

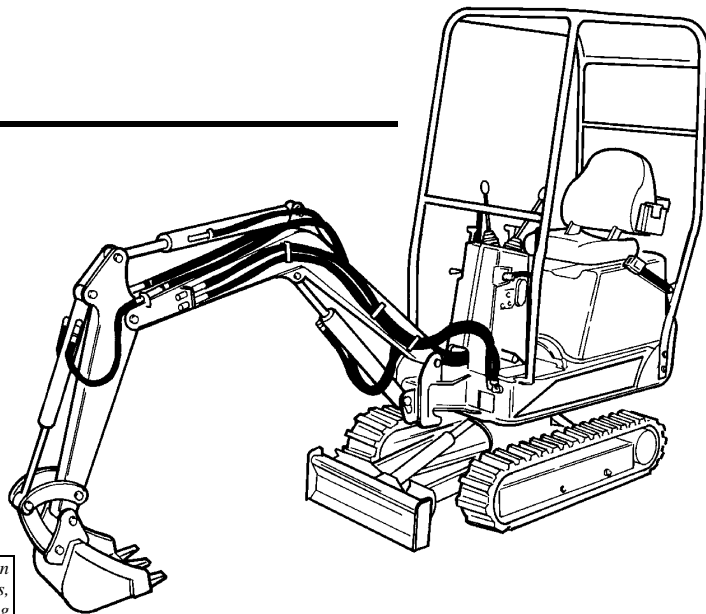
# 316



# Bobcat®

# Operation & Maintenance Manual

S/N 522811001 & Above  
S/N 522911001 & Above



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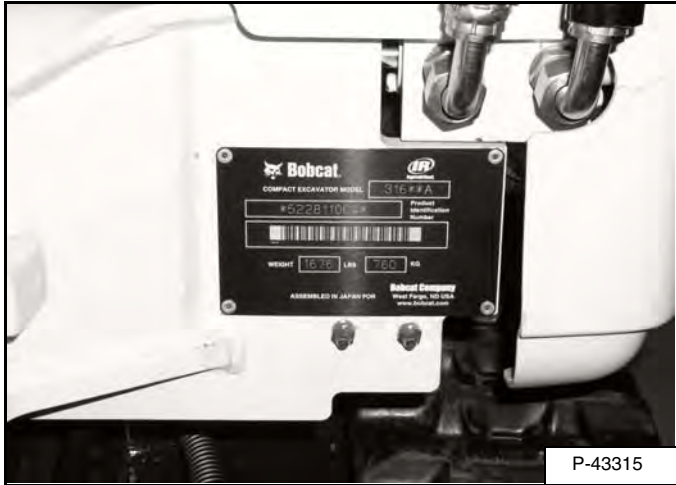
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## SERIAL NUMBER LOCATIONS

Always use the serial number of the excavator when requesting service information or when ordering parts. Early or later models (identification made by serial number) may use different parts, or it may be necessary to use a different procedure in doing a specific service operation.

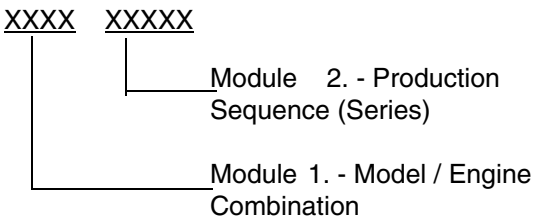
**Figure 1**



## EXCAVATOR SERIAL NUMBER

The excavator serial number plate is located on the left front corner of the swing frame [Figure 1].

Explanation of excavator Serial Number:

