration is controlled by the vibration On/Off switch (18).

VIBRATION AMPLITUDE SWITCH

Press the switch (25) to select required drum amplitude setting. To select high amplitude vibratory compaction, depress the top of switch. To select low amplitude, depress the bottom of the switch.

INSTRUMENT CLUSTER

In addition to Engine Coolant Temperature Gauge (5), Tachometer/Hourmeter (6), and Fuel Level Gauge (7) the following indicator lights may appear on instrument cluster Figure 3-3.

Figure 3-3

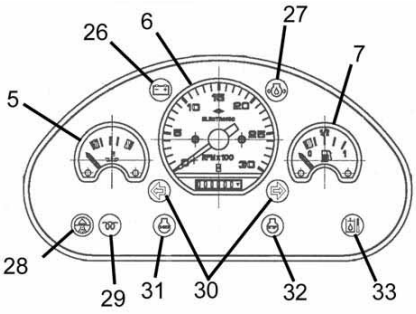


Table 2:

26	Alternator Charge Indicator	31.	Check Engine Light - (155 Hp & 205 Hp Electronic Only)
27.	Low Oil Pressure Indicator		
28.	Air Filter Restrictor Indicator	32.	Stop Engine Light - (155 Hp & 205 Hp Electronic Engine Only)
29	Grid Heater Heating Grid Indicator		
30.	Turn Signals - Optional	33.	Hydraulic Oil Temperature Indicator

ALTERNATOR CHARGE INDICATOR

The alternator charge indicator light (26) turns on to indicate that the alternator is not charging the battery. The indicator also turns on when the ignition key is turned to the On position.

LOW OIL PRESSURE INDICATOR

The low oil pressure indicator light (27) turns on to indicate the engine has low oil pressure. This light also turns on when the ignition key is turned to the On position. If this indicator turns on during normal operation, shutdown the engine immediately and notify service personnel.

AIR FILTER RESTRICTED INDICATOR

This indicator light (28) comes on when the key is turned to the On position. The light also comes on to indicate that the air cleaner filter elements require service.

GRID HEATER INDICATOR (REF. ONLY)

The indicator (29) illuminates with the Ignition switch in the Run position when the engine temperature is below starting temperature.

⚠ WARNING

Do not use ether. Intake manifold glow heater starting aid has a high temperature element. Ether may cause explosion and severe injury.

Starting aids are extremely flammable and can explode

The illuminated light indicates that the grid heater is heating the air in the engine air intake chamber. The indicator will go out when the air intake temperature is high enough to assist in starting the engine.

TURN SIGNAL INDICATORS

The turn signal indicators (30) show the direction in which the machine is going to turn on machines equipped with optional turn signals.

CHECK ENGINE LIGHT (AMBER)

Amber light (31) will illuminate when engine sensors detect areas of concern which should be investigated by the maintenance personnel

STOP ENGINE LIGHT (RED)

As stated on light (32) the operator is advised to STOP the engine as soon as possible following all safety precautions. An illuminated light indicates serious areas of concern.

HYDRAULIC OIL TEMPERATURE INDICATOR

This indicator (33) illuminates if the hydraulic oil temperature is too high. This light also turns on when the ignition key is turned to the On position If the indicator turns on during normal operation, shutdown the engine immediately and notify service personnel to investigate the cause.

BATTERY MASTER SWITCH

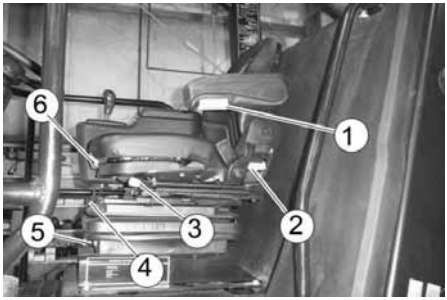
The battery master switch (1, Figure 3-4) is connected to negative (-) cable of the batteries. When the switch is turned to the Off position, electrical power is disconnected from the machine. The switch should be turned off whenever the machine is not in use.

Figure 3-4

SUSPENSION SEAT

The compactor is equipped with a suspension seat (21, Figure 3-2) that features several adjustments. The armrest can be tilted by rotating adjustment (1, Figure 3-5). The back of the seat can be tilted by lifting adjustment handle (2) and positioning the back as desired. The entire seat can be rotated horizontally by lifting handle (3) and rotating seat as desired. The seat cushion can be positioned forward and reverse and be tilted by handles located at (4). Operator comfort, resistance to lowering, can be adjusted by rotating handle (5) and noting value on adjacent indicator wheel. The entire suspension seat assembly and attached control console can be positioned forward or reverse by lifting handle (6) and positioning as required.

Figure 3-5



⚠ WARNING

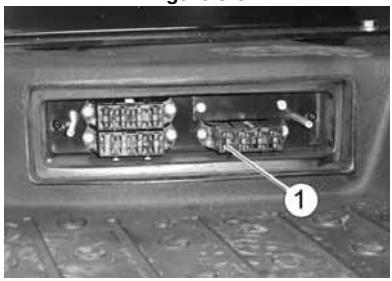
Failure to properly adjust seat and use the seat belt could cause serious or fatal injury to the operator or others

Do not adjust seat while machine is moving.

FUSE BLOCK

The fuses (1, Figure 3-6) for the compactor are located under the seat as shown. Fuse identification, rating and circuit are illustrated below and on a decal located on the fuse compartment cover (not shown).

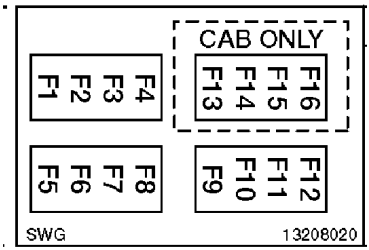
Figure 3-6



FUSE IDENTIFICATION

Fuse identification and physical position are shown in Figure 3-7. This information is identified on a decal on the inside of the fuse compartment cover plate.

Figure 3-7



FUSE RATINGS/CIRCUIT

The fuse ratings and circuits for the operator's deck are identified below.

Table 3:

FUSE	RATING	CIRCUIT
F1	15 AMPS	E-STOP, IGNITION, FUEL, SEAT SWITCH, PARK BRAKE
F2	10 AMPS	HORN, AIR FILTER, HYD. OIL TEMP.
F3	10 AMPS	TWO SPEED, BACK UP
F4	15 AMPS	LIGHTS BEACON, TURNSIGNAL / HAZARD
F5	5 AMPS	AUTO VIB., IMPACT METER
F6	5 AMPS	TRACTION CONTROL
F7	10 AMPS	POWER PORT
F8	30 AMPS	THROTTLE SOLENOID (PULL IN)
F9	10 AMPS	INSTRUMENT CLUSTER
F10	10 AMPS	GAUGE OPTIONS
F11	10 AMPS	CAB OPTIONS
F12	15 AMPS	SPARE
F13	25 AMPS	HEATER VALVE, BLOWER, A.C.
F14	10AMPS	FRONT WIPER
F15	10 AMPS	REAR WIPER
F16	10 AMPS	WASHER DOME LIGHT

RELAYS AND DIODES

The relays and diodes illustrated in Figure 3-8 are contained in a harness assembly housing Figure 3-9 located adjacent to the air cleaner mounting bracket. Relay C AND F are for ELECTRONIC engine only.

Figure 3-8

FUSE	DESCRIPTION	RELAY / DIODE →|–	DESCRIPTION	FUSE	DESCRIPTION
1	FUEL PUMP (10 AMPS)	B	BRAKE LATCH	32	TURN SIGNAL (10 AMPS)
2	FUEL PUMP (10 AMPS)	C	SEAT SWITCH / PARK BRAKE	33	MAIN POSITION LAMPS (5 AMPS)
29	LT POSITION LAMPS (7.5 AMPS)	D	STARTER	34	LH BRAKE (5 AMPS)
30	RT POSITION LAMPS (7.5 AMPS)	E	IGNITION POWER	35	RH BRAKE (5 AMPS)
5	IGNITION ENGINE ECM (5 AMPS)	F	ROAD LIGHT, IGN. RELAY	31	HAZARD LAMPS (LOCATION AT ALTERNATOR)
6	BATTERY ECM POWER (7.5 AMPS)	J →|–	SEAT SWITCH, PARK BRAKE, BRAKE TEST		
7	BATTERY ECM POWER (7.5 AMPS)	H →|–	ALTERNATOR NEUTRAL SWITCH		
8	BATTERY ECM POWER (7.5 AMPS)				

G7 13365887

Figure 3-9

Genuine Parts

For Genuine Ingersoll Rand Parts, Service And Nearest Distributor
http://www.road-development.irco.com

800-227-0573 (US and Canada)
717-532-9181(Latin America - Ingersoll Rand)
49-5151-209-0 (Europe)
852-2527-0183 (Asia)

Genuine Ingersoll Rand Protective Lubricants

See Your Authorized Ingersoll Rand Dealer For Details

SECTION 4 - OPERATING INSTRUCTIONS

OPERATING INSTRUCTIONS

If you are not experienced with the machine's operation and control, before operating the machine, read and understand Section 3 - OPERATING CONTROLS AND INSTRUMENTS.

⚠ WARNING

Unexpected machine motion or moving parts can cut or crush.

Install the articulation lock bar, apply the parking brake and shut down the engine before working on the machine.

⚠ WARNING

Improper maintenance can cause severe injury or death.

Read and understand SECTION 1 - SAFETY PRECAUTIONS AND GUIDELINES before you perform any maintenance, service or repairs.

GENERAL INFORMATION

Observe the following operational procedures:

- Do not speed engine when it is cold.
- Always chock the drum/wheels when parking the machine.
- Do not grease the machine while the engine is running.
- Always perform safety checks prior to starting/using the machine.
- Do not control travel speed using the High/Low engine speed switch.
- Do not shift speed range selector at speeds above 5 km/h (3 mph).
- Always operate the machine at full engine speed when compacting or traveling the unit.
- Never operate the machine across slopes. Travel up and down slopes.
- On machines equipped with a Rollover Protection Structure (ROPS), wear seat belt at all times.
- Before starting engine, always check that propulsion control is at the STOP position and that the parking brake is applied.
- Always sound the horn before moving the machine in either direction to alert personnel, and to allow sufficient time before putting machine into motion.
- Always use protective clothing such as gloves, goggles and safety helmet when performing service maintenance.

PRE-START CHECKS / VERIFICATIONS

Checks and verifications of overall machine must be performed prior to starting. Additional steps are listed in the 10 hour daily routine maintenance. Check the following before starting:

1. Fuel tank and fuel lines for any leaks.
2. Condition of engine and machine.
3. Bolted assemblies for tightness.
4. Entire machine for any loose, worn or missing parts. Replace as needed.
5. Fluid lines, hoses, fittings, filler openings, drain plugs, pressure caps, drum, muffler, engine safety shrouds and area under the machine for any signs of leakage.

⚠ WARNING

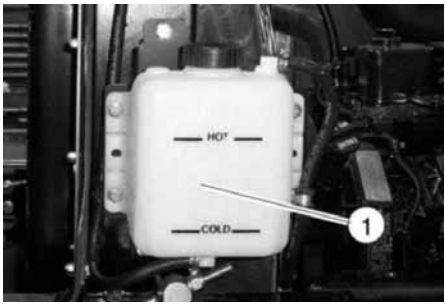
Injury can occur when removing the radiator cap.

Steam or fluid escaping from the radiator can burn. Rust inhibitor contains alkali. Avoid contact with skin and eyes.

Always shut down the engine and allow it to cool down before removing the radiator cap. Remove cap slowly to relieve pressure. Avoid contact with steam or escaping fluid.

6. Check engine coolant level in the coolant recovery bottle (1, Figure 4-1). Coolant level should be at the COLD level mark if the engine is cold or at the HOT level if the engine is at operating temperature. If required, add a mixture of 50% coolant and water to bring coolant to the proper level.

Figure 4-1



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7. Check fuel level gauge (7, Figure 4-2). If required, add clean, filtered fuel through the fill area (1, Figure 4-3). Use only #2 diesel fuel.

Figure 4-2

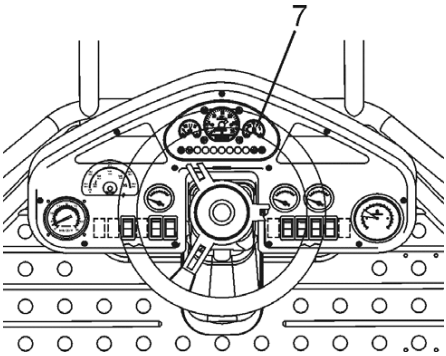
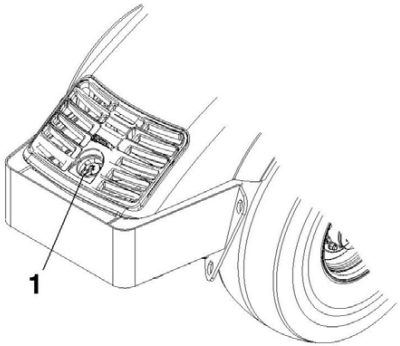
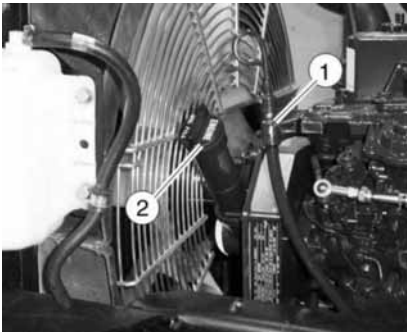


Figure 4-3

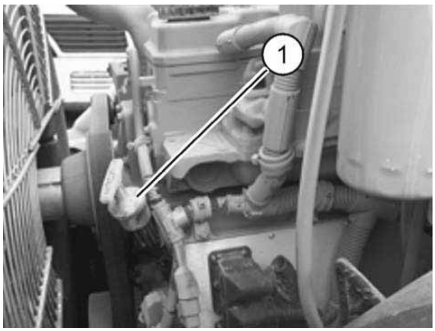


8. Check engine oil level on dipstick (1, Figure 4-4). If required, add motor oil through fill area (2, Figure 4-4 for Tier II engines; 1, Figure 4-4 for Tier III engines) to bring to Full level on dipstick. Refer to the Section 8 for lube oil type. If no oil is showing on the dipstick, call for service assistance to investigate the cause of oil loss.

Figure 4-4



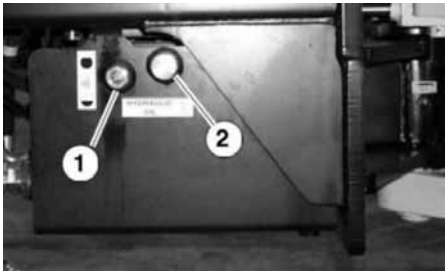
TIER II ENGINES



TIER III ENGINES

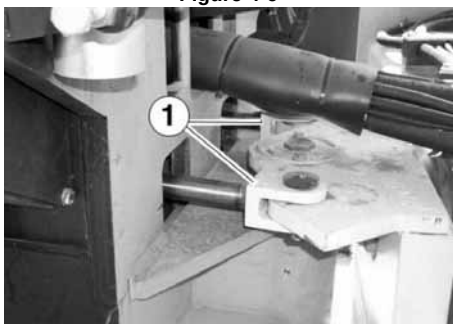
9. Check hydraulic oil level at gauge (1, Figure 4-5). Add fresh, clean, anti-wear, hydraulic oil through the fill area (2, Figure 4-5). Install the fill plug. Refer to Section 8 for hydraulic oil specs.

Figure 4-5



10. Check wear condition of mounting pins and bushings on the steering cylinders (1, Figure 4-6). Any wear in the pins and bushings should be noted and proper personnel notified.

Figure 4-6



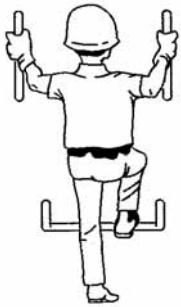
⚠ CAUTION

Any machine defects must be corrected before operating the machine.

Checks and verifications of machine controls must be performed prior to operating the machine.

1. Mount the compactor maintaining a three-point contact as shown in Figure 4-7 below.

Figure 4-7

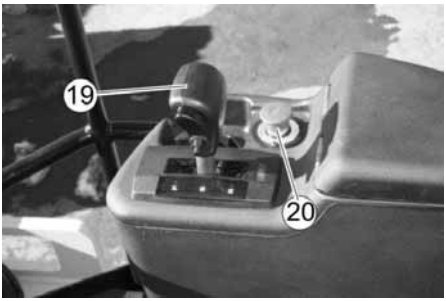


NOTE: The machine contains a circuit that will allow machine to start only if the propulsion control (19, Figure 4-7) is in neutral, the brakes are applied, and the Emergency Stop (20) switch is reset.

2. Securely fasten seat belt across hips

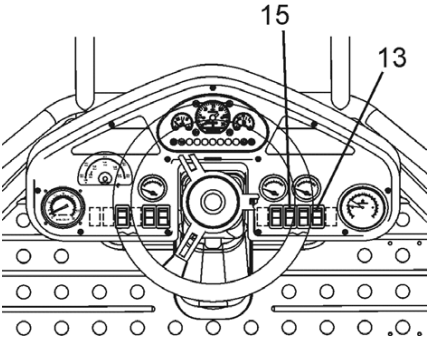
3. Move the FSR propulsion control ← F N R → (19, Figure 4-8) to the STOP (center) position
4. Check that the E-stop switch (STOP) (20, Figure 4-8) is pulled up.

Figure 4-8



5. Place engine speed control switch (13, Figure 4-9) to Low idle position.

Figure 4-9

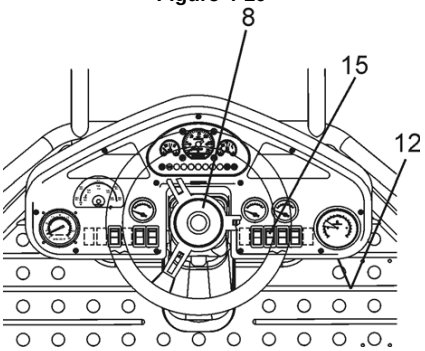


6. Apply parking brake by placing the parking park brake switch (15, Figure 4-9) in the On position.
7. Turn ignition switch (12, Figure 4-10) to the ON / RUN position and verify that the following occurs:

   a. The park brake switch (P) (15, Figure 4-10) indicator light turns On.

   b. The control console (Alternator Not Charging) light turns On.

Figure 4-10



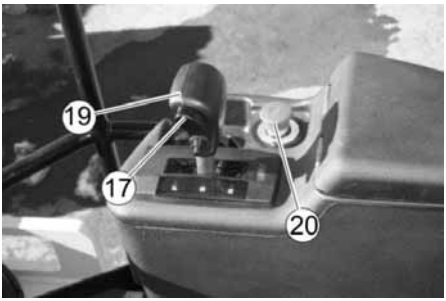
8. Press the horn button (8, Figure 4-10) to verify the horn is operational.
9. To confirm that engine will only start with the propulsion control in the STOP position, move propulsion control lever (19, Figure 4-8) in either direction away from the STOP position.
10. Make sure no personnel are close to the machine, with the brake applied, turn the ignition key (12, Figure 4-10) to the Start position. The engine should not start, verifying that the machine will not start with the propulsion control lever in a position other than the STOP position.
11. Return ignition switch (12, Figure 4-10) to the STOP position.
12. Place the propulsion control lever (19, Figure 4-8) in the STOP (center) position.

PROPELLING MACHINE AND OTHER CHECKS/VERIFICATIONS WHILE ENGINE IS RUNNING.

NOTE: If any controls or devices do not function correctly, do not operate the machine until the condition(s) is corrected.

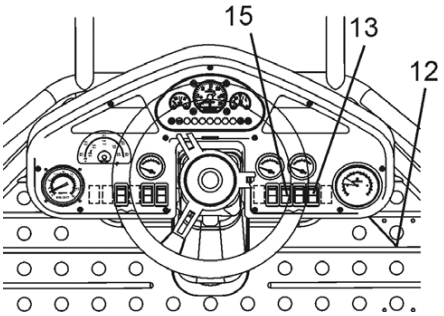
1. Press and hold release pushbutton (17, Figure 4-11) and slowly move propulsion control (19) in desired direction and safe speed of travel as determined by the conditions. The further the control is moved from the STOP position the greater the speed in that direction.

Figure 4-11



2. Place high/low engine speed control switch (13, Figure 4-12) to Low idle position.

Figure 4-12



3. If applied, reset the emergency stop switch STOP (20, Figure 4-11) by pulling upward on the switch. Engine will not crank if emergency stop switch is depressed.
4. Be sure Park Brake switch (Ⓟ) (15, Figure 4-12) is in the “Applied” position. The engine will not crank if Park Brake is in the “Off” position.

⚠ WARNING

Starting aids are extremely flammable and can explode.

Overloading the engine intake system could result in an explosion.

Avoid overloading the engineer intake system with starting aids.

NOTICE

Starter may overheat if operated longer than 30 seconds. If the engine fails to start, allow the starter to cool 2 to 3 minutes before trying again.

5. Turn ignition switch (12, Figure 4-12) to the START position. Once the engine starts, release switch immediately, and it will return to the ON position.

   NOTE: Start the engine and run it a short time, to warm up the engine and hydraulic systems, but do not run engine at idling speed for more than 10 minutes.

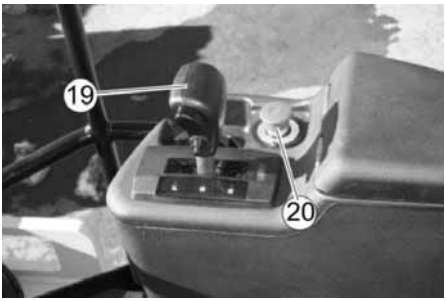
6. Verify that the indicator lights turn off after the engine has started. If lights remain on, shut down the engine and have the fault(s) corrected before continuing operation.

7. Check for the correct operation of the steering system with the engine running. Turn the steering wheel fully to the left and then to the right. The movement of the steering should be smooth and without hesitation. If not, do not operate the machine until the condition is corrected.

8. With engine running, release the parking brake control (Ⓟ) (15, Figure 4-12) and ensure Brake Light goes out. Observe area around machine for personnel/ obstructions. If the machine is equipped with a back-up alarm, move propulsion control ←F STOP R→ (19, Figure 4-11) in reverse direction to check that alarm is operational. Alarm should sound even before machine begins movement. Return propulsion control to STOP position. If alarm is not operational or does not sound immediately, do not operate the machine until the condition is corrected.

9. Check for correct operation of brake systems by driving the machine in forward and reverse directions using propulsion control ←F STOP R→ (19, Figure 4-13) to alternately accelerate and brake machine movement. Return propulsion control to STOP position. If brake system is not operating properly, do not operate the machine until the condition is corrected.

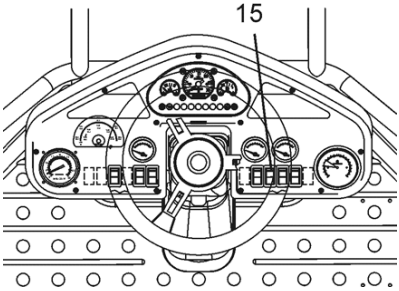
Figure 4-13



NOTE: Braking should be smooth and capable of bringing machine to a complete stop when propulsion control is placed in the STOP position.

10. Apply parking brake by switch (P) (15, Figure 4-14).

Figure 4-14



11. Check for correct operation of the emergency stop. While the propulsion control ←→(19, Figure 4-13) is in the STOP position, depress the red emergency STOP (STOP) (20).

NOTE: The engine should immediately shut down and the parking brake apply. After resetting the emergency brake, returning the ignition switch to the STOP (STOP) position and then turning it ON, the parking brake light will illuminate to indicate the brakes are applied.

A restart of the machine will be required after performing the above. Also, the emergency stop switch must be reset by pulling outward on the knob.

OPERATING THE MACHINE

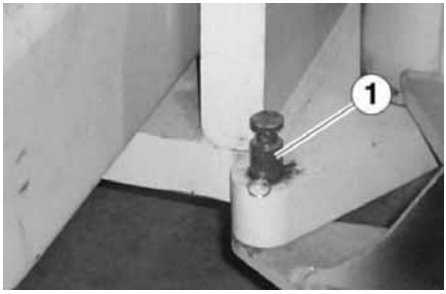
Operating suggestions and checks while operating machine

1. Always sound horn to alert persons before moving the machine in either direction. Allow sufficient time for persons to move from vehicle's path before putting the machine into motion.
2. Monitor all warning lights. If instruments or lights indicate a fault or problem, do not operate the machine until the condition(s) is corrected.
3. Monitor and ensure horn and back-up alarm functions and ensure that optional lights properly illuminate the working area.
4. Monitor working area for obstacles and persons.
5. Always move the steering wheel slowly and monitor the steering action.
6. Always apply the parking brake, turn off the engine, and remove the ignition key before leaving the operator station.

Propelling the machine (propulsion control)

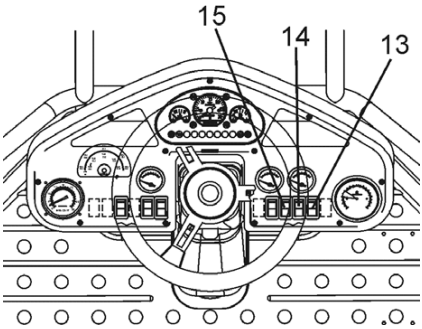
1. Always check travel and work areas for personnel and obstruction.
2. If the articulation lock pin (1, Figure 4-15) is in the locked position, move it to the stowed position as shown.

Figure 4-15



3. Place high/low engine speed switch (13, Figure 4-16) in the high position.

Figure 4-16



4. Release the park brake by pushing inward on the lower portion of the switch (15, Figure 4-16). Observe that the switch indicator light goes out.

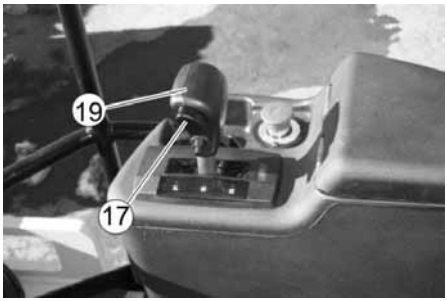
   NOTE: Operator must be seated when Park Brake is released or engine will stop after approximately two seconds.

5. The High (H) or Low (L) speed range must be selected on the speed range selector switch (14, Figure 4-16) prior to moving the machine.

   - The High speed range should only be used when traveling between work sites.
   - The Low speed range should always be used when compacting, or traveling inclined surfaces.
   - Do not shift speed range switch at speeds above 5 km/h (3 m.p.h.).

6. Press and hold release pushbutton (17, Figure 4-17) and slowly move propulsion control (19) in desired direction and safe speed of travel as determined by the conditions. The further the control is moved from the STOP position the greater the speed in that direction.

Figure 4-17

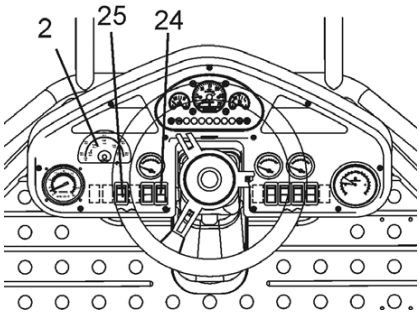


Drum Amplitude Selection

1. Press switch (25, Figure 4-18) to select required drum amplitude setting.

   - Select high amplitude for initial or thick lift soil compaction by depressing switch end marked ⩚.
   - Select low amplitude for final or thin layer of soil and when soil is loose and granular by depressing switch end marked ∧∧∧.

Figure 4-18



Drum Vibration Frequency Selection

1. Select frequency by rotating the selector switch (2,Figure 4-18) to the desired frequency. The dial is marked with the ranges of vibration frequency for ⩚ high and low ∧∧∧ amplitude. Refer to Table below for the natural frequency for common types of soil.

Table 1:

TYPES OF SOIL		NATURAL FREQUENCY	
Sand	Uniformly Graded	1400-1900 vpm	23-32 Hz
Sand	Wet	1300 vpm	22 Hz
Sandy Gravel	Dry	1500-1700 vpm	21 - 25 Hz
Clay (Padfoot)		1200 vpm	20 Hz
Silt	Firm	1500 - 1700 vpm	25 - 28 Hz
Silt	Loose	1300 - 1900 vpm	22 - 32 Hz

Drum Vibration Auto/Manual Selection (Optional)

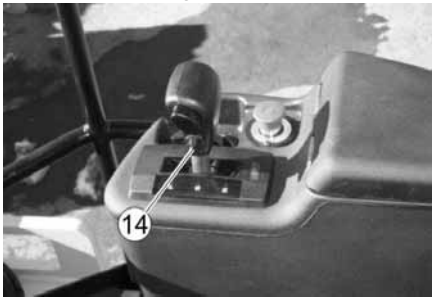
1. If available, select Auto or Manual vibration mode by pressing switch (24, Figure 4-18).

   NOTE: In Auto Mode, vibration will start when the machine reaches a speed of approximately 0.8 km/h (0.5 mph). Drum vibration must be On. See Drum Vibration On/Off Selection.

Drum Vibration On/Off Selection

1. Press button switch (14,Figure 4-19) on the propulsion control lever to turn On drum vibration. Press again to turn drum vibration Off.

Figure 4-19



CAUTION

Only switch on drum vibration while unit is in motion. Always switch off vibration before machine comes to a halt and never allow machine to vibrate when stationary.

DAILY PRECAUTIONS AFTER WORK

Perform the following precautions each day after work in addition to the daily routine maintenance on the lubrication chart:

1. Fill fuel tank to prevent condensation problems.
2. Clean drum scrapers of accumulated material.
3. If available, lock all vandal protection devices on the machine.

MOUNTING AND DISMOUNTING OF ATTACHMENTS

NOTE: The installation and removal of optional equipment must be done by trained service personnel.

MOVEMENT OF MACHINE BETWEEN WORK SITES

Before driving machine on public roads, check with your supervisor for instructions and information in respect to traffic regulations regarding construction machinery.

NOTE: For more information on transporting, refer to Section 1 - Safety.

Loading the machine under its own power (drive on) for transporting

1. Choose level ground which will solidly support the vehicle.
2. Clean the trailer surface and loading ramps.
3. Before loading machine, chock the wheels of the trailer.
4. A signalman must assist the operator with any necessary warnings.
5. Approach the transporter loading ramps squarely to make sure machine does not drop off a side of the ramp.
6. Drive machine onto transporter.
7. Shut engine off, apply parking brake and lock all lockable compartments.

Securing the machine to the transporter (Tie-down)

1. After loading the machine on the transporter, ensure that the articulation lock bar is in the locked position.
2. Shut down engine and remove ignition switch key.
3. Chock the drum.
4. Tie-down machine using a chain and tensioning device or other appropriate equipment to the tie-down points marked. 
5. The driver of the transport must be aware of its total weight, load on the axles, and the overall dimensions of the machine.

Raising the Operator Platform

Normally, it will not be necessary to raise the operator platform. All routine maintenance procedures and fluid checks can be made with the platform in the lowered position. However, if access to components under the operator's platform is required, use the following procedure to raise the operator's platform.

⚠ WARNING

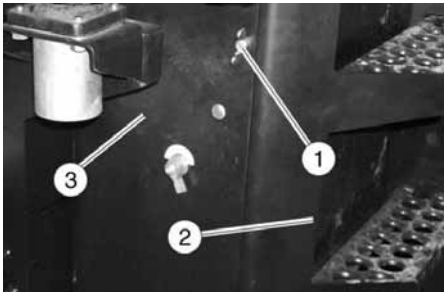
Crush area.

Can cause severe injury or death.

Stay clear when raising or lowering the operator platform.

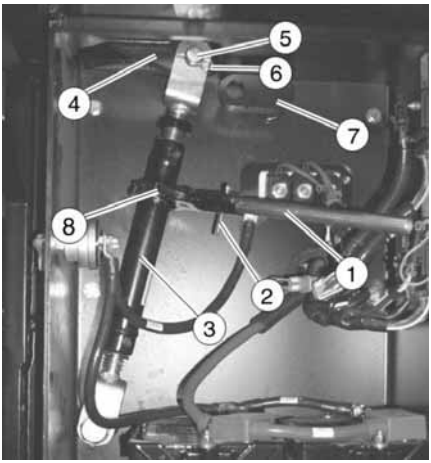
1. Shut off the engine.
2. Remove thumb screws (1, Figure 4-20) from each side of the step assembly (2).

Figure 4-20



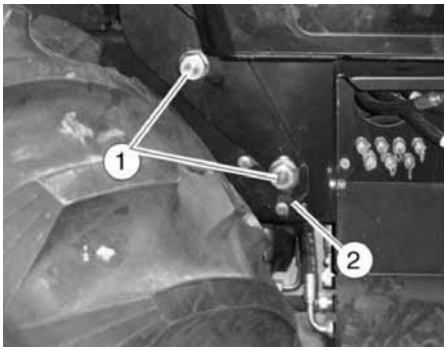
3. Lift up on the step assembly (2, Figure 4-20) until the pins in the step assembly can be disengaged from the slots in the battery box (3). Pull outward on the step assembly and carefully lower it to the ground.
4. If not already assembled, install lever (1, Figure 4-21) in jack (3) and secure with cotter pin (2).

Figure 4-21



5. Disconnect jack (3, Figure 4-21) from lug (7) by removing clip (6) and pin (5).
6. Reposition jack (3, Figure 4-21) to clevis plate (4) and attach with pin (5) and clip (6).
7. Adjust ratchet mechanism (8, Figure 4-21) to the raise position. Move lever (1) in the appropriate direction to raise the operator platform enough to remove force from ROPS support bolts (1, Figure 4-22).

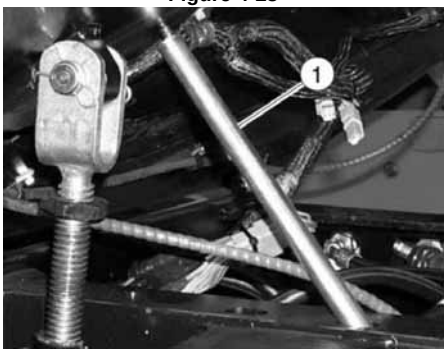
Figure 4-22



8. Remove bolts from the hydraulic tank side of the frame. Then, remove the bolts from the jack side of the ROPS support (1,).
9. Continue raising the platform using jack (3, Figure 4-21).

10. Remove pin (2, Figure 4-21) and lever (1) from the jack. Install the lever as a safety support between the frame and the operator's platform as shown in (Figure 4-23).

Figure 4-23



LOWERING THE OPERATOR PLATFORM

⚠ WARNING

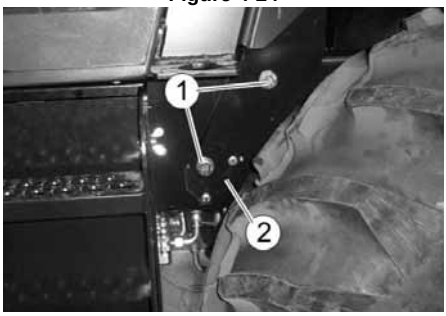
Crush area.

Stay clear when raising or lowering the operator platform.

Can cause severe injury or death.

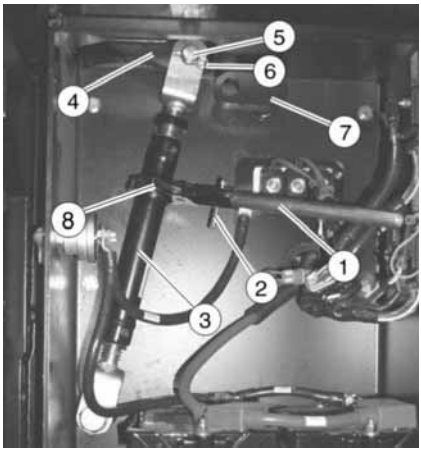
1. Remove jack lever (1, Figure 4-21), install it in the jack, then and secure it with the pin (2, Figure 4-21).
2. Adjust ratchet mechanism (8, Figure 4-21) to the lowering position. Move lever (1) in the appropriate position to lower the operator platform until the bolt holes in the ROPS support are aligned with the bolt holes in the frame. Install bolts (1, Figure 22) in the hydraulic tank side of the frame. Item (2, Figure 4-22) acts as a guide to align holes. Do not remove.
3. Install the two ROPS support bolts (1, Figure 4-24) on the jack side of the ROPS support. Item (2, Figure 4-22) acts as a guide to align holes. Do not remove.

Figure 4-24



4. Torque all four ROPS support bolts to 895 N·m (660 lb-ft).
5. Disconnect jack (3, Figure 4-25) from clevis plate (4) by removing clip (6) and pin (5).
6. Reposition jack to mounting lug (7, Figure 4-25) and attach with pin (5) and clip (6).

Figure 4-25



TOWING THE MACHINE - WITHOUT TOW VALVE

⚠ WARNING

Machine runaway condition could occur

Always chock the drum and wheels of a disabled machine or hitch it to its towing vehicle to prevent accidental movement while preparing the machine for towing

This is especially important if machine failure occurs on an incline

⚠ CAUTION

Towing the compactor is limited to off the job site, onto the transporter, off the transporter, and into the shop.

The machine used to tow the compactor should be heavier than or equal to the weight of the compactor being towed.

When towing, use a chain rated for a minimum of 13.6 metric tons (15 tons). Tow only on level ground or up a slight grade. Since the compactor braking system has been disabled, the towing machine is the only means of restraining the compactor while being towed.

Tow only on level ground or up a slight grade. Since the compactor braking system has been disabled, the towing machine is the only means of restraining the compactor while being towed.

Chock the disabled compactor whenever towing has stopped.

Refer to Transporting, Towing, and Roading in Section 1 before transporting the compactor.

Towing the compactor requires bypassing the propulsion pump and releasing the spring-applied brakes. Procedures to do so are described on the following pages.

NOTE: The propulsion pump is designed with a bypass function that consists of two multi-function valve cartridges used to disengage the propulsion system.

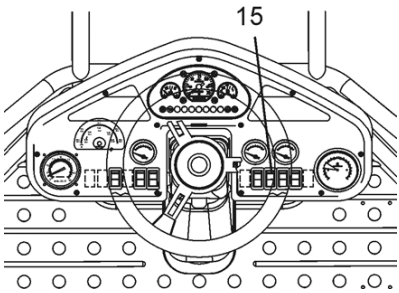
In order to tow the compactor, the propulsion pump must be bypassed and the spring-applied brakes must be released.

The spring applied brake will always be applied when the engine is not running unless it is manually released.

BYPASSING THE PROPULSION PUMP AND RELEASING THE BRAKES

1. Chock the drum and wheels.
2. Ensure that the Parking BRAKE Control (15, Figure 4-26) is in the Applied position.

Figure 4-26



3. Raise the operator's platform per instructions on Page 4-17 to gain access to SD-116 and SD-122 propulsion pump (1, Figure 4-27) and multi-function valves (2). The propulsion pump shown in Figure 4-28 is supplied on the SD-160, SD-190, and the SD-200. The procedures are similar.

Figure 4-27

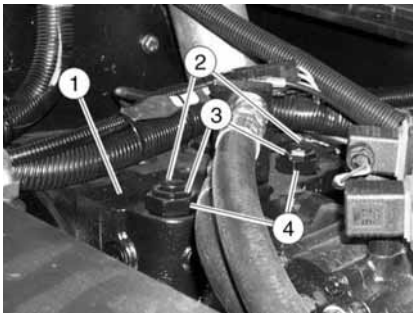
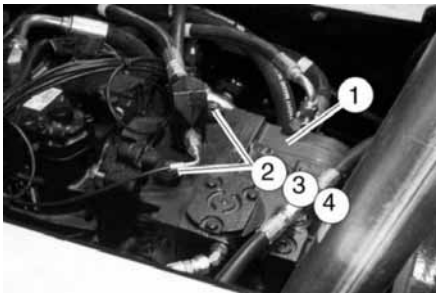


Figure 4-28



4. Place a wrench on the middle size hex (3, Figure 4-27 or Figure 4-28) and a second wrench on the large hex (4) to prevent cartridge rotation. Rotate the middle size hex three revolutions counter-clockwise (CCW) to open the bypass valve. Do not rotate more than three revolutions, as additional rotation will generate external leakage.
5. Press the release pushbutton on the propulsion control in the operator's compartment and move to the full “Forward” or “Reverse” position.
6. Lower the operator’s platform. See page 4-19.

   NOTE: If the engine will not run, a portable hydraulic pressure source (Porta-Power) is required to release the brakes prior to towing the compactor.

NOTICE

Dirt in the hydraulic system will lead to premature component failure.

A clean, contaminant-free system is extremely important to the machine's proper function.

Take extra care when working around or on the hydraulic system to ensure its complete cleanliness.

7. Clean the area around the SD-116, SD-122, SD-160, and SD-190 TF drum brake line connector (1, Figure 4-29). Then, disconnect the fitting from drum drive motor. Refer to Figure 4-30 for the location of the SD-200 TF drum brake line.

Figure 4-29

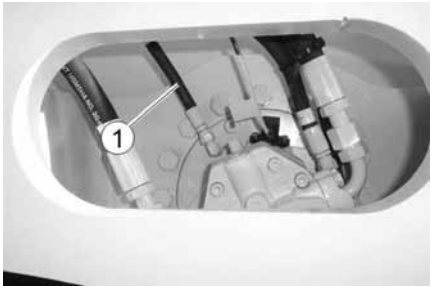
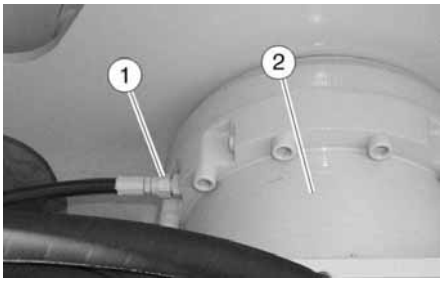


Figure 4-30



8. Thread a tee fitting into drum drive motor and connect brake line to the tee.

NOTICE

Do not exceed 24 bar (350 psi). Excessive pressure may result in seal damage.

9. Connect a Porta-Power to the tee and pressurize the system to 24 bar (350 psi) to release the brakes.
10. Secure the Porta-Power to the drum frame.

⚠ WARNING

Machine Runaway condition could occur.

Always chock the drum and wheels of a disabled machine or hitch it to its towing vehicle to prevent accidental movement while preparing the machine for towing.

11. Remove the chocks and tow the machine.
12. Chock the wheels and drum.

RESTORING OPERATION OF THE PROPULSION PUMP AND APPLYING THE BRAKE.

1. Chock the wheels and drum.
2. Relieve the Porta-Power hydraulic pressure.
3. Disconnect the Porta-Power, remove the tee and connect the brake line.
4. Move the Propulsion (Travel) Control to the NEUTRAL position.
5. Raise the operator's platform per instructions on Page 4-17 to gain access to SD-116 and SD-122 propulsion pump (1, Figure 4-31) and multi-function valves (2). The propulsion pump shown in Figure 4-32 is supplied on the SD-160, SD-190, and the SD-200. The procedures are similar.

Figure 4-31

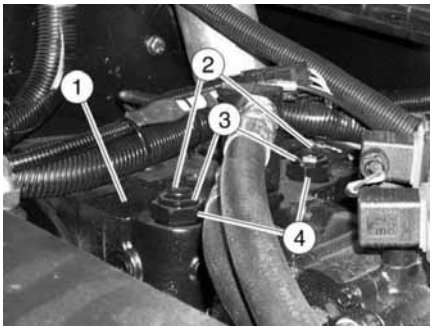
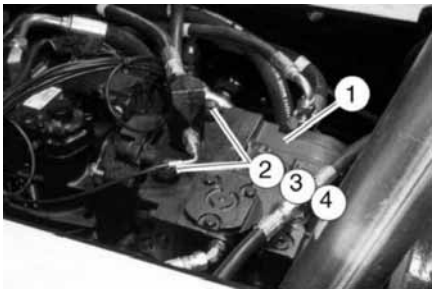


Figure 4-32



6. Place a wrench on the middle size hex (3, Figure 4-31 & Figure 4-32) and a second wrench on the large hex (4) to prevent cartridge rotation. Rotate the middle size hex three revolutions clockwise (CW) to close the bypass valve.
7. Lower the operator's platform. See page 4-19.
8. TURN ignition key to the "ON" position, pull the emergency stop up, and verify the park brake switch is illuminated to indicate the parking brake is applied.
9. Check the parking brake using the parking brake test switch procedures identified in Section 5 of these instructions
10. Close the hood of the engine compartment.

TOWING THE MACHINE - WITH TOW VALVE

⚠ WARNING

Machine runaway condition could occur.

Always chock the drum and wheels of a disabled machine or hitch it to its towing vehicle to prevent accidental movement while preparing the machine for towing.

This is especially important if machine failure occurs on an incline.

⚠ CAUTION

Towing the compactor is limited to off the job site, onto the transporter, off the transporter, and into the shop.

The machine used to tow the compactor should be heavier than or equal to the weight of the compactor being towed.

When towing, use a chain rated for a minimum of 13.6 metric tons (15 tons). Tow only on level ground or up a slight grade. Since the compactor braking system has been disabled, the towing machine is the only means of restraining the compactor while being towed.

Tow only on level ground or up a slight grade. Since the compactor braking system has been disabled, the towing machine is the only means of restraining the compactor while being towed.

Refer to Transporting, Towing and Roading in Section 1 before transporting the compactor.

In the event of an engine problem or other malfunction, it may become necessary to tow your compactor.

Towing the compactor requires bypassing the propulsion pump and releasing the spring-applied brakes. Procedures to do so are described below.

NOTE: The propulsion pump is designed with a bypass function that consists of two multi-function valve cartridges used to disengage the propulsion system.

In order to tow the compactor, the propulsion pump must be disengaged and the spring-applied brakes must be released.

The spring applied brake will always be applied when the engine is not running unless it is manually released.

The release of the spring-applied hydraulic brakes requires the use of a manually operated directional control valve (1, Figure 4-34 mounted to the brake valve solenoid positioned on the 3-section manifold (2, Figure 4-34). The manifold is bolted to the back wall of the battery compartment. A second manually operated check valve, (3, Figure 4-34).

