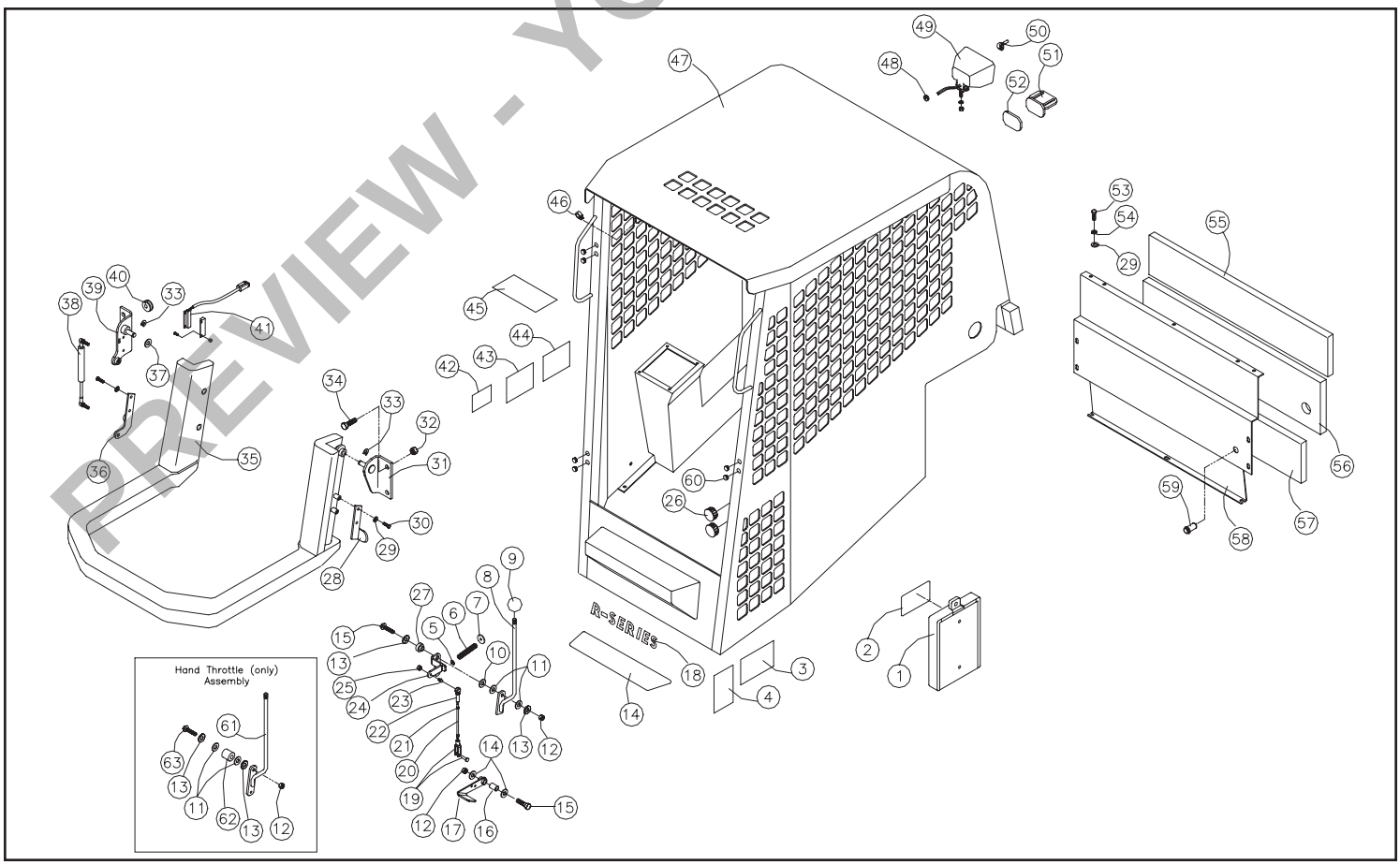
CAB (R.O.P.S.) ASSEMBLY (SN: RSC 00101-Current)

REF. NO.	PART NUMBER	QTY.	DESCRIPTION
1	0304-318	1	BOX,OWNERS MANUAL
2	0304-320	1	DECAL,OWNER'S MANUAL
3	0304-306	1	DECAL,WARNING,LOAD
4	0310-169	1	FILM-DANGER (LOADER) (REACHING
5	8050-157	1	WASHER,WROUGHT,3/16,STD,ZN
6	2030-220	1	SPRING,2.25x0.45
7	0301-033	1	WASHER,FENDER,1/4 x 1 1/4,STL,
8	2030-218	1	LEVER,THROTTLE
9	0302-546	1	KNOB,PLASTIC,1-7/8 DIA,1/2-13
10	8050-282	7	WASHER,WROUGHT,3/8,STD,ZN
11	0303-071	2	WASHER,NYLON,BLACK,1" OD
12	8040-486	6	NUT,HEX,NYLOCK,3/8-16 UNC,ZN
13	0303-099	2	WASHER,STAR,3/8,INT/EXT TOOTH
14	0304-496	1	PAD,SKID
15	8102-227	2	CAPSCREW,HH,3/8-16UNCx2.0 GD8
16	0201-865	1	BUSHING,FOOT PEDAL
17	0201-925	1	WLMT,PEDAL
18	0304-422	1	DECAL,R-SERIES
19	0201-902	1	CLEVIS,1/4-28,W/PIN
20	2030-219	1	ROD,THREADED,1/4x28x4375
21	0301-121	2	NUT,JAM,1/4-28 UNF
22	0314-215	1	CONNECTOR,JOINT,BALL
23	0314-214	1	STUD,JOINT,BALL
24	0200-567	1	BRACKET,THROTTLE
25	8040-396	2	NUT,HEX,NYLOCK,1/4-28 UNF,ZN
26	0307-606	1	PLUG,FINSISHING,STEEL,1-3/8"
27	0201-867	1	BUSHING
28	0304-466	1	STOP,LAPBAR
29	8050-240	10	WASHER,STAINLESS,1/4",MS
30	0304-465	4	CAPSCREW,HH,M6-1.0x16mm
31	0304-467	1	BRKT,LAPBAR
32	8040-606	4	NUT,HEX,NYLOCK,1/2-13 UNC,ZN
33	0304-468	2	RING,SNAP,LAPBAR
34	8102-404	4	CAPSCREW,HH 1/2-13UNCx1.25 GD8
35	0304-469	1	LAPBAR
36	0304-470	1	MNT,LAPBAR
37	0304-477	2	SPACER,LAPBAR
38	0304-471	2	SPRING,GAS,ASSIST
39	0304-472	1	MNT,LAPBAR,SWITCH
40	0304-476	1	GROMMET,RUBBER