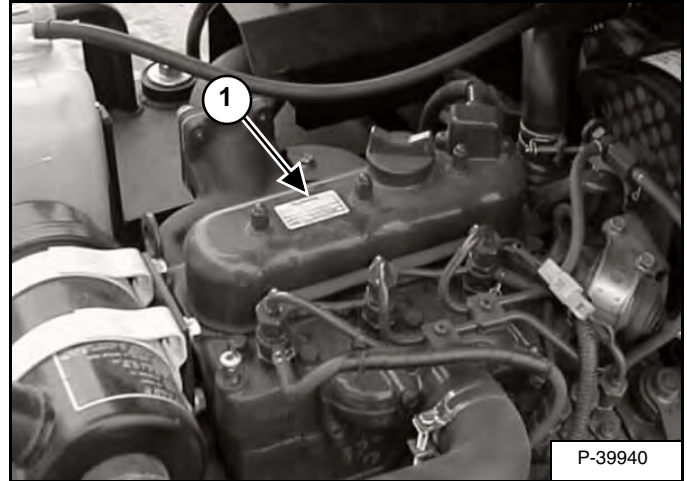


1. The four digit Model/ Engine Combination Module number identifies the model number and engine combination.

2. The five digit Production Sequence Number identifies the order which the excavator is produced.

## ENGINE SERIAL NUMBER

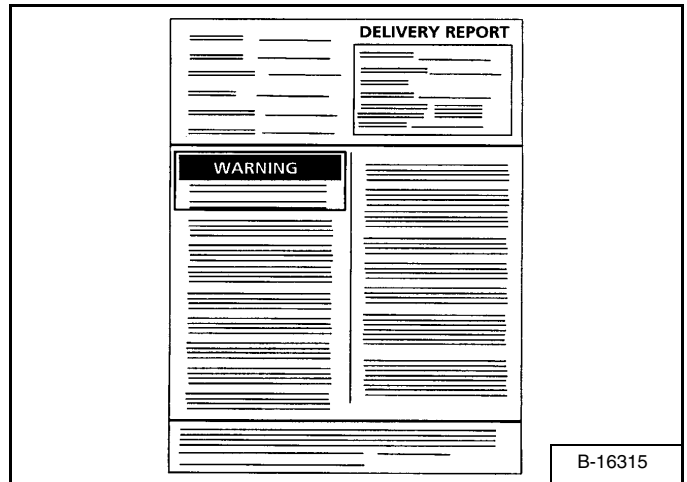
**Figure 2**



The engine serial number is located on top of the valve cover (Item 1) [Figure 2].

## DELIVERY REPORT

**Figure 3**



The delivery report must be filled out by the dealer and signed by the owner or operator when the machine is delivered. An explanation of the form must be given to the owner. Make sure it is filled out completely [Figure 3].

# MACHINE SIGNS (DECALS)(CONT'D)

Follow the instructions on all the Machine Signs (Decals) that are on the excavator. Replace any damaged machine signs and be sure they are in the correct locations. Machine signs are available from your Bobcat Excavator dealer.

**6808185**

**6814976**

LIFT POINT	MAXIMUM LIFT CAPACITY (LIFTING CAPACITY) WITH BOBCAT HYDRAULIC SYSTEM		MAXIMUM LIFT CAPACITY (LIFTING CAPACITY) WITH BOBCAT HYDRAULIC SYSTEM	
	MAXIMUM LIFT CAPACITY (LIFTING CAPACITY)	MAXIMUM LIFT CAPACITY (LIFTING CAPACITY)	MAXIMUM LIFT CAPACITY (LIFTING CAPACITY)	MAXIMUM LIFT CAPACITY (LIFTING CAPACITY)
LIFT POINT A	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT B	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT C	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT D	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT E	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT F	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT G	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT H	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT I	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT J	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT K	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT L	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT M	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT N	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT O	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT P	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT Q	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT R	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT S	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT T	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT U	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT V	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT W	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT X	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT Y	1000	1000	1000	1000
	1000	1000	1000	1000
LIFT POINT Z	1000	1000	1000	1000
	1000	1000	1000	1000