1. Chock the drum and wheels.
2. Ensure that the Parking BRAKE control is in the “applied” position.
3. Open the battery compartment.
4. Remove the Warning Tag (Figure 4-33).

Figure 4-33

5. Attach the Warning Tag to the steering wheel.

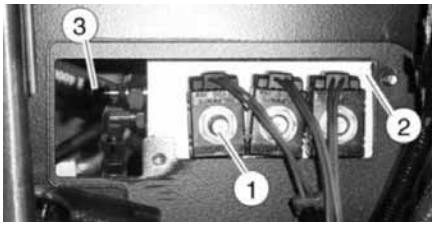
Return this tag to its storage position only after the brakes and propulsion pump have been returned to their normal conditions.

NOTE: Hydraulic pressure to release the brake is supplied via a machine-mounted hand pump (1, Figure 4-35*) equipped with a pressure gauge (2). It is located in the battery compartment.*

6. Access the battery compartment.

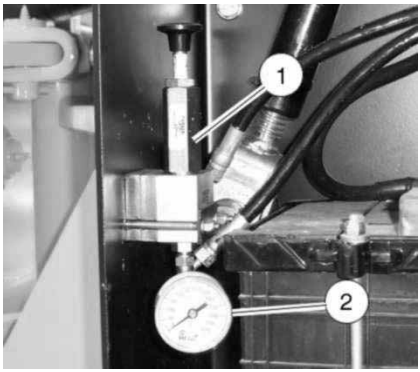
7. Press and rotate the knob on valve (1, Figure 4-34) ninety degrees until you feel it pop out.

Figure 4-34



8. Pull and rotate the knob on the valve (3, Figure 4-34) 90 degrees until you feel the knob drop into retracted detent.
9. Using the hand pump (1, Figure 4-35) pressurize the system to 24 bar (350 psi), registered on the gauge, to release the brakes.

Figure 4-35



10. Raise the operator's platform per instructions on Page 4-17 to gain access to SD-116 and SD-122 propulsion pump (1, Figure 4-36) and multi-function valves (2). The propulsion pump shown in Figure 4-37 is supplied on the SD-160, SD-190, and the SD-200. The procedures are similar.

Figure 4-36

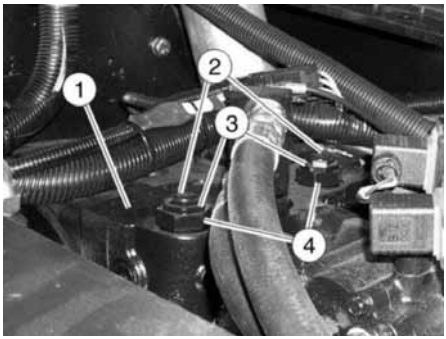
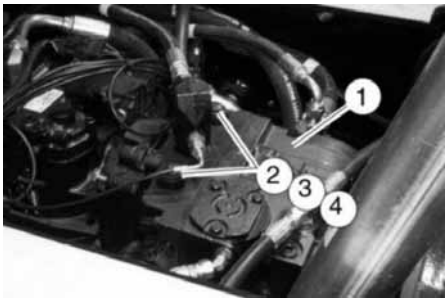


Figure 4-37



11. Place a wrench on the middle size hex (3, Figure 4-36 or Figure 4-37) and a second wrench on the large hex (4) to prevent cartridge rotation, rotate the middle size hex three revolutions counter-clockwise (CCW) to open the bypass valve. Do not rotate more than three revolutions, as additional rotation will generate external leakage.
12. Lower the operator's platform. See page 4-24.
13. Move the propulsion control to the full forward or reverse position.
14. Remove the chocks and tow the machine.
15. Chock the wheels and drum.

RESTORING OPERATION OF THE PROPULSION PUMP AND APPLYING THE BRAKE

⚠ WARNING

Failure to follow the procedure listed below can result in the loss of braking capacity on this machine during normal operation.

Follow all steps listed.

⚠ WARNING

The parking brake switch located on the operator's console will illuminate to indicate the parking brake is applied only if power is available to the electrical system, the ignition key is in the "ON" position and the E- STOP control has not been actuated or has been actuated and returned to the normal operating position.

1. Chock the drum and wheels.
2. Move the propulsion (Travel) control to the neutral position.
3. Raise the operator's platform per instructions on Page 4-17 to gain access to SD-116 and SD-122 propulsion pump (1, Figure 4-38) and multi-function valves (2). The propulsion pump shown in Figure 4-39 is supplied on the SD-160, SD-190, and the SD-200. The procedures are similar.

Figure 4-38

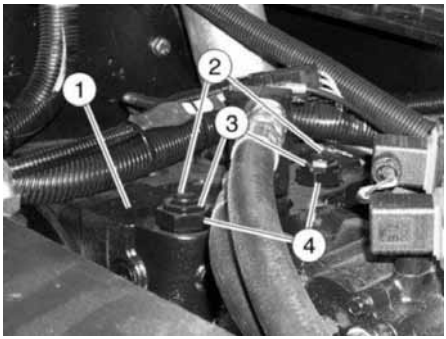
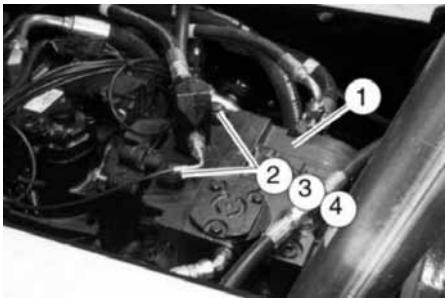


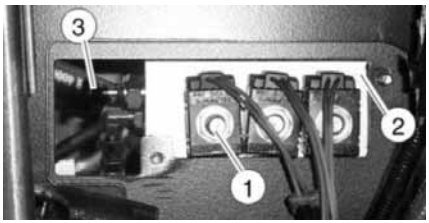
Figure 4-39



.

4. Place a wrench on the middle size hex (3, Figure 4-38 or Figure 4-39) and a second wrench on the large hex (4) to prevent cartridge rotation, rotate the middle size hex three revolutions clockwise (CW) to close the bypass valve.
5. Lower the operator's platform.
6. Access the battery compartment.
7. Pull and rotate the knob on valve (3, Figure 4-40) 90 degrees from the retracted detent position to the extended detent.

Figure 4-40



8. PRESS and twist the knob on valve (1, Figure 4-40) to return knob to lock position.
9. Verify the emergency control is pulled up, turn the key to the ON position to verify the brake is applied.
10. Check the parking brake using the procedures in Section 5 of this manual.
11. Locate the Warning Tag attached to the steering wheel.

⚠ WARNING

Return this tag to its storage position only after the brakes and propulsion pump have been returned to their normal conditions.

12. Remove the Warning tag from the steering wheel.
13. Return the Warning tag to its stored position in the battery compartment.
14. Close the hood of the engine compartment.

Genuine Parts

For Genuine Ingersoll Rand Parts, Service And Nearest Distributor
http://www.road-development.irco.com

800-227-0573 (US and Canada)
717-532-9181(Latin America - Ingersoll Rand)
49-5151-209-0 (Europe)
852-2527-0183 (Asia)

Genuine Ingersoll Rand Protective Lubricants

See Your Authorized Ingersoll Rand Dealer For Details

SECTION 5- MAINTENANCE INSTRUCTIONS

MAINTENANCE INSTRUCTIONS

In order to ensure safe operation, optimum performance, and to protect your warranty, use only genuine Ingersoll Rand replacement parts.

⚠ WARNING

Unexpected machine motion or moving parts can cut or crush.

Install the articulation lock bar, apply the parking brake and shut down the engine before working on the machine.

⚠ WARNING

Improper maintenance can cause severe injury or death.

Read and understand SECTION 1 - SAFETY PRECAUTIONS AND GUIDELINES before you perform any maintenance, service or repairs.

GENERAL MAINTENANCE INFORMATION

To prevent minor irregularities from developing into serious conditions, several other services or checks are recommended for the same intervals as the periodic lubrication. The purpose of these services or checks is to ensure the uninterrupted and safe operation of the unit by revealing the need for adjustment caused by normal seat belt wear.

Prior to conducting any maintenance work, ensure that the following instructions are observed:

1. Park the machine on firm level ground.
2. Shut down the engine and allow it to cool.

   NOTE: Replacement of engine oil, planetary wheel end gear oil, carrier gear oil, differential and brake assembly gear oil, torque hub (drum drive) and the transfer case gear oil require the machine oil to be at operating temperatures.

3. Following shutdown, allow hydraulic oil pressures to fall before working on the hydraulic hose installations.

   NOTE: Optional brake release valve/pump and hosing will retain pressurized oil when brake is being held in the released position.

4. Disconnect battery power using the optional master switch or remove the ground terminal/s and cover exposed terminals before working on the machine's electrical system. Certain troubleshooting procedures will require that battery terminals not be removed.

5. Thoroughly wash all fittings, caps, plugs, etc. with nonflammable, nontoxic cleaning solution before servicing, to prevent dirt from entering while performing the service.

Handling Fluids and Oil, Fuel Filters

1. When draining fluids, ensure that adequate sealable containers are available and that every care is taken to prevent spillage.
2. Always ensure waste fluids are disposed of in an environmentally safe manner.
3. Always ensure that used filters are stored in secure containers and disposed of in an environmentally safe manner.

INITIAL BREAK-IN MAINTENANCE - 50 HOURS

New equipment requires the following initial one time break-in maintenance after 50 hours of operation. After this initial phase, the intervals listed in the following pages should be followed.

1. Torque the horizontal and vertical swivel pins to the following values.
    - SD-116, SD-122 and SD-160 TF Series - (540 N-m) (400 lb-ft)
    - SD-190 and SD-200 TF Series - (1080 N-m) (800 lb-ft.)
2. Change the axle wheel ends oil. Refer to Page 5-59 for procedures.
3. Change the axle differential and brake assembly oil. Refer to Page 5-60 for procedure.
4. Change the eccentric oil. Refer to Page 5-63 or procedures.
5. Change the carrier oil. Refer to Page 5-64 for procedures.
6. Add hydraulic oil to level of sight glass on hydraulic tank. Refer to Page 5-34.
7. Remove particles from the (optional) pre-cleaner located on the air intake. Remove the cover and tip the pre-cleaner to remove particles.
8. Inspect and surface clean the breather located on the carrier assembly. Refer to Page 5-43.
9. Grease the carrier assembly. Refer to Page 5-43.
10. Grease the horizontal and the vertical swivel pins. Refer to Page 5-41.

INITIAL BREAK-IN MAINTENANCE - 150 HOURS

New equipment requires the following initial one time break-in maintenance after 150 hours of operation. After this initial phase, the intervals listed in the following pages should be followed.

1. Change the torque hub (drum drive) oil. Refer to Page 5-71.

MAINTENANCE SCHEDULE

The maintenance chart (Table 5.1) shows those items that require regular service and the interval at which service should be performed. A regular service program should be geared to the items listed under each interval. These intervals are based on average operating conditions and manufacturer's recommendations. In the event of extremely severe, dusty or wet operating conditions, more frequent maintenance than specified may be necessary.

Table 1:

MAINTENANCE SCHEDULE							
Function	Specification	Interval					
		A - As Required B - 10 Hours (Daily) C - 50 Hours (Weekly) D - 500 Hours (Semi-Annual) E - 1000 Hours (Annual)					
		A	B	C	D	E	Page Ref.
Check Air Cleaner Connections and Ducts For Leaks	correct as required	X					5-10
Checking and Removing the Air Cleaner Primary Element	indicator light	X					5-10
Checking and Removing the Air Cleaner Primary Element		X					5-12
Replacing the Air Cleaner Elements		X					5-14
Cleaning / Washing the Machine	Refer to Section 8	X					5-16
Torque Loose Bolted Connections	Refer to Section 9	X					5-18
Check All Shock Mounts		X					5-18
Check Engine Oil Level	dipstick full mark		X				5-18
Check Fuel Level	Fuel level gauge		X				5-21
Drain Water from Fuel Filter/ Water Separator - SD-116, -122 (155 HP Electronic Engine) & SD-122, -160 (173 HP Mechanical Engine)			X				5-23

MAINTENANCE SCHEDULE							
Function	Specification	Interval					
		A - As Required B - 10 Hours (Daily) C - 50 Hours (Weekly) D - 500 Hours (Semi-Annual) E - 1000 Hours (Annual)					
		A	B	C	D	E	Page Ref.
Drain Water from Fuel Filter/ Water Separator - SD-116, -122 (155 HP Electronic Engine			X				5-24
Drain Water from Fuel Filter/ Water Separator - SD-190 and SD -200 (205 HP Tier 2 Electronic Engine			X				5-25
Drain Water from Fuel Filter/ Water Separator - SD-190 and SD -200 (203 HP Tier 3 Electronic Engine			X				5-26
Inspect Cooling Fan			X				5-27
Inspect Cooling Fan Drive Belts			x				5-27
Lamp (Indicator Lights) Check			X				5-28
Check Parking Brake Using the Parking Brake Test Switch			X				5-28
Check Condition Of Drum and Clean			X				5-29
Check Drum Scraper Setting			X				5-30
Check Seat Belt			X				5-30
Check Batteries, Cables and Grease Terminals				X			5-31
Check Tire Air Pressure	1.1 bar (16 psi)			X			5-32
Torque Wheel Nuts	550 Nm (407 lb-ft)			X			5-34
Check Air Cleaner Integrity and Filter Elements				X			5-34
Check Hydraulic Oil Level	Refer to Section 8			X			5-34

MAINTENANCE SCHEDULE							
Function	Specification	Interval					
		A - As Required B - 10 Hours (Daily) C - 50 Hours (Weekly) D - 500 Hours (Semi-Annual) E - 1000 Hours (Annual)					
		A	B	C	D	E	Page Ref.
Check Eccentric Oil Level	Refer to Section 8			X			5-35
Check Wheel Ends Oil Levels	Refer to Section 8			X			5-36
Check Carrier Oil Level	Refer to Section 8			X			5-37
Check Axle Transfer Case Oil Level	Refer to Section 8			X			5-38
Check Axle Differential / Brake Oil Level	Refer to Section 8			X			5-38
Check Drum Drive (Torque Hub) Oil Level - SD-116, -122 ,-160, and -190	Refer to Section 8			X			5-39
Check Drum Drive (Torque Hub) Oil Level - SD-200	Refer to Section 8			X			5-40
Grease Horizontal / Vertical Swivel Pins - SD -116, -122 & -160.	Refer to Section 8			X			5-41
Grease Horizontal / Vertical Swivel Pins - SD-190 & -200	Refer to Section 8			x			5-42
Clean The Carrier Breather				x			5-43
Grease The Carrier Seal	Refer to Section 8			x			5-43
Grease Steering Cylinder Pins	Refer to Section 8				x		5-44
Change Engine Oil and Filter	Refer to Section 8				X		5-44
Change Three Hydraulic Oil Filters					X		5-47

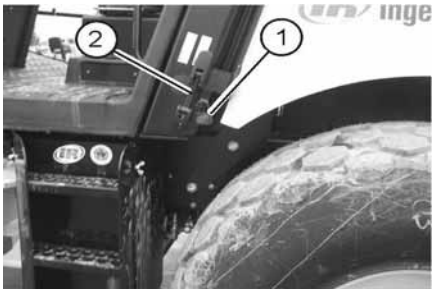
MAINTENANCE SCHEDULE							
Function	Specification	Interval					
		A - As Required B - 10 Hours (Daily) C - 50 Hours (Weekly) D - 500 Hours (Semi-Annual) E - 1000 Hours (Annual)					
		A	B	C	D	E	Page Ref.
Replace In-Line Fuel Filter - Tier 2 Engines					X		5-49
Replace In-Line Fuel Filter - Tier 3 Engines					X		5-50
Change Fuel Filter Water Separator Element - SD-116, SD-122 155 HP Electronic Engine, SD-122, SD-160 173 HP Mechanical Engine					X		5-51
Change Fuel Filter SD-116, SD-122 155 HP Electronic Engine, SD-122, SD-160 173 HP Mechanical Engine					x		5-52
Change Fuel Filter SD-190 and -200 205 HP Tier 2 Electronic Engine					x		5-53
Change Fuel Filter Water Separator Element - SD-190 and -200 203 HP Tier 3 Electronic Engine							5-54
Clean Axle Breathers					X		5-55
Grease The Ratchet Jack	Refer to Section 8				X		5-56
Check Cooling System Integrity					X		5-56
Torque The Horizontal Swivel Pin - SD-116, -122, and -160						X	5-57
Torque The Vertical Swivel Pin - SD-116, -122, and -160							5-58
Torque The Horizontal Swivel Pin - SD-190 & -200						X	5-58

MAINTENANCE SCHEDULE							
Function	Specification	Interval					
		A - As Required B - 10 Hours (Daily) C - 50 Hours (Weekly) D - 500 Hours (Semi-Annual) E - 1000 Hours (Annual)					
		A	B	C	D	E	Page Ref.
Torque The Vertical Swivel Pin - SD-190 & -200						x	5-59
Change Axle Wheel Ends Oil	Refer to Section 8					X	5-59
Change Axle Differential Brake Oil	Refer to Section 8					X	5-60
Change Axle Transfer Case Oil	Refer to Section 8					x	5-62
Change Eccentric Oil	Refer to Section 8					X	5-63
Change Carrier Oil	Refer to Section 8					X	5-63
Drain and Flush Radiator, Replace Engine Coolant						x	5-66
Drain and Clean Hydraulic Tank and Three Hydraulic Suction Strainers						X	5-69
Check Engine Belt and Tensioner						X	5-70
Adjust and Set Valve Clearance						X	5-71
Change Drum Drive (Torque Hub) Oil - SD-116, -122, -160 and -190	Refer to Section 8					x	5-71
Change Drum Drive (Torque Hub) Oil Level - SD-200	Refer to Section 8					x	5-72

ACCESS ENGINE COMPARTMENT

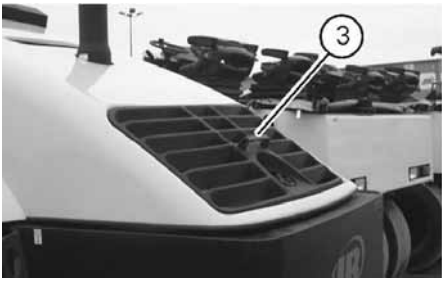
To access the engine and air cleaner, it is necessary to open the fiberglass hood.

Figure 5-1



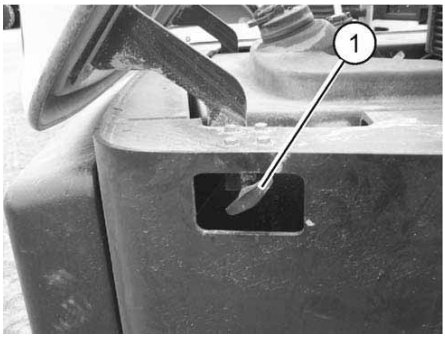
1. Open and remove the lock (1, Figure 5-1) from the draw latch (2, Figure 5-1).
2. Pull down the draw latch (2, Figure 5-1) on both sides of the machine.

Figure 5-2



3. To open the hood, pull up the handle (3, Figure 5-2) away from you until it catches inside the prop pin.
4. To close the hood, pull the prop pin handle (1, Figure 5-3) outwards.

Figure 5-3



5. Slowly push the handle (3, Figure 5-2) toward you until the hood is down.
6. Pull up the two draw latches (2, Figure 5-1) on both sides of the machine.
7. Put a lock (1, Figure 5-1) on one of the draw latches and lock.

NOTICE

Keep the hood locked at all times, except to access the engine.

ROUTINE MAINTENANCE - AS REQUIRED

Check Air Cleaner Connections and Ducts For Leaks

Ensure that all connections between the air cleaner and the engine are tight and sealed.

Checking and Removing the Air Cleaner Primary Element

Maintenance of the air cleaner is due only when the air cleaner restriction indicator light (located on the operator's console) is illuminated. This indicates that the air cleaner is plugged and requires attention.

The air cleaner is a dry type with two elements. A primary element, that is replaceable or can be cleaned, and a safety element that should only be replaced and never cleaned. The safety element should be replaced after every third primary element cleaning or change.

NOTE: Dust that gets by the air cleaner system can often be detected by looking for dust streaks on the air transfer tubing or just inside the intake manifold inlet.

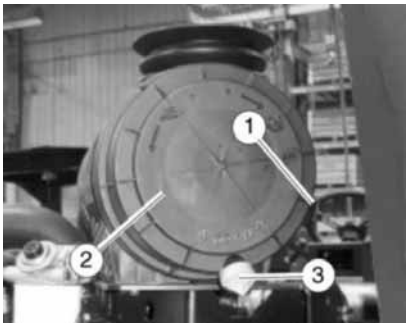
⚠ CAUTION

Raw, unfiltered air can cause engine damage.

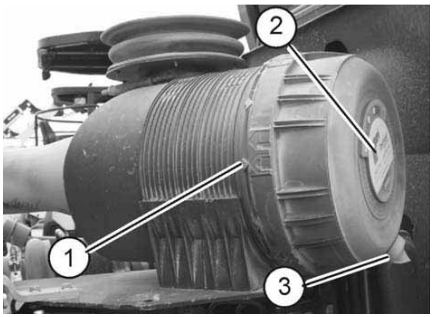
Never service the air cleaner while the engine is running.

1. Open clip (1, Figure 5-4) and remove air filter housing cover (2) to access the filter elements. Check evacuator valve (3) to see that it is not inverted, damaged or plugged.

Figure 5-4



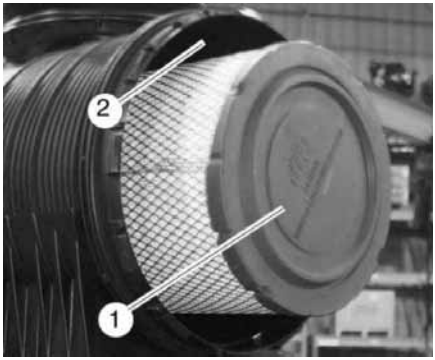
TIER II ENGINES



TIER III ENGINES

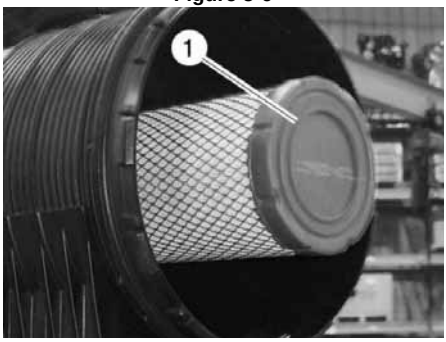
2. Gently remove primary filter element (1, Figure 5-5).

Figure 5-5



3. Ensure that safety element (1, Figure 5-6) is secure and clean the inside of the filter housing (2, Figure 5-5) with compressed air.

Figure 5-6



Cleaning the Primary Air Cleaner Element

⚠ WARNING

When using compressed air, water jets, or steam cleaning methods, ensure that appropriate protective clothing is worn to protect eyes and exposed parts of the body.

NOTICE

Excessive air pressure can damage the primary air element.

Air pressure should not exceed 6.89 bar (100 psi) from a 3 cm (1/8 inch) diameter nozzle located 5 cm (2 in.) away from the filter.

Excessive water pressure can damage the primary air element.

Pressure should not exceed 2.75 bar (40 psi) from a water hose. Do not use a nozzle.

NOTE: No attempt should be made to clean the safety element. For maximum engine protection, replace the safety element every third primary element change or annually.

1. To clean the primary air cleaner element using the dry method, perform the following:

   - Carefully direct the compressed air, not to exceed 6.89 bar (100 psi), at an angle onto the inside surface of the primary air cleaner element, (Figure 5-7).

Figure 5-7

   - Move air jet up and down the pleats until no additional dust is being removed. Be careful not to rupture the element pleats with the air nozzle.
   - Inspect for holes and tears by looking through the primary air cleaner element toward a bright light. Check for damaged gaskets or dented metal parts. DO NOT REUSE DAMAGED AIR CLEANER ELEMENTS.

⚠ WARNING

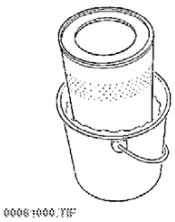
Never use gasoline or solvents to clean the elements.

Gasoline and solvents are extremely flammable and may cause serious injury or death.

2. To clean the primary air cleaner element using the wet method, perform the following:

   - Remove loose dirt from the primary filter element using a water hose.
   - Soak the primary filter element in a non-sudsing detergent solution for at least 15 minutes but not more than 24 hours. Refer to Figure 5-8.

Figure 5-8

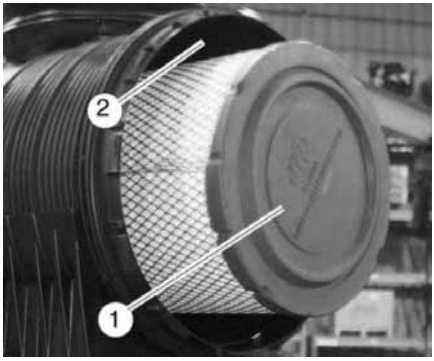


- Swish the primary filter element around in the solution to loosen dirt particles and put them into suspension in the solution.
- Rinse the primary filter element from the “clean” side to the “dirty” side with a gentle stream of water. Rinse from both sides if necessary.
- Dry the primary filter element before reusing. Circulate warm air at LESS than 71 ° C (160 ° F). DO NOT USE A LIGHT BULB TO DRY THE PRIMARY FILTER ELEMENT.
- Inspect for holes and tears by looking through the primary filter element toward a bright light. Check for damaged gaskets or dented metal parts. DO NOT REUSE DAMAGED FILTER ELEMENTS.
- Protect the filter from dust/damage while drying.

Replacing the Air Cleaner Elements

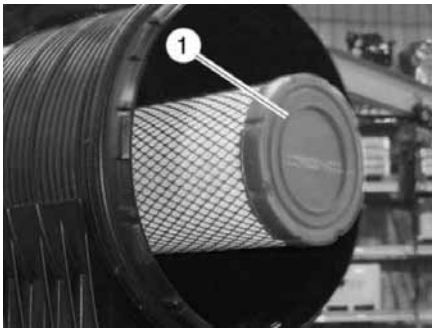
1. Examine the new or cleaned primary air cleaner element (1, Figure 5-9) for torn or damaged pleats, liners or gaskets or bent end covers. Discard if damaged and replace.

Figure 5-9



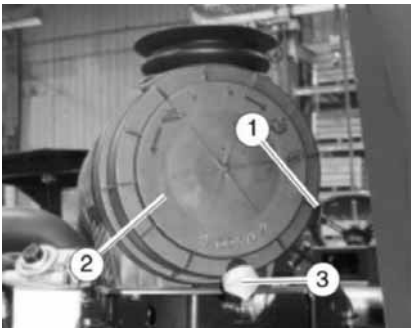
2. Clean the inside of the air cleaner (2, Figure 5-9).
3. Pull the safety air cleaner element (1, Figure 5-10) out of the housing.

Figure 5-10

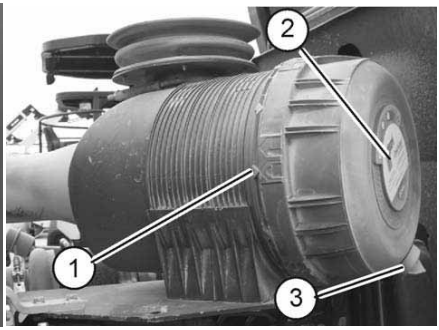


4. Examine the safety air cleaner element and replace if:
    - Torn or perforated pleats are present.
    - Records indicate the primary element has been replaced three times or 1 year duration has passed since the last replacement.
5. Carefully install the replacement safety element (1, Figure 5-10) by pushing it straight into housing.
6. Carefully install the cleaned or replacement primary element (1, Figure 5-9).
7. Ensure the evacuator valve (3, Figure 5-11) is clear.
8. Install air cleaner cover (2, Figure 5-11) and secure with clip (1). Ensure clip is tight.

Figure 5-11



TIER II ENGINES



TIER III ENGINES

9. Inspect all air intake piping and joints between air cleaner and engine air inlet to ensure no dusty air can enter.

Cleaning / Washing The Machine

Anytime a machine or component is washed down with a hose or high pressure wash system, there is the possibility that water or other contaminants can be forced into bearings, seals, or other components.

Ensure that after cleaning the machine is completely lubricated immediately, especially in the areas that water or contaminants may have entered. These areas include the vertical and horizontal swivel pins and bushings and cylinder pins if the fittings are not plugged with a pipe plug. Plugs indicate a maintenance free bearing. Refer to Section 8 for complete lubrication specifications.

The complete machine must be given a weekly cleaning. Daily cleaning will be required if material is adhering to the drum.

NOTICE

Protect all electrical components and control panels against entry of water or steam when using high pressure cleaning methods.

Do not use harsh cleansers which may damage painted surfaces.

After washing, run the engine until it is warm. This will help to dry out engine components and electrical connections.

Lubricate all grease fittings immediately following the cleaning of the machine.

Prior to cleaning:

1. Remove any material jammed between the drum (1, Figure 5-12 & Figure 5-13) and its scraper (2).

Figure 5-12

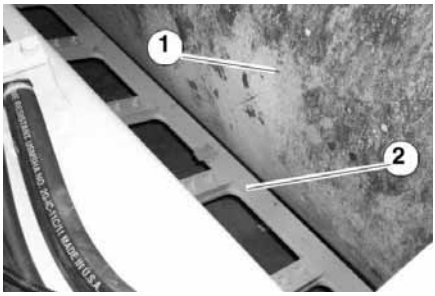
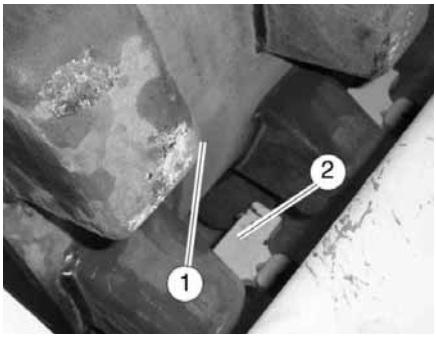


Figure 5-13



2. Clean the evacuator valve (3, Figure 5-11) and inspect the rubber for cracks Replace as required.

After cleaning:

1. Remove all material added for protection from water entry.
2. Grease fittings immediately with the exception of the optional self lubricating bearings.
3. Check for defects in the air cleaner ducts and correct as required.
4. Check air intake for accumulation of debris that could restrict air flow and clear.

5. Check air cleaner mounting hardware for security and correct as required.
6. Check all hoses for cracks, chafing, or deterioration, and replace at the first sign of probable failure.

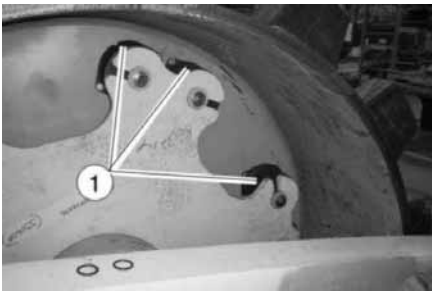
Torque Loose Bolted Connections

1. Properly torque all loose nuts or bolts found during the daily inspection. Refer to Section 9.
2. Replace self locking nuts if they have been loosened.

Check All Shock Mounts

1. Check all shock mounts (1, Figure 5-14) periodically for looseness or deterioration.

Figure 5-14



2. Replace shock mounts (one at a time) that have torn or excessively cracked rubber. Torque all capscrews and nuts as necessary.

10 HOUR OR DAILY ROUTINE MAINTENANCE

Check Engine Oil Level

1. Park machine on stable, level surface and shut down engine.
2. Wait at least ten minutes for the engine to cool following shutdown.
3. Remove dipstick (1, Figure 5-15 for Tier 2 engines; Figure 5-16 for Tier 3 engines) and wipe it clean with a lint-free, dry cloth. Push dipstick back into engine.

Figure 5-15

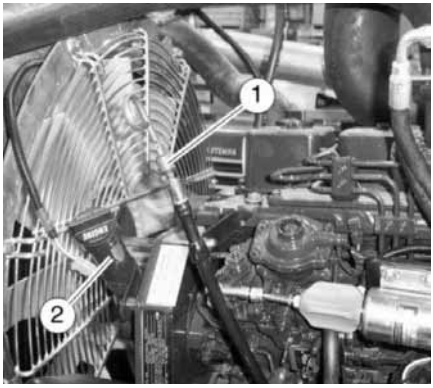
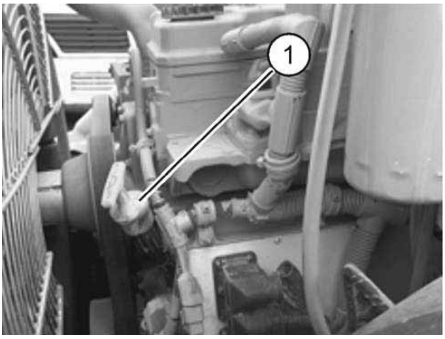


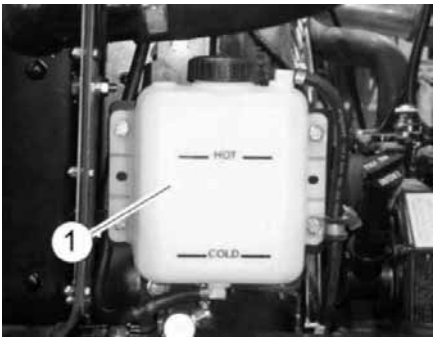
Figure 5-16



4. Remove the dipstick and observe oil level. The oil level must be between the full - top mark and low-bottom mark.
5. If oil level is low, add oil through the fill area (2, Figure 5-15 for Tier 2 engines; 1, Figure 5-16 for Tier 3 engines) to bring oil to the proper level. Refer to Section 8 for oil specifications.
6. Start engine, allow to run for one minute and recheck oil level. Add oil as necessary.

Check Engine Coolant Level, Clean Radiator and Oil Cooler

Figure 5-17



⚠ WARNING

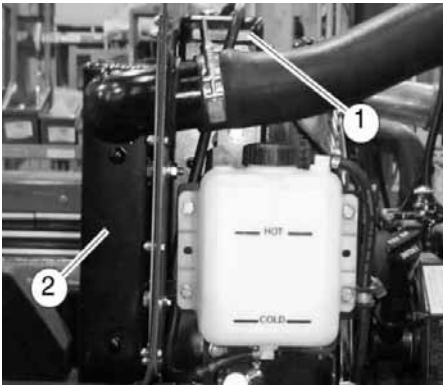
Injury can occur when removing the radiator cap.

Steam or fluid escaping from the radiator can burn. Rust inhibitor contains alkali, avoid contact with skin and eyes.

Always shut down the engine and allow it to cool down before removing the radiator cap. Remove cap slowly to relieve pressure. Avoid contact with steam or escaping fluid.

1. Check engine coolant level by observing the level in the coolant recovery bottle (1, Figure 5-17). Coolant level should be at the “COLD” level mark if the engine is cold or at the “HOT” level if the engine is at operating temperature. If required, add a 50-50 mixture of anti-freeze and water to bring coolant to the proper level.
2. Check for signs of clogging of exposed cooling fins on the radiator (1, Figure 5-18) and oil cooler (2).

Figure 5-18



⚠ WARNING

When using compressed air, water jets or steam cleaning methods, ensure that appropriate protective clothing is worn to protect eyes and exposed parts of the body.

3. If clogging is dried on dirt, use a suitable brush to remove from cooling fins. If dry dust is present, use compressed air to clean.
4. In case of severe clogging due to fluid leaks, apply diesel fuel or a commercial cleaning detergent. Let it soak in, then wash it off with a water jet.

Check Fuel Level

⚠ WARNING

Fuel is flammable. May cause severe injury or death.

Shut down the engine, extinguish all open flames and do not smoke while filling the tank.

Always wipe up any spilled fuel.

1. Check fuel level gauge (7, Figure 5-19). If fuel is required, unlock fuel cap (1, Figure 5-20) and remove fuel cap and add No. 2 diesel fuel.

Figure 5-19

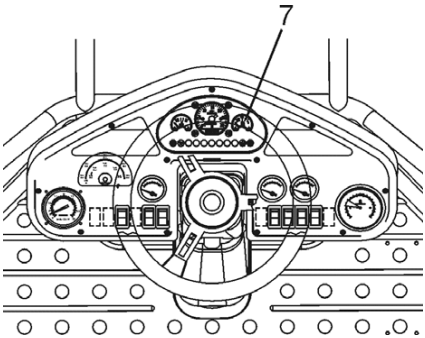
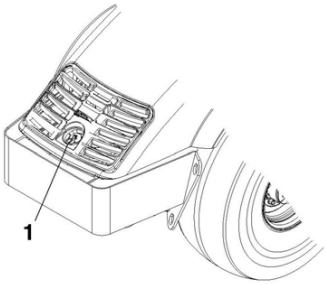


Figure 5-20



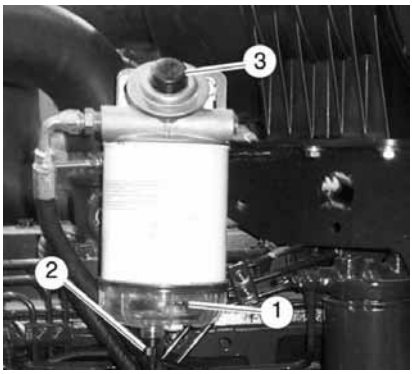
NOTICE

Never allow fuel tank to completely empty, otherwise, the entire fuel system will require bleeding. The fuel tank should always be filled with #2 diesel fuel at the end of the shift to prevent condensation.

Drain Water from Fuel Filter/Water Separator - SD-116, -122 (155 HP Electronic Engine) & SD-122, -160 (173 HP Mechanical Engine)

The 155 horsepower Electronic Cummins engine, standard on the SD-116 and SD-122 and the 173 horsepower Mechanical Cummins engine, optional on the SD-122 and standard on the SD-160 is equipped with fuel/water separator. (Figure 5-21).

Figure 5-21

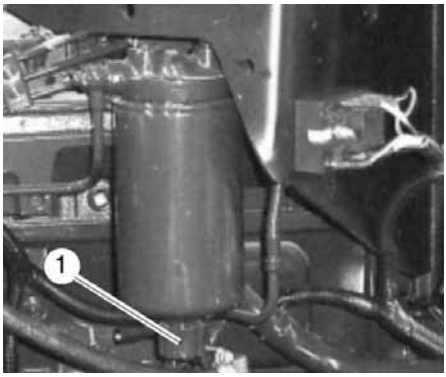


Filter/water separator (Figure 5-21) must be drained of accumulated water and sediment daily. To drain the water follow the steps listed below.

1. Park machine on stable, level surface and shut down engine.
2. Open the hood.
3. Place a container under the drain valve to catch any liquid.
4. Inspect the see-thru spin-on bowl (1, Figure 5-21).
5. Open the containment drain valve (2, Figure 5-21) by turning counterclockwise sufficiently to allow contaminants and water to drain from the see-thru element.
6. Push the pump (3) until the filter sump is clear of water.
7. Hand tighten the containment drain valve (2).

Drain Water from Fuel Filter/Water Separator - SD-116, -122 (155 HP Electronic Engine)

Figure 5-22



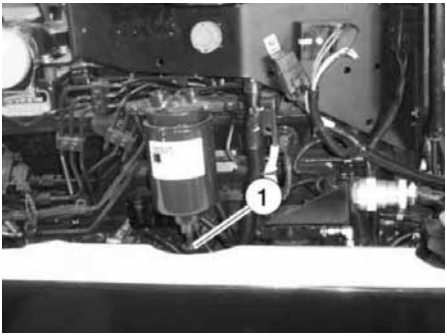
Filter/water separator (Figure 5-22) must be drained of accumulated water and sediment daily. To drain the water follow the steps listed below.

1. Park machine on stable, level surface and shut down engine.
2. Open the hood.
3. Open the containment drain valve (1, Figure 5-22) by turning counterclockwise sufficiently to allow contaminants and water to drain. If more than 59 mL (2 ounces) are removed, the fuel filter must be refilled with fuel.
4. Close the drain valve.

Drain Water from Fuel Filter/Water Separator - SD-190 & SD-200 (205 HP Electronic Tier II Engine)

Filter/water separator (Figure 5-23) must be drained of accumulated water and sediment daily. To drain the water follow the steps listed below

Figure 5-23

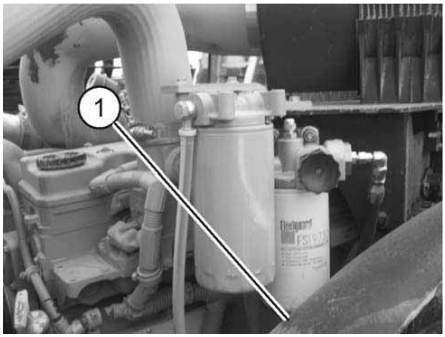


1. Park machine on stable, level surface and shut down engine.
2. Place a container under the drain valve to catch any liquid.
3. Open the hood.
4. Lift the containment drain valve (1, Figure 5-23) sufficiently to allow contaminants and water to drain. If more than 59 mL (2 ounces) are removed, the fuel filter must be refilled with fuel.

Drain Water from Fuel Filter/Water Separator - SD-190 & SD-200 (203 HP Electronic Tier III Engine)

Filter/water separator (Figure 5-24) must be drained of accumulated water and sediment daily. To drain the water follow the steps listed below:

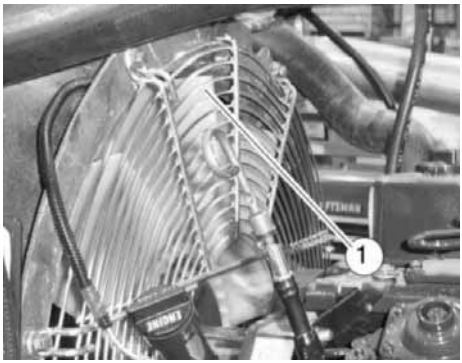
Figure 5-24



1. Park machine on stable, level surface and shut down engine.
2. Place a container under the drain valve to catch any liquid.
3. Open the hood.
4. Open the containment drain valve (1, Figure 5-24) by turning counterclockwisesufficiently to allow contaminants and water to drain. If more than 59 mL (2 ounces) are removed the fuel filter must be refilled with fuel.

Inspect Cooling Fan

Figure 5-25

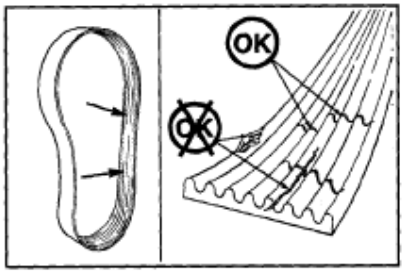


1. Park machine on stable, level surface and shut down engine.
2. Open machine hood.
3. Inspect the cooling fan (1, Figure 5-25) for cracks.
4. Verify the fan is securely mounted.
5. Replace fan if damaged and tighten mounting hardware.

Inspect Cooling Fan Drive Belts

1. Park machine on stable, level surface and shut down engine.
2. Open machine hood.
3. Inspect the drive belt (Figure 5-26) for damage. Transverse (across the belt width) cracks are acceptable. Longitudinal (direction of the belt length) are not acceptable and the belt must be replaced.

Figure 5-26



4. Inspect for frayed areas and if found or a piece of the belt is missing the belt must be replaced.
5. Refer to the Engine Manual for additional items to inspect if the belt is to be removed and for the correct belt tensioning procedure.

Lamp (Indicator Light) Check

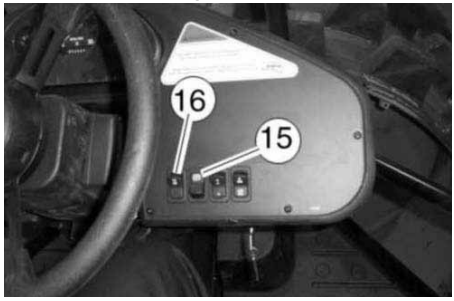
Performing an indicator lamp/light check will vary according to specific machine options. Under normal circumstances only the Alternator NOT CHARGING, LOW Oil Pressure and the HIGH Hydraulic Oil Temperature lamps will light when the key is rotated to the key “ON” position.

If this does not occur contact service personnel immediately and do not use the machine until corrected.

Check Parking Brake Using The Parking Brake Test Switch

The parking brake test switch (16, Figure 5-27) must be used to verify the parking brake is capable of holding the machine from moving with the parking brake applied, engine running, propulsion lever release pushbutton depressed and the propulsion control moved forward or reverse. This must be done with the parking brake switch (15) ON and the light illuminated. When the parking brake switch is ON it disables the propulsion control (19, Figure 5-28). Pushing the test switch (16) on and holding it on will enable propulsion control for testing.

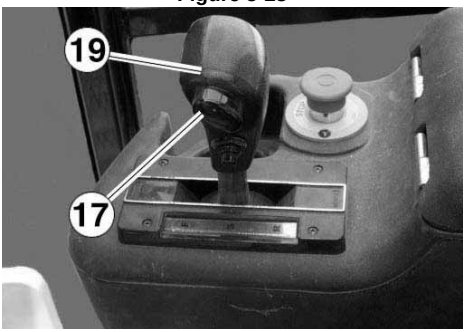
Figure 5-27



To test the Parking Brake Switch you must:

1. Start the machine and position it in an area clear of personnel and obstructions.
2. Press the parking brake switch (15, Figure 5-27), The parking brake light will illuminate.
3. Press and hold the parking brake test switch (16, Figure 5-27). While holding this switch, perform Step 4.
4. Press and hold the propulsion control release pushbutton (17, Figure 5-28), then move the propulsion control lever (19) FORWARD or REVERSE. The machine should NOT move. If the machine does move, shut down machine and have fault corrected before continuing operation.

Figure 5-28



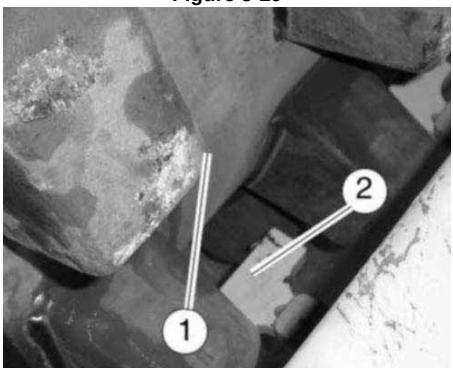
5. Move the propulsion control to NEUTRAL.
6. Release the parking brake test switch.
7. Shut down the engine and apply parking brake.