**6817138**

**6732148**

**6594897**

**6814967**

**7106627**

**6595014**

**6560573**

**6565990**

**6700388**

**6811054**

**Under Engine Cover**

## HYDRAULIC CONTROLS (CONT'D)

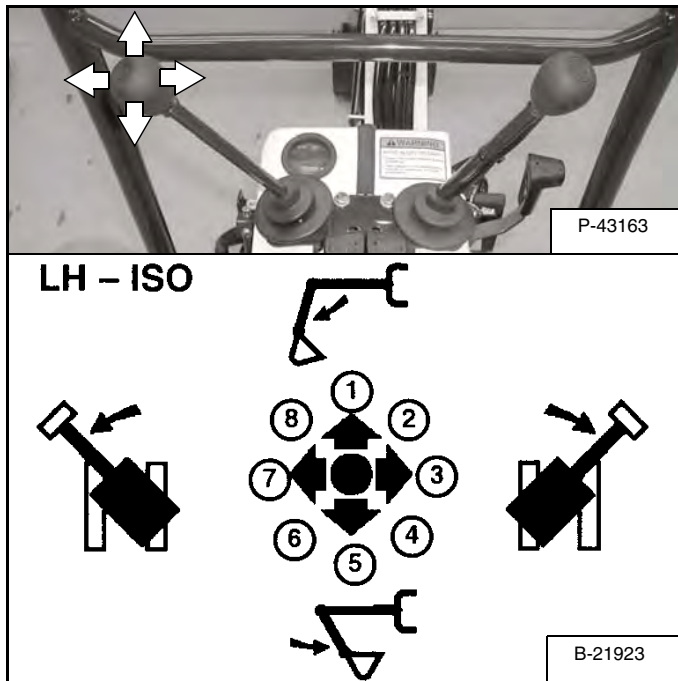
### ISO Control Pattern

**NOTE:** The Bobcat Excavator comes configured from the factory with Standard (STD) Controls (See Standard (STD) Control Pattern on Page OI-8.) See your Bobcat dealer for the procedure on how to change to ISO controls.

The work equipment (back hoe & upper structure swing) is operated by using the left and right control levers.

### Left Control Lever

Figure OI-13

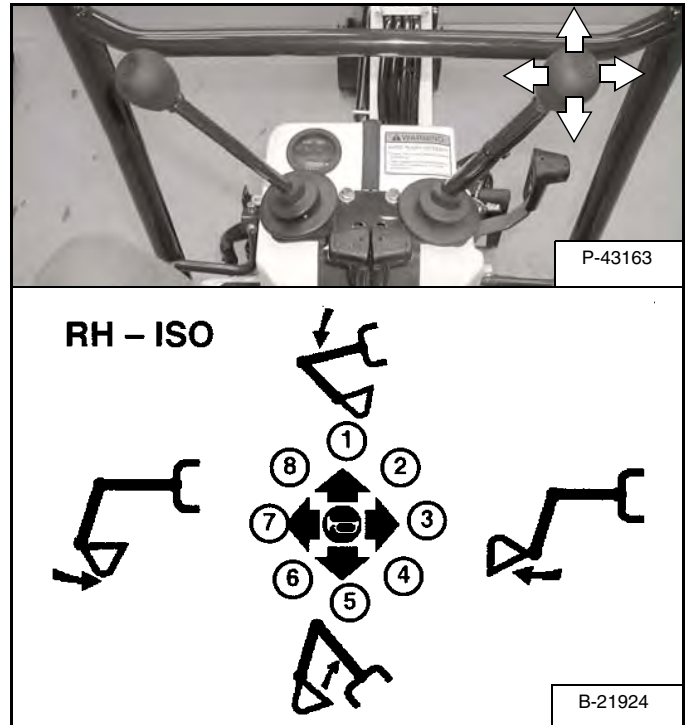


The left lever is used to operate the arm and to swing the upperstructure [Figure OI-13].

1. Arm Out.
2. Arm Out and Swing Right.
3. Swing Right.
4. Arm In and Swing Right.
5. Arm In.
6. Arm In and Swing Left.
7. Swing Left.
8. Arm Out and Swing Left.

### Right Control Lever

Figure OI-14



The right lever is used to operate the boom and bucket [Figure OI-14].

1. Boom Lower.
2. Boom Lower and Bucket Dump.
3. Bucket Dump.
4. Boom Raise and Bucket Dump.
5. Boom Raise.
6. Boom Raise and Bucket Curl.
7. Bucket Curl.
8. Boom Lower and Bucket Curl.

## **WARNING**

### AVOID INJURY OR DEATH

Before leaving the machine:

- Lower the work equipment to the ground.
- Lower the blade to the ground.
- Stop the engine & remove the key.

W-2196-0595

## OPERATING PROCEDURE (CONT'D)

### Operating On Slopes

# ! WARNING

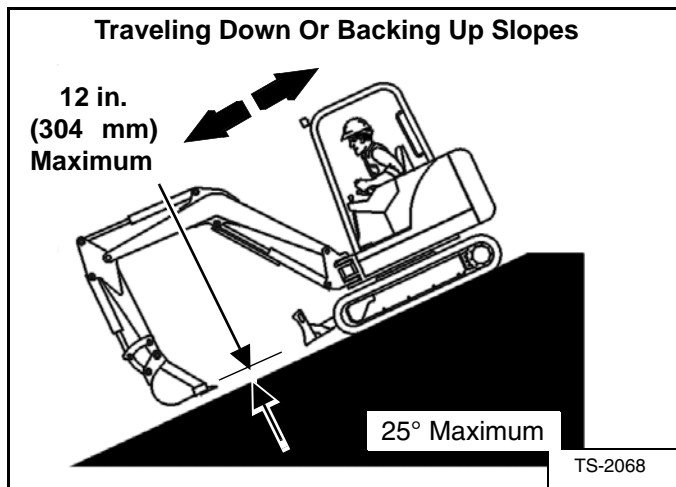
#### AVOID INJURY OR DEATH

- Do not travel across or up slopes that are over 15 degrees.
- Do not travel down or back up slopes that exceed 25 degrees.
- Look in the direction of travel.

W-2497-0304

When going down a slope, control the speed with the steering levers and the speed control lever.

Figure OI-33



When going down grades that exceed 15 degrees, put the machine in the position shown and run the engine slowly [Figure OI-33].

Operate as slow as possible and avoid sudden changes in direction.

Avoid traveling over objects such as rocks, trees, stumps, etc.

Stop the machine before moving the upper equipment controls. Never allow blade to strike a solid object. Damage to the blade or cylinder can result.

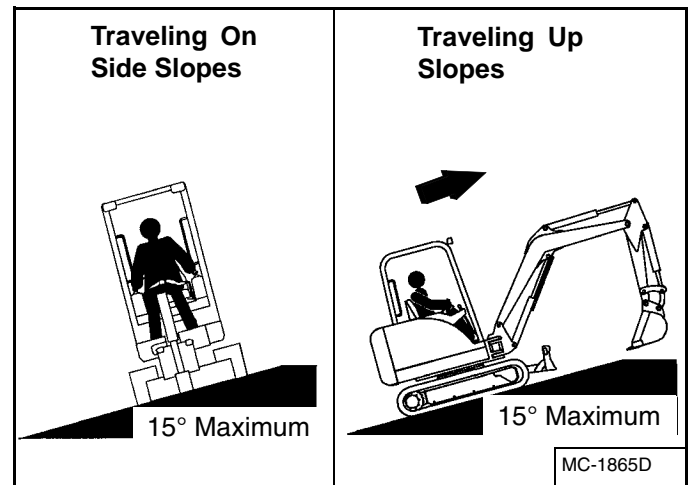
# ! WARNING

#### AVOID INJURY OR DEATH

- Avoid steep areas or banks that could break away.
- Keep boom centered and attachments as low as possible when traveling on slopes or in rough conditions. Look in the direction of travel.
- Always fasten seat belt.

W-2498-0304

Figure OI-34




When traveling up slopes or on side slopes that are 15 degrees or less, position the machine as shown and run the engine slow [Figure OI-34].

Always expand the tracks when working on slopes or rough conditions.

## SERVICE SCHEDULE

### Chart

Maintenance work must be done at regular intervals. Failure to do so will result in excessive wear and early failures. The service schedule is a guide for correct maintenance of the Bobcat product.

 <b>WARNING</b>	<p><b>Instructions are necessary before operating or servicing machine. Read and understand the Operation &amp; Maintenance Manual, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Untrained operators and failure to follow instructions can cause injury or death.</b></p>
W-2003-0199	