If the parking brake is working correctly the machine will not move. If the parking brake is not working correctly and movement is observed, contact service personnel immediately and do not use machine until corrected.

Check Condition of Drum and Clean

1. Park the machine on a level surface and turn off the engine.
2. Perform a visual inspection of the drum assembly (1, Figure 5-29) and remove all adhering materials.

Figure 5-29



Check Drum Scraper Setting

1. Check drum scraper (2, Figure 5-29) to insure there is no damage and that it is adjusted correctly.
2. Adjustment is made with the hardware and shims located on the scraper bar assembly. Do not allow the scraper drum clearance to be less than 20 mm (0.79 in) or more than 25 mm (0.98 in).

Check Seat Belt

CHECK the seat belt regularly for wear or damage. Inspect belt hardware and fabric. Replace if hardware is damaged or if strap is nicked, frayed or loose sticking is found. Seat belt assemblies should be replaced every 3 years regardless of appearance. Seat belt strength degrades over time and use due to exposure to weather, UV (ultraviolet radiation) and abrasives (dirt). Check that mounting hardware is tight.

50 HOUR OR WEEKLY ROUTINE MAINTENANCE

Check Batteries, Cables and Grease Terminals

⚠ WARNING

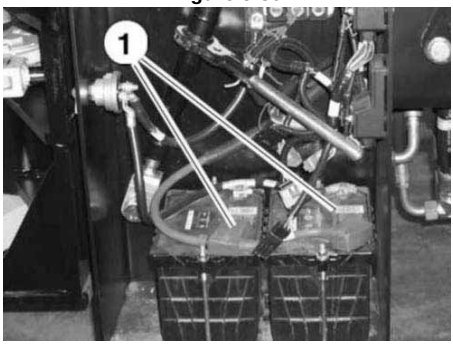
Batteries contain an acid and can cause injury.

Battery fumes can ignite and explode. Skin and eye contact with the battery fluid can cause injury.

Do not smoke when observing battery fluid level. Avoid skin and eye contact with the battery fluid. If contact occurs, flush area immediately with water.

The standard batteries (1, Figure 5-30) require the following for machine use:

Figure 5-30



- Keep connections tight.
- Clean terminals and apply a small amount of grease to prevent corrosion. Refer to Section 8.

Check Tire Air Pressure

⚠ WARNING

Excessive air pressure may cause tire and rim to burst.

Flying tire and rim parts may cause severe injury or death. Ingersoll Rand recommends that tire mounting be done ONLY by a qualified person who is equipped and trained to perform this service.

⚠ WARNING

When mounting a tire the qualified person should:

- Ensure the rim is clean and rust free.
- GENEROUSLY lubricate both tire and rim with rubber lubricant.
- NEVER inflate the tire to OVER 2.4 bar (35 psi) to seat beads. Excessive inflation pressure when seating beads may cause tire and rim assembly to burst and cause severe injury.
- CHECK to ensure normal operating pressure is not above 1.1 bar (16 psi).

⚠ WARNING

The tires on this machine are ballasted and require special handling when removing and fitting the tire assembly.

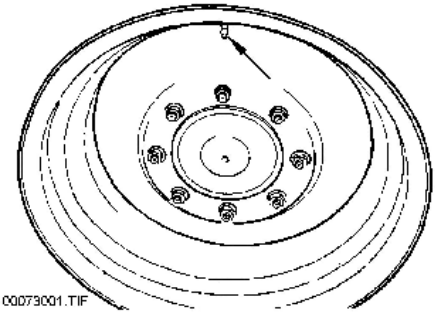
DO NOT ATTEMPT TO REMOVE THE WHEEL.

If a tire or wheel needs to be changed, call for special service assistance.

To check the tire air pressure you should:

1. Position the machine so the desired tire inflation valve is located at 12 o'clock as shown in Figure 5-31.

Figure 5-31



2. Check the tires only when tires are cold using an appropriate pressure gauge. Normal tire pressure is 1.1 bar (16 psi).

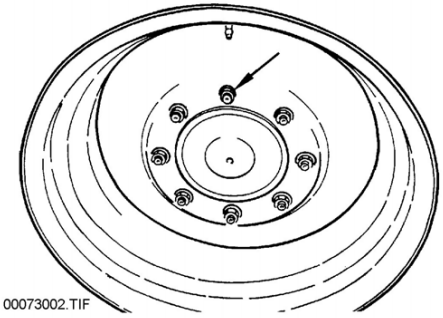
   Placing water in tires is an economical means of adding weight to the wheels of the compactor. The addition of calcium chloride to the water is recommended to prevent the water from freezing. If a tire with ballast is replaced, the replacement tire must also contain an equal amount of ballast.

   Contact your Ingersoll Rand Road Machinery Distributor for more information on ballasted tires.

Torque Wheel Nuts

Check wheel nut torque (Figure 5-32). Nuts should be torqued to 550 N-m (407 lb-ft).

Figure 5-32



NOTE: If new or replacement wheels or wheel nuts have been installed, they may require more frequent checks until they are properly seated.

Check Air Cleaner Integrity and Filter Elements

To verify the air cleaner system is functioning properly, refer to pages 5-10 through 5-16 for checks and procedures

Check Hydraulic Oil Level

NOTICE

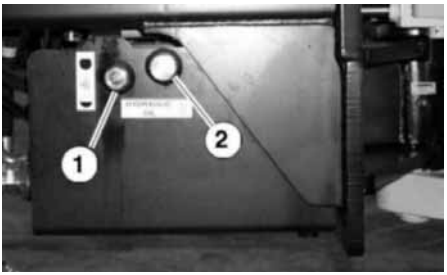
Dirt in the hydraulic system will lead to premature component failure.

A clean, contaminant-free system is extremely important to the machine's proper function.

Take extra care when working around or on the hydraulic system to ensure its complete cleanliness.

1. Check hydraulic oil level at gauge (1, Figure 5-33). If required add fresh, clean hydraulic oil through fill area (2). Refer to Section 8. Be sure to install fill plug.

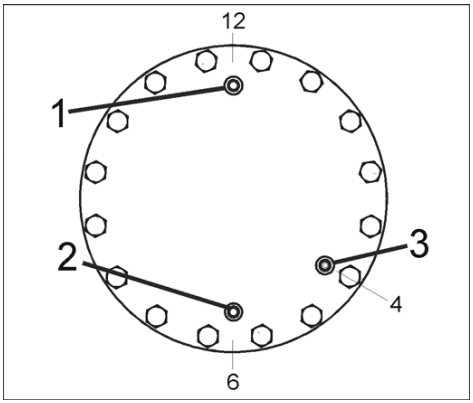
Figure 5-33



Check Eccentric Oil Level

1. Park the machine on a level surface with the drum index at the 12 o'clock position and shut off engine. This will place the eccentric fill plug (1, Figure 5-34) in the 12 o'clock position. This will also locate the drain plug (2) in the 6 o'clock position and the sight gauge (3, Figure 5-34 and Figure 5-35) in the 4 o'clock position.

Figure 5-34



2. Look at the sight gauge (3, Figure 5-35) and verify the oil is to the center of the gauge. If additional oil is required, remove fill plug (1, Figure 5-34) and add oil as required until oil is centered in the gauge. Refer to Section 8 for oil specifications.

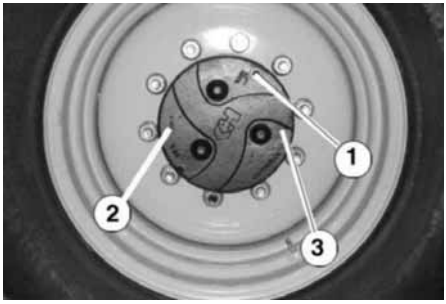
Figure 5-35

3. Install plug (1, Figure 5-34) and wipe up excess oil.

Check Wheel Ends Oil Levels

1. Park the machine on a level surface with the wheel end oil level check plug (1 Figure 5-36) located in the 9 o'clock (2) or the 3 o'clock (3) position and shut off engine.

Figure 5-36



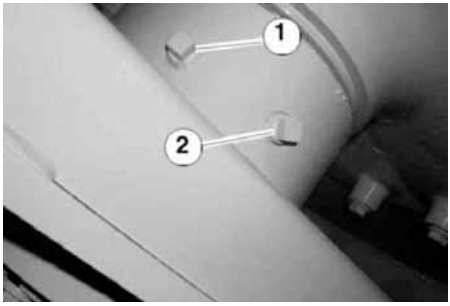
2. Allow wheel end to cool if necessary.
3. Clean around plug and remove.
4. Verify oil level is at the bottom of level hole.
5. If not, add oil until level with hole. Refer to Section 8 for oil specifications.

6. Clean, insert and tighten plug.
7. Wipe up any excess oil.

Check Carrier Oil Level

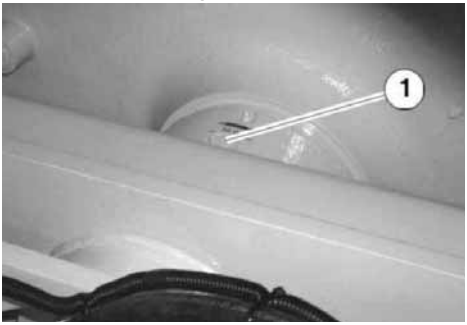
1. Park the machine on a level surface and shut off engine.
2. Allow carrier to cool if necessary.
3. Clean around level check plug (1, Figure 5-37} on the lower side of the carrier and remove. Drain plug (2) is located at 6 o'clock.

Figure 5-37



4. Check oil level. Oil should be level with the bottom of level check plug hole (1, Figure 5-37).
5. If necessary, remove breather (1, Figure 5-38) and add oil until oil runs out of hole (1, Figure 5-37). Refer to Section 8 for oil specifications.

Figure 5-38



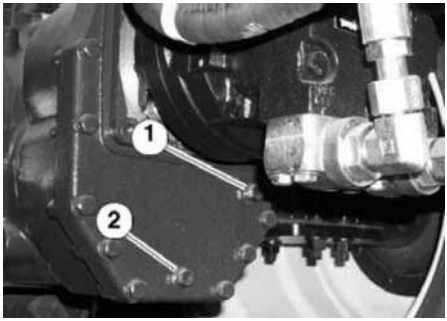
6. Clean, insert and tighten level plug.

7. Clean, insert and tighten breather.
8. Wipe up any excess oil.

Check Axle Transfer Case Oil Level

1. Park the machine on a level surface and shut off engine.
2. Allow axle transfer case to cool if necessary.
3. Remove oil level check plug (1, Figure 5-39).

Figure 5-39

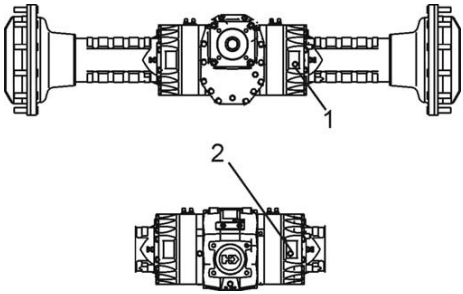


4. Verify oil is to the bottom of hole.
5. If not, add oil until level with hole. Refer to Section 8 for oil specifications.
6. Clean, insert and tighten plug. Wipe up excess oil.

Check Axle Differential / Brake Oil Level

1. Park the machine on a level surface and shut off engine.
2. Allow axle/differential case to cool if necessary.
3. Remove oil fill/ level check plug (1, Figure 5-40) located on the front side of the axle or plug (2) from the back side of the axle.

Figure 5-40

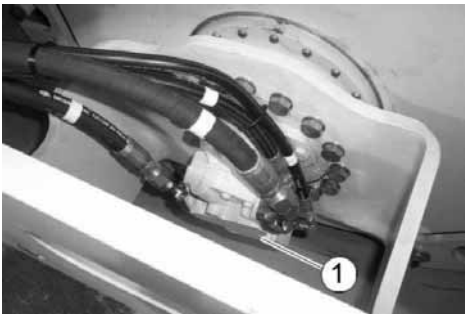


4. Verify oil is to the bottom of hole (1 or 2).
5. If not, add oil until level with hole. Refer to Section 8 for oil specifications.
6. Clean, insert and tighten plug and wipe up any excess oil.

Check Drum Drive (Torque Hub) Oil Level - SD-116, -122, -160, and -190 TF

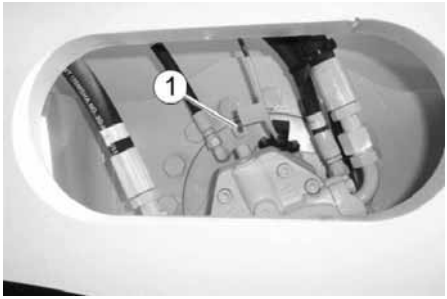
1. Park machine on level ground apply park brake.
2. Allow drive motor case to cool if necessary.

Figure 5-41



3. Remove the allenhead oil level check plug, (1, Figure 5-41) located at the 4 o'clock position.
4. Verify oil is to the bottom of the hole.
5. If filled correctly, replace plug and clean up any excess oil.
6. If not filled correctly remove fill location plug (1, Figure 5-42). Add oil to correct level, replace plugs and wipe up any excess oil.

Figure 5-42

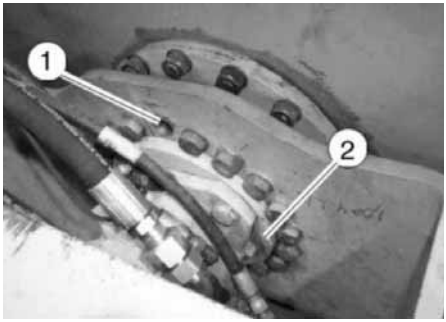


Check Drum Drive (Torque Hub) Oil Level - SD-200 TF

The SD-200 TF drum drive assembly is equipped with a single fill and drain hole equipped with a spring loaded cap. The fill/drain hole rotates with the drum. It must be positioned at the 12 o'clock position to add oil and at the 6 o'clock position to drain oil with the use of a clear standpipe supplied with the SD 200. Access to the spring loaded can is thru access holes in the drum drive mounting bracket.

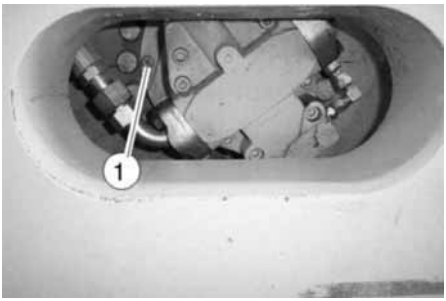
1. Park the machine on a level surface with the single drain/fill port on the drive aligned with access hole (1, Figure 5-43)
2. Allow drive motor case to cool if necessary.

Figure 5-43



3. Remove one of the two hex allen head oil fill/level check plugs (2, Figure 5-43), located at the 9 o'clock position or (1, Figure 5-44) located at the 3 o'clock position.
4. Check oil level. Verify that oil is level with bottom of level check hole.

Figure 5-44

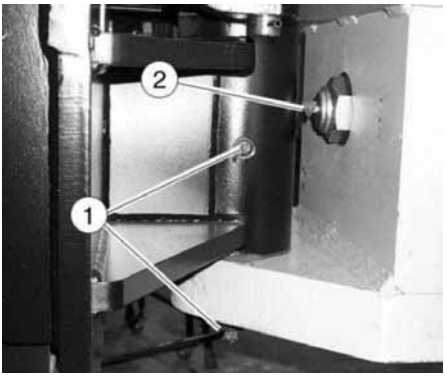


5. If not, insert standpipe supplied with the machine through access hole (1, Figure 5-43) and into spring-loaded cap. Add oil until oil runs out of level check hole (2, Figure 5-43). Refer to Section 8 for lubrication information.
6. Clean, insert and tighten plug.
7. Wipe up any excess oil.

Grease Horizontal / Vertical Swivel Pins - SD-116, -122 & -160 TF.

1. Clean the vertical pin fittings (1, Figure 5-45) and horizontal swivel pin (2) grease fittings.

Figure 5-45



2. Apply five shots of MPG-EP2 grease to each fitting.

Grease Horizontal / Vertical Swivel Pins - SD-190 & -200 TF

1. Clean the vertical pin (1, Figure 5-46) and horizontal swivel pin (1, Figure 5-47) grease fittings.

Figure 5-46

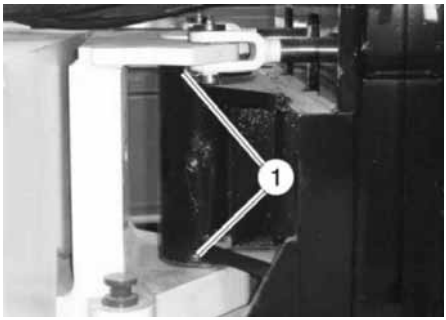
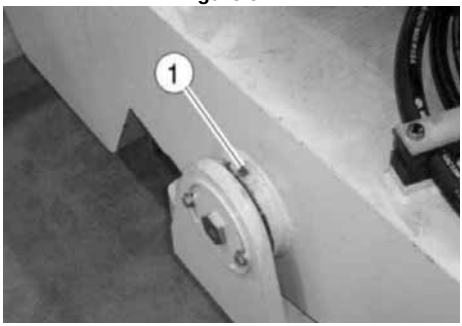


Figure 5-47

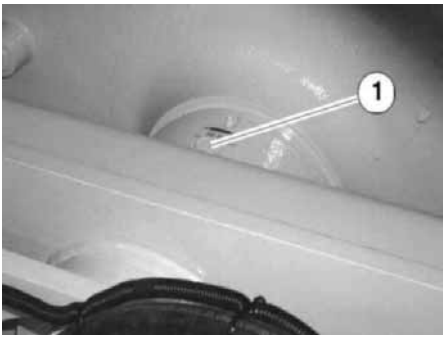


2. Apply five shots of MPG-EP2 grease to each fitting.

Clean the Carrier Breather

1. Thoroughly clean the area around the carrier breather (1, Figure 5-48) located on the top of the carrier on the left side of the drum.

Figure 5-48

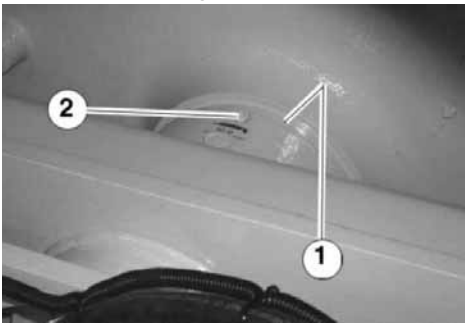


2. Remove the hex head breather.
3. Cover the breather port to avoid contaminants entering the carrier.
4. Thoroughly clean the breather in solvent and dry.
5. Replace the breather.

Grease the Carrier Seal

1. Grease the carrier grease seal (1, Figure 5-49) by greasing the carrier grease seal fitting (2) with grease until it exits the seal (1). Refer to Section 8 lubricant specifications.

Figure 5-49



500 HOURS OR SEMI-ANNUAL MAINTENANCE

⚠ WARNING

Hot oil or components can burn.

Oil must be at normal operating temperature when draining

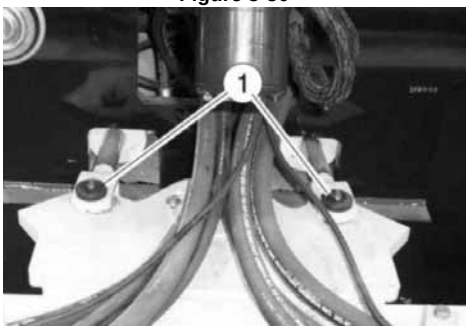
Avoid contact with hot oil or components.

Do not allow oil to drain into the ground. Dispose of properly.

Grease Steering Cylinder Pins

1. Clean the two grease fittings (1, Figure 5-50) and apply three shots of MPG-EP2 grease.

Figure 5-50

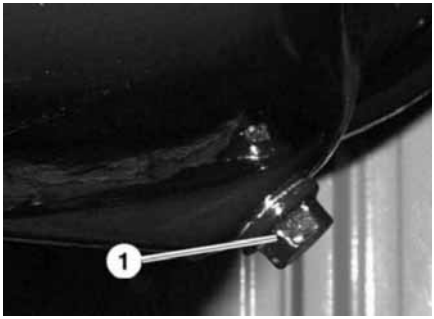


2. Refer to Section 8 for lubricant specification.

Change Engine Oil and Filter

1. Park the machine on a level surface after allowing the water to reach operating temperature, then shut off the engine.
2. Place a container with a capacity of at least 15 liters (15 quarts), beneath the engine oil drain plug (1, Figure 5-51).

Figure 5-51



3. Remove the engine oil drain plug.
4. Clean the area around the head of oil filter (1, Figure 5-52 for Tier 2 engines; 1, Figure 5-53 for Tier 3 engines) and remove the filter using a 90-95 mm filter wrench. Catch any escaping oil in a container.

Figure 5-52

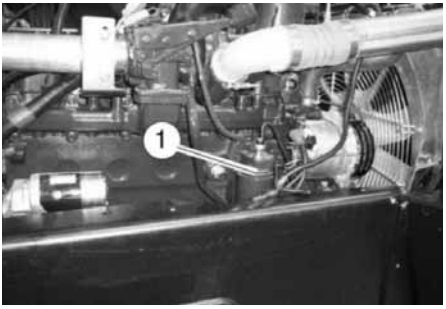
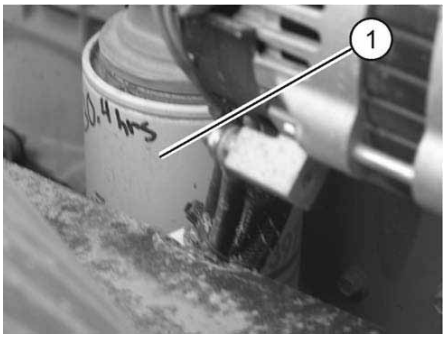
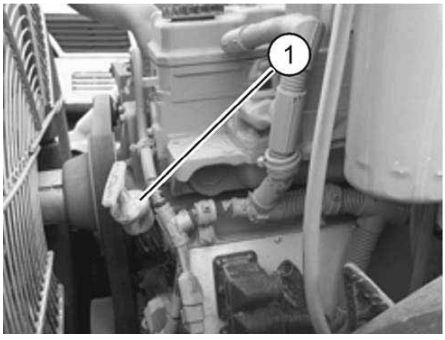


Figure 5-53



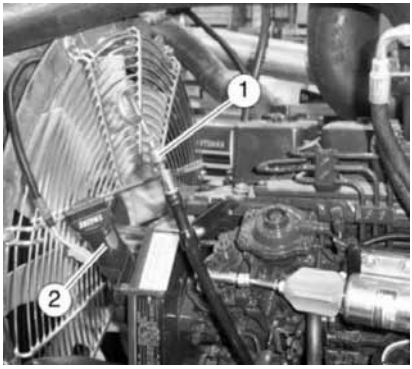
5. Clean the gasket surface of the filter head.
6. Apply a film of motor oil to the gasket sealing area. Refer to Section 8.
7. Fill the filter with new motor oil. Refer to Section 8 for oil specifications.
8. Install the filter as specified by filter manufacturer. Mechanical overtightening may distort the threads or damage the filter element seat.
9. Clean drain plug, install and torque to 80 N-m (59 lb-ft).
10. Tier 3 Engines: Remove the dipstick (1, Figure 5-54).

Figure 5-54



11. All Engines: Fill crankcase with motor oil through the fill area (2, Figure 5-55 for Tier 2 engines; 1, Figure 5-54 for Tier 3 engines) until the dipstick (1, Figure 5-54, Figure 5-55) shows full. Refer to Section 8 for oil specifications.

Figure 5-55

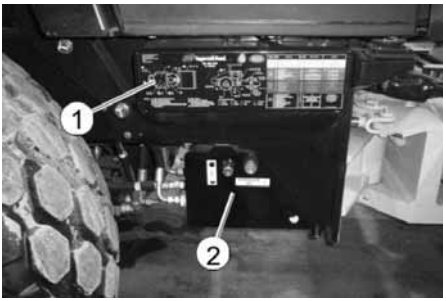


12. Replace fill cap (2, Figure 5-55, Tier 2 Engines) or the dipstick (1, Figure 5-54, Tier 3 Engines).
13. Dispose of used oil in accordance with local regulations.
14. Run machine and check for leaks.

Change Three Hydraulic Oil Filters

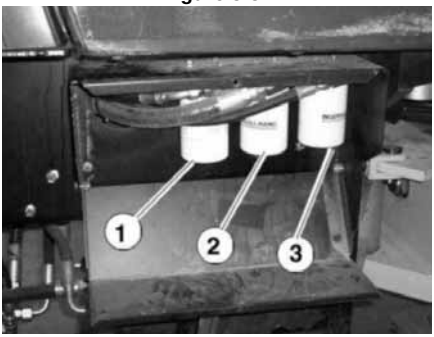
This machine is equipped with three hydraulic oil filters. The filters are located behind the cover (1, Figure 5-56) directly above the hydraulic oil tank (2).

Figure 5-56



They include the charge pressure filter (1, Figure 5-57), the suction filter (2), and the return filter (3).

Figure 5-57



⚠ WARNING

Hot oil or components can burn.

Oil must be at normal operating temperature when draining

Avoid contact with hot oil or components.

Do not allow oil to drain into the ground. Dispose of properly.

NOTICE

Dirt in the hydraulic system will lead to premature component failure.

A clean, contaminant-free system is extremely important to the machine's proper function.

Take extra care when working around or on the hydraulic system to ensure its complete cleanliness.

1. To change the hydraulic oil filters position the machine on a stable level surface and shut off engine.
2. Remove bolt and lower cover.
3. Unscrew the three filters and discard in accordance with local guidelines.
4. Clean the sealing surface of the filter heads.
5. Fill each replacement filter with fresh hydraulic oil and lubricate sealing surface of each filter with clean hydraulic oil. Refer to Section 8 for hydraulic oil specifications.

6. Install the filters and tighten each filter one quarter turn beyond seal contact.
7. Start the engine and check for leaks.
8. Wipe up any excess oil.
9. Close cover and bolt.

Replace In-Line Fuel Filter - Tier 2 Engines

⚠ WARNING

Fuel is flammable. May cause severe injury or death.

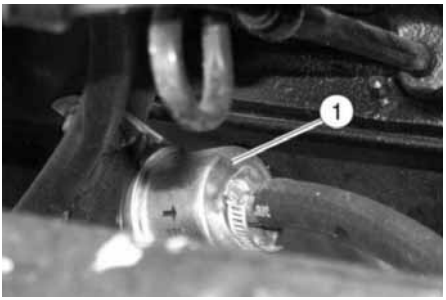
Shut down the engine, extinguish all open flames and do not smoke while filling the tank.

Always wipe up any spilled fuel.

The in-line fuel filter will eventually clog from accumulated sediment. To prevent this, the in-line fuel filter must be replaced at the same time that the primary fuel filter is changed. Perform the steps outlined below to replace the in-line fuel filter.

1. Park machine on a stable, level surface and shut down the engine (1, Figure 5-58).

Figure 5-58



2. Open the hood and locate the filter
3. Position a container under the in-line filter to catch the residual fuel that will escape from the old filter when it's disconnected.
4. Disconnect the fuel line from each side of the in-line filter. Pinch off the lines to stop the flow of fuel from the open lines.

5. Dispose of the old, used in-line filter in accordance with local guidelines and environmental regulations.
6. Install the new in-line filter by reconnecting it in the fuel line. Verify that the filter is installed properly with the flow (direction) arrow pointing toward the fuel pump.
7. Start the engine and let it run for a few minutes and check for leaks.

Replace In-Line Fuel Filter - Tier 3 Engines

⚠ WARNING

Fuel is flammable. May cause severe injury or death.

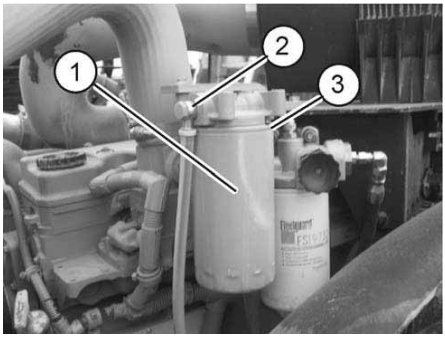
Shut down the engine, extinguish all open flames and do not smoke while filling the tank

Always wipe up any spilled fuel.

The in-line fuel filter will eventually clog from accumulated sediment. To prevent this, the in-line fuel filter must be replaced at the same time that the primary fuel filter is changed. Perform the steps outlined below to replace the in-line fuel filter.

1. Park machine on a stable, level surface and shut down the engine.

Figure 5-59



2. Open the hood and locate the filter (1, Figure 5-59).
3. Position a container under the in-line filter to catch the residual fuel that will escape from the old filter when it's disconnected.
4. Clean sealing surface of the filter head (2, Figure 5-59).

5. Unscrew used fuel filter. Discard used filter in accordance with local guidelines.
6. Fill replacement filter with clean fuel and lubricate new element sealing gasket (3, Figure 5-59) with clean oil.
7. Install replacement filter as specified by manufacturer. Most filters have instructions printed on the side.
8. If fuel filter is changed according to these instructions, no manual bleeding of fuel lines should be required. If necessary, refer to engine manufacturer's manual for information on bleeding the system.
9. Check for any leaks.

Change Fuel Filter Water Separator Element - SD-116, SD-122 TF 155 HP Electronic Engine, SD-122, SD-160 TF 173 HP Mechanical Engine

⚠ WARNING

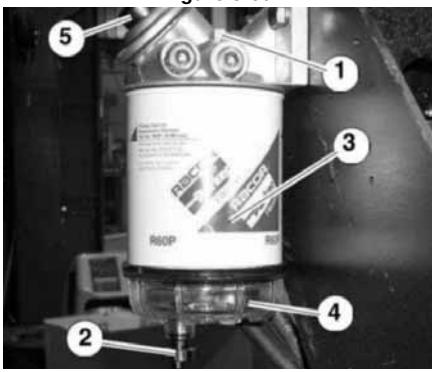
Fuel is flammable. May cause severe injury or death.

Shut down the engine, extinguish all open flames and do not smoke while filling the tank.

Always wipe up any spilled fuel.

1. Clean the area around the fuel filter water separator unit (Figure 5-60).

Figure 5-60



2. Place a container under the water separator unit to collect any escaping fuel.
3. Loosen vent plug (1, Figure 5-60) and open drain valve (2).
4. Spin element (3, Figure 5-60) and bowl (4) off together, as a unit.

5. Remove the bowl (4, Figure 5-60) and clean the O-ring gland.
6. Apply a coating of clean fuel or motor oil to the new O-ring and element (3, Figure 5-60) seal.
7. Spin bowl (4, Figure 5-60) onto element (3).
8. Spin bowl and element assembly onto the filter head. Hand tighten. DO NOT OVERTIGHTEN.
9. With vent plug (1, Figure 5-60) loosened, operate primer pump (5) until fuel purges the vent plug (1).
10. Close vent plug (1, Figure 5-60), start the engine and check for leaks.

Change Fuel Filter SD-116, SD-122 TF 155 HP Electronic Engine, SD-122, SD-160 TF 173 HP Mechanical Engine

⚠ WARNING

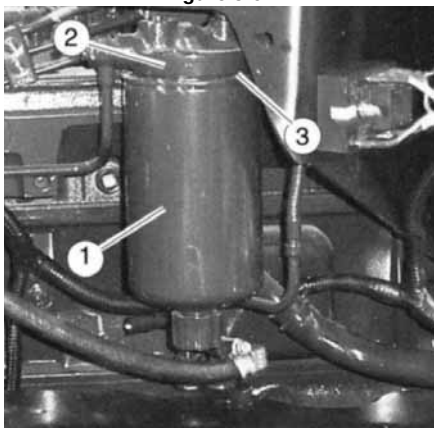
Fuel is flammable. May cause severe injury or death.

Shut down the engine, extinguish all open flames and do not smoke while filling the tank.

Always wipe up any spilled fuel.

1. Clean the area around the fuel filter (Figure 5-61).

Figure 5-61



2. Place a container under the fuel filter to collect any escaping fuel when replacing the element.
3. Remove element (1, Figure 5-61) from filter head (2) and discard according to local guidelines.
4. Clean sealing surface (3, Figure 5-61) of filter head.
5. Apply a coating of clean oil to the new element sealing gasket.
6. Fill the element with clean fuel.
7. Spin the element onto the filter head according to instructions on element.
8. Start the engine and check for leaks.

Change Fuel Filter SD-190 and SD-200 TF - 205 HP Tier II Electronic Engine

⚠ WARNING

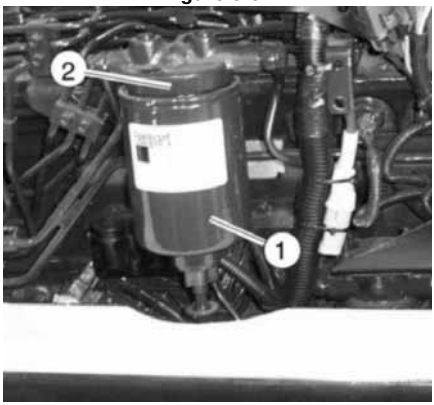
Fuel is flammable. May cause severe injury or death.

Shut down the engine, extinguish all open flames and do not smoke while filling the tan

Always wipe up any spilled fuel.

1. Clean the area around the fuel filter (Figure 5-62).

Figure 5-62



2. Place a container under the fuel filter to collect any escaping fuel when replacing the element.

3. Remove element (1, Figure 5-62) from filter head (2) and discard according to local guidelines.
4. Clean sealing surface (2, Figure 5-62) of filter head.
5. Apply a coating of clean oil to the new element sealing gasket.
6. Fill the element with clean fuel.
7. Spin the element onto the filter head according to instructions on element.
8. Start the engine and check for leaks.

Change Fuel Filter Water Separator Element SD-190 and SD-200 TF - Tier III 203 HP Electronic Engine

⚠ WARNING

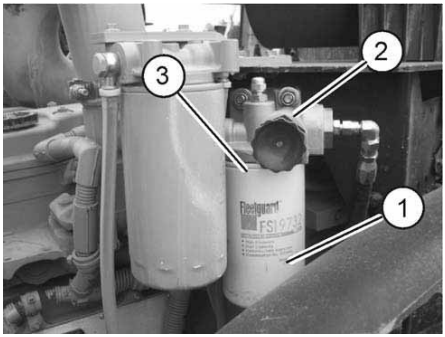
Fuel is flammable. May cause severe injury or death.

Shut down the engine, extinguish all open flames and do not smoke while filling the tank.

Always wipe up any spilled fuel.

The engine fuel water separator filter removes water, rust particles, dust and other particles from the fuel. Use the following procedure to replace the fuel water separator filter (1, Figure 5-63).

Figure 5-63



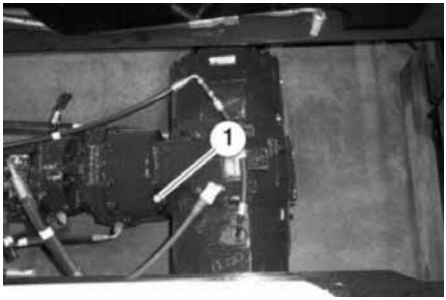
1. Clean area around fuel filter (1, Figure 5-63).
2. Place container under the filter to collect any escaping fuel.

3. Unscrew used fuel filter. Discard used filter in accordance with local guidelines.
4. Clean sealing surface of the filter head (2, Figure 5-63).
5. Fill replacement filter with clean fuel and lubricate new element sealing gasket (3, Figure 5-63) with clean oil.
6. Install replacement filter as specified by manufacturer. Most filters have instructions printed on the side.
7. If fuel filter is changed, according to these instructions, no manual bleeding of fuel lines should be required. If necessary, refer to engine manufacturers manual for information on bleeding the system.
8. Check for any leaks.

Clean Axle Breathers

1. Thoroughly clean the area around the single axle breathers (1, Figure 5-64) located on the top of the axle.

Figure 5-64

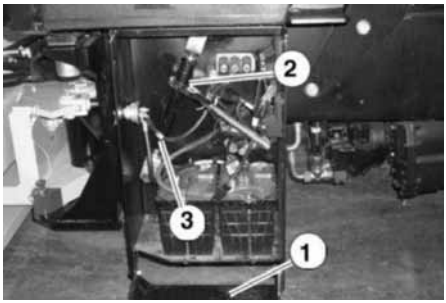


2. Remove the single axle breather. It is equipped with a hex area near the base.
3. Cover the breather port to avoid contaminants entering the axle.
4. Thoroughly clean the breather in solvent and dry.
5. Install the breather.

Grease the Ratchet Jack

1. Open the battery access door (1, Figure 5-65).

Figure 5-65



2. Grease the ratchet jack (2, Figure 5-65) by greasing the fitting (3). Refer to Section 8 for oil specifications.
3. Close the battery access door.

Check Cooling System Integrity

1. Park the machine on a level surface and shut off engine.
2. Verify coolant level is normal for engine temperature.
3. Inspect radiator and oil cooler hoses for leaks.
4. Inspect radiator cap for leaks.
5. Check drain petcock and attached hose for condition.
6. Inspect radiator, fan and belts for damage.
7. Check if water temperature gauge is operating.

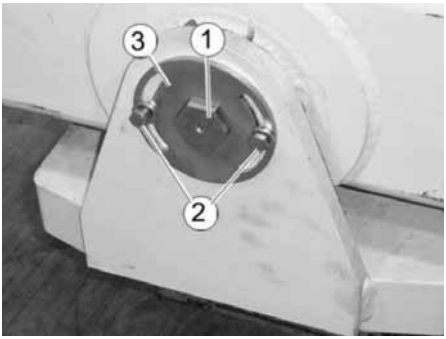
1000 HOUR OR ANNUAL MAINTENANCE

NOTE: Verify you are looking at the correct torque values for your machine. They are not identical on all machines.

Torque the Horizontal Swivel Pin - SD-116, -122 and -160 TF

1. Position the machine on stable level surface, shutdown the engine.
2. Clean area around the horizontal swivel pin (1, Figure 5-66).

Figure 5-66

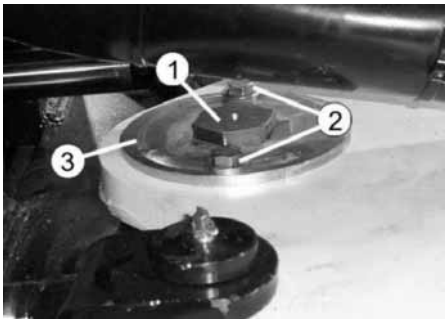


3. Remove mounting hardware (2 and 3, Figure 5-66).
4. Torque the horizontal swivel pin (1, Figure 5-66) to 540 Nm (400 lb-ft).
5. Replace mounting hardware and torque as required.

Torque The Vertical Swivel Pin - SD-116, -122 and -160 TF

1. Position the machine on stable level surface, shutdown the engine.
2. Clean area around the vertical swivel pin (1, Figure 5-67).

Figure 5-67

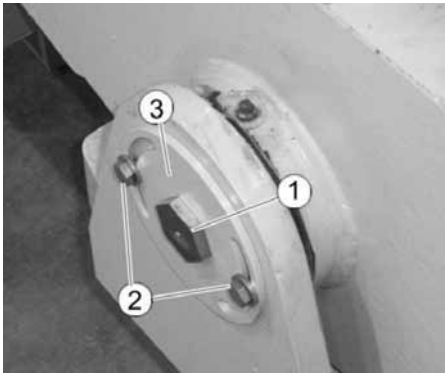


3. Remove mounting hardware (2 and 3, Figure 5-67).
4. Torque the horizontal swivel pin (1) to 540 Nm (400 lb-ft).
5. Replace mounting hardware and torque as required.

Torque the Horizontal Swivel Pin - SD-190 and -200 TF

1. Position the machine on stable level surface, shutdown the engine.
2. Clean area around the horizontal swivel pin (1, Figure 5-68).

Figure 5-68

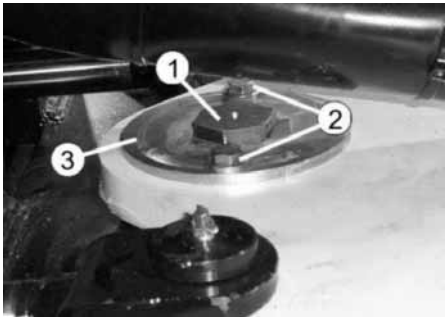


3. Remove mounting hardware (2 and 3, Figure 5-68).
4. Torque the horizontal swivel pin (1, Figure 5-68) to 1080 Nm (800 lb-ft).
5. Replace mounting hardware and torque as required.

Torque the Vertical Swivel Pin - SD-190 and -200 TF

1. Position the machine on stable level surface, shutdown the engine.
2. Clean area around the vertical swivel pin (1, Figure 5-69).

Figure 5-69



3. Remove mounting hardware (2 and 3, Figure 5-69).
4. Torque the horizontal swivel pin (1, Figure 5-69) to 1080 Nm (800 lb.-ft).
5. Replace mounting hardware and torque as required.

Change Axle Wheel Ends Oil

⚠ WARNING

Hot oil or components can burn.

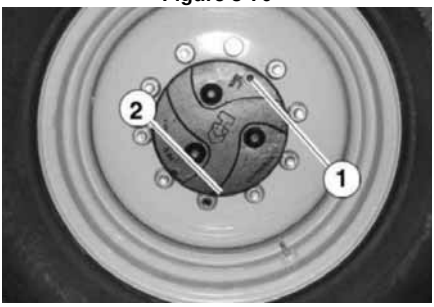
Oil must be at normal operating temperature when draining.

Avoid contact with hot oil or components.

Do not allow oil to drain into the ground.

1. Allow oil in axle wheel ends to reach operating temperature, position the compactor on level ground with level plug (1, Figure 5-70) in the 6 o'clock position (2) and shut down the engine.

Figure 5-70



2. Place a container under the level plug (1, Figure 5-70), remove the plug and allow oil to drain.
3. Reposition wheel level plug (1, Figure 5-70) to the o'clock or 3 o'clock position and fill with oil until oil is level with the bottom of the hole. Refer to Section 8 for oil specifications.
4. Clean and replace level plug (1, Figure 5-70) and tighten.
5. Repeat procedure for the other wheel end unit.

Change Axle Differential Brake Oil

⚠ WARNING

Hot oil or components can burn.

Oil must be at normal operating temperatures when draining.

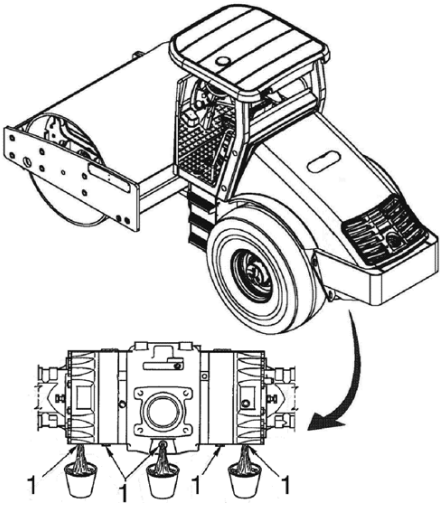
Avoid contact with hot oil or components.Do not allow oil to drain into the ground.

Dispose of oil properly.

1. Position the compactor on level ground, allowing machine to run sufficiently so axle differential / brake oil reaches operating temperature.
2. After properly positioning the machine, shut down the engine and apply brake.
3. Remove keys.

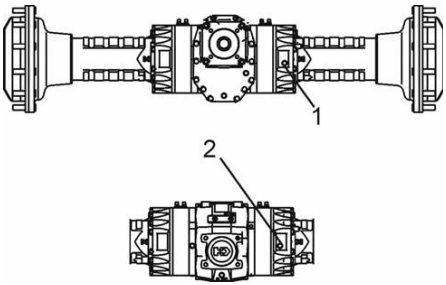
4. Chock tires and drum.
5. Place a container under each of the three drain plugs (1, Figure 5-71) located on the bottom of the axle. Remove the three drain plugs.

Figure 5-71



6. Remove the fill/level plug (1 or 2, Figure 5-72) and allow axle to drain completely. Discard oil according to local guidelines and environmental regulations.

Figure 5-72



7. Clean all three drain plugs.
8. Replace all three drain plugs and tighten.

9. Fill the axle with oil through fill/level hole (1 or 2, Figure 5-72) until oil is level with the bottom of the fill/level hole. Refer to Section 8 Fuel & Lubricant Specifications for details.
10. Clean, replace, and tighten level plugs
11. Run the machine and check for leaks.

Change Axle Transfer Case Oil

⚠ WARNING

Hot oil or components can burn.

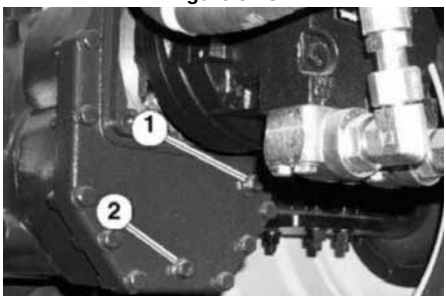
Oil must be at normal operating temperature when draining.

Avoid contact with hot oil or components.

Do not allow oil to drain into the ground.

1. Position the compactor on level ground, allowing machine to run sufficiently so axle transfer case oil reaches operating temperature.
2. After properly positioning the machine, shut down the engine and apply brake.
3. Remove keys.
4. Chock tires and drum.
5. Remove the fill/level plug (1, Figure 5-73) and drain plug (2) and allow axle transfer case to drain completely. Discard oil according to local guidelines and environmental regulations.

Figure 5-73



6. Clean both plugs.
7. Replace the drain plug and tighten.

8. Fill the axle transfer case with oil through fill/level hole (1, Figure 5-73) until oil is level with the bottom of the fill/level hole. Refer to Section 8 Fuel & Lubricant Specifications for details.
9. Clean, replacement tighten level plug.
10. Run the machine and check for leaks.