SERVICE SCHEDULE		HOURS							
ITEM	SERVICE REQUIRED	8-10	50	100	250	500	• 1000	• 2000	
Engine Cooling System	Clean debris from oil cooler and radiator. Check coolant level cold, add premixed coolant as needed.								
Engine Oil	Check the oil level and add as needed. Do not overfill.								
Hydraulic Fluid	Check level and add as needed.								
Track Tension	Check and adjust as needed.								
Indicators and Lights	Check for correct operation of all indicators and lights.								
Operator Canopy	Check the condition of the canopy and mounting hardware.								
Safety Signs and Safety Treads	Check for damaged signs (decals) and safety treads. Replace any signs or safety treads that are damaged or worn.								
Pivot Points	Lubricate with multi-purpose lithium based grease.								
Control Lockout Levers	Check for correct operation.								
General Inspection	Check for leaks, loose bolts and nuts. Make corrections as needed.								
Seat Belt	Check the condition of seat belt.								
Fuel Filter	Remove the trapped water.								
Engine Air Filter and Air System	Check and empty dust cup as needed. Check for leaks and damaged components. Do not use compressed air to clean elements.								
Swing Pinion / Circle	Grease the swing pinion and swing circle.								
Hydraulic Fluid, Hoses and Tubelines	Check fluid level and add as needed. Check for damage and leaks. Repair or replace as needed.								
Radiator Fins	Check and clean with low air or water pressure as needed.								
Battery	Check cables, connections and electrolyte level. Add distilled water as needed.								
Spark Arrestor Muffler	Empty Spark Chamber.								
Alternator / Fan Belt	Check for damage and correct tension. Adjust or replace as needed.								
Engine Air Filter and Air System	Check and empty dust cup. Replace filter as needed. Check for leaks and damaged components. Do not use compressed air to clean elements.								
Engine Oil and Filter	Replace oil and filter. Use CD or better grade oil and Bobcat filter.		^						
Hydraulic Reservoir	Drain sediment and water.								
Fuel Tank	Drain sediment and water.								
Hydraulic / Hydrostatic Filter	Replace the filter element.			^					
Fuel Filter	Replace filter element.			^					
Engine Coolant	Flush the cooling system. Replace the coolant.			^					
Hydraulic Suction Filter	Clean the filter.			^					
Final Drive Cases	Check oil level and add as needed.				^				
Hydraulic Oil	Replace the fluid.								
Hydraulic Suction Filter	Replace the filter.								

^ On new machine first service must occur at this interval.

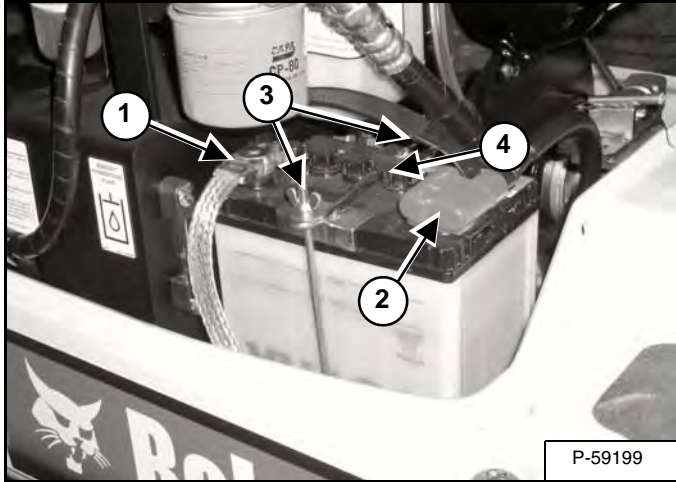
• Or every 12 months.

## ELECTRICAL SYSTEM (CONT'D)

### Removing And Installing The Battery

Raise the engine cover. (See ENGINE COVER on Page PM- 6.)

Figure PM-19



Disconnect the negative cable (Item 1) [Figure PM-19] from the battery.

Remove the positive cable (Item 2) [Figure PM-19].

Remove the nut s (Item 3) [Figure PM-19] from the battery clamp and remove the clamp (Item 4) [Figure PM-19].

Remove the battery.

Install the battery in the re verse order and connect the negative cable last to help prevent sparks.

## WARNING

Batteries contain acid which burns eyes and skin on contact. Wear goggles, protective clothing and rubber gloves to keep acid off body.

In case of acid contact, wash immediately with water. In case of eye contact get prompt medical attention and wash eye with clean, cool water for at least 15 minutes.

If electrolyte is taken internally drink large quantities of water or milk! DO NOT induce vomiting. Get prompt medical attention.