Change Eccentric Oil

⚠ WARNING

Hot oil or components can burn.

Oil must be at normal operating temperature when draining.

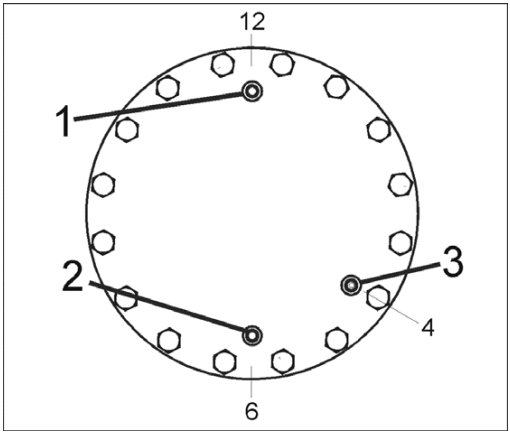
Avoid contact with hot oil or components.

Do not allow oil to drain into the ground.

1. Allow eccentric oil to reach operating temperature and park the machine on a level surface with the drum index, angle mounted on the inside of the drum, at the 12 o'clock position.

   NOTE: This positioning will place the eccentric fill plug (1, Figure 5-74*) in the 12 o'clock position. This will also bottom-out the drain plug (2) In the 6 o'clock position and the level indicator gauge (3) in the 4 o'clock, level-read position.*

Figure 5-74



2. Shut off the engine and apply the brake.
3. Remove fill plug (1, Figure 5-74) and drain plug (2) and allow oil to drain.
4. Clean and replace drain plug.
5. Fill eccentric with oil until visible on level gauge (3, Figure 5-75).

Figure 5-75

6. Clean and replace fill plug.
7. Wipe up any excess oil.

Change Carrier Oil

⚠ WARNING

Hot oil or components can burn.

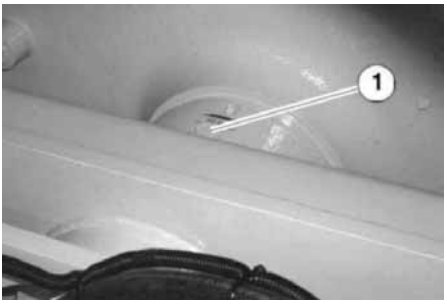
Oil must be at normal operating temperature when draining.

Avoid contact with hot oil or components.

Do not allow oil to drain into the ground.

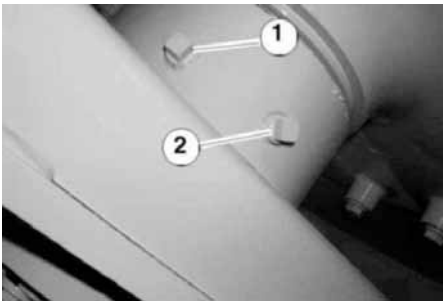
1. Allow carrier oil to reach operating temperature and park the machine on a level surface, shut off engine and apply brake.

Figure 5-76



2. Remove fill breather plug (1, Figure 5-76).
3. Place a container under drain plug (1, Figure 5-77).

Figure 5-77



4. Remove drain plug and allow carrier to drain.
5. Clean and replace drain plug.
6. Remove level check plug (2, Figure 5-77).
7. Add oil until oil runs out of level/check plug mounting hole. Refer to Section 8 for lubricant instructions.
8. Replace level/check plug.
9. Clean in solvent, dry and replace fill / breather plug.
10. Wipe up any excess oil.

Drain and Flush Radiator, Replace Engine Coolant

⚠ WARNING

Injury can occur when removing the radiator cap.

Steam or fluid escaping from the radiator can burn. Inhibitor contains alkali, avoid contact with skin and eyes.

Always shut down the engine and allow to cool down before removing radiator cap.

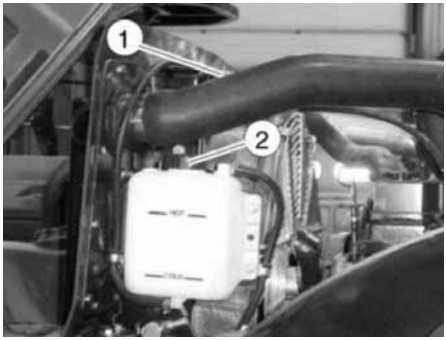
Remove cap slowly to relieve pressure.

Avoid contact with steam or escaping fluid.

The coolant system of any vehicle should be drained and flushed out at least once a year. Unless coolant has a corrosion preventive in it, rust and scale will eventually clog up the system. Any effective, commercial flushing agent should be used at least once or twice a year to ensure against buildup.

1. Open the radiator cap (1, Figure 5-78) and the expansion bottle cap (2) to ensure proper draining.

Figure 5-78



2. Place a container capable of holding at least 21 liters (22 quarts) of fluid under the radiator drain hose (2, Figure 5-79). Open the petcock (1) and drain the coolant from the radiator using drain hose (2) passing through the frame (3).

Figure 5-79

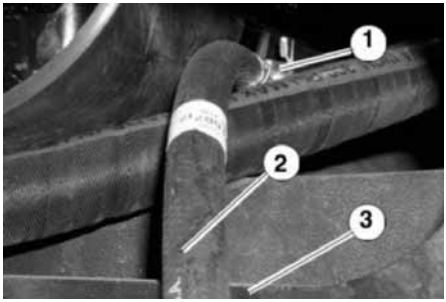
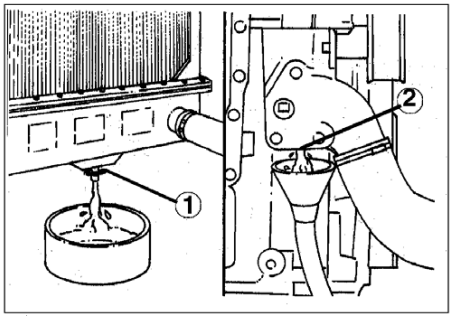


Figure 5-80



3. Place a container under the engine block coolant drain plug (2, Figure 5-80) located on the bottom of the engine water inlet hose connection point. Remove the plug and drain the coolant from the engine.
4. for damaged hoses and loose or damaged hose clamps. Replace as required. Check radiator for leaks, damage and buildup of dirt. Clean and repair as required.
5. Clean the cooling system using a commercial radiator flushing product. Follow the manufacturers recommendations.
6. After cleaning and flushing operations are completed, close the petcock (1, Figure 5-79 and Figure 5-80) and replace and tighten the engine block drain plug (2, Figure 5-80).

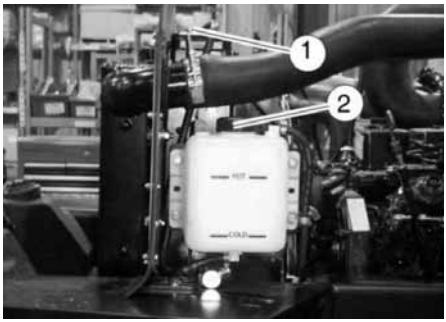
NOTICE

To prevent air locks, the system must be filled properly. Air must be vented from coolant passages during the fill operation.

NOTE: A mixture of ethylene glycol antifreeze and water is recommended to refill the radiator. Refer to the engine manual for the manufacturer's recommendation for proper ratio of antifreeze-to-water mixture. The addition of a separate lubricant and corrosion inhibitor will guard against internal corrosion and freezing.

7. Refill the coolant system.
8. Drain and clean overflow bottle (2, Figure 5-81). Refill the overflow bottle with a 50-50 mixture of antifreeze and water. Do not fill past the Full mark on the overflow bottle.

Figure 5-81



9. Install radiator cap (1, Figure 5-81) and operate the engine until it reaches operating temperature. Check for leaks.

Drain and Clean Hydraulic Tank and Three Hydraulic Suction Strainers

⚠ WARNING

Hot oil or components can burn.

Oil must be at normal operating temperature when draining.

Avoid contact with hot oil or components.

Do not allow oil to drain into the ground.

NOTICE

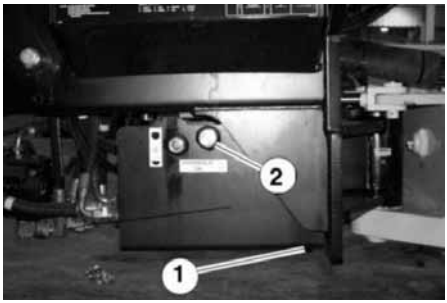
Dirt in the hydraulic system will lead to premature component failure.

A clean, contaminant-free system is extremely important to the machine's proper function.

Take extra care when working around or on the hydraulic system to ensure its complete cleanliness.

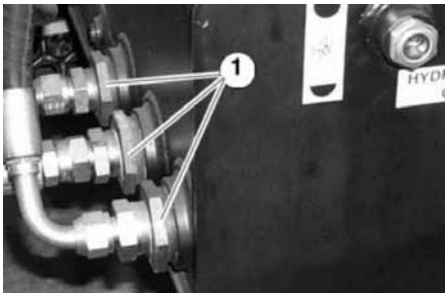
1. Position the compactor on level ground, allowing machine to run sufficiently so hydraulic oil reaches operating temperature.
2. After properly positioning the machine, shut down the engine and apply brake.
3. Place a container with a capacity of at least 85 liters (23 gallons) under the hydraulic tank drain point (1, Figure 5-82) to capture the oil.

Figure 5-82



4. Remove drain plug (1, Figure 5-82) and fill plug (2) and drain the hydraulic tank.

Figure 5-83



5. Place a container under the three strainers (1, Figure 5-83), disconnect hoses to strainers and allow oil to drain.
6. Remove the three strainers and clean in a solvent using a stiff fiber brush to remove imbedded impurities. If the embedded materials cannot be removed, replace strainers.
7. Air dry the strainers from the inside out, replace into hydraulic tank and rehose.
8. Replace the hydraulic filters using procedures previous described in these instructions. See Page 5-47.
9. Clean and replace the drain plug.
10. Fill the hydraulic oil tank to level gauge with clean hydraulic oil from an unopened container. Refer to Section 8 Fuel and Lubricant Specifications for details on proper oil.

    NOTE: When filling the hydraulic oil tank, be sure to filter the oil through a 10-micron filter.

11. Run machine and allow oil to reach operating temperature and check for leaks. Add additional oil if required to reach level gauge.

Check Engine Belt and Tensioner

Check engine belt for wear, cracks or damage. replace belt as necessary. See engine manual for belt replacement procedures.

NOTE: The engines are equipped with an automatic belt tensioner. Belt tension adjustment should not be required.

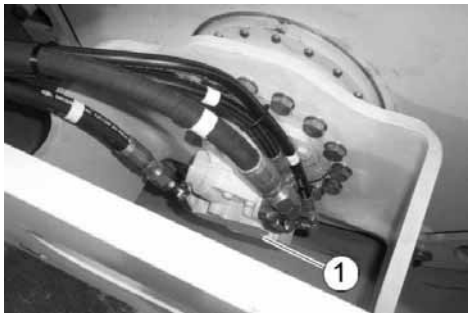
Adjust and Set Valve Clearance

Refer to the engine manual for maintenance instructions. This operation requires a trained service engineer.

Change Drum Drive (Torque Hub) Oil Level - SD 116, 122, 160 and 190

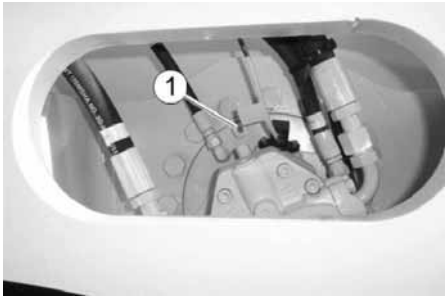
1. Park machine on level ground apply park brake.
2. Allow drive motor case to cool if necessary.

Figure 5-84



3. Remove the allenhead oil level check plug, (1, Figure 5-84) located at the 4 o'clock position.
4. Position a container under the torque hub.
5. Remove drain plug at the 6 o' clock location and allow oil to drain.
6. Clean and replace drain plug.
7. Remove fill plug (1, Figure 5-85) and add oil until oil is level with bottom of oil level check plug location (1, Figure 5-84).
8. Clean and replace plugs. Wipe up any excess oil.

Figure 5-85

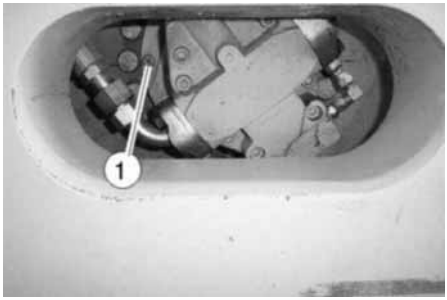


Change Drum Drive (Torque Hub) Oil Level - SD 200

The SD 200 drum drive assembly is equipped with a single fill and drain hole equipped with a spring loaded cap. The fill/drain hole rotates with the drum. It must be positioned at the 12 0'clock position to add oil and at the 6 o'clock position to drain oil with the use of a clear standpipe supplied with the SD 200. Access to the spring loaded can is thru access holes in the drum drive mounting bracket.

1. Park the machine on a level surface with the single drain/fill port on the drive located at the 6 o'clock location.
2. Allow drive motor case to cool if necessary.
3. Remove one of the two hex allen head oil fill/level check plugs located at the 9 o'clock position or (1, Figure 5-86) located at the 3 o'clock position.

Figure 5-86



4. Insert standpipe supplied with the machine through access hole in the drum drive mount and into spring-loaded cap.
5. Drain oil into a suitable container.

6. Start engine and traverse one half of a drum revolution location the spring loaded fill and drain cap at the 12 o' clock position. Stop engine and apply brake.
7. Insert standpipe into drum drive and fill torque hub with oil until it is level with the bottom of level check hole (1, Figure 5-86) Refer to section 8 for lubrication information.
8. Replace level check location plug and clean up any excess oil.

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49-5151-209-0 (Europe)
852-2527-0183 (Asia)

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SECTION 6 - TROUBLESHOOTING

TROUBLESHOOTING

⚠ WARNING

When carrying out troubleshooting procedures, it is important to strictly observe the safety precautions and guidelines in Section 1 of this manual.

Improper operation and maintenance is the most frequent cause of machinery failures and problems. In the event of a failure, it is recommended that you read through this manual.

If you are unable to determine the cause of the problem when following the troubleshooting charts in this section, contact your local Ingersoll Rand service office.

FUSE BLOCK

The fuses (1, Figure 6-1) for the compactor are located under the seat as shown. Fuse identification, rating and circuit are illustrated in Figure 6-2. This information is identified on a decal on the inside of the fuse compartment cover plate

Figure 6-1

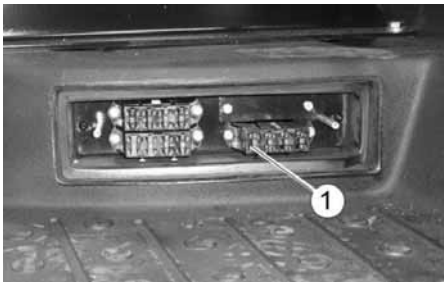
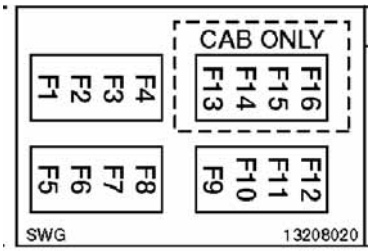


Figure 6-2



FUSE RATINGS/CIRCUIT

The fuse ratings and circuits for the operator's deck are identified below.

Table 1:

FUSE	RATING	CIRCUIT
F1	15 AMPS	E-STOP, IGNITION, FUEL, SEAT SWITCH, PARK BRAKE
F2	10 AMPS	HORN, AIR FILTER, HYD. OIL TEMP.
F3	10 AMPS	TWO SPEED, BACK UP
F4	15 AMPS	LIGHTS BEACON, TURNSIGNAL / HAZARD
F5	5 AMPS	AUTO VIB., IMPACT METER
F6	5 AMPS	TRACTION CONTROL
F7	10 AMPS	POWER PORT
F8	30 AMPS	THROTTLE SOLENOID (PULL IN)
F9	10 AMPS	INSTRUMENT CLUSTER
F10	10 AMPS	GAUGE OPTIONS
F11	10 AMPS	CAB OPTIONS
F12	15 AMPS	SPARE
F13	25 AMPS	HEATER VALVE, BLOWER, A.C.
F14	10AMPS	FRONT WIPER
F15	10 AMPS	REAR WIPER
F16	10 AMPS	WASHER DOME LIGHT

RELAYS AND DIODES

The relays and diodes illustrated in Figure 6-3 are contained in a harness assembly housing Figure 6-4 located adjacent to the air cleaner mounting bracket. Relay C AND F are for ELECTRONIC engine only. A decal, illustrated as Figure 6-3, is located in the inside of the housing cover.

Figure 6-3

FUSE	DESCRIPTION	RELAY / DIODE	DESCRIPTION	FUSE	DESCRIPTION
1	FUEL PUMP (10 AMPS)	B	BRAKE LATCH	32	TURN SIGNAL (10 AMPS)
2	FUEL PUMP (10 AMPS)	C	SEAT SWITCH / PARK BRAKE	33	MAIN POSITION LAMPS (5 AMPS)
29	LT POSITION LAMPS (7.5 AMPS)	D	STARTER	34	LH BRAKE (5 AMPS)
30	RT POSITION LAMPS (7.5 AMPS)	E	IGNITION POWER	35	RH BRAKE (5 AMPS)
5	IGNITION ENGINE ECM (5 AMPS)	F	ROAD LIGHT, IGN. RELAY	31	HAZARD LAMPS (LOCATION AT ALTERNATOR)
6	BATTERY ECM POWER (7.5 AMPS)	J	SEAT SWITCH, PARK BRAKE, BRAKE TEST		
7	BATTERY ECM POWER (7.5 AMPS)	H	ALTERNATOR NEUTRAL SWITCH		
8	BATTERY ECM POWER (7.5 AMPS)				

G7 13365887

Figure 6-4

ENGINE WILL NOT START

Starter Does Not Rotate	
Emergency stop switch depressed	Pull up emergency stop switch
Propulsion control lever not in the neutral or STOP position	Locate the control lever to STOP
Fuse 1 defective	Replace
Batteries discharged	Charge
Batter master switch OFF	Turn ON
Battery cable connections loose or disconnected	Tighten or connect
In-line fuse link faulted	Call for service to replace
Starter relay faulted	Call for service to replace
Defective ignition switch	Call for service to replace
Starter or starter solenoid defective	Call for service to replace

ENGINE WILL NOT START

Starter Does Rotate	
Empty fuel tank	Fill
Defective wiring	Call for service to correct fault
Fuel solenoid at fuel pump defective	Call for service to test/replace

DIFFICULT STARTING & POOR / IRREGULAR PERFORMANCE

Low battery power	Check / charge battery
Battery is discharged	Charge battery
Battery cable connections loose or corroded	Clean and tighten terminal connections and cover with acid-free grease
Using incorrect viscosity oil	Use recommended viscosity for temperature conditions
Fuel line blockage	Change in-line fuel filter, change fuel water separator elements, ensure use of correct fuel bleed fuel system
Air cleaner element blocked	Clean or replace
Loose or badly adjusted throttle control cable	Adjust or replace cable
Incorrect valve clearance	Call for specialist service to correct
Defective fuel injectors	Call for specialist service to correct
Fuel pump failure	Call for specialist service to correct
Defective turbo charger	Call for specialist service to correct

ENGINE MAKING EXCESSIVE FUMES

Engine oil level too high	Drain oil to correct level
Blocked air cleaner element	Clean or replace
Low compression due to poor condition of the valves to incorrect valve clearance	Call for specialist service to correct

ENGINE OVERHEATS - STOP ENGINE IMMEDIATELY

Engine oil level low	Add oil to correct level
Fan belt broken	Call for specialist service to correct
Engine coolant level low	Replenish coolant to correct level
Excessive dirt on radiator cooling fins or blocked air flow	Clean cooling fins or clear blockage
Radiator cap defective	Call for specialist service to correct
Thermostat defective	Call for specialist service to correct
Injector nozzles defective	Call for specialist service to correct
Incorrect fuel pump calibration	Call for specialist service to correct

LOW ENGINE OIL PRESSURE - RED WARNING LIGHT ILLUMINATES

Engine oil level low	Add oil to correct level
Lubrication system leak	Stop engine and check for leaks, tighten any loose fittings on the oil line system

VOLTMETER INDICATES LOW OR NEGATIVE VALUE

Alternator speed too low	Check belt tension and correct if required
Not charging due to defective alternator or regulator	Call for specialist service to correct

FUSE FAILURE

The following identifies conditions due to possible fuse failures and / or defective wiring. It may be necessary to replace the identified fuse and check for / correct defective wiring.

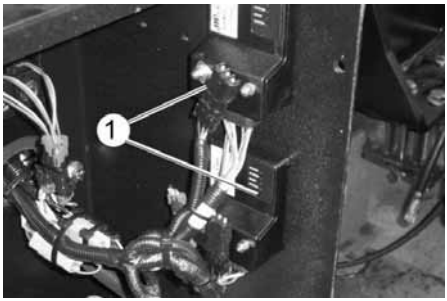
Components Not Operating Correctly	Fuse To Check / Replace
E-stop, fuel solenoid, ignition switch, seat switch and or parking brake	Replace fuse F1
Horn, air filter restrictor indicator, hydraulic oil temp. gauge	Replace fuse F2
Two speed control, back up alarm	Replace fuse F3
Lights, beacon, turn signals hazard lights	Replace fuse F4
Auto vib, impact meter	Replace fuse F5
Traction control	Replace fuse F6
Power port	Replace fuse F7
Throttle solenoid - pull - in.	Replace fuse F8
Instrument cluster	Replace fuse F9
Gauge options	Replace fuse F10
Cab options	Replace fuse F11
SPARE	Replace fuse F12
Heater valve blower	Replace fuse F13
Front wiper	Replace fuse F14
Rear wiper	Replace fuse F15
Washer, dome light	Replace fuse F16

CONTROL MODULE DESCRIPTION

The purpose of these instructions is to familiarize the reader with the Modular Controls offered as options with the various models of the SD TF Series Compactors. These options include the Traction Control, Auto Vibration / Impact Meter Control and the Variable Vibration Control.

One, two or three controls, (1, Figure 6-5) may be mounted in the battery compartment allowing quick connection and disconnection to the appropriate wiring harness or connection to a troubleshooting device.

Figure 6-5



Each control includes the following:

- POWER Green LED (light emitting diode) to indicate, if lit, the machine-mounted microprocessor is getting electrical power
- SYSTEM Green LED to indicate, if lit, a system check has been made by the microprocessor and it is operating properly
- MODE Yellow LED which will blink at a fast six-cycles-per-second rate to indicate software has not been loaded into the control; or blink at a slow, two-cycles-per-second rate to indicate software has been loaded and no errors have been found by the microprocessor.
- STATUS Red LED will indicate specific faults by an ON/OFF blinking, four-bit code with the time ON identified as a short or long flash. The sequence is specific to one fault only. The code(s) will repeat after a three-second delay.

POWER MUST BE ON

The indicator lights described above will not illuminate it electrical power is eliminated to the compactor via the ignition key. If this occurs, the compactor must be restarted and driven a minimum of thirty seconds in one direction at a minimum speed of 0.8 km/h (1/2 mph) per to allow calibration of the controls and indication of a fault.

Use of the emergency stop will shut down the engine but does not eliminate the power to the controls therefore the recalibration is not required.

TRACTION CONTROL

The traction control system is activated in low speed only and is designed to keep the drum and tires rotating at the same speed. If either the drum of tires lose traction and start to spin at a faster rate (slip) the traction control system will compensate by restricting the hydraulic pressure/flow to the drive motor that is slipping at the faster rate. This will increase the available torque at the non-slipping wheel or drum.

It is still possible to experience some slipping of either the drum or tires with this system operating properly.

The faults which may be displayed by the Traction Controller include the following. The terms “SHORT” and “LONG” indicate the length of time the red LED is lit.

- SHORT - SHORT - LONG - SHORT

  indicates the front coil on the traction control valve controlling the drum drive is outside allowable preset limits.

- LONG - SHORT - LONG - SHORT

  indicates the rear coil on the traction control valve controlling the drum drive is outside allowable preset limits.

- SHORT - LONG - LONG -SHORT

  indicates the controller is receiving a signal from the wheel motor speed sensor but is not receiving a signal from the drum drive speed sensor.

- LONG - LONG - LONG - SHORT

  indicates the controller is receiving signal from the drum drive speed sensor but is not receiving a signal from the wheel motor speed sensor.

The faults must be in existence for thirty seconds to be displayed.

A maintenance jumper wire is located in the wiring harness at the control.

CAUSE OF FAULTS

The Traction Control faults may be caused by one or more areas of concern.

Contact Ingerrsoll Rand for an analysis of fault indication.

VARIABLE VIBRATION CONTROL

This control is designed to regulate the rotational speed of the eccentric drive (frequency) as set by the operator using the five-position, vibrations-per-minute rotary switch located on the control panel.

The faults which may be displayed by the Variable Vibration Controller include the following. The terms “SHORT” and “LONG” indicate the length of time the red LED is lit.

- LONG - LONG - SHORT- SHORT

  indicates the voltage signal from the five speed switch is outside allowable preset limits.

- SHORT - LONG - LONG -SHORT

  indicates the CURRENT TO THE ECCENTRIC DRIVE PUMP CONTROL COIL IS OUTSIDE ALLOWABLE PRESET LIMITS.

- LONG - LONG - LONG -SHORT

  indicates NO SIGNAL IS BEING RECEIVED FROM THE ECCENTRIC DRIVE MOTOR SPEED SENSOR.

CAUSE OF FAULTS

The Variable Vibration Control faults may be caused by one or more areas of concern.

Contact Ingersoll Rand for an analysis of fault indication.

AUTO VIBE / IMPACT METER

This control, which operates in the AUTO MODE only, is designed to activate the vibration system when the compactors ground speed reaches 0.96 km/h (0.6 mph) and will deactivate the vibration system when the ground speed reaches 0.64 km/h (0.4 mph).

In addition, the Impact Meter Controller identifies the number of revolutions per minute of the eccentric drum; identifies the vibrations per minute of the drum; reads the existing ground speed; calculates the impacts per meter or per foot; and displays this value on the impact meter.

NO faults can be displayed by the Auto Vibe / Impact Meter Controller.

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SECTION 7- TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

GENERAL INFORMATION

This section of the manual contains technical specifications for the Ingersoll Rand Terra Firma Series of Vibratory Soil Compactors, including the SD-116F/DX, SD-122D/F/DX, SD-160F/DX, SD-190DX and the SD-200F/DX. The information presented in this section is divided into the following sections:

- Machine Identification
- Environmental Specifications
- Physical Specifications
- Machine Dimensions

MACHINE IDENTIFICATION

Name & Address of Manufacturer

Ingersoll Rand Construction Technologies

Road Development Division
312 Ingersoll Drive
Shippensburg, Pennsylvania 17257
Phone: 717-532-9181 (Main Switchboard)
Phone: 1-800-227-0573 (Customer Service Parts)

Name and Type of Machines

The Terra Firma Series of Single-Drum, Vibratory Soil Compactors, including SD-116DX, SD-116F, SD-122D, SD-122F, SD-122DX, SD-160F, SD-160DX, SD-190DX, SD-200F, and SD-200DX .

Serial Number and Product Range

The serial number effectivity for the Terra Firma Series of Compactors covered in this manual is outlined below.

Compactor Series	Effective with Serial Number
SD-116F, SD-116DX	All / initial production
SD-122F, SD-122D, and SD-122DX	Effective with S/N 172719, including S/N 172423 & S/N 172437
SD-160F, SD-160DX	Effective with S/N 180042
SD-190DX	All / initial production
SD-200F	Effective with S/N 181198
SD-200DX	Effective with S/N 180684

ENVIRONMENTAL INFORMATION

SD-116 DX/F TERRA FIRMA SERIES VIBRATORY SOIL COMPACTORS

The SD-116 DX and SD-116F Compactors meet or exceed all federal Environmental Protection Agency (EPA), and Occupational Safety & Health Administration (OSHA) requirements. Acoustic information is detailed below.

Noise Emission

In accordance with the requirements of clause 1.7.4 (f) of Annex 1 of Council Directive ..Relating to Machinery 98/37/EC, the following values were measured:

- Equivalent continuous A-weighted sound pressure level at operator's station: (Leq.A) = 89.0 dB(A), Engine only; and 90 dB(A) with Vibration On. For units with cab: = 82.0 dB (A), Engine only; and 83 dB(A) with Vibration On.
- A-weighted sound power level of the machine: (Lw) = 112.0 dB(A) Vibration On.

These measurements were recorded in accordance with the requirements of ISO 6394, ISO 6395 and ISO 6396, with the engine running at manufacturer's rated speed.

Operator's Exposure to Vibration

In accordance with the requirements of Clause 3.6.3 (a) of Annex 1 of Council Directive..Relating to Machinery 98/37/EC, the following values were measured:

- Arms/hands: The weighted root mean square acceleration value to which hands are subjected (Aeq) = does not exceed 2.5 m/s2.
- Body/posterior: The weighted root mean square acceleration value to which the body is subjected (Aeq) = does not exceed 0.5 m/s2.

These measurements were recorded in accordance with the requirements of ISO 5349 and ISO 2631, with the compactor's engine running at manufacturer's rated speed and drum vibration at maximum frequency and corresponding maximum amplitude.

SD-122 D/F/DX TERRA FIRMA SERIES VIBRATORY SOIL COMPACTORS

The SD-122D, SD-122F, and SD-122DX Compactors meet or exceed all federal Environmental Protection Agency (EPA), and Occupational Safety & Health Administration (OSHA) requirements. Acoustic information is detailed below.

Noise Emission

In accordance with the requirements of clause 1.7.4 (f) of Annex 1 of Council Directive ..Relating to Machinery 98/37/EC, the following values were measured:

- Equivalent continuous A-weighted sound pressure level at operator's station: (Leq.A) = 89.0 dB(A), Engine only; and 90 dB(A) with Vibration On.
  For units with cab: = 82.0 dB (A), Engine only; and 83 dB(A) with Vibration On.
- A-weighted sound power level of the machine: (Lw) = 112.0 dB(A) Vibration On.

These measurements were recorded in accordance with the requirements of ISO 6394, ISO 6395 and ISO 6396, with the engine running at manufacturer's rated speed.

Operator's Exposure to Vibration

In accordance with the requirements of Clause 3.6.3 (a) of Annex 1 of Council Directive..Relating to Machinery 98/37/EC, the following values were measured:

- Arms/hands: The weighted root mean square acceleration value to which hands are subjected (Aeq) = does not exceed 2.5 m/s2.
- Body/posterior: The weighted root mean square acceleration value to which the body is subjected (Aeq) = does not exceed 0.5 m/s2.

These measurements were recorded in accordance with the requirements of ISO 5349 and ISO 2631, with the compactor's engine running at manufacturer's rated speed and drum vibration at maximum frequency and corresponding maximum amplitude.

SD-160 F/DX TERRA FIRMA SERIES VIBRATORY SOIL COMPACTORS

The SD-160F and SD-160DX Compactors meet or exceed all federal Environmental Protection Agency (EPA), and Occupational Safety & Health Administration (OSHA) requirements. Acoustic information is detailed below.

Noise Emission

In accordance with the requirements of clause 1.7.4 (f) of Annex 1 of Council Directive ..Relating to Machinery 98/37/EC, the following values were measured:

- Equivalent continuous A-weighted sound pressure level at operator's station: (Leq.A) = 92.0 dB(A), Engine only; and 92 dB(A) with Vibration On.
  For units with cab: = 84.0 dB (A), Engine only; and 85 dB(A) with Vibration On.
- A-weighted sound power level of the machine: (Lw) = 112.0 dB(A) Vibration On.

These measurements were recorded in accordance with the requirements of ISO 6394, ISO 6395 and ISO 6396, with the engine running at manufacturer's rated speed.

Operator's Exposure to Vibration

In accordance with the requirements of Clause 3.6.3 (a) of Annex 1 of Council Directive..Relating to Machinery 98/37/EC, the following values were measured:

- Arms/hands: The weighted root mean square acceleration value to which hands are subjected (Aeq) = 3.2 m/s2.
- Body/posterior: The weighted root mean square acceleration value to which the body is subjected (Aeq) = 0.19 m/s2.

These measurements were recorded in accordance with the requirements of ISO 5349 and ISO 2631, with the compactor's engine running at manufacturer's rated speed and drum vibration at maximum frequency and corresponding maximum amplitude.

SD-190DX / 200 F/DX TERRA FIRMA SERIES VIBRATORY SOIL COMPACTORS

The SD-190-DX, SD-200F, and SD-200DX Compactors meet or exceed all federal Environmental Protection Agency (EPA), and Occupational Safety & Health Administration (OSHA) requirements. Acoustic information is detailed below.

Noise Emission

In accordance with the requirements of clause 1.7.4 (f) of Annex 1 of Council Directive ..Relating to Machinery 98/37/EC, the following values were measured:

- Equivalent continuous A-weighted sound pressure level at operator's station: (Leq.A) = 90.0 dB(A), Engine only; and 92 dB(A) with Vibration On.
  For units with cab: = 81.0 dB (A), Engine only; and 83 dB(A) with Vibration On.
- A-weighted sound power level of the machine: (Lw) = 113.0 dB(A) Vibration On.

These measurements were recorded in accordance with the requirements of ISO 6394, ISO 6395 and ISO 6396, with the engine running at manufacturer's rated speed.

Operator's Exposure to Vibration

In accordance with the requirements of Clause 3.6.3 (a) of Annex 1 of Council Directive..Relating to Machinery 98/37/EC, the following values were measured:

- Arms/hands: The weighted root mean square acceleration value to which hands are subjected (Aeq) = does not exceed 2.5 m/s2.
- Body/posterior: The weighted root mean square acceleration value to which the body is subjected (Aeq) = does not exceed 0.5 m/s2.

These measurements were recorded in accordance with the requirements of ISO 5349 and ISO 2631, with the compactor's engine running at manufacturer's rated speed and drum vibration at maximum frequency and corresponding maximum amplitude.

PHYSICAL SPECIFICATIONS

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-116 DX/F Compactor (Terra Firma Series).

Table 7-1:
SD-116 DX/F Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
	SD-116DX	SD-116F
Operating Weight (1/2 tank fuel)	10852 kg (23930 lbs.)	11360 kg (25050 lbs.)
Static Weight at Drum	6281 kg (13850 lbs.)	6598 kg (14550 lbs.)
Static Weight at Tires	4762 kg (10500 lbs.)	4762 kg (10500 lbs.)
Shipping Weight (1/4 tank fuel)	10716 kg (23630 lbs.)	11224 kg (24750 lbs.)
Static Linear Load (Front Drum)	29.4 kg/cm (165 lb./in)	31 kg/cm (173 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.8 km (High)	3.0 mph (Low)
High Range	12.5 km (High)	7.8 mph (High)
ENGINE		
Model Standard (Diesel)	Cummins QSB5.9-30T, Turbo, 6-Cyl., Tier II EPA	
Rated Power @ 2200 rpm	115.6 kW	(155 HP)
Maximum torque @ 1300 rpm	608.8 N•m	(449 ft.lb)
Idle (High / Low)	2350 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two 750 CCA, 115 min. resistance	
BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	

VIBRATION (SD-116DX)		
Single Vibrating Drum	2134mm (84”) wide x 1499mm (59”) dia. x 1” thick shell	
	Maximum Amplitude	Minimum Amplitude
Dynamic Force @ Frequency	61,000 @ 1900 vpm (32 Hz.)	47900 @ 2054 vpm (34 Hz.)
Dynamic Force Applied	332 kN (74,700 lb.)	274 kN (61,600 lb.)
Nominal Amplitude - Eccentric	1.92 mm (0.076”)	1.29 mm (0.051”)
Eccentric Moment	6878 kg/mm (597 lb./in.)	4609 kg/mm (400 lb./in.)
VIBRATION (SD-116F)		
Single Vibrating Drum	2134mm (84”) wide x 1295mm (51”) dia. x 1” thick shell	
	Maximum Amplitude	Minimum Amplitude
Dynamic Force @ Frequency	61,000 @ 1650 vpm (28 Hz.)	59400 @ 2025 vpm (34 Hz.)
Dynamic Force Applied	336 kN (75550 lb.)	329 kN (73950 lb.)
Nominal Amplitude - Eccentric	2.22 mm (0.087”)	1.44 mm (0.057”)
Eccentric Moment	6044 kg/mm (785 lb./in.)	5876 kg/mm (510 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-Amp Alternator	
Cooling System Capacity	26.5 Liters (28 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	84 L (22.2 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	9.5 L (10 Quarts)	
Transfer Case (Axle)	1.8 L (1.9 Quarts)	
Planetary (Each)	2.0 L (2.1 Quarts)	
Drum Eccentrics Capacity	7.6 L (8 Quarts)	
Drum Drive	3.8L (4 Quarts)	
Carrier Capacity	0.1 L (0.1 Quarts)	
Articulation Angle	38°	
Oscillation Angle	+/- 17°	
Gradeability (Theoretical)	84% (SD-116DX)	77% (SD-116F)
Tire Size	23.1-26 R3, 8PR TT (DX)	23.1-26 R1, 8PR TL (F)
Tire Pressure	1.1 Bar (16 psi)	
Tire Ballast	387 kg (854 lb.)	

NOTE: Specifications for both machines, SD-116DX & SD-116F, are the same unless otherwise noted, typically with a second number given aside of the first one. Where two separate specifications are given, the first specification cited is for the SD-116 DX model and the second specification is for the SD-116F model.

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-122 D/DX Compactors (Terra Firma Series).

Table 7-2:
SD-122 D/DX Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
	SD-122D	SD-122DX
Operating Weight (1/2 tank fuel)	12000 kg (26460 lbs.)	12002 kg. (26465 lbs.)
Static Weight at Drum	7088 kg (15630 lbs.)	7360 kg (16230 lbs.)
Static Weight at Tires	4911 kg (10830 lbs.)	4642 kg (10235 lbs.)
Shipping Weight (1/4 tank fuel)	11871 kg (26176 lbs.)	11873 kg. (26181 lbs.)
Static Linear Load (Front Drum)	33.2 kg/cm (186 lb./in)	34.5 kg/cm (193.2 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.3 km (Low)	2.7 mph (Low)
High Range	12.1 km (High)	7.5 mph (High)
ENGINE		
Model Standard (Diesel)	Cummins QSB5.9-30T, Turbo, 6-Cyl., Tier II EPA	
Rated Power @ 2200 rpm	116.3 kW	(156 HP)
Maximum torque @ 1300 rpm	608.8 N•m	(449 ft.lb)
Idle (High / Low)	2457 rpm (High)	950 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	

VIBRATION		
Single Vibrating Drum	2134 mm (84”) wide x 1499 mm (59”) dia. x 1” thick shell	
	Maximum Amplitude	Minimum Amplitude
Dynamic Force @ Frequency	63,200 @ 1850 vpm (31 Hz.)	46400 @ 2020 vpm (34 Hz.)
Dynamic Force Applied	351 kN (78,830 lb.)	276 kN (62,030 lb.)
Nominal Amplitude - Eccentric	1.90 mm (0.075”)	1.17 mm (0.046”)
Eccentric Moment	7489 kg/mm (650 lb./in.)	4609 kg/mm (400 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-A Alternator	
Cooling System Capacity	20.8 Liters (22 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	84 L (22.2 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	9.5 L (10 Quarts)	
Transfer Case (Axle)	1.8 L (1.9 Quarts)	
Planetary (Each)	2.0 L (2.1 Quarts)	
Drum Eccentrics Capacity	7.6 L (8 Quarts)	
Drum Drive	3.8L (4 Quarts)	
Carrier Capacity	0.1 L (0.1 Quarts)	
Articulation Angle	38°	
Oscillation Angle	+/- 17°	
Gradeability (Theoretical)	68% (SD-122D)	75% (SD-122DX)
Tire Size	23.1-26 R3, 8PR TT	
Tire Pressure	1.1 Bar (16 psi)	
Tire Ballast	595kg.(1312Lb.) SD-122D	327kg.(722Lb.) SD-122DX
NOTE: Specifications for both machines, SD-122DX & SD-122D, are the same unless otherwise noted, typically with a second number given aside of the first one. Where two separate specifications are given, the first specification cited is for the SD-122D model and the second specification is for the SD-122DX model.		

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-122F Compactor (Terra Firma Series).

Table 7-3:
SD-122F Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
Operating Weight (1/2 tank fuel)	13052 kg	(28780 lbs.)
Static Weight at Drum	8154 kg	(17980 lbs.)
Static Weight at Tires	4898 kg	(10800 lbs.)
Shipping Weight (1/4 tank fuel)	12923 kg	(28496 lbs.)
Static Linear Load (Front Drum)	38.2 kg/cm	(214 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.5 km (Low)	2.8 mph (Low)
High Range	12.7 km (High)	7.9 mph (High)
ENGINE		
Model Standard (Diesel)	Cummins 6BT-5.9C T1, Turbo, 6-Cyl., Tier I EPA	
Rated Power @ 2200 rpm	116.3 kW	(156 HP)
Maximum torque @ 1300 rpm	608.8 N•m	(449 ft.lb)
Idle (High / Low)	2457 rpm (High)	950 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 Quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	

VIBRATION		
Single Vibrating Drum	2134 mm (84”) wide x 1499 mm (59”) dia. x 1” thick shell	
	Maximum Amplitude	Minimum Amplitude
Dynamic Force @ Frequency	65900 @ 1650 vpm (28 Hz.)	63900 @ 2019 vpm (34 Hz.)
Dynamic Force Applied	373 kN (83880 lb.)	364 kN (81880 lb.)
Nominal Amplitude - Eccentric	2.03 mm (0.080”)	1.31 mm (0.052”)
Eccentric Moment	9816 kg/mm (852 lb./in.)	6360 kg/mm (552 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-Amp Alternator	
Cooling System Capacity	20.8 Liters (22 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	83.3 L (22 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	9.5 L (10 Quarts)	
Transfer Case (Axle)	1.8 L (1.9 Quarts)	
Planetary (Each)	2.0 L (2.1 Quarts)	
Drum Eccentrics Capacity	7.6 L (8 Quarts)	
Drum Drive	3.8L (4 Quarts)	
Carrier Capacity	0.1 L (0.1 Quart)	
Articulation Angle	38°	
Oscillation Angle	+/- 15°	
Gradeability (Theoretical)	71%	
Tire Size	23.1-26 R1, 8PR TT	
Tire Pressure	1.1 Bar (16 psi)	
Tire Ballast	478 kg (1054 lb.)	

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-160DX Compactor (Terra Firma Series).

Table 7-4:
SD-160DX Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
Operating Weight (1/2 tank fuel)	15963 kg	(35200 lbs.)
Static Weight at Drum	10975 kg	(24200 lbs.)
Static Weight at Tires	4989 kg	(11000 lbs.)
Shipping Weight (1/4 tank fuel)	15827 kg	(34900 lbs.)
Static Linear Load (Front Drum)	51.4 kg/cm	(288 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.5 km (Low)	2.8 mph (Low)
High Range	12.5 km (High)	7.7 mph (High)
ENGINE		
Model Standard (Diesel)	Cummins B5.9—TAA, 6-Cyl., CAC	
Rated Power @ 2200 rpm	129.0 kW	(173 HP)
Maximum torque @ 1300 rpm	718.6 N•m	(530 ft.lb)
Idle (High / Low)	2457 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	

VIBRATION		
Single Vibrating Drum	2134 mm (84”) wide x 1600 mm (63”) dia. x 1.38” thick shell	
	Maximum Frequency	Minimum Frequency
Dynamic Force @ Frequency	59400 @ 2025 vpm (34 Hz.)	76300 @ 1850 vpm (31 Hz.)
Dynamic Force Applied	372 kN (83600 lb.)	447 kN (100500 lb.)
Nominal Amplitude - Eccentric	1.28 mm (0.050”)	1.97 mm (0.078”)
Eccentric Moment	5876 kg/mm (510 lb./in.)	9044 kg/mm (785 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-Amp Alternator	
Cooling System Capacity	26.5 Liters (28 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	104 L (27.5 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	11.4 L (12 Quarts)	
Transfer Case (Axle)	1.8 L (1.85 Quarts)	
Planetary (Each)	3.6 L (3.8 Quarts)	
Drum Eccentrics Capacity	34 L (36 Quarts)	
Carrier Capacity	0.9 L (1.0 Quarts)	
Articulation Angle	+/- 38°	
Oscillation Angle	+/- 15°	
Gradeability (Theoretical)	65% (SD-160DX)	
Tire Size	23.1-26 R3, 8PR TT (DX)	
Tire Pressure	1.1 Bar (16 psi)	
Tire Ballast	168 kg (370 lb.)	

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-160F Compactor (Terra Firma Series).

Table 7-5:
SD-160F Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
Operating Weight (1/2 tank fuel)	16507 kg	(36400 lbs.)
Static Weight at Drum	11519 kg	(25400 lbs.)
Static Weight at Tires	4989 kg	(11000 lbs.)
Shipping Weight (1/4 tank fuel)	16371 kg	(36100 lbs.)
Static Linear Load (Front Drum)	54 kg/cm	(302 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.7 km (Low)	2.9 mph (Low)
High Range	13.1 km (High)	8.1 mph (High)
ENGINE		
Model Standard (Diesel)	Cummins B5.9—TAA, 6-Cyl., CAC	
Rated Power @ 2200 rpm	129.0 kW	(173 HP)
Maximum torque @ 1300 rpm	718.6 N•m	(530 ft.lb)
Idle (High / Low)	2457 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	

VIBRATION		
Single Vibrating Drum	2134 mm (84”) wide x 1600 mm (63”) dia. x 1.38” thick shell	
	Maximum Frequency	Minimum Frequency
Dynamic Force @ Frequency	57800 @ 1650 vpm (28 Hz.)	76200 @ 1650 vpm (28 Hz.)
Dynamic Force Applied	370 kN (83200 lb.)	452 kN (101600 lb.)
Nominal Amplitude - Eccentric	1.68 mm (0.066”)	2.21 mm (0.087”)
Eccentric Moment	8607 kg/mm (747 lb./in.)	11349 kg/mm (985 lb./ in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-Amp Alternator	
Cooling System Capacity	26.5 Liters (28 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	104 L (27.5 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	11.4 L (12 Quarts)	
Transfer Case (Axle)	1.8 L (1.85 Quarts)	
Planetary (Each)	3.6 L (3.8 Quarts)	
Drum Eccentrics Capacity	34 L (36 Quarts)	
Carrier Capacity	0.9 L (1.0 Quarts)	
Articulation Angle	+/- 38°	
Oscillation Angle	+/- 15°	
Gradeability (Theoretical)	55%	
Tire Size	23.1-26 R1, 8PR TL	
Tire Pressure	1.1 Bar (16 psi)	
Tire Ballast	168 kg (370 lb.)	

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-190DX Compactor (Terra Firma Series).

Table 7-6:
SD-190DX Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
Operating Weight (1/2 tank fuel)	19410 kg	(42800 lbs.)
Static Weight at Drum	12607 kg	(27800 lbs.)
Static Weight at Tires	6803 kg	(15000 lbs.)
Shipping Weight (1/4 tank fuel)	19274 kg	(42500 lbs.)
Static Linear Load (Front Drum)	59.1 kg/cm	(331 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.6 km/h (Low)	2.8 mph (Low)
High Range	12.4 km/h (High)	7.7 mph (High)
ENGINE (Prior to S/N 185573)		
Model Standard (Diesel)	Cummins QSB5.9—44—TAA, Electronic, 6-Cyl., Tier II	
Rated Power @ 2200 rpm	152.9 kW	(205 HP)
Maximum torque @ 1500 rpm	928.7 N•m	(685 ft.lb)
Idle (High / Low)	2350 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
ENGINE (Effective with S/N 185573)		
Model Standard (Diesel)	Cummins QSB6.7, Electronic, Turbo., 6-Cyl., Tier III	
Rated Power @ 2000 rpm	151.4 kW	(203 HP)
Maximum torque @ 1450 rpm	942.3 N•m	(695 ft.lb.)
Idle (High / Low)	2050 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	

BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	
VIBRATION		
Single Vibrating Drum	2134mm (84”) wide x 1600mm (63”) dia. x 1.38” thick shell	
	Maximum Frequency	Minimum Frequency
Dynamic Force @ Frequency	221 kN (49600 lb.) @ 1850 vpm (31 Hz.)	339 kN (76300 lb.) @ 1850 vpm (31 Hz.)
Dynamic Force Applied	344 kN (77400 lb.)	463 kN (104100 lb.)
Nominal Amplitude - Eccentric	1.28 mm (0.050 in.)	1.97 mm (0.078 in.)
Eccentric Moment	5876 kg/mm (510 lb./in.)	9044 kg/mm (785 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-Amp Alternator	
Cooling System Capacity	27 Liters (28.5 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	104 L (27.5 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	11.4 L (12 Quarts)	
Transfer Case (Axle)	1.8 L (1.85 Quarts)	
Planetary (Each)	3.6 L (3.8 Quarts)	
Drum Eccentrics Capacity	34 L (36 Quarts)	
Drum Drive	3.8 L (4 Quarts)	
Carrier Capacity	0.1 L (0.1 Quarts)	
Articulation Angle	+/- 38°	
Oscillation Angle	+/- 15°	
Gradeability (Theoretical)	59%	
Tire Size	23.1-26 R3, 10PR TT	
Tire Pressure	1.4 Bar (20 psi)	
Tire Ballast	376 kg (830 lb.)	

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-200DX Compactor (Terra Firma Series).

Table 7-7:
SD-200DX Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
Operating Weight (1/2 tank fuel)	20408 kg	(45000 lbs.)
Static Weight at Drum	13605 kg	(30000 lbs.)
Static Weight at Tires	6803 kg	(15000 lbs.)
Shipping Weight (1/4 tank fuel)	20271 kg	(44700 lbs.)
Static Linear Load (Front Drum)	63.75 kg/cm	(357 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.4 km (Low)	2.7 mph (Low)
High Range	12.7 km (High)	7.9 mph (High)
ENGINE (Prior to S/N 185573)		
Model Standard (Diesel)	Cummins QSB5.9—44—TAA, Electronic, 6-Cyl., Tier II	
Rated Power @ 2200 rpm	152.9 kW	(205 HP)
Maximum torque @ 1500 rpm	928.7 N•m	(685 ft.lb)
Idle (High / Low)	2350 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
ENGINE (Effective with S/N 185573)		
Model Standard (Diesel)	Cummins QSB6.7, Electronic, Turbo., 6-Cyl., Tier III	
Rated Power @ 2000 rpm	151.4 kW	(203 HP)
Maximum torque @ 1450 rpm	942.3 N•m	(695 ft.lb.)
Idle (High / Low)	2050 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	

BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	
VIBRATION		
Single Vibrating Drum	2134 mm (84”) wide x 1651 mm (65”) dia. x 1.5” thick shell	
	Maximum Frequency	Minimum Frequency
Dynamic Force @ Frequency	53700 @ 1850 vpm (31 Hz.)	82800 @ 1850 vpm (31 Hz.)
Dynamic Force Applied	372 kN (83700 lb.)	502 kN (112800 lb.)
Nominal Amplitude - Eccentric	1.14 mm (0.045”)	1.76 mm (0.069”)
Eccentric Moment	6360 kg/mm (552 lb./in.)	9816 kg/mm (852 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-Amp Alternator	
Cooling System Capacity	27 Liters (28.5 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	104 L (27.5 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	11.4 L (12 Quarts)	
Transfer Case (Axle)	1.8 L (1.85 Quarts)	
Planetary (Each)	3.6 L (3.8 Quarts)	
Drum Eccentrics Capacity	34 L (36 Quarts)	
Drum Drive	3.8 L (4 Quarts)	
Carrier Capacity	0.9 L (1.0 Quarts)	
Articulation Angle	+/- 38°	
Oscillation Angle	+/- 15°	
Gradeability (Theoretical)	59%	
Tire Size	23.1-26 R3, 10PR TT	
Tire Pressure	1.4 Bar (20 psi)	
Tire Ballast	376 kg (830 lb.)	

Machine weights, engine data, equipment descriptions, and selected performance data are outlined below for the SD-200F Compactor (Terra Firma Series).

Table 7-8:
SD-200F Specifications & Performance Data

WEIGHTS (with ROPS and without cab)		
Operating Weight (1/2 tank fuel)	20181 kg	(44500 lbs.)
Static Weight at Drum	13378 kg	(29500 lbs.)
Static Weight at Tires	6803 kg	(15000 lbs.)
Shipping Weight (1/4 tank fuel)	20045 kg	(44200 lbs.)
Static Linear Load (Front Drum)	62.7 kg/cm	(351.2 lb./in)
PROPULSION (Transmission)		
Type of System	Hydrostatic, 2-speed motors on planetary axle and drum drive w/ No-Spin® differential	
Travel Speed - Low Range	4.6 km (Low)	2.9 mph (Low)
High Range	13.5 km (High)	8.4 mph (High)
ENGINE (Prior to S/N 185573)		
Model Standard (Diesel)	Cummins QSB5.9—44—TAA, Electronic, 6-Cyl., Tier II	
Rated Power @ 2300 rpm	152.9 kW	(205 HP)
Maximum torque @ 1500 rpm	928.7 N•m	(685 ft.lb)
Idle (High / Low)	2350 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on and in-line
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	
ENGINE (Effective with S/N 185573)		
Model Standard (Diesel)	Cummins QSB6.7, Electronic, Turbo., 6-Cyl., Tier III	
Rated Power @ 2000 rpm	151.4 kW	(203 HP)
Maximum torque @ 1450 rpm	942.3 N•m	(695 ft.lb.)
Idle (High / Low)	2050 rpm (High)	1000 rpm (Low)
Oil Capacity (Crankcase)	14.2 L	(15 quarts)
Oil Filtration	Spin-on	
Fuel Filtration	2 Filters	Spin-on
Fuel System Type	Bosch	
Type Air Cleaner	Dry, 2-Stage	
Battery	Two, 750 CCA, 115 min. resistance	

BRAKES		
Type of System	Hydrostatic through the propulsion system	
Secondary/Parking Brake	Spring-applied, hydraulic released on each axle	
STEERING		
Design	Centerpoint articulation	
Type System	Double-acting, Hydrostatic, single-cylinder	
Control System	Hydraulic	
VIBRATION		
Single Vibrating Drum	2134 mm (84”) wide x 1621 mm (63.8”) dia. x 1.0” thick shell	
	Maximum Frequency	Minimum Frequency
Dynamic Force @ Frequency	61300 @ 1700 vpm (28 Hz.)	80800 @ 1700 vpm (28 Hz.)
Dynamic Force Applied	404 kN (90800 lb.)	491 kN (110300 lb.)
Nominal Amplitude - Eccentric	1.51 mm (0.059”)	1.99 mm (0.078”)
Eccentric Moment	8607 kg/mm (747 lb./in.)	11349 kg/mm (985 lb./in.)
MISCELLANEOUS		
Electrical System	12-Volt, DC, Negative gnd., 95-A Alternator	
Cooling System Capacity	27 Liters (28.5 Quarts)	
Fuel Tank Capacity	257 L (68 Gallons)	
Hydraulic Oil Tank Capacity	104 L (27.5 Gallons)	
Engine Crankcase Capacity	14.2 L (15 Quarts)	
Gear Housing (Axle)	11.4 L (12 Quarts)	
Transfer Case (Axle)	1.8 L (1.85 Quarts)	
Planetary (Each)	3.6 L (3.8 Quarts)	
Drum Eccentrics Capacity	34 L (36 Quarts)	
Drum Drive	3.8 L (4 Quarts)	
Carrier Capacity	0.1 L (0.1 Quart)	
Articulation Angle	+/- 38°	
Oscillation Angle	+/- 15°	
Gradeability (Theoretical)	49%	
Tire Size	23.1-26 R1, 10PR TL	
Tire Pressure	1.1 Bar (16 psi)	
Tire Ballast	376 kg (830 lb.)	

MACHINE DIMENSIONS

Figure 7-1 provides a dimensional outline of the SD-116F/DX & SD-122D/DX Compactors, the values of which are defined in Table 7-8.

Figure 7-1

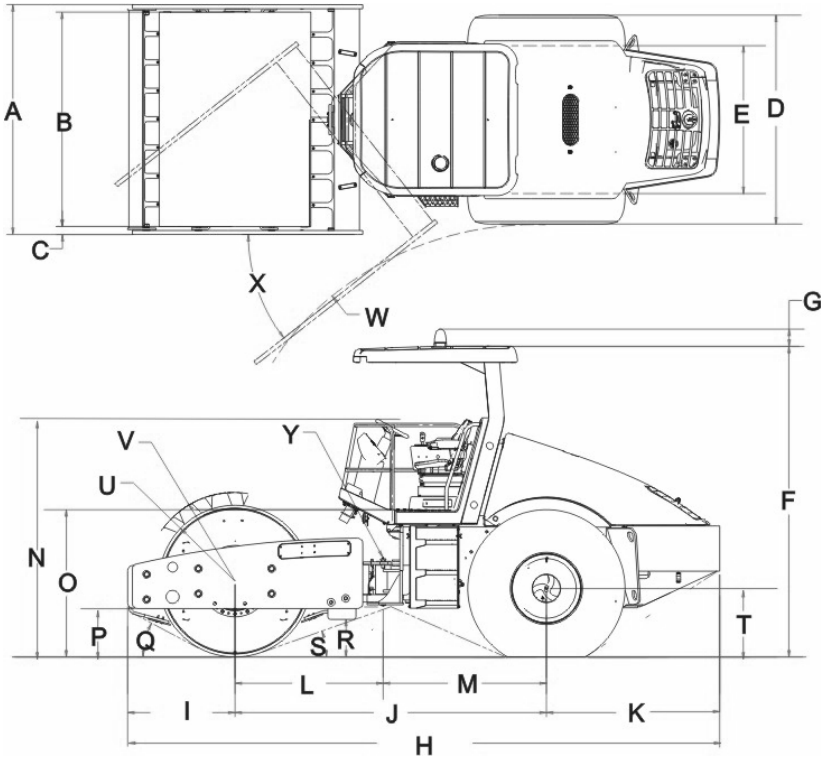


Table 7-9: Dimensions for SD-116F/DX & SD-122D/DX Compactors

Letter	Description	MM	Inches
A	Front Width	2286	90
B	Drum Width	2134	84
C	Side Clearance	79	3.1
D	Machine Width @ Tire	2134	84
E	Track	1471	57.9
F	Height (w/ROPS & Cab)	3091	121.7
G	Beacon Height	171	6.7
H	Length Overall	5895	232
I	Front Hub to Bumper	1069	42.1
J	Wheel/Drum Base	3100	122
K	Rear Hub to Bumper	1726	67.9
L	Articulation to Front Hub	1475	58
M	Articulation to Rear Hub	1625	63.9
N	Platform Height	2379	93.6
O	Deck Height	1466	57.7
P	Curb Clearance	483	19
Q	Angle Q	28°	28°
R	Ground Clearance	375	14.8
S	Angle S	19°	19°
T	Rolling Radius (Tire)	683	26.9
U	Rolling Radius (Drum) (SD-116DX)	752.5	29.6
U	Rolling Radius (Drum) (SD-122D/DX)	755	29.7
V	Drum Radius	781	30.75
W	Turning Radius (Inside)	3463	136
X	Articulation Angle	38°	38°
Y	Oscillation Angle	+/- 17°	+/- 17°

Figure 7-2 provides a dimensional outline of the SD-160DX & SD-160F Compactors, the values of which are defined in Table 7-9.

Figure 7-2

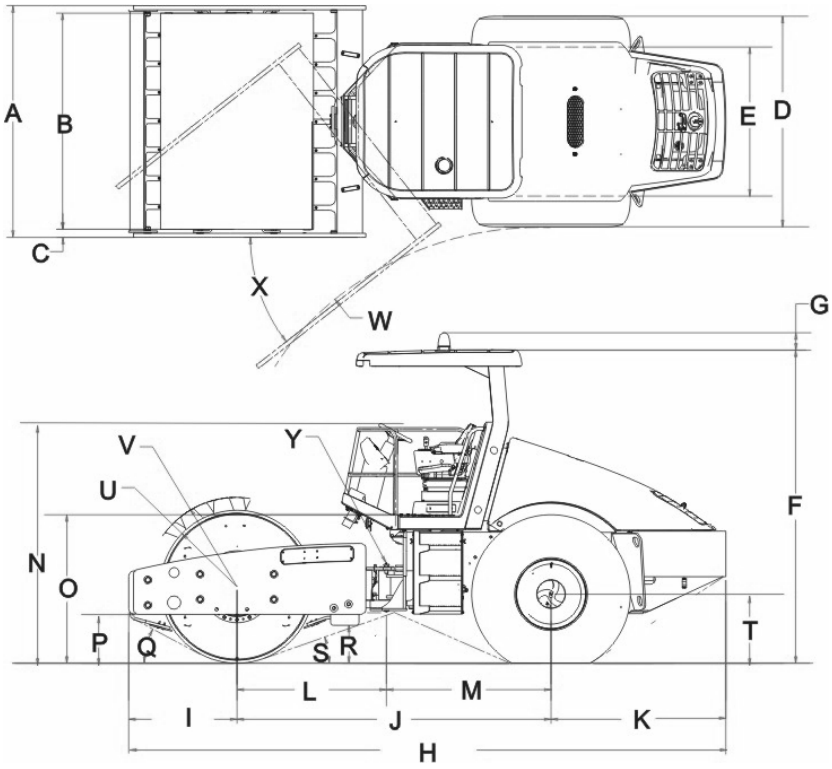


Table 7-10: Dimensions for SD-160DX & SD-160F Compactors

Letter	Description	MM	Inches
A	Front Width	2406	94.7
B	Drum Width	2134	84
C	Side Clearance	136	5.3
D	Machine Width @ Tire	2134	84
E	Track	1471	57.9
F	Height (w/ROPS & Cab)	3116 / 3169	122.7 / 124.7
G	Beacon Height	N/A	N/A
H	Length Overall	5998	236.1
I	Front Hub to Bumper	1159	45.6
J	Wheel/Drum Base	3109	122.4
K	Rear Hub to Bumper	1731	68.1
L	Articulation to Front Hub	N/A	N/A
M	Articulation to Rear Hub	N/A	N/A
N	Platform Height	2386 / 2431	93.9 / 95.7
O	Deck Height	1476	58.1
P	Curb Clearance	528	20.8
Q	Angle Q	25°	25°
R	Ground Clearance	506	19.9
S	Angle S	20°	20°
T	Rolling Radius (Tire)	683 / 703	26.9 / 27.7
U	Rolling Radius (Drum)	800 / 703	31.5/ 27.7
V	Drum Radius (SD-160F)	876	34.5
W	Turning Radius (Inside)	3463	136
X	Articulation Angle	38°	38°
Y	Oscillation Angle	+/- 15°	+/- 15°

NOTE: Dimensions for both machines, SD-160DX & SD-160F, are the same unless otherwise noted, typically with a slash line followed by a second dimension. Where two separate dimensions are given, the first dimension cited applies to the SD-160 DX model and the second dimension is for the SD-160F model.

Figure 7-3 provides a dimensional outline of the SD-190DX Compactor, the values of which are defined in Table 7-11.

Figure 7-3

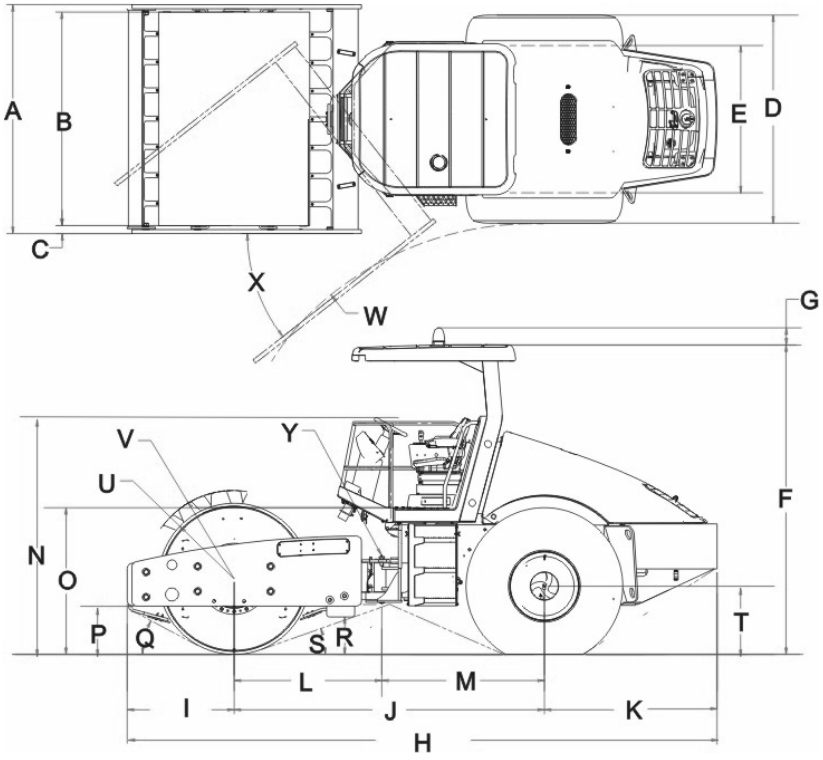


Table 7-11: Dimensions for SD-190DX Compactor

Letter	Description	MM	Inches
A	Front Width	2486	97.9
B	Drum Width	2134	84.0
C	Side Clearance	176	6.9
D	Machine Width @ Tire	2134	84.0
E	Track	1471	57.9
F	Height (w/ROPS & Cab)	3116	122.7
G	Beacon Height	193.5	7.6
H	Length Overall	6280	247.2
I	Front Hub to Bumper	1205	47.4
J	Wheel/Drum Base	3214	126.5
K	Rear Hub to Bumper	1862	73.3
L	Articulation to Front Hub	1588	62.5
M	Articulation to Rear Hub	1626	64.0
N	Platform Height	2386	93.9
O	Deck Height	1476	58.1
P	Curb Clearance	443	17.4
Q	Angle Q	19º	
R	Ground Clearance	455	17.9
S	Angle S	15º	
T	Rolling Radius (Tire)	683	26.9
U	Rolling Radius (Drum)	800	31.5
V	Drum Radius (SD-190DX)	876	34.5
W	Turning Radius (Inside)	3463	136.3
X	Articulation Angle	38°	38°
Y	Oscillation Angle	+/- 15°	+/- 15°

Figure 7-4 provides a dimensional outline of the SD-200DX & SD-200F Compactors, the values of which are defined in Table 7-12.

Figure 7-4

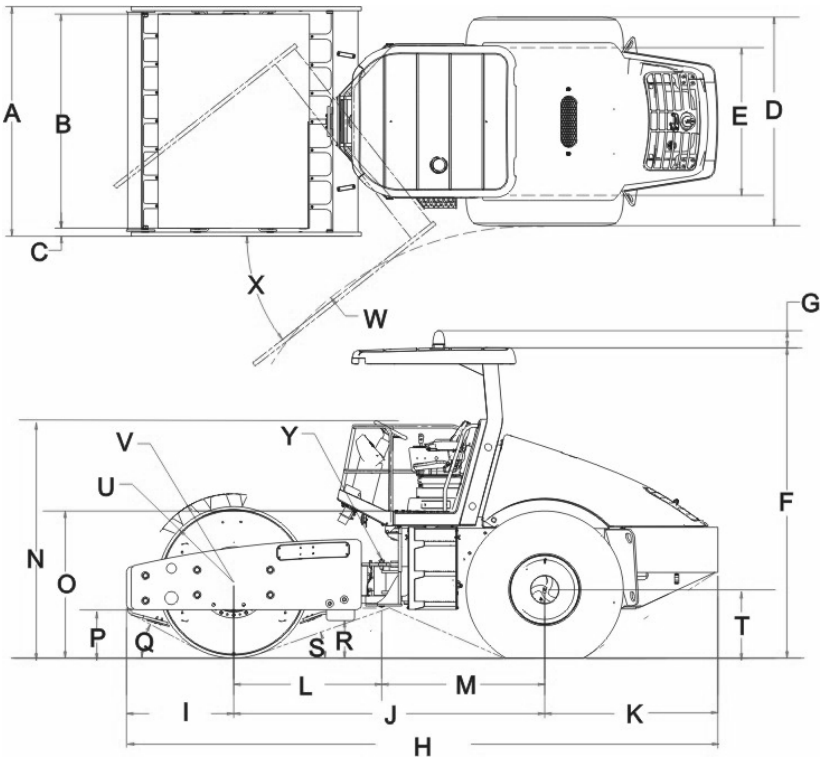


Table 7-12: Dimensions for SD-200DX & SD-200F Compactors

Letter	Description	MM	Inches
A	Front Width	2486	97.8
B	Drum Width	2134	84
C	Side Clearance	176	6.9
D	Machine Width @ Tire	2134 / 2136	84 / 84.1
E	Track	1471	57.9
F	Height (w/ROPS & Cab)	3120 / 3180	122.8 / 125.2
G	Beacon Height	193.5 / 195	7.6 / 7.7
H	Length Overall	6280	247.2
I	Front Hub to Bumper	1205	47.4
J	Wheel/Drum Base	3214	126.5
K	Rear Hub to Bumper	1862	73.3
L	Articulation to Front Hub	1588	62.5
M	Articulation to Rear Hub	1626	64
N	Platform Height	2386 / 2442	93.9 / 96.1
O	Deck Height	1482 / 1554	58.3 / 61.2
P	Curb Clearance	468 / 547	18.4 / 21.5
Q	Angle Q	20°	20°
R	Ground Clearance	465	18.3
S	Angle S	15°	15°
T	Rolling Radius (Tire)	683 / 722	26.9 / 28.4
U	Rolling Radius (Drum)	825	32.5
V	Drum Radius (SD-200F)	938	36.9
W	Turning Radius (Inside)	3463	136.3
X	Articulation Angle	38°	38°
Y	Oscillation Angle	+/- 15°	+/- 15°

NOTE: Dimensions for both machines, SD-200DX & SD-200F, are the same unless otherwise noted, typically with a slash line followed by a second dimension. Where two separate dimensions are given, the first dimension cited applies to the SD-200 DX model and the second dimension is for the SD-200F model.

Genuine Parts

For Genuine Ingersoll Rand Parts, Service And Nearest Distributor
http://www.road-development.irco.com

800-227-0573 (US and Canada)
717-532-9181(Latin America - Ingersoll Rand)
49-5151-209-0 (Europe)
852-2527-0183 (Asia)

Genuine Ingersoll Rand Protective Lubricants

See Your Authorized Ingersoll Rand Dealer For Details

SECTION 8- FUEL AND LUBE SPECIFICATIONS

FUEL AND LUBE SPECIFICATIONS

GENERAL INFORMATION

Lubrication is an essential part of preventive maintenance, affecting to a great extent the useful life of the unit. Periodic lubrication of the moving parts reduces to a minimum the possibility of mechanical failures.

For maximum machine life and performance, we recommend the use of genuine Ingersoll Rand brand lubricants.

Different lubricants are needed and some components in the unit require more frequent lubricant than others. Therefore, it is important that the instructions regarding types of lubricant and frequency of the application be explicitly followed.

The Lubrication Chart that follows in this section shows those items requiring regular service and the interval at which they should be performed. Details concerning fuel, oil and other lubricants follow the lubrication chart. A regular service program should be geared to the items listed under each interval. These intervals are based on average operating conditions. In the event of extremely severe, dusty or wet operating conditions, more frequent lubrication than specified may be necessary.

All oil levels are to be checked with the machine parked on a level surface and while the oil is cold, unless otherwise specified.

On plug-type check points, the oil levels are to be at the bottom edge of the check port.

All grease fittings are SAE STANDARD, unless otherwise indicated. Grease non-sealed fittings until grease is seen extruding from the fitting.

Over-lubrication on non-sealed fittings will not harm the fittings or components, but under lubrication will definitely lead to a shorter life.

Unless otherwise indicated, items not equipped with grease fittings (linkages, pins, levers, etc.) should be lubricated with oil once a week. Motor oil, applied sparingly, will provide the necessary lubrication and help prevent the formation of rust. An anti-seize compound may be used if rust has not formed. Otherwise, the component must be cleaned first.

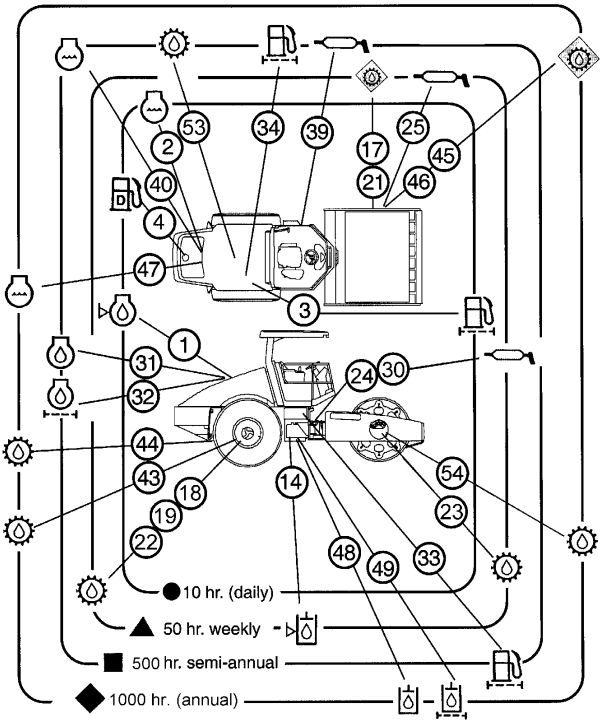
Grease fittings must be replaced when they are worn to the point that they fail to hold the grease gun, or when they have a stuck check ball.

To prevent minor irregularities from developing into serious conditions, the following other services or checks are recommended for the same intervals as the periodic lubrication:

1. Thoroughly wash all fittings, caps, plugs, etc. with non-flammable, non-toxic cleaning solution before servicing to prevent dirt from entering while performing the service.
2. Lubricants must be at operating temperature when draining.
3. During regular lubrication service, visually check the entire unit to ensure that capscrews, nuts and pins are properly secured.
4. Spot check several capscrews and nuts for proper torque. If any are found loose, a more thorough investigation must be made.
5. If a defect is detected which requires special maintenance service, stop the machine operation until the defect has been corrected. If necessary, contact the local Ingersoll Rand distributor for assistance.
6. This symbol  represents an area where lubrication is required.

Periodic lubrication requirements are listed in the following Lubrication Chart. These requirements include lubricant checks and greasing designated areas of the machine

LUBRICATION CHART



LUBRICATION SCHEDULE CHART			
Grease		Synthetic Trans. Oil	
Engine Oil		Fuel Filter/s	
Engine Coolant		Engine Oil Filter	
Hydraulic Oil		Hydraulic Oil Filter	

PERIODIC LUBRICATION SCHEDULE

NOTES:

The following notes refer to references in the periodic lubrication schedule below.

1. See Section 5 for initial break-in maintenance.
2. IR Multi-Purpose Premium Engine Oil - SAE 15W-40
3. IR All-Season Premium Hydraulic Oil - ISO VG 46 VI 140 (MIN)

   (IR All-Season Premium Hydraulic Oil meets specifications for use at temperatures above -12°C [10°F], use ISO VG 32).
4. IR Synthetic Component Lubricant - Synthetic Hydrocarbon w/ Phosphorus ISO VG 220
5. IR Premium Limited-Slip Component Lubricant - SAE 80W-90 LS API GL5

Service Legend:

A = Add. S = Check, G = Grease, C = Change, D = Drain, F = Fill, CL = Clean, AR = As Required

Table 1:

Service Interval	Ref. No.	Description	Service	Specs.	Comments
10 HOURS OR DAILY	1	Engine Oil	SA	See Item 2	FULL ON Dipstick
50 HOURS OR WEEKLY	14	HYDRAULIC OIL	SA	SEE ITEM 3	CENTER OF SIGHT GLASS
	17	ECCENTRIC OIL	SA	SEE ITEM 4	CENTER OF SIGHT GLASS
	18	AXLE WHEEL ENDS (2)	SA	SEE ITEM 5	BOTTOM OF LEVEL HOLE
	19	AXLE DIFFERENTIAL	SA	SEE ITEM 5	BOTTOM OF LEVEL HOLE
	21	CARRIER OIL	SA	SEE ITEM 4	BOTTOM OF LEVEL HOLE
	22	AXLE TRANSFER CASE	SA	SEE ITEM 5	BOTTOM OF LEVEL HOLE
	23	TORQUE HUB (DRUM DRIVE)	SA	SEE ITEM 5	BOTTOM OF LEVEL HOLE
	24	HORI & VERT SWIVEL PINS	G	MPG-EP2	3 SHOTS
	25	CARRIER SEAL	G	MPG-EP2	PURGE OLD GREASE
	26	CARRIER BREATHER	CL		SURFACE CLEAN

Table 2:

Service Interval	Ref. No.	Description	Service	Specs.	Comments
500 HOURS OR SEMI-ANNUALLY	30	STEERING CYLINDER PINS	G	MPG-EP2	3 SHOTS EACH
	31	ENGINE OIL	DF	See Item 5	B5.9-C 14.2 L / 15 QUARTS QSB5.9-C14.2 L / 15 QUARTS
	32	ENGINE OIL FILTER	C		QTY OF 1
	33	HYDRAULIC OIL FILTERS (3)	C		QTY OF 3
	36	AXLE BREATHER	CL		QTY OF I
	38	CARRIER BREATHER	CL		CLEAN WITH SOLVENT
	39	RATCHET JACK	GR	MPG-EP2	

Service Interval	Ref. No.	Description	Service	Specs.	Comments
1000 HOURS OR ANNUALLY	43	AXLE WHEEL END OIL (EACH)	DF	SEE ITEM 5	2.0 L / 2.1 QT SD 116 122 TOTAL EACH
					8.6 L / 8.8 QT SD 160 190 200 TOTAL EACH
	44	AXLE DIFFERENTIAL	DF	SEE ITEM 5	9.5 L / 10 QT SD 116 / 122 / 160 (TOTAL)
					11.8 L / 12.5 QT SD 160 190 200 (TOTAL)
	45	CARRIER OIL	DF	SEE ITEM 4	FILL TO LEVEL HOLE
	46	ECCENTRIC OIL	DF	SEE ITEM 4	FILL TO CENTER OF SIGHT GLASS
	48	HYDRAULIC OIL	DF	SEE ITEM 3	84 L / 89 QT SD 116 / 122
					109 L / 110 QT SD 160 / 190 / 200
	49	HYDRAULIC OIL STRAINERS	CL		QTY OF 3
	53	AXLE TRANSMISSION CASE	DF	SEE ITEM 5	1.8 L / 1.9 QT
	54	TORQUE HUB (DRUM DRIVE)	DF	SEE ITEM 5	3.7 L / 4 QT SD 116 / 122 / 160 / 190
					4 L / 4.2 QT SD 116 / 122 / 160

FLUID CAPACITIES

The following fluid capacities are provided for servicing personnel who must perform machine maintenance in remote locations where complete shop facilities and resources are not available. These capacities will give the servicing personnel an approximation of the fluid capacities of the components to be serviced. Always ensure that the specified method of checking for accurate fluid levels is used.

Table 3:

Fluid / Oil	Approximate Capacity					
	SD -116 155 HP	SD -122 155 HP	SD -122 173 HP	SD -160 173 HP	SD-190 205 HP	SD-200 205 HP
Diesel Fuel	257 Liters / 68 Gallon					
Hydraulic Oil	84 Liters / 23 Gallon			104 Liters / 28 Gallon		
Engine Oil	14.2 Liters / 15 Quart					
Engine Coolant	21 Liters / 22 Quart		27 Liter / 28 Quart			
Axle Differential Oil	9.5 Liter / 10 Quart			11.5 Liter / 12 Quart		
Transfer Case Oil	1.8 Liter / 1.9 Quart					
Planetary End Oil (Ea.)	2.1 Liter / 2.1 Quart			3.6 Liter / 3.8 Quart		
Drum Eccentric Oil	34 Liter / 36 Quart	7.6 Liter / 8 Quart	34 Liter / 36 Quart			
Carrier Oil	0.1 Liter / 0.1 Quart					
Torque Hub Drum Drive	3.8 Liter / 4 Quart					

HAZARDOUS SUBSTANCE PRECAUTION

The following information is provided to assist the owners and operators of Ingersoll Rand Road Machinery Equipment. Further information may be obtained by contacting your Ingersoll Rand Road Machinery Equipment Distributor.

The following substances may be produced during the operation of these machines and may be hazardous to your health.

Table 4:

SUBSTANCE	PRECAUTION
Engine Exhaust Fumes	Avoid breathing fumes
Engine Exhaust Fumes	Avoid buildup of fumes in confined spaces.
Antifreeze (Water-cooled engine)	Avoid ingestion, skin contact, and breathing fumes
Hydraulic Oil	Avoid ingestion, skin contact, and breathing fumes
Engine Lubricating Oil	Avoid ingestion, skin contact, and breathing fumes
Preservative Grease	Avoid ingestion, skin contact, and breathing fumes
Rust Preventative	Avoid ingestion, skin contact, and breathing fumes
Engine Fuel	Avoid ingestion, skin contact, and breathing fumes
Battery	Avoid ingestion, skin contact, and breathing fumes
SAE Gear Oil	Avoid ingestion, skin contact, and breathing fumes

SECTION 9 - TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

SAE TORQUE CHARTS

Use the following Recommended Torque Chart for bolts and nuts of SAE Grade 5 or better quality. If other torques are required, they will be indicated in the text.

Table 1:

Bolt (Coarse)	Torque	
	Lbs/Ft.	N•m<
1/4 - 20	9	12
5/16 - 18	19	26
3/8 - 16	37	50
7/16 - 14	59	80
1/2 - 13	90	122
9/16 - 12	130	176
5/8 - 11	180	244
3/4 - 10	320	434
7/8 - 9	515	698
1 - 8	775	1051
1 1/8 - 7	1100	1492
1 1/4 - 7	1540	2088
1 3/8 - 6	2020	2739
1 1/2 - 6	2690	3648

Bolt (Fine)	Torque	
	Lbs/Ft.	N•m<
1/4 - 28	11	15
5/16 - 24	21	28
3/8 - 24	42	57
7/16 - 20	66	89
1/2 - 20	100	136
9/16 - 18	145	197
5/8 - 18	205	278
3/4 - 16	355	481
7/8 - 14	570	773
1 - 12	845	1146
1 1/8 - 12	1230	1668
1 1/4 - 12	1710	2319
1 3/8 - 12	2300	3119
1 1/2 - 12	3020	4095

NOTE: Torque values used in this table are based on plated, yellow zinc, dicromate bolts.

NOTE: Use Loctite™ 271 on all bolts larger than 5/16 inch.

NOTE: Use Loctite™ 242 on bolts 5/16 inch and smaller to fill all gaps between the engaged bolt and nut threads.

All thread fasteners will have Loctite™ applied, except the following:

1. Nylon insert nuts
2. Whizlock bolts and nuts
3. Fasteners less than 1/4-inch diameter,
4. If specifically instructed not to apply Loctite™

ISO METRIC TORQUE CHART

Use the following Recommended Torque Chart for bolts and nuts of ISO Metric strength Class 8.8 or better. If other torques are required, they will be indicated in the text.

Table 2:

Bolt Size	Torque	
	Lbs/Ft.	N•m<
M6 x 1,0	9	12
M8 x 1,25	21	28
M10 x 1,5	45	61
M12 x 1,75	79	105
M14 x 2,0	125	170
M16 x 2,0	195	265
M20 x 2,5	380	515
M24 x 3,0	660	895
M30 x 3,5	1310	1780
M36 x 4,0	2290	3100

NOTE: Use Loctite™ 271 on all bolts larger than M8.

NOTE: Use Loctite™ 242 on M8 bolts and smaller. Apply enough Loctite™ to fill all gaps between the engaged bolt and nut threads.

All thread fasteners will have Loctite™ applied, except the following:

1. Nylon insert nuts
2. Whizlock bolts and nuts
3. Fasteners less than 1/4-inch diameter,
4. If specifically instructed not to apply Loctite™

SAE TORQUE CHART - SD 116/122/160/190/200 TF SERIES

Use the following Recommended Torque Chart for bolts and nuts of SAE Grade 5 or better quality. If other torques are required, they will be indicated in the text.0

Table 3:

Function of Fastener	Size	Torque	
		N•m	lb-ft
Articulation and Oscillation Nut/s	M48	678	500
Inside Scraper to Drum Frame	M30	1780	1313
Drum Assy. To Drum Frame	M30	1780	1313
Elbow Flange to Axle Motor	M12	105	79
Axle To Rear Frame	M20	730	540
Axle Motor To Axle	M14	170	125
Hood Spring Angle to Rear Frame	M10	61	45
Hood Cowling to Rops Support	M8	28	21
Hood Hinges To Hood	M8	28	21
Spring Pins To Hinges	M12	105	79
Railing to Rops Support	M12	105	79
Grill To Hood	M8	28	21
Isolators to Rear Frame	M12	105	79
Rops To Rops Support Platform	M24	635	470
Isolator to Rops Support Platform	M20	515	380
Eyebolt to Isolator	M20	515	380
Isolator To Rops Support	M12	264	195
Engine to Rear Frame	M16	265	195
Rear Engine Mounts To Engine	M12	105	79
Cooler Brackets To Engine	M12	105	79
Fan To Engine	M10	43	32
Coupling to Flywheel	3/8	54	40

SAE TORQUE CHART - SD 116/122/160/190/200 TF SERIES

Table 4:

Function of Fastener	Size	Torque	
		N•m	lb-ft
Cooler Assembly To Brackets	N/A	61	45
Pump Stack To Engine	N/A	55	41
Pump Stack Splined Coupling To Pump Stack Drive Shaft - 173 HP Engine	N/A	50	37
Pump Stack Splined Coupling To Pump Stack Drive Shaft - 205 HP Engine	M10	61	45
Pump Stack Support Bracket To Propulsion Pump - 173 HP Engine	1/2	176	130
Pump Stack Support Bracket To Pump Mounting Plate- 173 HP Engine	M10	55	41
Vibration Pump To Propulsion Pump	1/2	105	79
Vibration Pump To Propulsion Pump - 173 HP Engine	1/2	105	79
Hood Hinge To Rear Frame	M16	130	100
Striker To Striker Plate	N/A	105	79
Rops To Rops Support Platform	M24	470	635
Striker Plate To Rops Support	M10	61	45
Pedestal Assy To Rops Support Platform	M10	61	45
Eyebolt To Rops Support Platform	M24	264	195
Steering Pump To Vibration Pump	M10	61	45
Steering Pump To Vibration Pump -173 HP Engine	3/8	50	37
Spindle Bearing Housing To Drum	M16	373	275
Spindle Bearing Housing To Drum - 173 HP Engine	M20	732	540
Drive Bearing Housing To Drum	M16	373	275

SAE TORQUE CHART - SD 116/122/160/190/200 TF SERIES

Table 5:

Function of Fastener	Size	Torque	
		N•m	lb-ft
Drive Bearing Housing To Drum - 173 HP Engine, 205 HP Engine	M20	732	540
Shock Mount To Drum	M12	149	110
Journals To Eccentric Shaft - SD 190 and 200	M10	61	45
Spacer To Rear Frame	M12	150	110
Bumper To Rear Frame - SD 190 and 200	M16	265	195
Cover To Spindle Bearing Housing	M8	29	21
Eccentric Motor To Carrier Assy	M12	107	79
Drive Motor Assembly To Shock Mount	M16	264	195
Drum Shock Mount To Carrier Plate	M12	149	110
Shock Mounting Plates To Shock	M16	373	275
Wheel To Axle	M22	550	407
Drum Drive Motor To Drive Motor Mounting Plate	M20	515	380
Drum Drive Motor To Drive Plate	M16	265	195
Drum Drive Motor To Drive Plate - SD-200	M20	575	380
Pipe Plug To Carrier		373	275

SECTION 10 - SCHEMATICS

SCHEMATICS

GENERAL INFORMATION

Hydraulic and electrical schematics are included in the Manual Kit supplied with this machine and are included here for the convenience of the owner/operator. Additional full-size copies of the schematics are available by contacting the Ingersoll Rand Road Development Division. See your authorized Ingersoll Rand dealer for assistance, if required.

For ultimate machine life and maximum performance, we recommend the use of genuine Ingersoll Rand brand parts.

The electrical and hydraulic schematics included herein that are applicable to the SD-116F/DX, SD-122F/D/DX, SD-160F/DX, SD-190DX and SD-200F/DX Series of Compactors are outlined below.

Electrical Schematics

- Electrical schematics for the SD-116 and SD-122 Series of Compactors with Electronic Engines, Drawing No. 13309711, pages 10 - 3 through 10 - 5.
- Electrical schematics for the SD-116, SD-122, SD-190 & SD-200 Series of Compactors with Electronic Engines, Drawing No. 13375696, pages 10 - 6 through 10 - 8.
- Electrical schematics for the SD-122 F/D/DX Compactors with Mechanical Engines, Drawing No. 13304852, pages 10 - 9 through 10 -11.
- Electrical schematics for the SD-122 and SD-160 Series of Compactors with Mechanical Engines, Drawing No. 13375704, pages 10 - 12 through 10 - 14.

Hydraulic Schematics

- Hydraulic schematics for the SD-116F/DX Series of Compactors, Drawing No. 13238902, pages 10 - 15 through 10 - 16.
- Hydraulic schematics for the SD-116 and SD-122 Series of Compactors, Drawing No. 13463336, pages 10 - 17 through 10 - 19.
- Hydraulic schematics for the SD-116 and SD-122 Series of Compactors, Drawing No. 13375670, pages 10 - 20 through 10 - 21.
- Hydraulic schematic for the SD-160 and SD-200 Series of Compactors, Drawing No. 13365374, page 10 - 22.
- Hydraulic schematic for the SD-190DX and SD-200F/DX Compactors, Drawing No. 13414289, page 10 - 23.