W-2065-1296

## HYDRAULIC SYSTEM

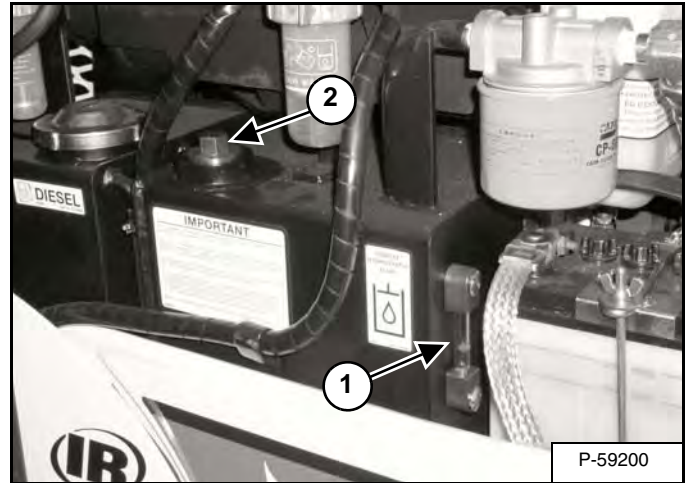
### Checking And Adding Fluid

Put the machine on a level surface.

Retract the arm and bucket cylinders, put the bucket on the ground and lower the blade. Stop the engine.

Raise the engine cover.

Figure PM-20



Check the fluid level in the sight gauge (Item 1) [Figure PM-20]. The level must be at the center of the sight gauge.

Remove the fill cap (Item 2) [Figure PM-20] and add fluid as needed.

Install the fill cap and lower the engine cover.

## WARNING

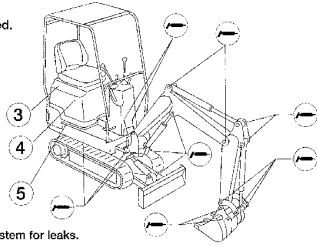
Always clean up spilled fuel or oil. Keep heat, flames, sparks or lighted tobacco away from fuel and oil. Failure to use care around combustibles can cause explosion or fire which can result in injury or death.

W-2103-1285

# SERVICE SCHEDULE

## EVERY 8-10 HOURS

- Check engine coolant level. Add pre-mixed coolant as needed.
- Check engine oil level.
- Check hydraulic oil level.
- Check and adjust track tension as needed.
- Check indicator lights for correct operation.
- Check canopy condition and mounting hardware.
- Check seat belt condition, retractor and mounting hardware.
- Check for damaged signs (decals) and safety tread - Replace any signs (decals) and safety tread that are damaged or worn.
- Grease all machinery pivot points with multi-purpose lithium based grease. (See illustrations)
- Check control lockout lever for proper operation.
- Check for leaks and/or tightness of pipes, hoses, control unit, hydraulic pumps, cylinders, etc.
- Check water separator. Drain and clean element if required.
- Check and empty air cleaner dust cap as needed, check air system for leaks.

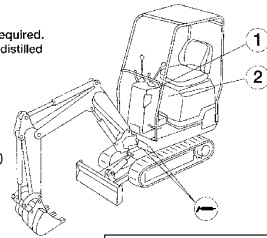


## EVERY 50 HOURS

- Grease swing pinion and swing circle.
- Check radiator fins and clean using pressurized air/water if required.
- Check battery, cables, connections and electrolyte level. Add distilled water as needed.

## EVERY 100 HOURS

- Check condition of alternator/fan belt and adjust as needed.
- Check fuel filter and clean if required.
- Check air filter and replace if required.
- Replace engine oil and filter.
- Empty spark chamber on spark arrestor muffler. (If equipped)



## EVERY 250 HOURS

- Check oil level in both final drive cases. Add oil if needed.
- Drain sediment and water from hydraulic oil tank. Add hydraulic oil as needed.
- Drain sediment and water from fuel tank and clean fuel tank strainer.

## EVERY 500 HOURS

- Replace fuel filter.
- Replace hydraulic oil filter. Check and adjust engine valve clearance. Drain and flush cooling system - Replace coolant.
- Clean hydraulic oil tank suction filter. Replace strainer if damaged.

## EVERY 1000 HOURS OR EVERY 6 MONTHS

- Replace oil in both final drive cases.
- Replace hydraulic oil and filter-clean hydraulic oil tank.
  - Service at first 50 hours, then as scheduled.
  - Service at first 100 hours, then as scheduled.
  - Replace every 2000 hours.
  - Replace at first 250 hours, then as scheduled.