APPLICABILITY OF ABOVE-LISTED SCHEMATICS TO SPECIFIC MACHINES

SD-116 Series Schematics (Covers SD-116F & SD-116DX Compactors)

- Hydraulic Schematic 13238902 - Prior to S/N 176533
- Hydraulic Schematic 13375670 - Between S/N 178670 - 176533
- Hydraulic Schematic 13463336 - Effective with S/N 178671
- Electrical Schematic 13309711 - Prior to S/N 176533
- Electrical Schematic 13375696 - Effective with S/N 176533

SD-122 Series Schematics (Covers SD-122F, SD-122D & SD-122DX Compactors)

- Hydraulic Schematic 13463336 - Effective with S/N 178673
- Prior to S/N 179959, use one of the Electrical Schematics listed below depending on the type of engine in the machine.
  - — Electrical Schematic 13309711 - Use with Electronic Engine
  - — Electrical Schematic 13304852 - Use with Mechanical Engine
- Effective with S/N 179959, use one of the Electrical Schematics listed below depending on the type of engine in the machine.
  - — Electrical Schematic 13375696 - Use with Electronic Engine
  - — Electrical Schematic 13375704 - Use with Mechanical Engine

SD-160 Series Schematics (Covers SD-160F & SD-160DX Compactors)

- Hydraulic Schematic 13365374 - All Machines
- Electrical Schematic 13375704 - Effective with S/N 177821

SD-190 Series Schematics (Covers SD-190DX Compactors)

- Hydraulic Schematic 13414289 - All Machines
- Electrical Schematic 13375696 - All Machines

SD-200 Series Schematics (Covers SD-200F & SD-200DX Compactors)

- Hydraulic Schematic 13414289 - Effective with S/N 179337
- Electrical Schematic 13375696 - Effective with S/N 179338

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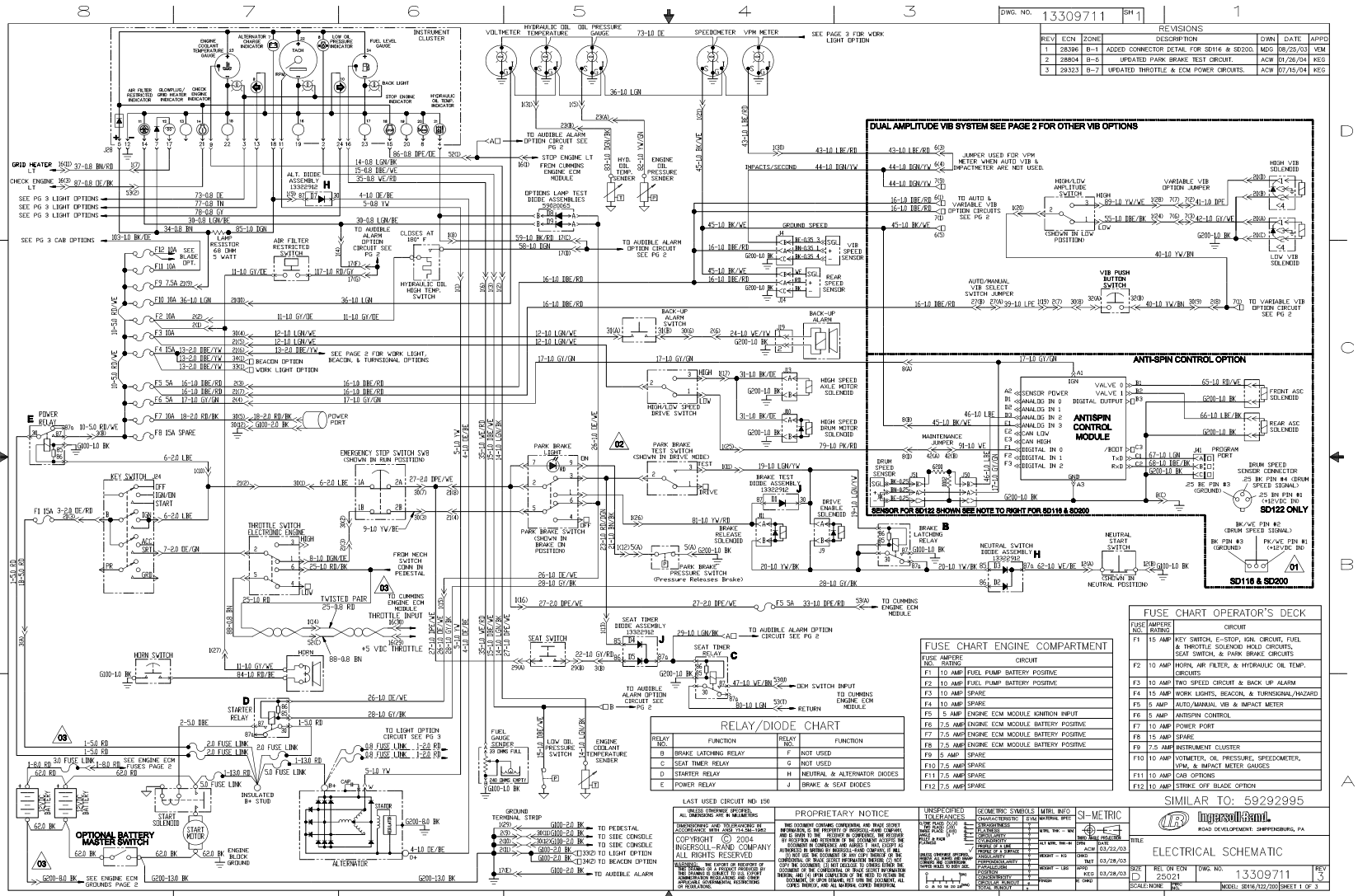
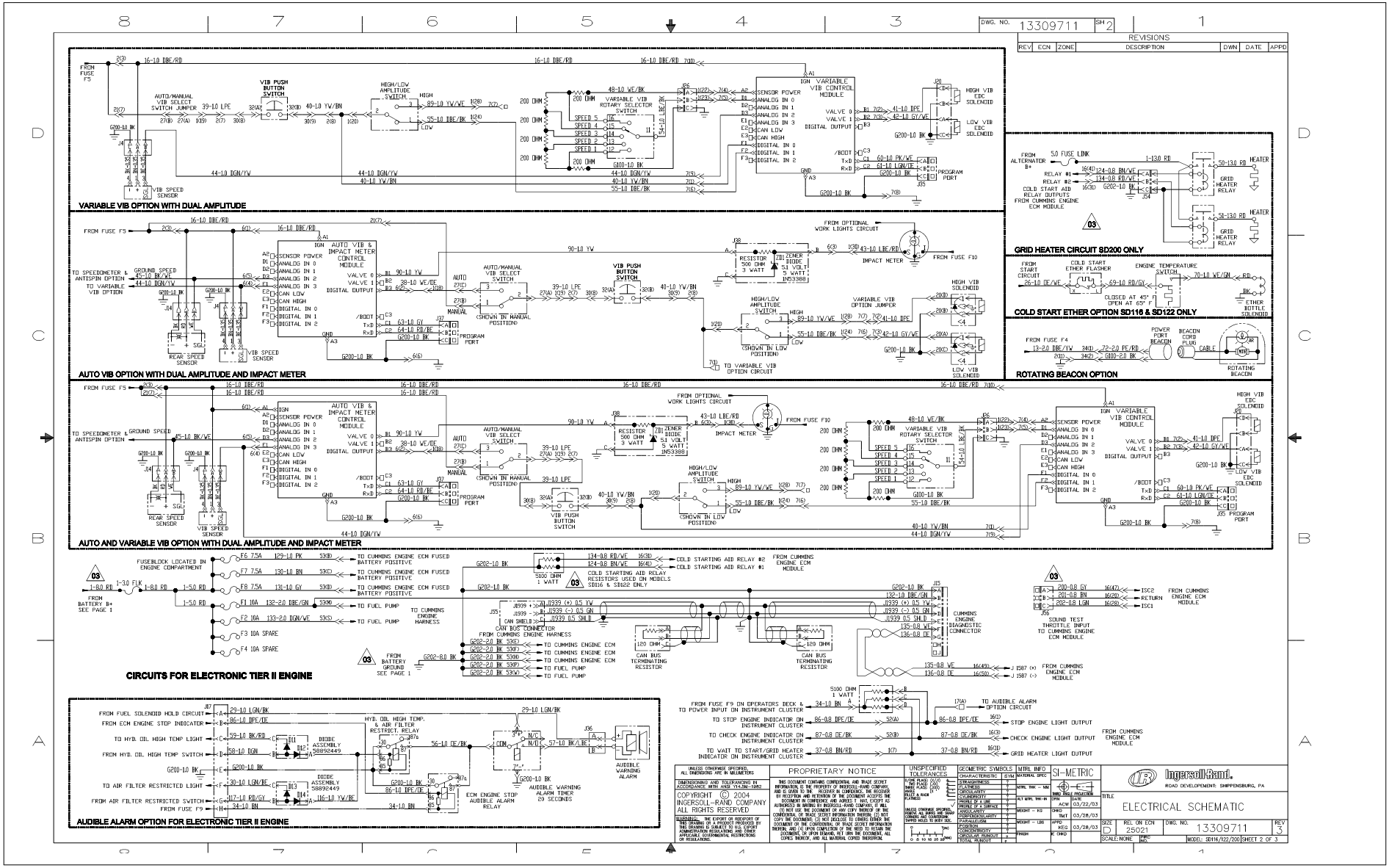
717-532-9181(Latin America - Ingersoll Rand)
49-5151-209-0 (Europe)
852-2527-0183 (Asia)

Genuine Ingersoll Rand Protective Lubricants

See Your Authorized Ingersoll Rand Dealer For Details

Electrical Schematics for the SD-116F/DX & SD-122D/F/DX Compactors w/Electronic Engines (13309711)

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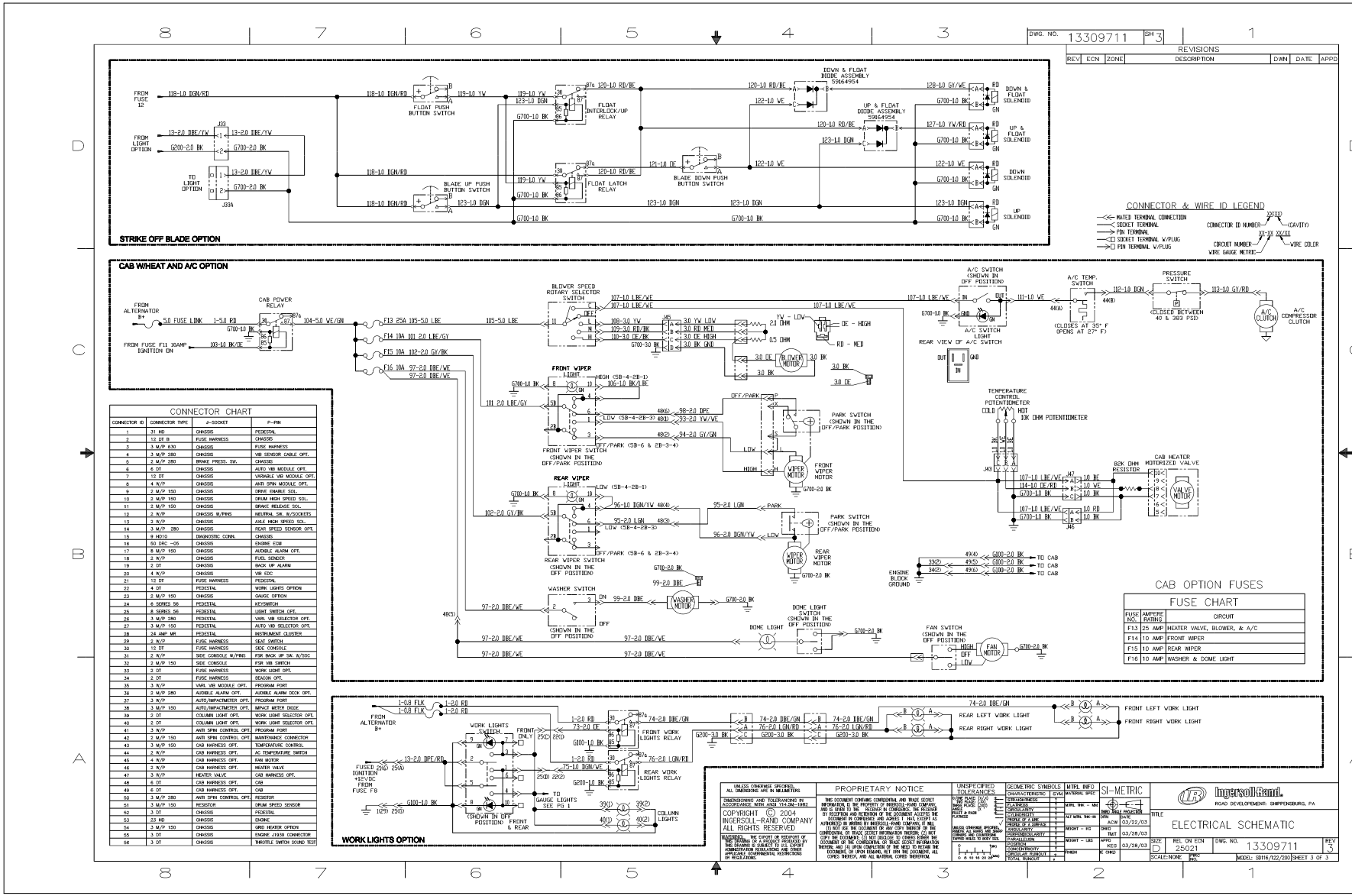
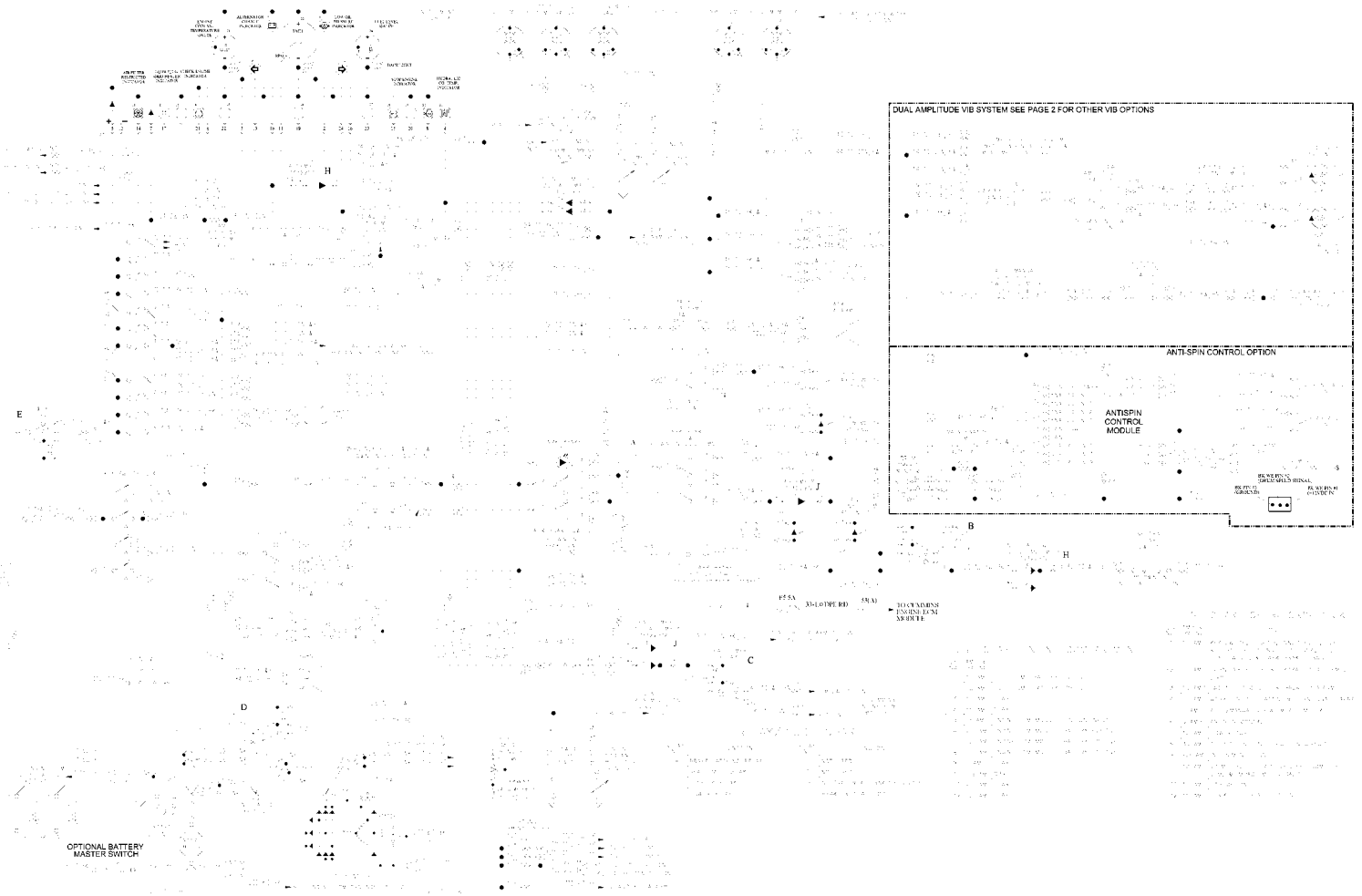
REVISIONS
REV ECN ZONE DESCRIPTION DWN DATE APPD
VARIABLE VIB OPTION WITH DUAL AMPLITUDE
AUTO VIB OPTION WITH DUAL AMPLITUDE AND IMPACT METER
AUTO AND VARIABLE VIB OPTION WITH DUAL AMPLITUDE AND IMPACT METER
GRID HEATER CIRCUIT SD200 ONLY
COLD START ETHER OPTION SD116 & SD122 ONLY
ROTATING BEACON OPTION
CIRCUITS FOR ELECTRONIC TIER II ENGINE
AUDIBLE ALARM OPTION FOR ELECTRONIC TIER II ENGINE
PROPRIETARY NOTICE
COPYRIGHT © 2004 INGERSOLL-RAND COMPANY ALL RIGHTS RESERVED
ELECTRICAL SCHEMATIC
ROAD DEVELOPEMENT: SHIPPENSBURG, PA
SCALE: NONE MODEL: SD116/122/200 SHEET 2 OF 3


DWG. NO. 13309711 SH 3
REVISIONS
REV ECN ZONE DESCRIPTION DWN DATE APPD
STRIKE OFF BLADE OPTION
CAB W/HEAT AND A/C OPTION
CONNECTOR & WIRE ID LEGEND
CONNECTOR CHART
CAB OPTION FUSES
FUSE CHART
WORK LIGHTS OPTION
PROPRIETARY NOTICE
ELECTRICAL SCHEMATIC
ingersoll-rand.
ROAD DEVELOPEMENT: SHIPPENSBURG, PA
SCALE:NONE
MODEL: SD116/122/200 SHEET 3 OF 3

Electrical Schematics for the SD-116F/DX, SD-122F/D/D, SD-190DX and SD-200F/DX Compactors w/Electronic Engines (13375696)



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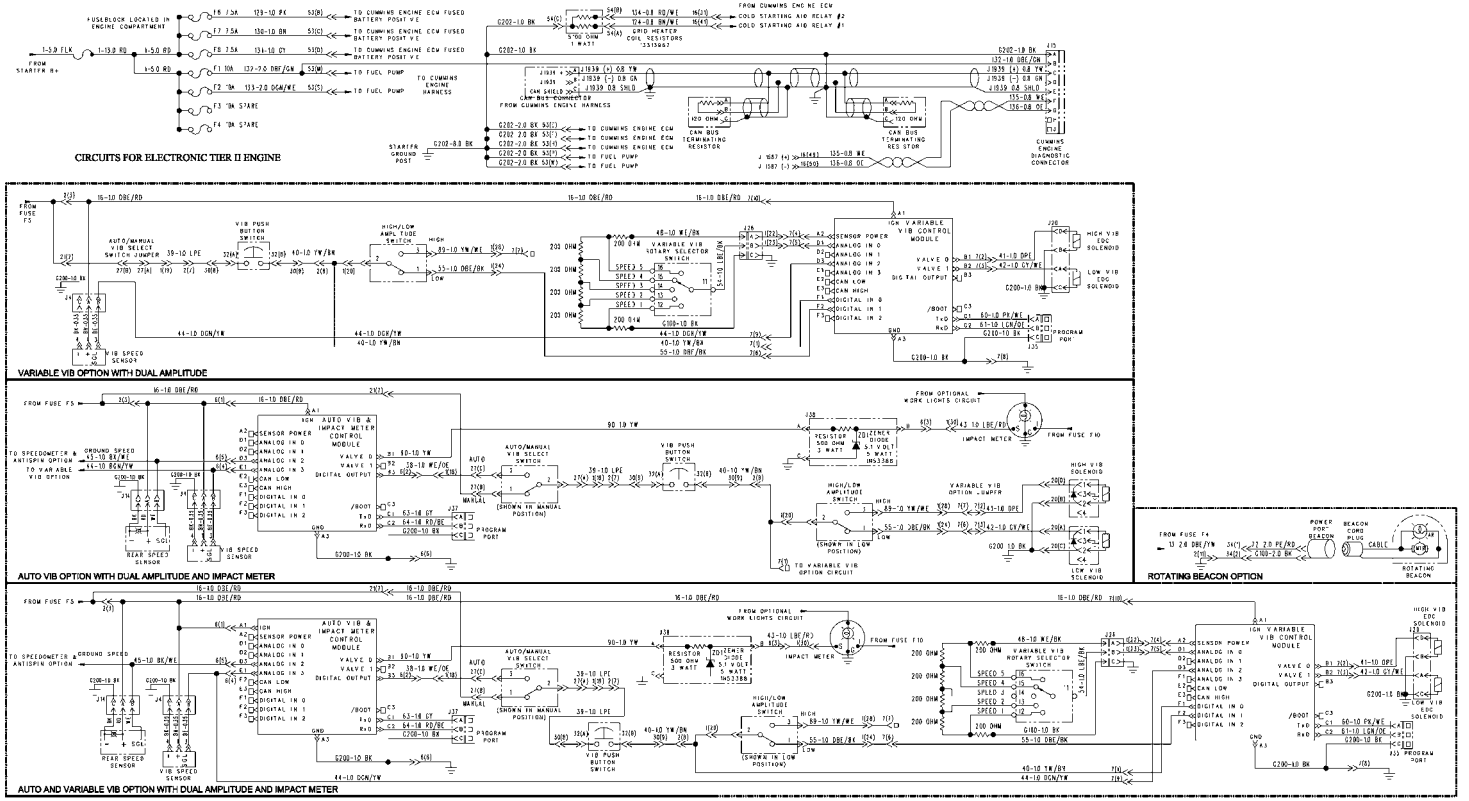
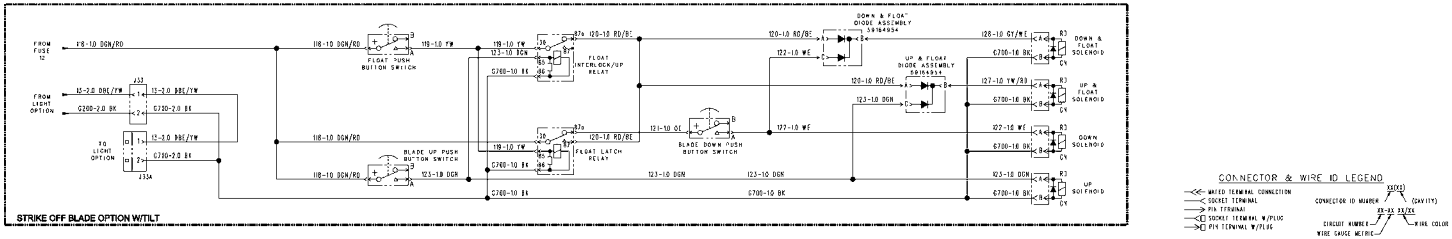
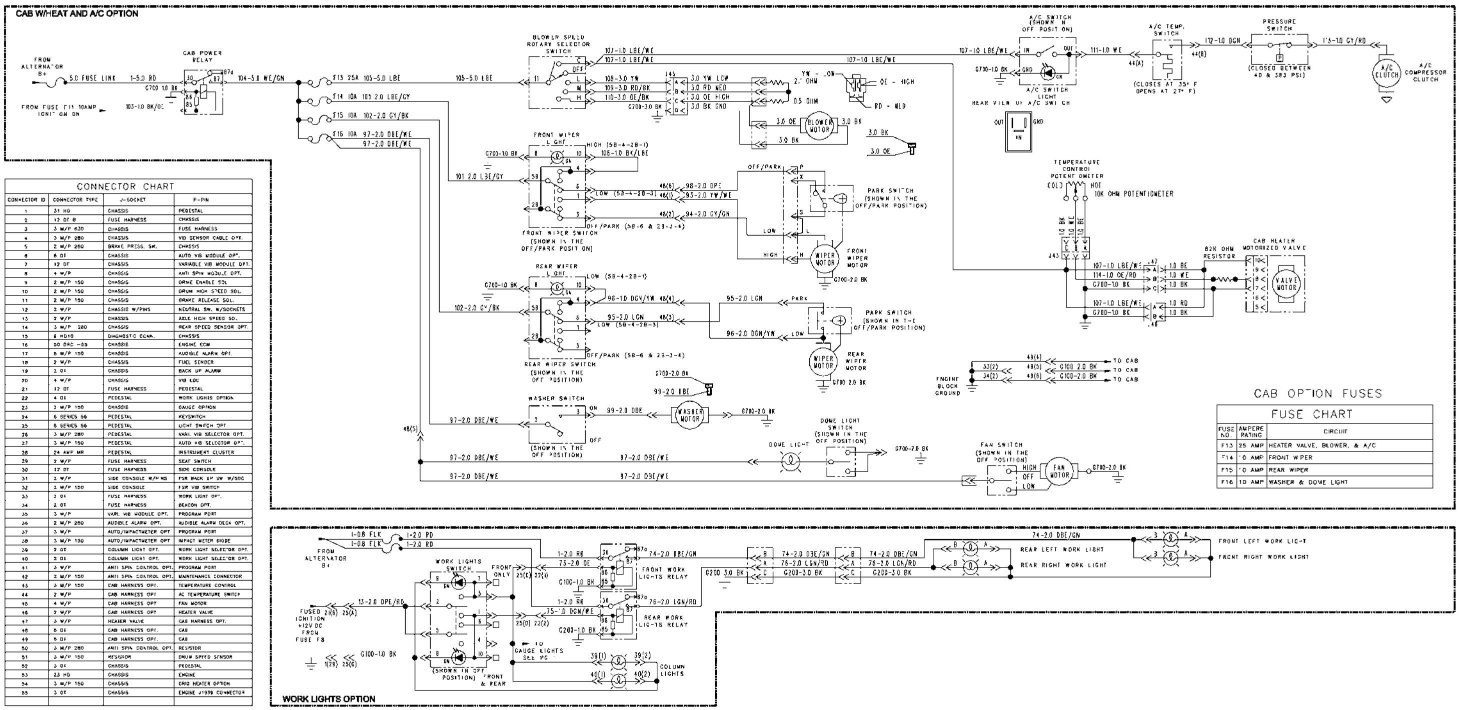


OM13375696_0B02





CONNECTOR CHART

CONNECTOR ID	CONNECTOR TYPE	J-SOCKET	P-PIN
1	31 HD	CHASSIS	PEDESTAL
2	12 DT 8	FUSE HARNESS	CHASSIS
3	3 M/P 630	CHASSIS	FUSE HARNESS
4	3 M/P 280	CHASSIS	VIB SENSOR CABLE OPT.
5	2 M/P 280	BRAKE PRESS. SW.	CHASSIS
6	6 DT	CHASSIS	AUTO VIB MODULE OPT.
7	12 DT	CHASSIS	VARIABLE VIB MODULE OPT.
8	4 W/P	CHASSIS	ANTI SPIN MODULE OPT.
9	2 M/P 150	CHASSIS	DRIVE ENABLE SOL
10	2 M/P 150	CHASSIS	DRUM HIGH SPEED SOL.
11	2 M/P 150	CHASSIS	BRAKE RELEASE SOL.
12	2 W/P	CHASSIS W/PINS	NEUTRAL SW. W/SOCKETS
13	2 W/P	CHASSIS	AXLE HIGH SPEED SO.
14	3 M/P 280	CHASSIS	REAR SPEED SENSOR OPT.
15	9 HD10	DIAGNOSTIC CONN.	CHASSIS
16	50 DRC -05	CHASSIS	ENGINE ECM
17	6 M/P 150	CHASSIS	AUDIBLE ALARM OPT.
18	2 W/P	CHASSIS	FUEL SENDER
19	2 DT	CHASSIS	BACK UP ALARM
20	4 W/P	CHASSIS	VIB LOC
21	12 DT	FUSE HARNESS	PEDESTAL
22	4 DT	PEDESTAL	WORK LIGHTS OPTION
23	2 M/P 150	CHASSIS	GAUGE OPTION
24	6 SERIES 56	PEDESTAL	KEYSWITCH
25	8 SERIES 56	PEDESTAL	LIGHT SWITCH OPT
26	3 M/P 280	PEDESTAL	VARI. VIB SELECTOR OPT.
27	3 M/P 150	PEDESTAL	AUTO VIB SELECTOR OPT.
28	24 AMP MR	PEDESTAL	INSTRUMENT CLUSTER
29	2 W/P	FUSE HARNESS	SEAT SWITCH
30	12 DT	FUSE HARNESS	SIDE CONSOLE
31	2 W/P	SIDE CONSOLE W/PINS	FSR BACK UP SW W/SOC
32	2 M/P 150	SIDE CONSOLE	FSR VIB SWITCH
33	2 DT	FUSE HARNESS	WORK LIGHT OPT.
34	2 DT	FUSE HARNESS	BEACON OPT.
35	3 W/P	VARI. VIB MODULE OPT.	PROGRAM PORT
36	2 M/P 280	AUDIBLE ALARM OPT.	AUDIBLE ALARM DECK OPT.
37	3 W/P	AUTO/IMPACTMETER OPT	PROGRAM PORT
38	3 M/P 150	AUTO/IMPACTMETER OPT	IMPACT METER DIODE
39	2 DT	COLUMN LIGHT OPT.	WORK LIGHT SELECTOR OPT.
40	2 DT	COLUMN LIGHT OPT.	WORK LIGHT SELECTOR OPT.
41	3 W/P	ANTI SPIN CONTROL OPT.	PROGRAM PORT
42	2 M/P 150	ANTI SPIN CONTROL OPT.	MAINTENANCE CONNECTOR
43	3 M/P 150	CAB HARNESS OPT.	TEMPERATURE CONTROL
44	2 W/P	CAB HARNESS OPT	AC TEMPERATURE SWITCH
45	4 W/P	CAB HARNESS OPT	FAN MOTOR
46	2 W/P	CAB HARNESS OPT	HEATER VALVE
47	3 W/P	HEATER VALVE	CAB HARNESS OPT.
48	6 DT	CAB HARNESS OPT.	CAB
49	6 DT	CAB HARNESS OPT.	CAB
50	3 M/P 280	ANTI SPIN CONTROL OPT.	RESISTOR
51	3 M/P 150	RESISTOR	DRUM SPEED SENSOR
52	3 DT	CHASSIS	PEDESTAL
53	23 HD	CHASSIS	ENGINE
54	3 M/P 150	CHASSIS	GRID HEATER OPTION
55	3 DT	CHASSIS	ENGINE J1939 CONNECTOR

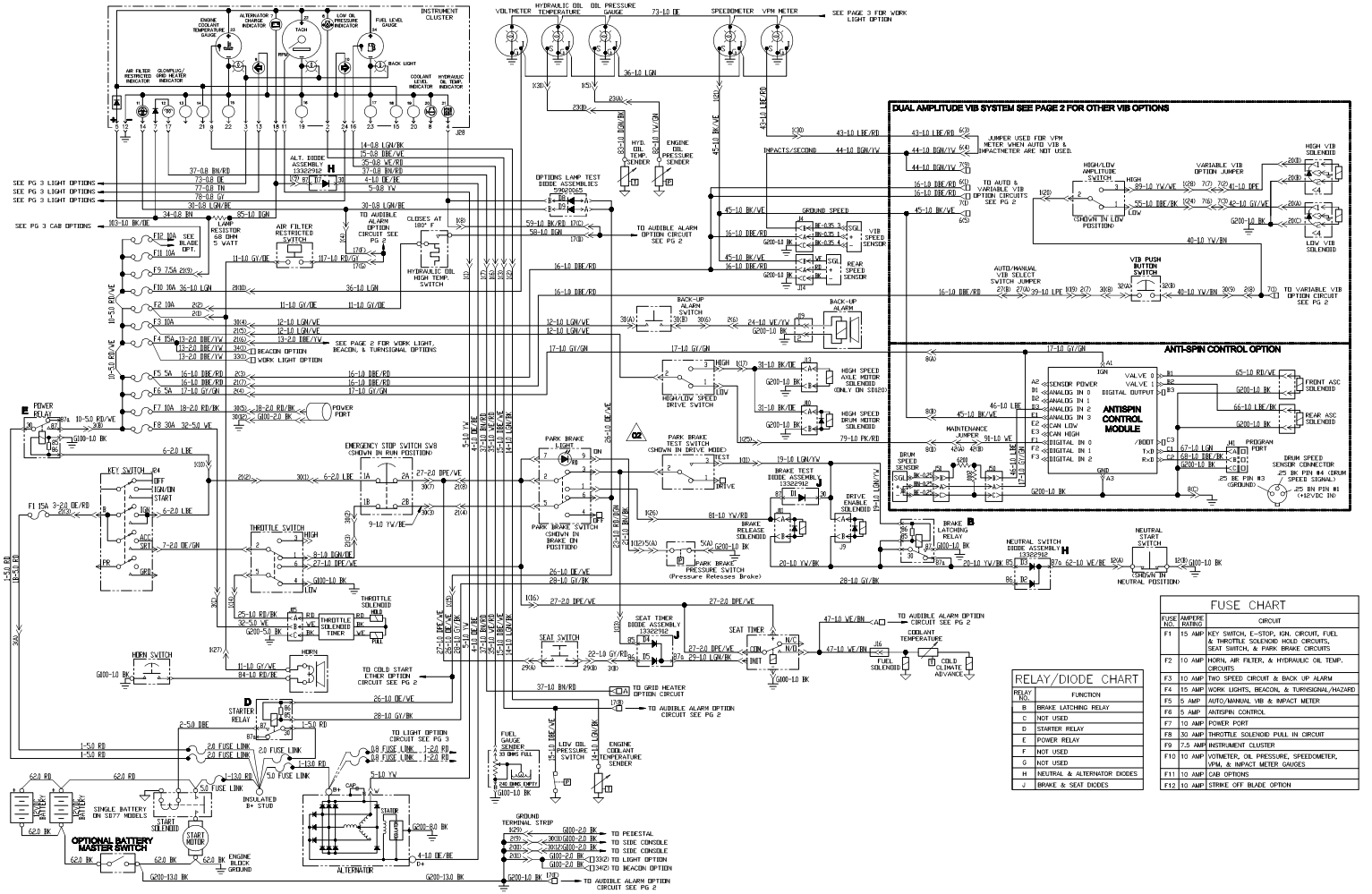
CAB OPTION FUSES

FUSE CHART

FUSE NO.	AMPERE RATING	CIRCUIT
F13	25 AMP	HEATER VALVE, BLOWER, & A/C
F14	10 AMP	FRONT WIPER
F15	10 AMP	REAR WIPER
F16	10 AMP	WASHER & DOME LIGHT

OM13375696_0B03

Electrical Schematics for the SD-122F/D/DX Compactors w/Mechanical Engines (13304852)

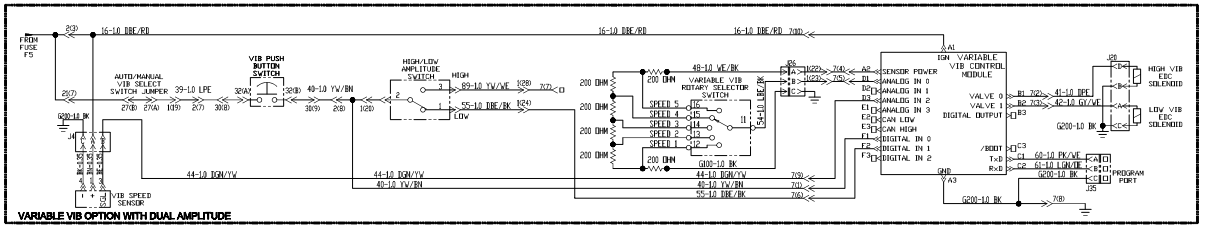


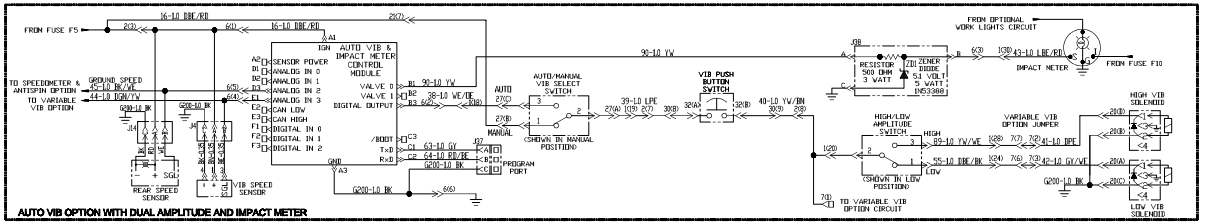
FUSE CHART

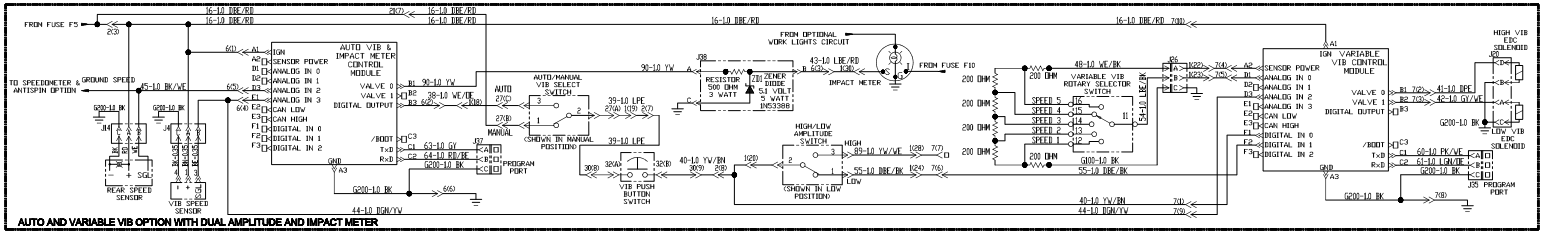
FUSE NO.	AMPERE RATING	CIRCUIT
F1	15 AMP	KEY SWITCH, E-STOP, IGN. CIRCUIT, FUEL & THROTTLE SOLENOID HOLD CIRCUITS, SEAT SWITCH, & PARK BRAKE CIRCUITS
F2	10 AMP	HORN, AIR FILTER, & HYDRAULIC OIL TEMP. CIRCUITS
F3	10 AMP	TWO SPEED CIRCUIT & BACK UP ALARM
F4	15 AMP	WORK LIGHTS, BEACON, & TURNSIGNAL/HAZARD
F5	5 AMP	AUTO/MANUAL VIB & IMPACT METER
F6	5 AMP	ANTISPIN CONTROL
F7	10 AMP	POWER PORT
F8	30 AMP	THROTTLE SOLENOID PULL IN CIRCUIT
F9	7.5 AMP	INSTRUMENT CLUSTER
F10	10 AMP	VOTMETER, OIL PRESSURE, SPEEDOMETER, VPM, & IMPACT METER GAUGES
F11	10 AMP	CAB OPTIONS
F12	10 AMP	STRIKE OFF BLADE OPTION

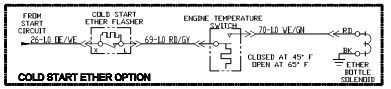
RELAY/DIODE CHART

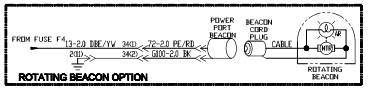
RELAY NO.	FUNCTION
B	BRAKE LATCHING RELAY
C	NOT USED
D	STARTER RELAY
E	POWER RELAY
F	NOT USED
G	NOT USED
H	NEUTRAL & ALTERNATOR DIODES
J	BRAKE & SEAT DIODES











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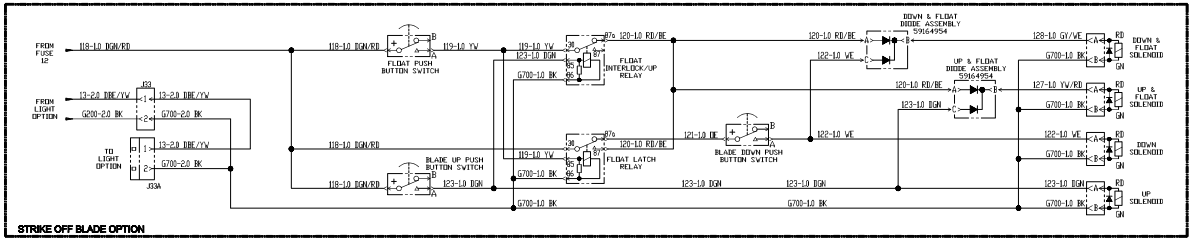
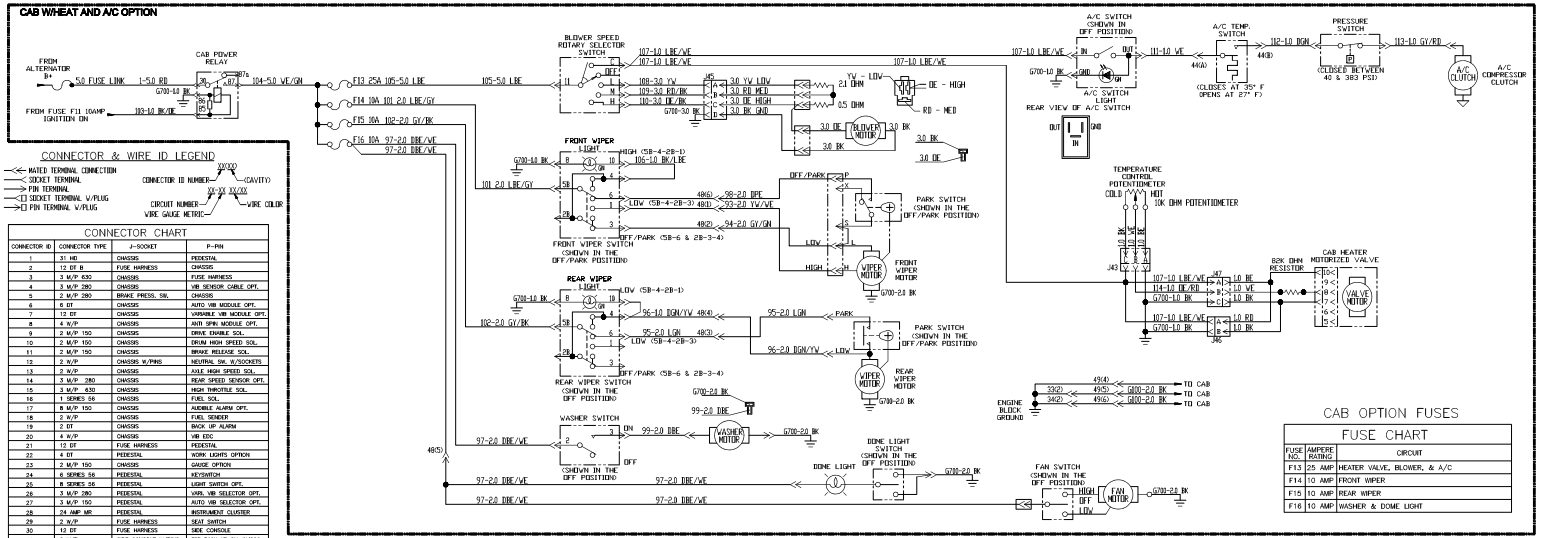




CONNECTOR & WIRE ID LEGEND

MATED TERMINAL CONNECTION
SOCKET TERMINAL
PIN TERMINAL
SOCKET TERMINAL W/PLUG
PIN TERMINAL W/PLUG

CONNECTOR ID NUMBER — XXXX (CAVITY)
CIRCUIT NUMBER — XX-XX XX/XX — WIRE COLOR
WIRE GAUGE METRIC

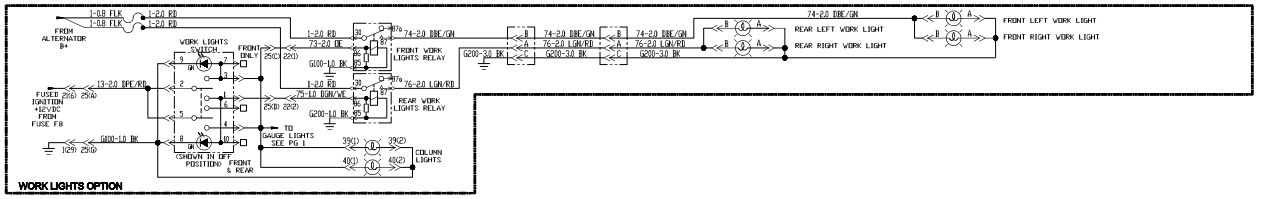
CONNECTOR CHART

CONNECTOR ID	CONNECTOR TYPE	J-SOCKET	P-PIN
1	31 MD	CHASSIS	PEDESTAL
2	12 DT B	FUSE HARNESS	CHASSIS
3	3 M/P 630	CHASSIS	FUSE HARNESS
4	3 M/P 280	CHASSIS	VIB SENSOR CABLE OPT.
5	2 M/P 280	BRAKE PRESS. SW.	CHASSIS
6	6 DT	CHASSIS	AUTO VIB MODULE OPT.
7	12 DT	CHASSIS	VARIABLE VIB MODULE OPT.
8	4 M/P	CHASSIS	ANTI SPIN MODULE OPT.
9	2 M/P 150	CHASSIS	DRIVE ENABLE SOL.
10	2 M/P 150	CHASSIS	DRUM HIGH SPEED SOL.
11	2 M/P 150	CHASSIS	BRAKE RELEASE SOL.
12	2 M/P	CHASSIS W/PINS	NEUTRAL SW. W/SOCKETS
13	2 M/P	CHASSIS	AXLE HIGH SPEED SOL.
14	3 M/P 280	CHASSIS	REAR SPEED SENSOR OPT.
15	3 M/P 630	CHASSIS	HIGH THROTTLE SOL.
16	1 SERIES 56	CHASSIS	FUEL SOL.
17	8 M/P 150	CHASSIS	AUDIBLE ALARM OPT.
18	2 M/P	CHASSIS	FUEL SENDER
19	2 DT	CHASSIS	BACK UP ALARM
20	4 M/P	CHASSIS	VIB EDC
21	12 DT	FUSE HARNESS	PEDESTAL
22	4 DT	PEDESTAL	WORK LIGHTS OPTION
23	2 M/P 150	CHASSIS	GAUGE OPTION
24	6 SERIES 56	PEDESTAL	KEYSWITCH
25	8 SERIES 56	PEDESTAL	LIGHT SWITCH OPT.
26	3 M/P 280	PEDESTAL	VARI. VIB SELECTOR OPT.
27	3 M/P 150	PEDESTAL	AUTO VIB SELECTOR OPT.
28	24 AMP MP	PEDESTAL	INSTRUMENT CLUSTER
29	2 M/P	FUSE HARNESS	SEAT SWITCH
30	12 DT	FUSE HARNESS	SIDE CONSOLE
31	2 M/P	SIDE CONSOLE W/PINS	FSR BACK UP SW. W/SOC
32	2 M/P 150	SIDE CONSOLE	FSR VIB SWITCH
33	2 DT	FUSE HARNESS	WORK LIGHT OPT.
34	2 DT	FUSE HARNESS	BEACON OPT.
35	3 M/P	VARI. VIB MODULE OPT.	PROGRAM PORT
36	2 M/P 280	AUDIBLE ALARM OPT.	AUDIBLE ALARM DECK OPT.
37	3 M/P	AUTO/IMPACTMETER OPT.	PROGRAM PORT
38	3 M/P 150	AUTO/IMPACTMETER OPT.	IMPACT METER DIODE
39	2 DT	COLUMN LIGHT OPT.	WORK LIGHT SELECTOR OPT.
40	2 DT	COLUMN LIGHT OPT.	WORK LIGHT SELECTOR OPT.
41	3 M/P	ANTI SPIN CONTROL OPT.	PROGRAM PORT
42	2 M/P 150	ANTI SPIN CONTROL OPT.	MAINTENANCE CONNECTOR
43	3 M/P 150	CAB HARNESS OPT.	TEMPERATURE CONTROL
44	2 M/P	CAB HARNESS OPT.	AC TEMPERATURE SWITCH
45	4 M/P	CAB HARNESS OPT.	FAN MOTOR
46	2 M/P	CAB HARNESS OPT.	HEATER VALVE
47	3 M/P	HEATER VALVE	CAB HARNESS OPT.
48	6 DT	CAB HARNESS OPT.	CAB
49	8 DT	CAB HARNESS OPT.	CAB
50	3 M/P 280	ANTI SPIN CONTROL OPT.	RESISTOR
51	3 M/P 150	RESISTOR	DRUM SPEED SENSOR

CAB OPTION FUSES

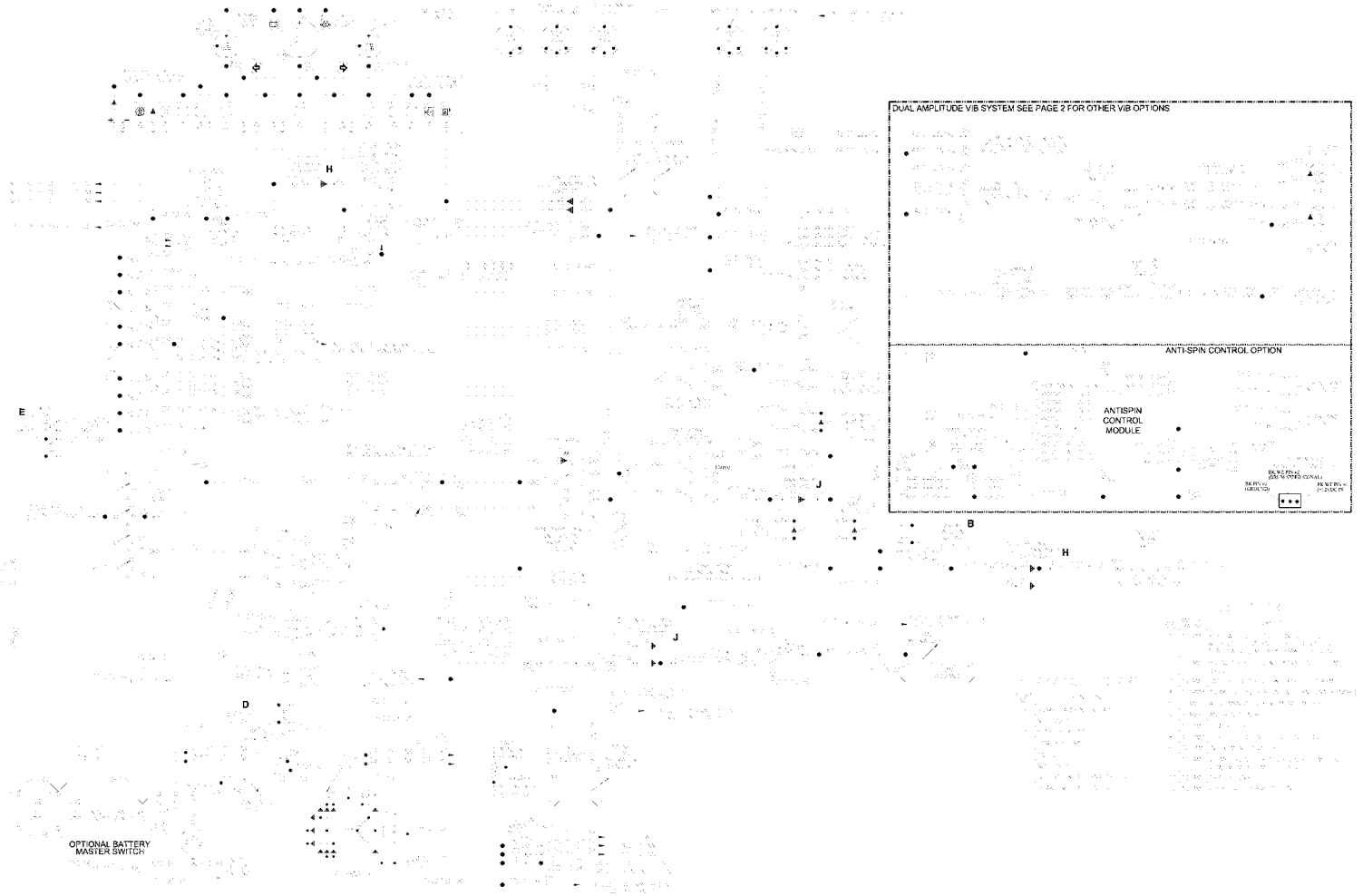
FUSE CHART

FUSE NO.	AMPERE RATING	CIRCUIT
F13	25 AMP	HEATER VALVE, BLOWER, & A/C
F14	10 AMP	FRONT WIPER
F15	10 AMP	REAR WIPER
F16	10 AMP	WASHER & DOME LIGHT



OM13304852_0C03

Electrical Schematics for the SD-122F/D/DX & SD160F/DX Compactors w/Mechanical Engines (13375704)



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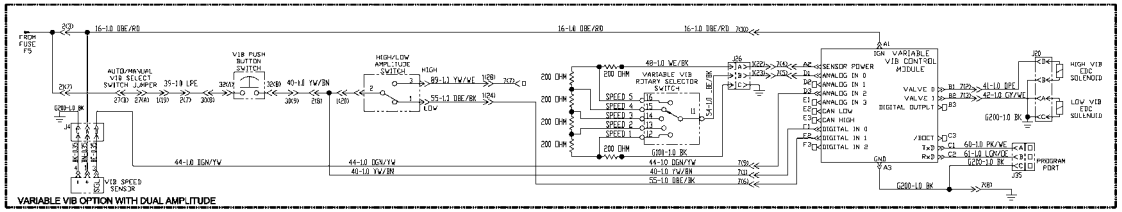

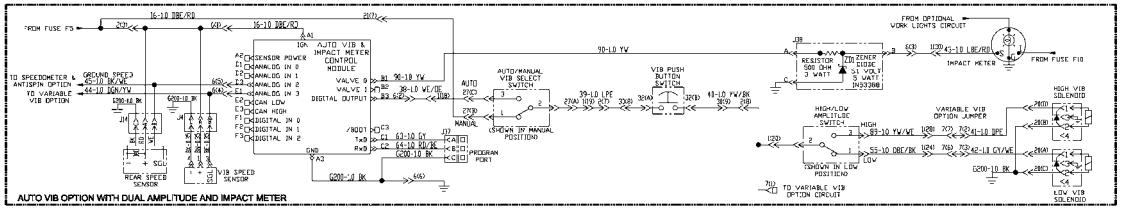

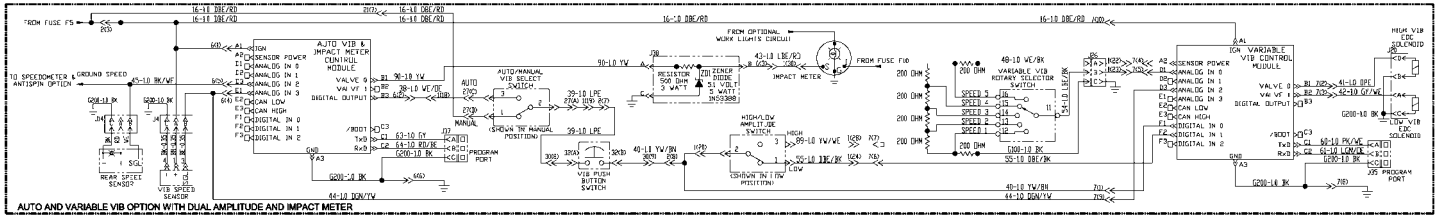

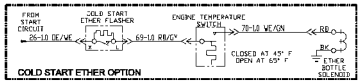

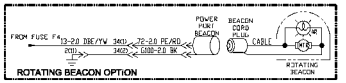

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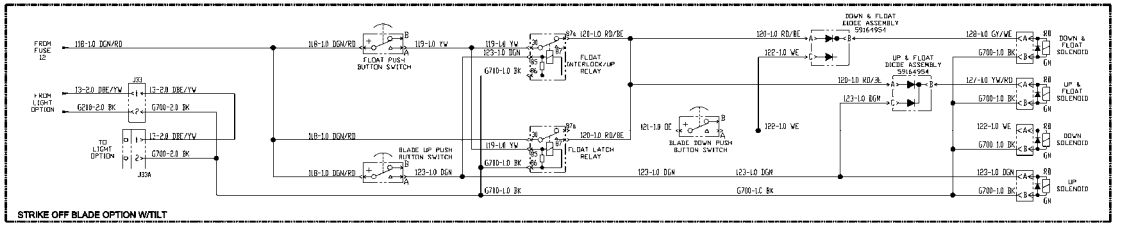
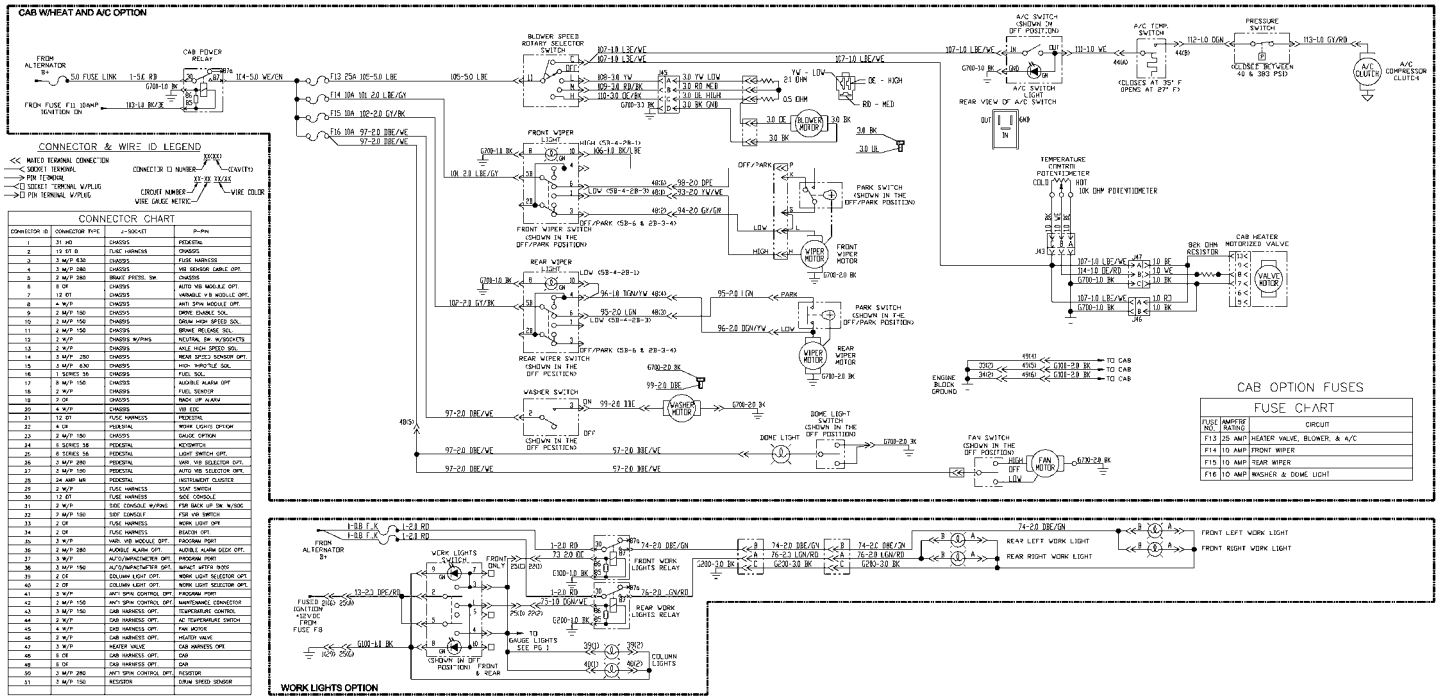
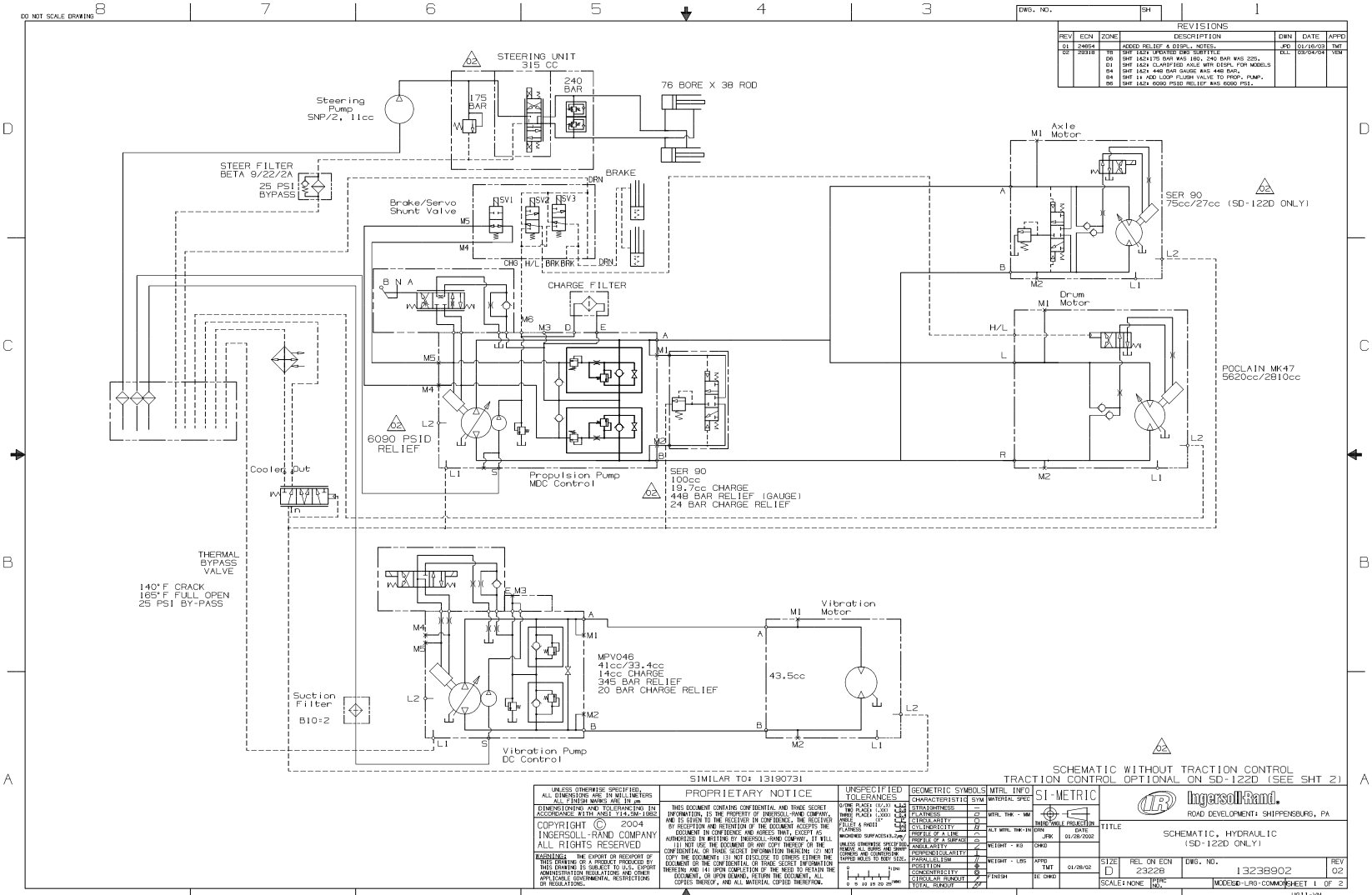
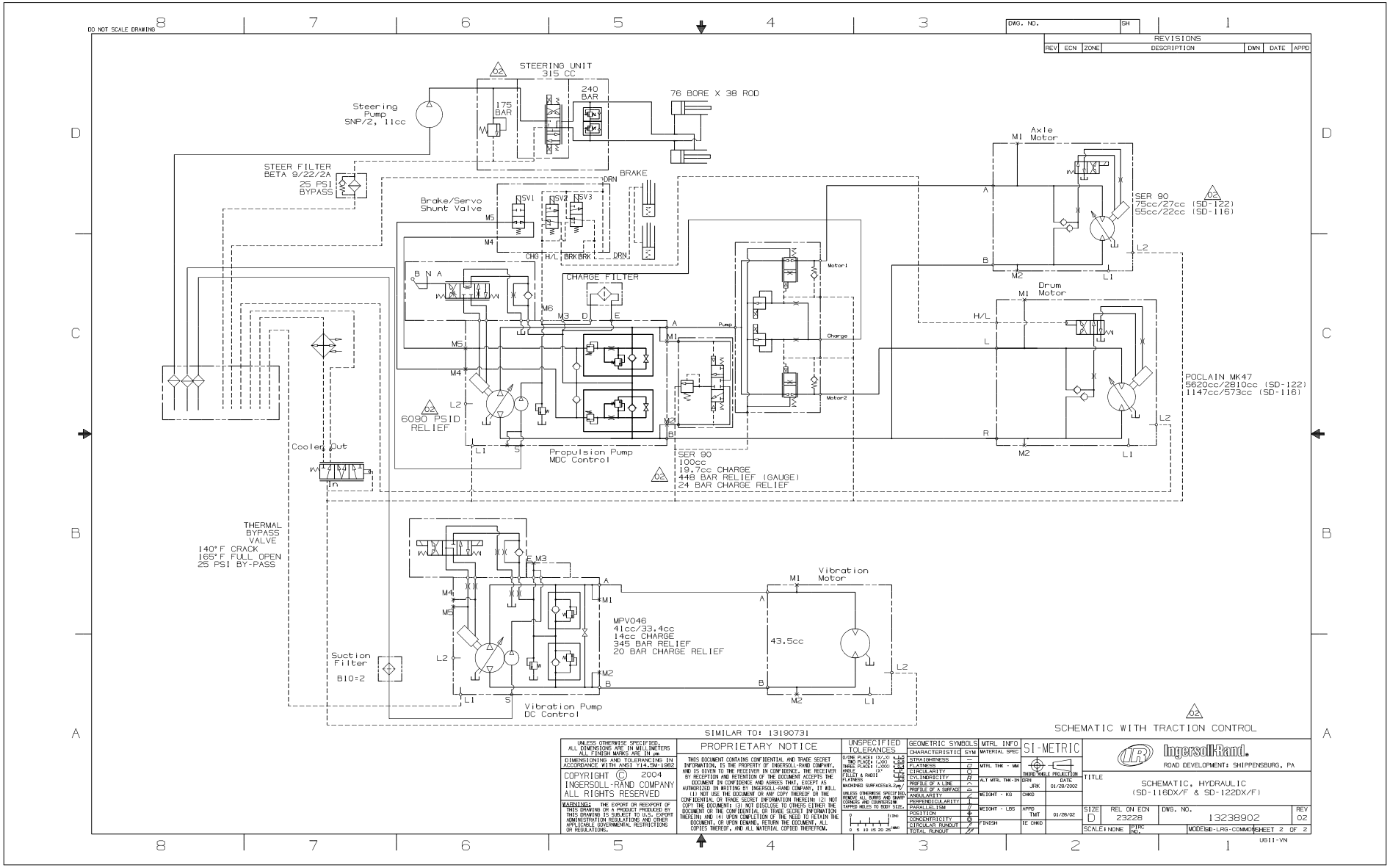




OM13375704_0B03

Hydraulic Schematics for the SD-116F/DX Compactors (13238902)




DO NOT SCALE DRAWING
DWG. NO.
SH
REVISIONS
REV ECN ZONE DESCRIPTION DWN DATE APPD
STEERING UNIT
315 CC
240
BAR
175
BAR
76 BORE X 38 ROD
Steering
Pump
SNP/2, 11cc
STEER FILTER
BETA 9/22/2A
25 PSI
BYPASS
BRAKE
DRN
Brake/Servo
Shunt Valve
SV1
SV2
SV3
M5
M4
CHG H/L BRK BRK DRN
CHARGE FILTER
B N A
M6
M3
D
E
A
M1
Pump
Motor1
Charge
Motor2
M5
M4
L2
6090 PSID
RELIEF
L1
S
Propulsion Pump
MDC Control
SER 90
100cc
19.7cc CHARGE
448 BAR RELIEF (GAUGE)
24 BAR CHARGE RELIEF
Axle
M1 Motor
SER 90
75cc/27cc (SD-122)
55cc/22cc (SD-116)
B
M2
L1
L2
Drum
M1 Motor
H/L
L
R
POCLAIN MK47
5620cc/2810cc (SD-122)
1147cc/573cc (SD-116)
Cooler Out
In
THERMAL
BYPASS
VALVE
140° F CRACK
165° F FULL OPEN
25 PSI BY-PASS
Suction
Filter
B10-2
MPV046
41cc/33.4cc
14cc CHARGE
345 BAR RELIEF
20 BAR CHARGE RELIEF
Vibration
Motor
43.5cc
Vibration Pump
DC Control
SIMILAR TO: 13190731
SCHEMATIC WITH TRACTION CONTROL
UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE IN MILLIMETERS
ALL FINISH MARKS ARE IN µm
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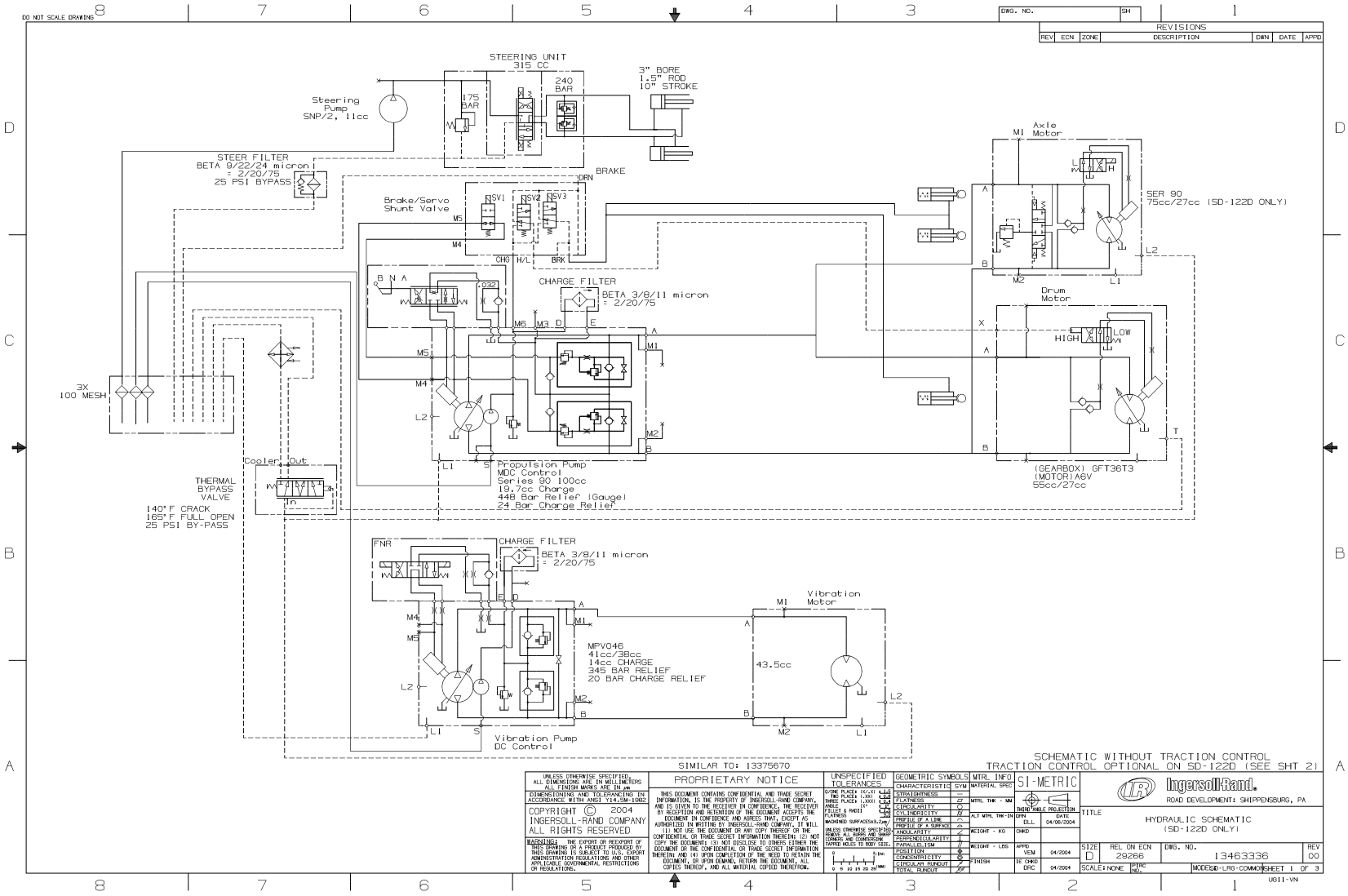
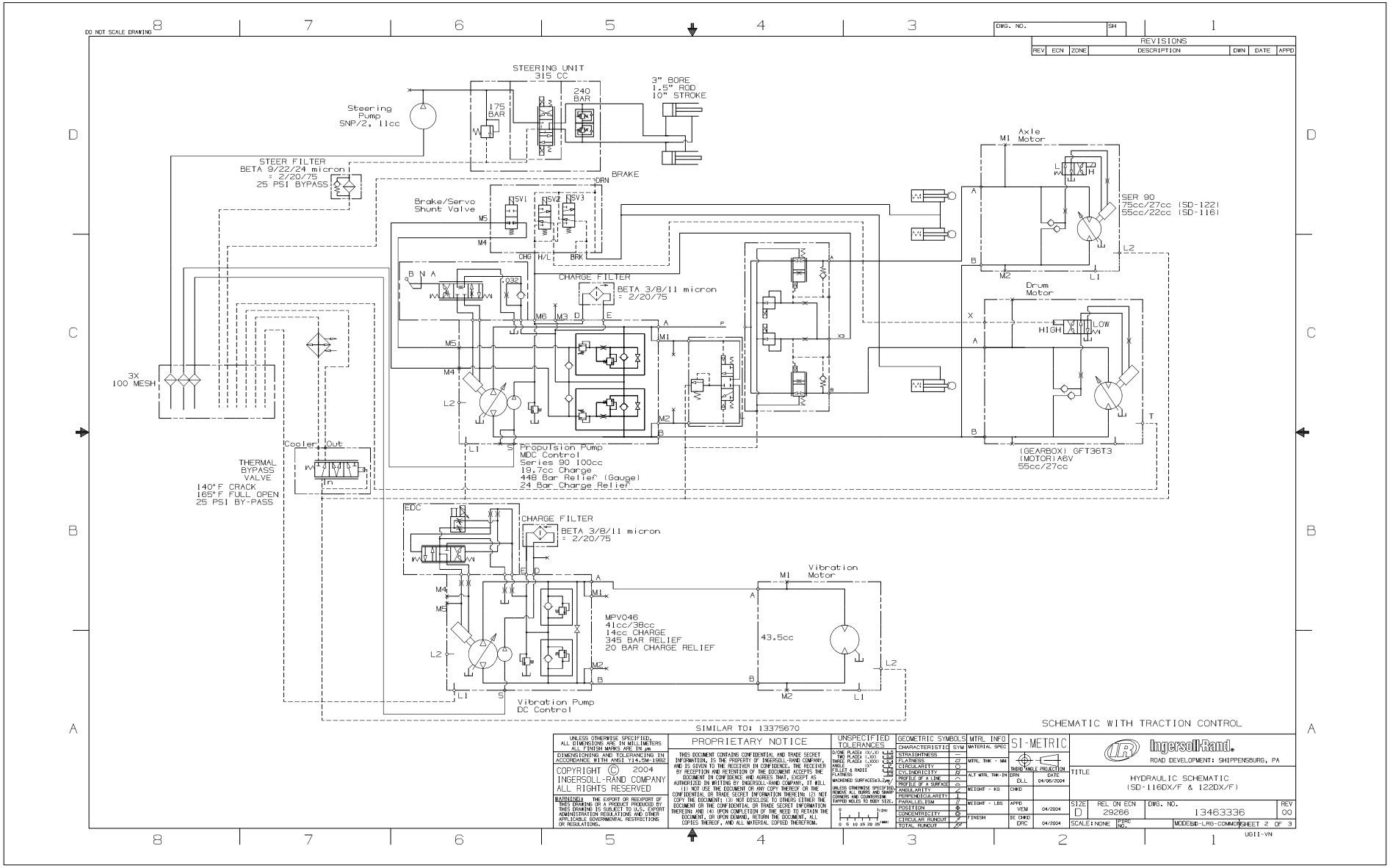
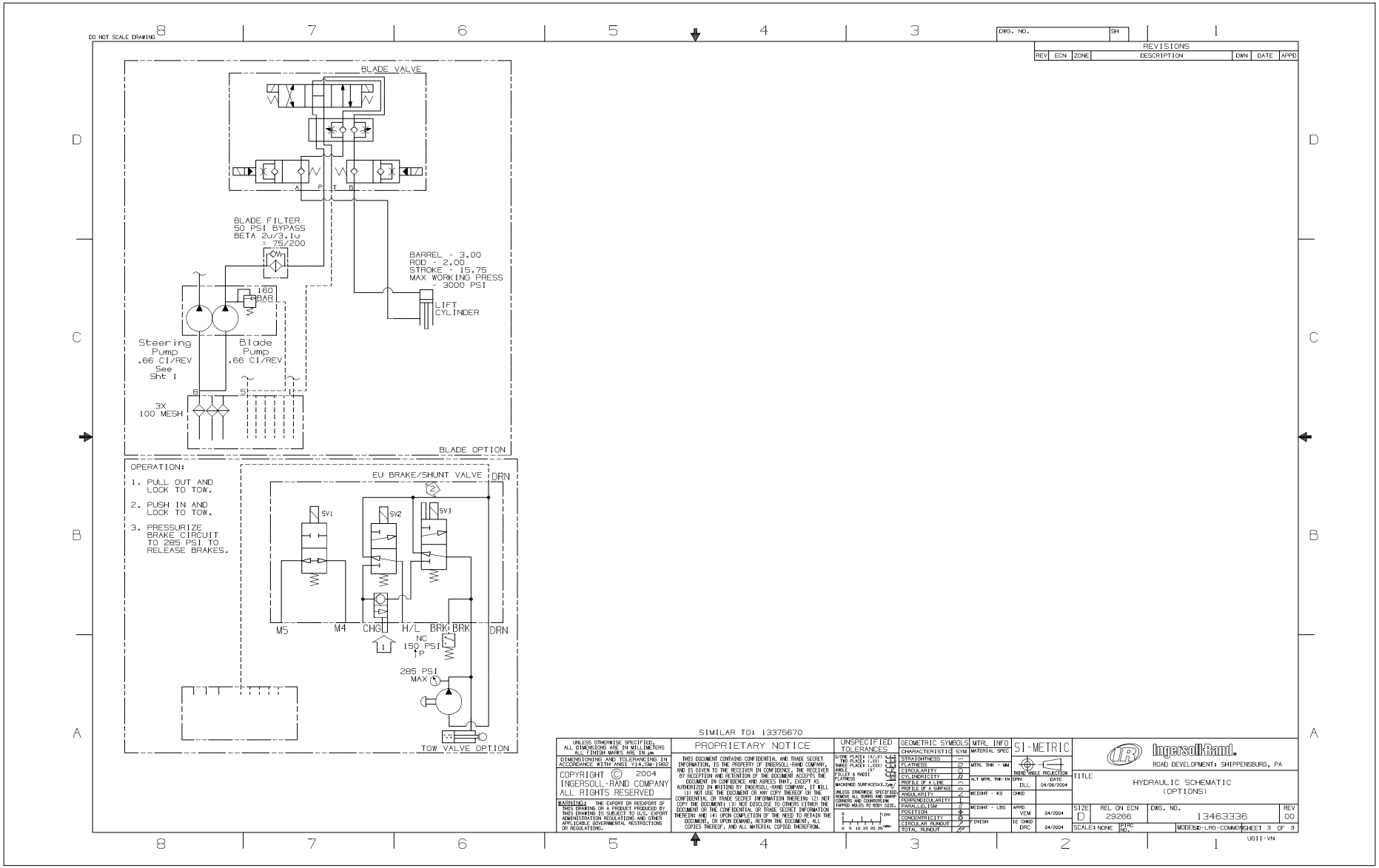
UNSPECIFIED TOLERANCES
GEOMETRIC SYMBOLS
CHARACTERISTIC SYM
STRAIGHTNESS
FLATNESS
CIRCULARITY
CYLINDRICITY
PROFILE OF A LINE
PROFILE OF A SURFACE
ANGULARITY
PERPENDICULARITY
PARALLELISM
POSITION
CONCENTRICITY
CIRCULAR RUNOUT
TOTAL RUNOUT
MTRL INFO
MATERIAL SPEC
MTRL THK - MM
ALT MTRL THK-IN
WEIGHT - KG
WEIGHT - LBS
FINISH
SI-METRIC
THIRD ANGLE PROJECTION
DRN JRK 01/28/2002
CHKD
APPD TMT 01/28/02
TE CHKD
Ingersoll Rand
ROAD DEVELOPMENT: SHIPPENSBURG, PA
TITLE
SCHEMATIC, HYDRAULIC
(SD-116DX/F & SD-122DX/F)
SIZE D
REL ON ECN 23228
DWG. NO. 13238902
REV 02
SCALE NONE
PTRC NO.
MODESID-LRG-COMMON
SHEET 2 OF 2
UGII-VN

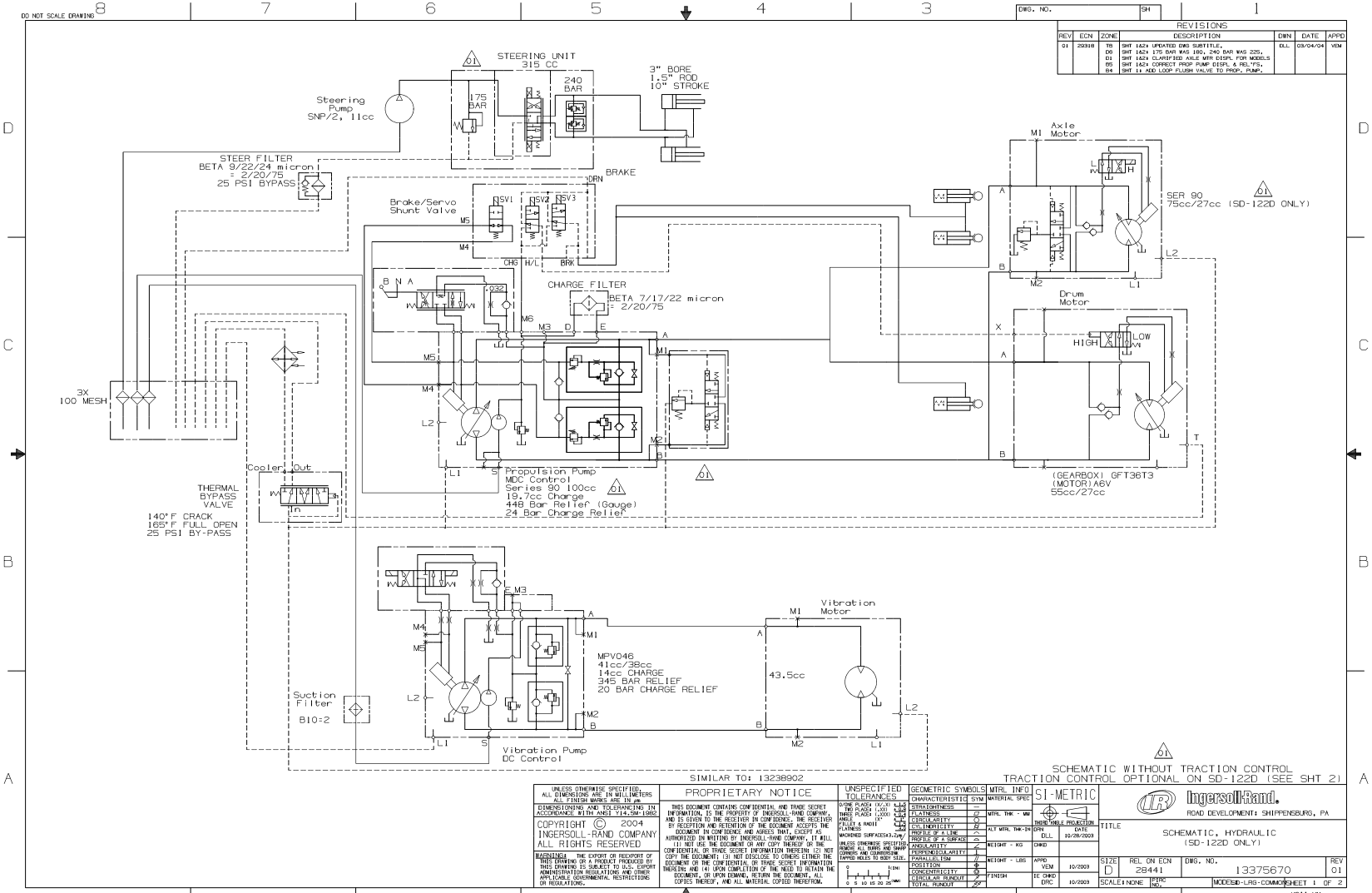
Hydraulic Schematics for the SD-116F/DX & SD-122F/D/DX Compactors (13463336)

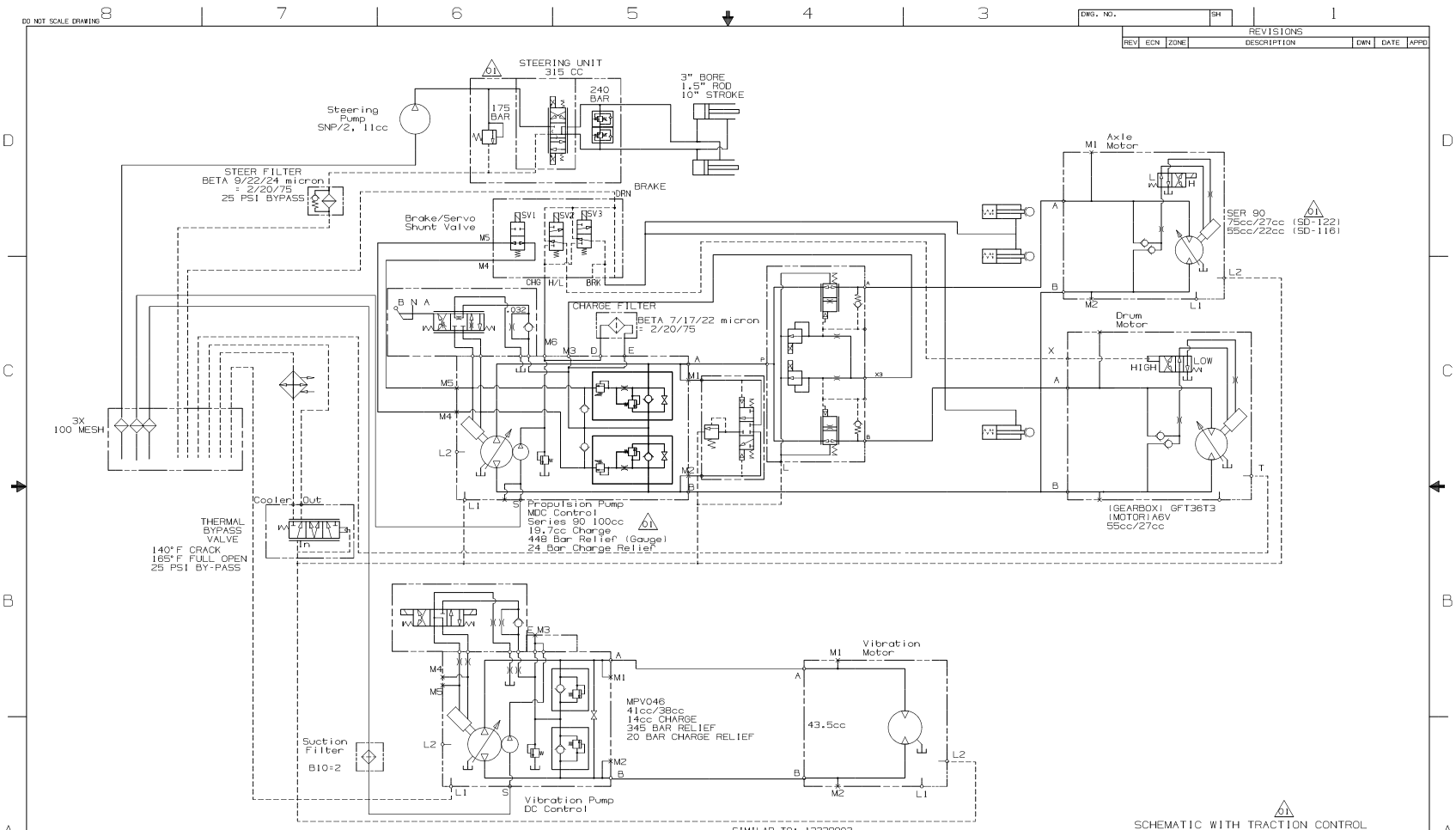



STEERING UNIT
315 CC
240 BAR
175 BAR
3" BORE
1.5" ROD
10" STROKE
Steering Pump
SNP/2, 11cc
STEER FILTER
BETA 9/22/24 micron
= 2/20/75
25 PSI BYPASS
BRAKE
DRN
Brake/Servo
Shunt Valve
SV1
SV2
SV3
M5
M4
CHG
H/L
BRK
CHARGE FILTER
BETA 3/8/11 micron
= 2/20/75
Axle
M1 Motor
SER 90
75cc/27cc (SD-122)
55cc/22cc (SD-116)
L2
M2
L1
Drum
Motor
HIGH
LOW
3X
100 MESH
Cooler
Out
In
THERMAL
BYPASS
VALVE
140° F CRACK
165° F FULL OPEN
25 PSI BY-PASS
Propulsion Pump
MDC Control
Series 90 100cc
19.7cc Charge
448 Bar Relief (Gauge)
24 Bar Charge Relief
(GEARBOX) GFT36T3
(MOTOR) A6V
55cc/27cc
EDC
CHARGE FILTER
BETA 3/8/11 micron
= 2/20/75
MPV046
41cc/38cc
14cc CHARGE
345 BAR RELIEF
20 BAR CHARGE RELIEF
Vibration
Motor
43.5cc
Vibration Pump
DC Control
SIMILAR TO: 13375670
SCHEMATIC WITH TRACTION CONTROL
PROPRIETARY NOTICE
Ingersoll-Rand.
ROAD DEVELOPMENT: SHIPPENSBURG, PA
HYDRAULIC SCHEMATIC
(SD-116DX/F & 122DX/F)
SIZE D
REL ON ECN 29266
DWG. NO. 13463336
REV 00
SCALE: NONE
MODESD-LRG-COMMON
SHEET 2 OF 3