### FILTER CHART

1.	AIR FILTER	19167-1108-0
2.	ENGINE OIL FILTER	15841-32430-0
3.	FUEL FILTER	15231-4356-0
4.	HYDRAULIC OIL FILTER	12514-1102
5.	HYDRAULIC OIL TANK SUCTION FILTER	NTS2-22001

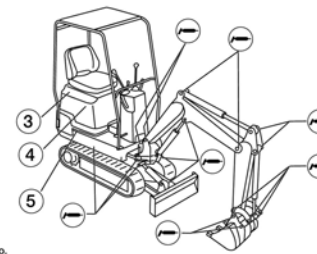
\* See illustrations above for filter locations.

68236 • See Operation & Maintenance Manual for more information and instructions. SW 05 6814967

# PROGRAMA DE MANTENIMIENTO

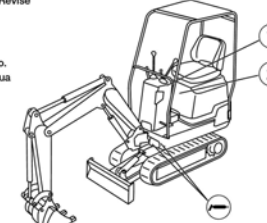
## CADA 8-10 HORAS

- Revise el nivel de enfriador de motor. Agregue enfriador premezclado si es del caso.
- Revise el nivel de aceite de motor.
- Revise el nivel de aceite hidráulico.
- Revise y ajuste la tensión de las orugas si es del caso.
- Revise que las luces indicadoras funcionen correctamente.
- Revise la condición de la cubierta y el armamento de montaje.
- Revise la condición del cinturón de seguridad, retractor y armamento de montaje.
- Revise si hay calcomanías o peldaños de seguridad averiados - reponga aquellos que estén averiados o desgastados.
- Engrase todos los puntos de pivote de la maquinaria con grasa multipropósito a base de litio. (Ver ilustraciones)
- Revise que la palanca de bloqueo de control funcione correctamente.
- Revise la presencia de fugas y/o la impermeabilidad de tuberías, unidad de control, bombas hidráulicas, cilindros, etc.
- Revise el separador de agua. Drene y limpie el elemento si es del caso.
- Revise y vacíe la tapa antipolvo del depurador de aire si es del caso. Revise la presencia de fugas en el sistema de aire.



## CADA 50 HORAS

- Engrase el piñón de giro y el tornamesa.
- Revise las aletas del radiador y limpie usando aire/agua si es del caso.
- Revise la batería, cables, conexiones y nivel electrolítico. Agregue agua destilada si es del caso.



## CADA 100 HORAS

- Revise la condición del alternador/correa del ventilador y ajuste si es del caso.
- Revise el filtro de combustible y limpie si es del caso.
- Revise el filtro de aire y cambie si es del caso.
- Cambie el aceite y filtro de motor.
- Vacíe la cámara de chispas en el silenciador del sistema parachispas. (Si viene equipado)

## CADA 250 HORAS

- Revise el nivel de aceite en ambas cajas de transmisión final. Agregue aceite si es del caso.
- Drene sedimento y agua del tanque de aceite hidráulico. Agregue aceite hidráulico si es del caso.
- Drene sedimento y agua del tanque de combustible y limpie el colador.

## CADA 500 HORAS

- Cambie el filtro de combustible.
- Cambie el filtro de aceite hidráulico. Revise y ajuste la holgura de la válvula del motor. Drene y purgue el sistema de enfriamiento - cambie el enfriador.
- Limpie el filtro de succión del tanque de aceite hidráulico. Cambie el colador si está averiado.

## CADA 1000 HORAS O CADA 6 MESES

- Cambie el aceite en ambas cajas de transmisión final.
- Cambie el aceite hidráulico y limpie el filtro del tanque de aceite hidráulico.
  - Dé servicio a las primeras 50 horas, luego según lo programado.
  - Dé servicio a las primeras 100 horas, luego según lo programado.
  - Reemplace cada 2000 horas.
  - Reemplace a las primeras 250 horas, luego según lo programado.

### TABLA DE FILTROS

1.	FILTRO DE AIRE	19167-1108-0
2.	FILTRO DE ACEITE DE MOTOR	15841-32430-0
3.	FILTRO DE COMBUSTIBLE	15231-4356-0
4.	FILTRO DE ACEITE HIDRAULICO	12514-1102
5.	FILTRO DE SUCCION DE TANQUE DE ACEITE HIDRAULICO	NTS2-22001

\* Ver ilustración arriba para ubicación de filtros.

62295 • Ver el Manual de Operación y Mantenimiento para más información e instrucciones. SW 05 6814967 AR

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