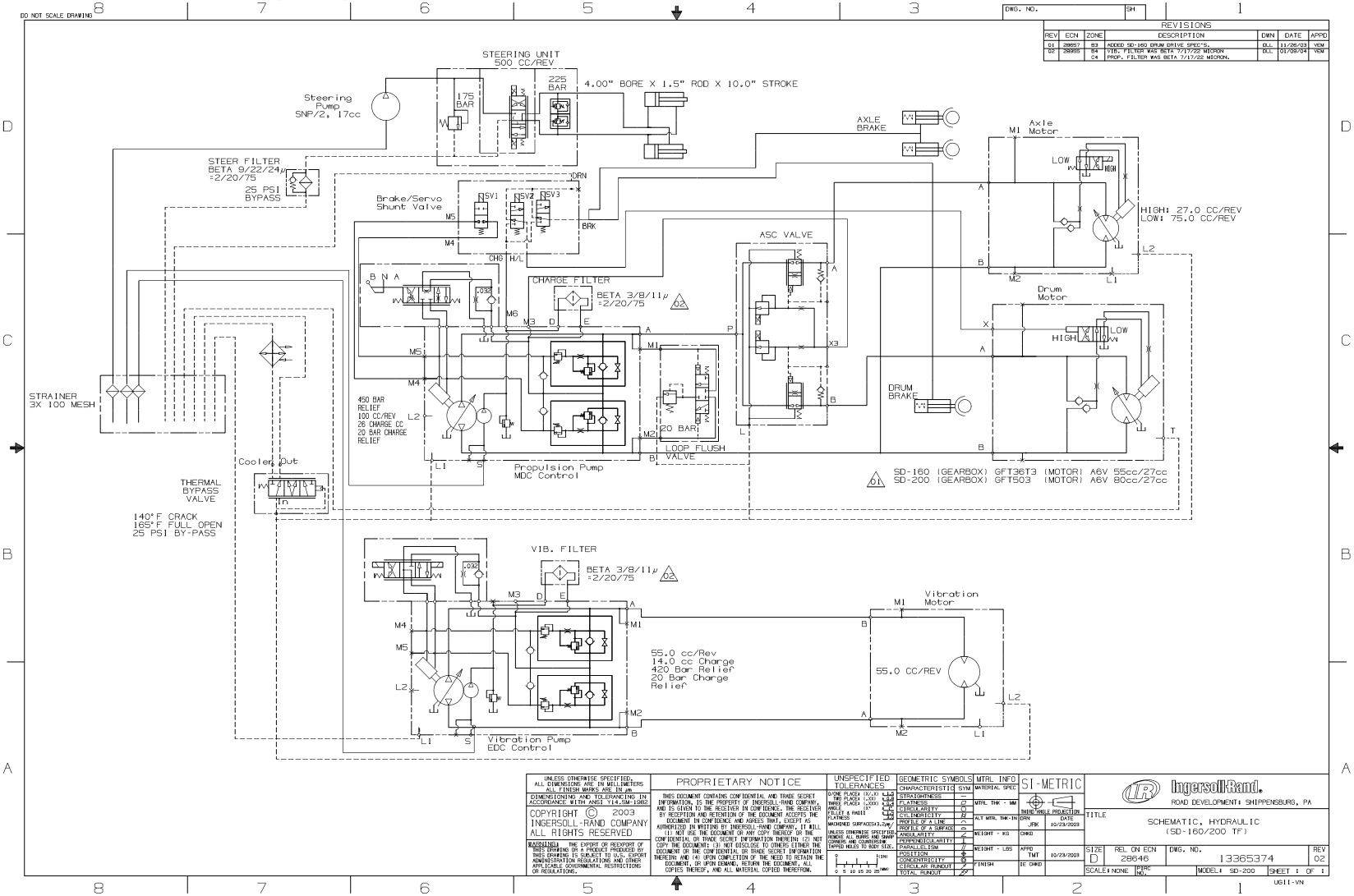

DO NOT SCALE DRAWING
DWG. NO.
SH
REVISIONS
REV ECN ZONE DESCRIPTION DWN DATE APPD
BLADE VALVE
A P T B
BLADE FILTER
50 PSI BYPASS
BETA 2.0/3.1u
= 75/200
160 BAR
BARREL - 3.00
ROD - 2.00
STROKE - 15.75
MAX WORKING PRESS
- 3000 PSI
LIFT CYLINDER
Steering Pump .66 CI/REV See Sht 1
Blade Pump .66 CI/REV
B S
3X 100 MESH
BLADE OPTION
OPERATION:
1. PULL OUT AND LOCK TO TOW.
2. PUSH IN AND LOCK TO TOW.
3. PRESSURIZE BRAKE CIRCUIT TO 285 PSI TO RELEASE BRAKES.
EU BRAKE/SHUNT VALVE
DRN
SV1
SV2
SV3
M5 M4 CHG H/L BRK BRK DRN
NC
150 PSI
P
285 PSI MAX
TOW VALVE OPTION
SIMILAR TO: 13375670
PROPRIETARY NOTICE
UNSPECIFIED TOLERANCES
GEOMETRIC SYMBOLS
MTRL INFO
SI-METRIC
THIRD ANGLE PROJECTION
TITLE
HYDRAULIC SCHEMATIC
(OPTIONS)
Ingersoll-Rand
ROAD DEVELOPMENT: SHIPPENSBURG, PA
SIZE D
REL ON ECN 29266
DWG. NO. 13463336
REV 00
SCALE: NONE
SHEET 3 OF 3
U611-VN

Hydraulic Schematics for the SD-116F/DX & SD-122F/D/DX Compactors (13375670)

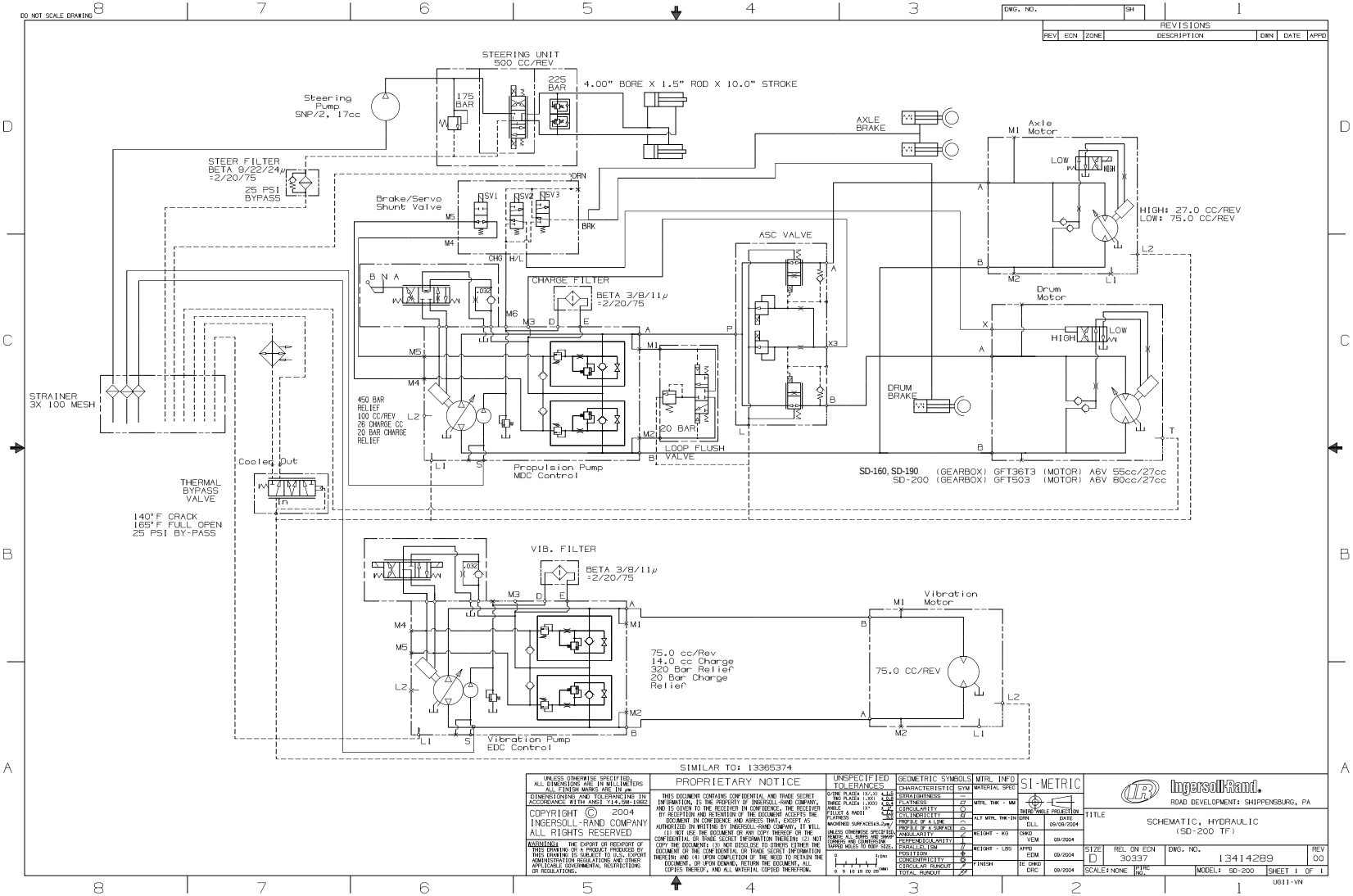



STEERING UNIT
315 CC
240 BAR
175 BAR
3" BORE
1.5" ROD
10" STROKE
Steering Pump
SNP/2, 11cc
STEER FILTER
BETA 9/22/24 micron
= 2/20/75
25 PSI BYPASS
BRAKE
DRN
Brake/Servo Shunt Valve
SV1
SV2
SV3
CHG H/L
BRK
CHARGE FILTER
BETA 7/17/22 micron
= 2/20/75
Axle
M1 Motor
SER 90
75cc/27cc (SD-122)
55cc/22cc (SD-116)
Drum
Motor
HIGH
LOW
(GEARBOX) GFT36T3
(MOTOR) A6V
55cc/27cc
3X
100 MESH
Cooler Out
In
THERMAL
BYPASS
VALVE
140°F CRACK
165°F FULL OPEN
25 PSI BY-PASS
Propulsion Pump
MDC Control
Series 90 100cc
19.7cc Charge
448 Bar Relief (Gauge)
24 Bar Charge Relief
MPV046
41cc/38cc
14cc CHARGE
345 BAR RELIEF
20 BAR CHARGE RELIEF
Vibration
Motor
43.5cc
Suction
Filter
B10=2
Vibration Pump
DC Control
SIMILAR TO: 13238902
SCHEMATIC WITH TRACTION CONTROL
PROPRIETARY NOTICE
SCHEMATIC, HYDRAULIC
(SD-116DX/F & 122DX/F)
Ingersoll Rand
ROAD DEVELOPMENT; SHIPPENSBURG, PA
13375670

Hydraulic Schematic for the SD-160F/DX Compactors (13365374)



Hydraulic Schematic for the SD-190DX and SD-200F/DX Compactors (13414289)



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SECTION 11 - RECOMMENDED SPARE PARTS

RECOMMENDED SPARE PARTS

SD-116TF SERIES RECOMMENDED SPARE PARTS

This section of the manual identifies the spare parts that the owner/operator is encouraged to keep on hand in support of the service schedule for the SD-116F and SD-116DX Compactors. The owner/operator can expect to use these spare parts over the course of normal use to keep his machine performing optimally if service is kept current in accordance with the recommended service intervals in Section 5's Maintenance Schedule and the Lubrication Chart of Section 8. More or less of these spare parts may actually be used depending on how your machine is equipped, how frequently your machine is used, and how well it is cared for. The recommended spare parts are tabulated below, grouped by major assemblies and the service interval (operating hours).

Table 11-1: Spare Parts for SD-116 TF Series Compactors

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Air Cleaner				
2	2	2	Primary Filter Element	13284591
	1	1	Safety Element	13284583
Drum				
	6		Shock Mount	13304787
	2		Bushing	59450528
	2		Bearing	50269984
	1		Pivot Pin	59190975
1	1		Pipe Plug	59600593
		1	Bearing Housing Spindle	13217955
		1	V-Ring Seal	13167390
		1	Drum Drive Motor	13460407
		1	Vibration Motor	13197447
		1	Pressure Switch	59110312
1	1		Breather Filtered Vent	59093351
	1		Sight Gauge	59277772
	1		Oil Seal	59277764
	1		Wear Sleeve	59277756

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Magnetic Plug	59144428
	1		Hydraulic Tank Filter	58855099
		1	Steering Cylinder	13188339
1	1		Coupling	59613612
Electrical				
	1		Oil Pressure Sender	58878000
	1		Battery Master Switch	13209648
1	1	1	Relay	58965377
	1		Battery Hold Down	19295492
	1		Potted Diode Pack	19281419
	1		Diode Assembly	58892449
	1		Seat Switch Harness	13165071
	1		Switch	58878562
		1	Backup Alarm	13236203
Engine				
2	2	2	Engine Oil Filter	13360706
2	2	2	Primary Fuel Filter	13284708
1	1	1	In-Line Fuel Filter	58827932
1	1	1	Fuel Filter	13217609
1	1	1	Radiator Cap	59498790
	1		Solenoid	58875196
		1	Coolant Recovery Bottle	58802851
	1		Drive Coupling	59286336
	1		Oil Pressure Switch	13491691
	1		Clamp	59495028
	1		U-Clamp	59534313
	1		Seal Clamp	13093075
		1	Muffler	13169537
		2	Muffler Clamp	59179218

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Radiator Hose, Bottom	13279666
		1	Radiator Hose, Top	13168851
		1	Starter	13360516
		1	Alternator	13852256
Frame				
	1		Articulation/Oscillation Pin	13276795
	6		Axle Disc Brake	54705447
	6		Axle Intermediate Disc Brake	59153759
		1	Axle Drive Motor	13321351
	1		Bearing	13245337
	2		Cable	59436741
	1		Cable	59607861
	1		Cable Sleeve	59214775
	1		Dust Seal	13238423
	1		Dust Seal	13238431
	1		Ferrule	59607853
	1		Fuel Cap	13213574
	1		Fuel Sender	13213582
		1	Lock	13349212
	1		Hood Draw Latch	59162149
	1		T-Handle	13299581
Hydraulics				
	1		Hose (40 in.)	13255179
		1	Vibration Pump	13289947
		1	Steering Pump	58858820
		1	Propulsion Pump	13166764
		1	Steering Valve	13218987
		1	Traction Control Valve	13165659

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Loop Flushing Valve	59077602
		1	Brake/Shunt Two-Speed Manifold	13205133
2	2	2	Pressure Filter Element	13408240
1	1	1	Return Filter Element	59764498
Pedestal Assembly				
	1		Dump Switch	58788852
	1		Eyebolt	13214804
		1	Instrument Panel	13309521
1	1	1	Horn	13469010
1	1		Horn Button	59159558
1	1	1	Ignition Key	58917261
	1		Ignition Switch	54461090
	1		Manual Case	59185074
1	1	1	Park Brake Switch	54666094
	1		Spacer Steel Platform	13412648
		1	Hi/Low Travel Switch	54666086
		1	Hi/Low RPM Switch	54666078
		1	Hi/Low Amplitude Switch	54666060
1	1	1	Brake Test Switch	54666102
		1	Washer Bottle Cap	13228242
		1	Spinner Kit	59199141
Side Console				
	1		Emergency Stop Switch	59111450
1	1		FSR Control	13289921
	1		Switch Alternate Action Kit	13382445
	1		FSR Cable	13320841
		1	Top Dust Boot	59108100
		1	Bottom Dust Boot	59108605

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Rear Wheels				
		2	Valve Caps	59929711
		2	Air Valve	59524447
Kits				
	1		SD-116TF TF Decal Kit	13285002
	1		Dual Switch Seat Kit	13198270
	1		Steering Pump Seal Kit	58898677
		1	Electric Service Repair Kit	13852009
		1	Propulsion Pump Seal Kit	59360384
		1	Vibration Pump Seal Kit	58813791
	1		Steering Valve Seal Kit	54747340
		1	Axle Drive Motor Seal Kit	59019679
	1		Drum Drive Motor Seal Kit (Gearbox)	13462205
Optional Equipment				
1	1	1	Beacon Light Lamp	13176797
Air Pre-cleaner Option				
	1		Spring	13460365
	1		Air Pre-cleaner	59081323
Audible Alarm				
		1	Audible Alarm	58870294
		1	Timer	58870932
Worklights				
1	1	1	Worklights Bulb	13247259
		1	Front/Rear Worklights Switch	13197108
	1		Worklights Rework	13359815

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Gauge Installation				
	1		Voltmeter	58877796
		1	Engine Oil Pressure Gauge	58822313
		1	Hydraulic Oil Temperature Gauge	58893983
		1	Hydraulic Oil Temperature Sender	58913856
Traction Enhancement				
	1		Sensor Assembly	13375548
	1		Speed Sensor	59249284
Variable Frequency/Dual Amplitude				
	1		Vibration/Frequency Knob	59047019
	1		Speed Sensor	13254503
	1		Vibration Sensor Harness	13493523
Scraper Options				
1	1		Scraper Tooth	59175661
		1	Scraper Bar	13213913
Cab with Heater (and Air Conditioning)				
	1		Heater Valve	13200027
	1		Front Wiper Switch	59196451
	1		Rear Wiper Switch	59196444
	1		Washer Switch	59195925
		1	Block Heater	59118521
Strike-Off Blade				
	1		Bearing	50273986
		1	Steering Pump	13205497
		1	Seal Kit	13461033
		1	Blade Cylinder	13515283
		1	Seal Kit	13515770
		1	Dump Switch	58788852

SD-122TF SERIES RECOMMENDED SPARE PARTS

This section of the manual identifies the spare parts that the owner/operator is encouraged to keep on hand in support of the service schedule for the SD-122D, SD-122F, and SD-122DX Compactors. The owner/operator can expect to use these spare parts over the course of normal use to keep his machine performing optimally if service is kept current in accordance with the recommended service intervals in Section 5's Maintenance Schedule and the Lubrication Chart of Section 8. More or less of these spare parts may actually be used depending on how your machine is equipped, how frequently your machine is used, and how well it is cared for. The recommended spare parts are tabulated below, grouped by major assemblies and the service interval (operating hours).

Table 11-2: Spare Parts for SD-122 TF Series Compactors

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Air Cleaner				
2	2	2	Primary Filter Element	13284591
	1	1	Safety Element	13284583
Drum				
	6		Shock Mount	13304787
	2		Bushing	59450528
	2		Bearing	50269984
	2		Bearing	13245337
	1		Pipe Plug	59600593
	1		Pivot Pin	59190975
	1		V-Ring Seal	13167390
		1	Drum Drive Motor	13461447
		1	Vibration Motor	13197447
		1	Pressure Switch	59110312
1	1		Breather Filtered Vent	59093351
	1		Sight Gauge	59277772
	1		Wear Sleeve	59277756
	1		Oil Seal	59277764
		1	Magnetic Plug	59144428
	1		Hydraulic Tank Filter	58855099

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Steering Cylinder	13188339
		1	Seal Kit	13228234
Electrical				
	1		Oil Pressure Sender	58878000
	1		Battery Master Switch	13209648
	1		Battery Hold Down	19295492
1	1	1	Relay	58965377
1	1		Alternator Diode	59020065
	1		Diode Assembly	58892449
	1		Potted Diode Pack	19281419
1	1	1	Fuse, 5 Amp	59465591
1	1	1	Fuse, 10 Amp	59325712
1	1	1	Fuse, 15 Amp	59483339
1	1	1	Fuse, 30 Amp	58893249
	1		Seat Switch Harness	13165071
	1		Switch	58878562
		1	Audible Alarm	58870294
		1	Timer	58870932
		1	Backup Alarm	13236203
Engine				
2	2	2	Engine Oil Filter (Standard)	13360706
2	2	2	Primary Fuel Filter (Standard)	13284708
1	1	1	In-Line Fuel Filter (Standard)	58827932
1	1	1	Fuel Filter (Standard)	13217609
1	1	1	Radiator Cap	59498790
1	1		Fuel Throttle Solenoid	54651088

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
1	1		Fuel Throttle Solenoid	59009134
		1	Coolant Recovery Bottle	58802851
	1		Clamp	59495028
	1		Clamp Insert	59583468
	1		Drive Coupling	59286336
	1		Oil Pressure Switch (Standard)	13491691
	1		Temperature Sender	59816322
	1		Seal Clamp	13093075
	1		U-Clamp	59534313
		1	Muffler	13169537
		2	Muffler Clamp	59179218
		1	Radiator Hose, Bottom	13279666
		1	Radiator Hose, Top	13168851
	1		Starter	13360516
	1		Solenoid	58875196
		1	Alternator	13852256
Frame				
	1		Articulation/Oscillation Pin	13276795
	6		Axle Disc Brake	54705447
	6		Axle Intermediate Disc Brake	59153759
		1	Axle Drive Motor	54678636
	1		Axle Drive Motor Solenoid Valve	59155739
	1		Cable	59607861
	1		Cable Sleeve	59214775
	1		Dust Seal	13238423
	1		Dust Seal	13238431
	1		Ferrule	59607853

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		Fuel Cap	13213574
		1	Lock	13349212
	1		Hood Draw Latch	59162149
	1		T-Handle	13299581
Hydraulics				
		1	Vibration Pump	13289947
		1	Steering Pump	58858820
		1	Propulsion Pump	13166764
		1	Steering Valve	13218987
		1	Traction Control Valve	13165659
		1	Loop Flushing Valve	59077602
		1	Brake/Shunt Two-Speed Manifold	13205133
	1		Hose (40 in.)	13255179
2	2	2	Pressure Filter Element	13408240
1	1	1	Return Filter Element	13190723
Pedestal Assembly				
	1		Eyebolt	13214804
		1	Instrument Panel	13309521
		1	Horn	13469010
1	1		Horn Button	59159558
1	1	1	Ignition Key	58917261
	1		Ignition Switch	54461090
	1		Manual Case	59185074
1	1	1	Park Brake Switch	54666094
	1		Spacer Steel Platform	13412648
		1	Hi/Low Travel Switch	54666086
		1	Hi/Low RPM Switch	54666078
		1	Hi/Low Amplitude Switch	54666060

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
1	1	1	Brake Test Switch	54666102
		1	Washer Bottle Cap	13228242
1	1		Dual Switch Seat Kit	13167945
		1	Spinner Kit	59199141
Side Console				
	1		Emergency Stop Switch	59111450
	1		FSR Cable	13320841
1	1		FSR Control	13289921
	1		Alternate Action Switch Kit	13382445
		1	Top Dust Boot	59108100
		1	Bottom Dust Boot	59108605
Rear Wheels				
2	2	2	Valve Caps	59929711
	2	2	Air Valve	59524447
Kits				
	1		SD-122 TF Decal Kit (U.S.)	13263116
	1		SD-122 TF Decal Kit (E.U.)	13302633
	1		Steering Pump Seal Kit	58898677
		1	Propulsion Pump Seal Kit	59360384
		1	Vibration Pump Seal Kit	58813791
	1		Steering Valve Seal Kit	54747340
	1		Electric Service Repair Kit	13852009
	1		Throttle-Solenoid Linkage Kit	13501408
Optional Equipment				
1	1	1	Beacon Lamp	13176797
Air Pre-cleaner Option				
	1		Air Pre-cleaner	59081323
	1		Spring	13460365

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Worklights				
1	1	1	Worklights Bulb	13247259
		1	Front/Rear Worklights Switch	13197108
	1		Worklights Rework	13359815
Gauge Installation				
	1		Voltmeter	58877796
		1	Engine Oil Pressure Gauge	58822313
		1	Hydraulic Oil Temperature Gauge	58893983
		1	Hydraulic Oil Temperature Sender	58913856
Variable Frequency/Dual Amplitude				
	1		Vibration/Frequency Knob	59047019
	1		Speed Sensor	13254503
	1		Speed Sensor	59249284
	1		Vibration Sensor Harness	13493523
Traction Enhancement				
	1		Speed Sensor	13365325
	1		Sensor Assembly	13375548
Scraper and Bolt-On Shell Options				
1	1		Scraper Tooth	59175661
		1	Scraper Bar	13213913
Cab with Heater (and Air Conditioning)				
	1		Blank Switch	58835398
	1		Heater Valve	13200027
	1		Front Wiper Switch	59196451
	1		Rear Wiper Switch	59196444
	1		Washer Switch	59195925

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		Window Hold Back	13224381
Block Heater				
		1	Block Heater	59118521
173 HP Mechanical Engine				
	1		Delay Timer	13313655
	1		Oil Filter	35387489
	1		Primary Fuel Filter	59477570
	1		In-Line Fuel Filter	58827932
	1		Alternator	13852256
	1		Starter	59816520
	1		Solenoid	58875196
	1		Fan Belt	13852272
	1		Oil Pressure Switch	59971457
Strike-Off Blade				
		1	Steering Pump	13205497
			Seal Kit	13461033
		1	Blade Cylinder	13515283
		1	Seal Kit	13515770
	1		Bearing	50273986
	1		Pivot Pin	59683805
		1	Dump Switch	58788852

SD-160TF SERIES RECOMMENDED SPARE PARTS

This section of the manual identifies the spare parts that the owner/operator is encouraged to keep on hand in support of the service schedule for the SD-160F and SD-160DX Compactors. The owner/operator can expect to use these spare parts over the course of normal use to keep his machine performing optimally if service is kept current in accordance with the recommended service intervals in Section 5's Maintenance Schedule and the Lubrication Chart of Section 8. More or less of these spare parts may actually be used depending on how your machine is equipped, how frequently your machine is used, and how well it is cared for. The recommended spare parts are tabulated below, grouped by major assemblies and the service interval (operating hours).

Table 11-3: Spare Parts for SD-160 TF Series Compactors

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Air Cleaner				
2	2	2	Primary Filter Element	13284591
	1	1	Safety Element	13284583
Drum				
	6		Shock Mount	13304787
	2		Bushing	59450528
	2		Bearing	50269984
	1		Bearing	13245337
	1		Pivot Pin	59190975
1	1		Pipe Plug	59600593
		1	V-Ring Seal	13167390
		1	Drum Drive Motor	13461447
		1	Vibration Motor	13197447
		1	Pressure Switch	59110312
1	1		Breather Filtered Vent	59093351
	1		Sight Gauge	59277772
	1		Wear Sleeve	59277756
	1		Oil Seal	59277764
		1	Magnetic Plug	59144428
	1		Hydraulic Tank Filter	58855099

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Steering Cylinder	13188198
		1	Seal Kit	13228937
Electrical				
	1		Oil Pressure Sender	58878000
	1		Battery Master Switch	13209648
	1		Battery Hold Down	19295492
1	1	1	Relay	58965377
	1		Seat Switch Harness	13165071
1	1		Alternator Diode	59020065
	1		Diode Assembly	58892449
	1		Potted Diode Pack	19281419
	1		Switch	58878562
	1		Water Switch	59636738
		1	Audible Alarm	58870294
		1	Timer	58870932
		1	Backup Alarm	13236203
Engine				
2	2	2	Engine Oil Filter	35387489
1	1	1	Fuel Filter	58827932
1	1	1	Radiator Cap	59498790
1	1		Fuel Throttle Solenoid	59009134
	1		Solenoid Stop	54651088
		1	Coolant Recovery Bottle	58802851
	1		Clamp	59495028
	1		Drive Coupling	59286336
	1		Oil Pressure Switch	13491691
	1		Seal Clamp	13093075
	1		Temperature Sender	59816322

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		U-Clamp	59534313
		1	Muffler	13169537
		2	Muffler Clamp	59179218
		1	Radiator Hose, Bottom	13279666
		1	Radiator Hose, Top	13168851
	1		Starter	59816520
	1		Solenoid	58875196
		1	Alternator	13852256
Frame				
	1		Articulation/Oscillation Pin	13276795
		1	Axle Drive Motor	13254701
		1	Axle Drive Solenoid Valve	59155739
	1		Cable	59436741
	2		Cable	59607861
	1		Cable Sleeve	59214775
	1		Dust Seal	13238423
	1		Dust Seal	13238431
	1		Ferrule	59607853
	1		Fuel Cap	13213574
	1		Fuel Sender	13213582
		1	Lock	13349212
	1		Hood Draw Latch	59162149
	1		T-Handle	13299581
Hydraulics				
		1	Vibration Pump	13254651
		1	Steering Pump	58859380
		1	Propulsion Pump	13254669
	1		Propulsion Pump Neutral Start Switch	13228994

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Steering Valve	13277116
		1	Traction Control Valve	13165659
		1	Loop Flushing Valve	59077602
		1	Brake/Shunt Two-Speed Manifold	13205133
	1		Hose (40 in.)	13255179
	1		Speed Sensor	59249284
2	2	2	Pressure Filter Element	13467774
1	1	1	Return Filter Element	59764498
Pedestal Assembly				
	1		Eyebolt	13214804
		1	Instrument Panel	13309521
1	1	1	Horn	13469010
1	1		Horn Button	59159558
1	1	1	Ignition Key	58917261
	1		Ignition Switch	54461090
	1		Manual Case	59185074
1	1	1	Park Brake Switch	54666094
	1		Spacer Steel Platform	13412648
		1	Hi/Low Travel Switch	54666086
		1	Hi/Low RPM Switch	54666078
		1	Hi/Low Amplitude Switch	54666060
1	1	1	Brake Test Switch	54666102
		1	Washer Bottle Cap	13228242
1	1		Dual Switch Seat Kit	13167945
		1	Spinner Kit	59199141

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Side Console				
	1		Emergency Stop Switch	59111450
	1		FSR Cable	13320841
1	1		FSR Control	13289921
	1		Switch Alternate Kit	13382445
		1	Top Dust Boot	59108100
		1	Bottom Dust Boot	59108605
Rear Wheels				
2	2	2	Valve Caps	59929711
	2	2	Air Valve	59524447
Kits				
	1		SD-160 TF Decal Kit (U.S.)	13309190
	1		SD-160 TF Decal Kit (E.U.)	13446596
	1		Horn Field Kit	13483193
	1		Throttle-Solenoid Linkage Kit	13501408
	1		Steering Pump Seal Kit	58898677
		1	Propulsion Pump Seal Kit	59360384
		1	Vibration Pump Seal Kit	59399253
	1		Steering Valve Seal Kit	54747340
Optional Equipment				
1	1	1	Beacon Light Lamp	13176797
Air Pre-cleaner Option				
	1		Spring	13299714
	1		Air Pre-cleaner	59081323
Worklights				
1	1	1	Worklights Bulb	13468137
		1	Front/Rear Worklights Switch	13197108

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Tow Valve Option				
		1	Three Section Valve	13304878
Gauge Installation				
	1		Voltmeter	58877796
		1	Engine Oil Pressure Gauge	58822313
		1	Hydraulic Oil Temperature Gauge	58893983
		1	Hydraulic Oil Temperature Sender	58913856
Variable Frequency/Dual Amplitude				
	1		Vibration/Frequency Knob	59047019
	1		Vibration Sensor Harness	13493523
	1		Speed Sensor	13254503
	1		Speed Sensor	59249284
Traction Enhancement				
	1		Speed Sensor Assembly	13375548
Scraper and Bolt-On Shell Options				
1	1		Scraper Tooth	59175661
		1	Scraper Bar	13213913
Strike-Off Blade				
		1	Blade Pump	13323027
	1		Blade Valve	13289814
		1	Blade Cylinder	59195008
		1	Seal Kit	59221309
	1		Bearing	50273986
	1		Pivot Pin	59683805
		1	Dump Switch	58788852

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
173 HP Mechanical Engine				
	1		Delay Timer	13313655
	1		Oil Filter	35387489
	1		Primary Fuel Filter	59477570
	1		In-Line Fuel Filter	58827932
	1		Alternator	13852256
	1		Starter	59816520
	1		Solenoid	58875196
	1		Fan Belt	13852272
	1		Oil Pressure Switch	59971457
Cab with Heater (and Air Conditioning)				
	1		Heater Valve	13200027
	1		Front Wiper Switch	59196451
	1		Rear Wiper Switch	59196444
	1		Switch Blank	58835398
	1		Washer Switch	59195925
Block Heater				
		1	Block Heater	59118521

SD-190TF SERIES RECOMMENDED SPARE PARTS

This section of the manual identifies the spare parts that the owner/operator is encouraged to keep on hand in support of the service schedule for the SD-190DX Compactors. The owner/operator can expect to use these spare parts over the course of normal use to keep his machine performing optimally if service is kept current in accordance with the recommended service intervals in Section 5's Maintenance Schedule and the Lubrication Chart of Section 8. More or less of these spare parts may actually be used depending on how your machine is equipped, how frequently your machine is used, and how well it is cared for. The recommended spare parts are tabulated below, grouped by major assemblies and the service interval (operating hours).

Table 11-4: Spare Parts for SD-190 TF Series Compactors

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Air Cleaner				
2	2	2	Primary Filter Element (Tier II)	13284591
	1	1	Safety Element (Tier II)	13284583
2	2	2	Primary Filter Element (Tier III)	13525845
	1	1	Safety Element (Tier III)	13525852
Drum				
	6		Shock Mount	13304787
	2		Bushing	59450528
	2		Bearing	50269984
	1		Pivot Pin	59190975
1	1		Pipe Plug	59600593
		1	V-Ring Seal	13167390
		1	Drum Drive Motor	13461447
		1	Vibration Motor	13483706
		1	Pressure Switch	59110312
1	1		Breather Filtered Vent	59093351
	1		Sight Gauge	59277772
	1		Wear Sleeve	59277756
	1		Oil Seal	59277764

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Magnetic Plug	59144428
	1		Hydraulic Tank Filter	58855099
		1	Steering Cylinder	13295282
		1	Seal Kit	13495106
Electrical				
	1		Oil Pressure Sender	58878000
	1		Battery Master Switch	13209648
1	1	1	Relay	58965377
1	1		Alternator Diode	59020065
	1		Diode Assembly	13322912
		1	Audible Alarm	58870294
		1	Timer	58870932
		1	Backup Alarm	13236203
Engine				
2	2	2	Engine Oil Filter (Tier II)	13284617
2	2	2	Primary Fuel Filter (Tier II)	13284625
1	1	1	In-Line Fuel Filter (Tier II)	58827932
2	2	2	Engine Oil Filter (Tier III)	13284617
2	2	2	Fuel Filter (Tier III)	19295872
1	1	1	Filter, 25 Micron (Tier III)	19280205
	1		Fan Belt (Tier III)	19295914
1	1	1	Radiator Cap	59498790
		1	Coolant Recovery Bottle	58802851
	1		Drive Coupling	59286336
	1		Oil Pressure Switch	13491691
	1		Seal Clamp	13093075
	1		Temperature Sender	59816322
	1		Clamp	59495028

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		U-Clamp	59534313
		1	Muffler	13169537
		2	Muffler Clamp	59179218
		1	Radiator Hose, Bottom	13279666
		1	Radiator Hose, Top	13168851
		1	Starter	59816520
		1	Alternator	13852256
Frame				
		1	Axle Drive Motor	13254701
	1		Cable	59436741
	1		Cable	59607861
	1		Cable Sleeve	59214775
	1		Ferrule	59607853
	1		Fuel Cap	13213574
	1		Fuel Sender	13213582
	1		Latch	59162149
	1		Spring	13460365
	1		T-Handle	13299581
Hydraulics				
		1	Vibration Pump	13527965
		1	Steering Pump	58859380
		1	Propulsion Pump	13254669
	1		Propulsion Pump Neutral Start Switch	13228994
		1	Steering Valve	13277116
		1	Traction Control Valve	13165659
		1	Loop Flushing Valve	59077602
		1	Brake/Shunt Two-Speed Manifold	13205133

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		Speed Sensor	59249284
2	2	2	Suction Filter Element	13467774
2	2	2	Return Filter Element	13190723
Pedestal Assembly				
		1	Instrument Panel	13309521
	1		Eyebolt	13214804
1	1	1	Horn	13469010
1	1		Horn Button	59159558
1	1	1	Ignition Key	58917261
	1		Ignition Switch	54461090
	1		Manual Case	59185074
1	1	1	Park Brake Switch	54666094
	1		Hi/Low Travel Switch	54666086
	1		Hi/Low RPM Switch	54666078
		1	Hi/Low Amplitude Switch	54666060
1	1	1	Brake Test Switch	54666102
1	1		Dual Switch Seat Kit	13167945
		1	Spinner Kit	59199141
Side Console				
	1		Emergency Stop Switch	59111450
	1		FSR Cable	13320841
1	1		FSR Control	13289921
	1		Switch Alternate Kit	13382445
		1	Top Dust Boot	59108100
		1	Bottom Dust Boot	59108605
Rear Wheels				
2	2	2	Valve Caps	59929711
	2	2	Air Valve	59524447

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Kits				
	1		SD-190 TF Decal Kit	TBD
		1	Drum Drive Gearbox Seal Kit	13462205
		1	Drum Drive Gearbox Brake Disc Kit	13494539
	1		Steering Pump Seal Kit	58898677
		1	Propulsion Pump Seal Kit	59360384
		1	Vibration Pump Seal Kit	59399253
	1		Steering Valve Seal Kit	54747340
	1		Vibration Motor Seal Kit	59480681
Optional Equipment				
1	1	1	Beacon Light Lamp	13176797
Air Pre-cleaner Option				
			Air Pre-cleaner	59081323
1	1	1	Worklights Bulb	13406764
Worklights				
	1		Front/Rear Worklights Switch	13197108
		1	Bulb	13406764
	1		Worklights Rework	13359815
Tow Valve Option				
		1	Three Section Valve	13304878
Gauge Installation				
	1		Voltmeter	58877796
		1	Engine Oil Pressure Gauge	58822313
		1	Hydraulic Oil Temperature Gauge	58893983
		1	Hydraulic Oil Temperature Sender	58913856

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Variable Frequency/Dual Amplitude				
	1		Vibration/Frequency Knob	59047019
	1		Speed Sensor	13254503
	1		Vibration Sensor Harness	13493523
	1		Vibration Pump	13483698
		1	Vibration Pump Seal Kit	59985044
Scraper and Bolt-On Shell Options				
1	1		Scraper Tooth	13294632
		1	Scraper Bar	13881040
Cab with Heater (and Air Conditioning)				
	1		Heater Valve	13200027
	1		Front Wiper Switch	59196451
	1		Rear Wiper Switch	59196444
	1		Washer Switch	59195925
		1	Block Heater	59118521
		1	Washer Bottle Cap	13228242
	1		Switch Blank	58835398

SD-200TF SERIES RECOMMENDED SPARE PARTS

This section of the manual identifies the spare parts that the owner/operator is encouraged to keep on hand in support of the service schedule for the SD-200F and SD-200DX Compactors. The owner/operator can expect to use these spare parts over the course of normal use to keep his machine performing optimally if service is kept current in accordance with the recommended service intervals in Section 5's Maintenance Schedule and the Lubrication Chart of Section 8. More or less of these spare parts may actually be used depending on how your machine is equipped, how frequently your machine is used, and how well it is cared for. The recommended spare parts are tabulated below, grouped by major assemblies and the service interval (operating hours).

Table 11-5: Spare Parts for SD-200 TF Series Compactors

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Air Cleaner				
2	2	2	Primary Filter Element (Tier II)	13284591
	1	1	Safety Element (Tier II)	13284583
2	2	2	Primary Filter Element (Tier III)	13525845
	1	1	Safety Element (Tier III)	13525852
Drum				
	6		Shock Mount	13304787
	2		Bushing	59450528
	2		Bearing	50269984
	1		Pivot Pin	59190975
1	1		Pipe Plug	59600593
		1	V-Ring Seal	13167390
		1	Drum Drive Motor	13356340
		1	Vibration Motor	54596259
		1	Pressure Switch	59110312
1	1		Breather Filtered Vent	59093351

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		Sight Gauge	59277772
	1		Wear Sleeve	59277756
	1		Oil Seal	59277764
		1	Magnetic Plug	59144428
	1		Hydraulic Tank Filter	58855099
		1	Steering Cylinder	13295282
		1	Seal Kit	13495106
1	1		Coupling	59613612
Electrical				
	1		Oil Pressure Sender	58878000
	1		Battery Master Switch	13209648
	1		Battery Hold Down	19295492
1	1	1	Fuse, 5 Amp	59465591
1	1	1	Fuse, 10 Amp	59325712
1	1	1	Fuse, 15 Amp	59483339
1	1	1	Fuse, 30 Amp	58893249
1	1	1	Relay	58965377
1	1		Alternator Diode	59020065
	1		Potted Diode Pack	19281419
	1		Diode Assembly	58892449
		1	Audible Alarm	58870294
		1	Timer	58870932
		1	Backup Alarm	13236203
Engine				
2	2	2	Engine Oil Filter (Tier II)	13284617
2	2	2	Primary Fuel Filter (Tier II)	13284625
1	1	1	In-Line Fuel Filter (Tier II)	58827932
2	2	2	Engine Oil Filter (Tier III)	13284617

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
2	2	2	Fuel Filter (Tier III)	19295872
1	1	1	Filter, 25 Micron (Tier III)	19280205
	1		Fan Belt (Tier III)	19295914
	1		Seal Clamp	13093075
	1		Exhaust Clamp	59179218
	1		Clamp	59495028
	1		Insert Clamp	59583468
	1		U-Clamp	59534313
1	1	1	Radiator Cap	59498790
1	1		Fuel Throttle Solenoid	59009134
		1	Coolant Recovery Bottle	58802851
	1		Drive Coupling	59286336
	1		Oil Pressure Switch	59971457
		1	Muffler	13169537
		2	Muffler Clamp	59179218
		1	Radiator Hose, Bottom	13279666
		1	Radiator Hose, Top	13417894
		1	Starter	19295856
		1	Alternator	13852256
Frame				
		1	Axle Drive Motor	13254701
	1		Cable	59436741
	1		Cable	59607861
	1		Cable Sleeve	59214775
	1		Ferrule	59607853
	1		Fuel Cap	13213574
		1	Lock	13349212

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
	1		Hood Draw Latch	59162149
	1		Spring	13299714
	1		T-Handle	13299581
Hydraulics				
		1	Vibration Pump	13527965
		1	Steering Pump	58859380
		1	Propulsion Pump	13254669
	1		Propulsion Pump Neutral Start Switch	13228994
		1	Steering Valve	13277116
		1	Traction Control Valve	13165659
		1	Loop Flushing Valve	59077602
		1	Brake/Shunt Two-Speed Manifold	13205133
	1		Hose (40 in.)	13255179
	1		Speed Sensor	59249284
2	2	2	Pressure Filter Element	13408240
1	1	1	Return Filter Element	13190723
Pedestal Assembly				
	1		Eyebolt	13214804
		1	Instrument Panel	13309521
1	1	1	Horn	13469010
1	1		Horn Button	59159558
1	1	1	Ignition Key	58917261
	1		Ignition Switch	54461090
	1		Manual Case	59185074
1	1	1	Park Brake Switch	54666094
	1		Hi/Low Travel Switch	54666086
	1		Hi/Low RPM Switch	54666078

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
		1	Hi/Low Amplitude Switch	54666060
1	1	1	Brake Test Switch	54666102
		1	Washer Bottle Cap	13228242
1	1		Dual Switch Seat Kit	13167945
		1	Spinner Kit	59199141
Side Console				
	1		Emergency Stop Switch	59111450
	1		FSR Cable	13320841
1	1		FSR Control	13289921
	1		Switch Alternate Action Kit	13382445
		1	Top Dust Boot	59108100
		1	Bottom Dust Boot	59108605
Rear Wheels				
2	2	2	Valve Caps	59929711
	2	2	Air Valve	59524447
Kits				
	1		SD-200 TF Decal Kit (U.S.)	13309190
	1		SD-200 TF Decal Kit (E.U.)	13446596
	1		Steering Pump Seal Kit	58898677
	1		Horn Field Kit	13483193
		1	Propulsion Pump Seal Kit	59360384
		1	Vibration Pump Seal Kit	59985044
	1		Steering Valve Seal Kit	54747340
	1		Vibration Motor Seal Kit	59480681
Optional Equipment				
1	1	1	Beacon Light Lamp	13176797
Air Pre-cleaner Option				
	1		Air Pre-cleaner	59081323
	1		Spring	13460365

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Worklights				
1	1	1	Worklights Bulb	13468137
		1	Front/Rear Worklights Switch	13197108
	1		Worklights Rework	13359815
Tow Valve Option				
		1	Three Section Valve	13304878
Gauge Installation				
	1		Voltmeter	58877796
		1	Engine Oil Pressure Gauge	58822313
		1	Hydraulic Oil Temperature Gauge	58893983
		1	Hydraulic Oil Temperature Sender	58913856
Traction Enhancement				
	1		Sensor Assembly	13375548
Variable Frequency/Dual Amplitude				
	1		Vibration/Frequency Knob	59047019
	1		Vibration Sensor Harness	13493523
	1		Speed Sensor	13254503
	1		Speed Sensor	59249284
Scraper and Bolt-On Shell Options				
1	1		Scraper Tooth	59175661
		1	Scraper Bar	13213913

Service Interval (Hours)			Component Description	CPN
0 - 1000	1000 - 3000	3000 +		
Cab with Heater (and Air Conditioning)				
	1		Heater Valve	13200027
	1		Front Wiper Switch	59196451
	1		Rear Wiper Switch	59196444
	1		Washer Switch	59195925
	1		Switch Blank	58835398
Block Heater				
		1	Block Heater	59118521

RECOMMENDED LUBRICANTS FOR ALL MODELS

This section of the manual contains a list of the recommended Ingersoll Rand lubricants for the following models: SD-116 TF Series, SD-122 TF Series, SD-160 TF Series, SD-190 TF Series, and SD-200 TF Series.

Table 11-6: Recommended Lubricants

	1 Qt.	1 Gal.	5 Gal.	55 Gal.
IR All-Season Premium Hydraulic Oil	N/A	N/A	59045179	59045187
IR Multi-Purpose Premium Engine Oil	59022343	59023507	57022327	59022335
IR Premium Limited-Slip Component Lubricant	13248455	13248463	59022418	59022426
IR Premium Multi-Purpose ATF	13248471	13248489	59023572	59023580
IR Synthetic Component Lubricant	13248430	13248448	58977597	59022459
IR Synthetic Plus Component Lubricant	13248414	13248422	59046177	59046165

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Genuine Parts

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800-227-0573 (US and Canada)
717-532-9181(Latin America - Ingersoll Rand)
49-5151-209-0 (Europe)
852-2527-0183 (Asia)

Genuine Ingersoll Rand Protective Lubricants

See Your Authorized Ingersoll Rand Dealer For Details

COMPACTOR WARRANTY

Ingersoll-Rand Company ("IR") warrants to its and its affiliates' authorized dealers, who in turn warrant to the initial user only, that each new Ingersoll-Rand compactor sold by the dealer will be free from proven defects in material and workmanship for a period of twelve (12) months from the in service date to the initial user or 1500 hours of service by the initial user, whichever occurs first.

During the warranty period, an authorized dealer shall repair or replace, at IR's option, any part that is found upon inspection to be defective in material or workmanship. Such part will be repaired or replaced without charge for parts and labor to the initial user by the authorized dealer. The initial user shall provide an authorized dealer with prompt notification of the defect and allow reasonable time for repair or replacement. IR may require failed parts to be returned to the factory. Transportation of the product to an authorized dealer is the responsibility of the user. The remedies provided in this warranty are exclusive.

This warranty does not apply to failures occurring as a result of abuse, misuse, negligent repairs, corrosion, erosion and normal wear and tear, alterations or modifications made to the product without the express written consent of IR, or failure to follow the recommended operating practices and maintenance procedures as provided in the product's operating and maintenance publications. This warranty does not cover replacement of scheduled service items such as oil, filters, and wear items. This warranty does not apply to engines (including engine electrical components) and tires or other accessories and equipment furnished by IR, but manufactured by others. The initial user shall rely solely on the warranty, if any, of the respective manufacturers thereof.

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The undersigned acknowledges that he/she has received a copy of this warranty on the date set forth below.

Initial user:_____(Name of company)
By: _____
Title: _____
Date: _____ 062105

CPN: 13858238

Road Development
Ingersoll Rand Construction Technologies
312 Ingersoll Drive
Shippensburg, PA 17257