REF. NO.	PART NUMBER	QTY.	DESCRIPTION
41	0304-473	1	SENSOR,SWITCH,LAPBAR
42	0304-305	1	DECAL,THROTTLE
43	0310-143	1	FILM-WARNING,RIDERS
44	0201-265	1	DECAL,WARNING,FIRE HAZARD
45	0310-122	1	FILM-WARNING (MOUNT) (DISMOUNT
46	0304-400	6	CLIP,FASTENER
47	0200-175	1	WLMT,CAB
48	0301-637	1	GROMMET (1840)
49	0304-247	1	LIGHT,REAR
50	0200-288	1	BULB,HALOGEN
51	0200-320	2	WLMT,STOP LAP BAR
52	0200-321	2	PAD,RUBBER,W/ADHESIVE
53	8102-044	5	CAPSCREW,HH,1/4-20UNCx1.25,GD8
54	8051-212	5	WASHER,SPRING LOCK,1/4,ZN
55	0200-290	1	INSULATION,TOP
56	0200-291	1	INSULATION,MIDDLE
57	0200-292	1	INSULATION,BOTTOM
58	0200-328	1	PLATE,FIREWALL
59	0200-264	1	HOUSING,POWER SOURCE
60	0304-579	6	PLUG,HOLE,PLASTIC,5/16
61	0304-276	1	WLMT,LEVER,THROTTLE
62	0304-501	1	TUBING, SPACER
63	0304-602	1	CAPSCREW,FH,WIZLOC,3/8-16X1.75



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Troubleshooting

This section identifies selected problems and suggests probable causes.

Problem 1

Machine will not crank over.

Probable cause

1. Continuous hyd. flow switch activated.
2. Weak or dead battery.
3. Faulty continuous hyd. flow switch
4. Battery cables loose or corroded.
5. Ignition fuse blown.
6. Main starter fuse blown.
7. Starter relay malfunctioning.
8. Bad ignition switch.
9. Bad starter.
10. Poor wire connections at key, relay, or starter.

Problem 2

Machine cranks but will not start.

Probable cause

1. Injection pump fuse blown.
2. Main power fuse B blown.
3. Main power relay B not activating.
4. Poor wire connection at injection pump or fuse.
5. Glow plugs not heating. (Will see black smoke.)
   a) Main glow plug fuse blown.
   b) Glow plug relay not activating.
   c) Poor wire connections at ignition switch, relay, or glow plug strip.
   d) Failed glow plugs.
   e) Bad ignition switch.

Problem 3

Machine starts but hydraulics will not operate.

Probable cause

1. Lap bar must be in down position, operator must be seated in seat, and front door (if installed) must be closed.
2. Safety fuse blown.
3. Faulty operator presence switch.
   a) Test continuity through seat, lap bar, and door switch. Adjust or replace as necessary. Lap bar and door switch are magnetic switches and should be adjusted to approximately 1/16 inch away from steel pickup bracket.
4. Poor ground (check ground wires on bottom left rear side of hydraulic reservoir).
5. Safety relay is not activating.
6. Faulty safety solenoid or safety solenoid spool.
7. Poor wire connections on fuse, relay, or safety solenoid.
8. Low charge pressure.

Problem 4

Loader operates but tracks will not move.

Probable cause

1. Leak in feed line to pilot control.
2. Pilot control malfunctioning.
3. Low pilot pressure.

Problem 5

Tracks operate but loader will not operate.

Probable cause

1. Continuous hyd. flow switch activated, sending oil over relief.
2. Check to see if auxiliary flow works. (If auxiliary flow works, skip to number 5).
3. Main auxiliary relief malfunction.
4. Auxiliary pump bad.
5. Leak in feed line to loader control pilot.
6. Loader control pilot malfunctioning.
7. Loader valve malfunctioning.

Problem 6

Auxiliary flow does not work. Loader works.

Probable cause

1. Auxiliary hydraulic fuse blown.
2. Faulty ground wire.
   a) Clean ground connections on left rear side of hydraulic tank.
3. Auxiliary hydraulic switch failure.
4. Poor wire connections at fuse, auxiliary hyd. switch, or pin connector P17.
5. Auxiliary hydraulic pilot generation spool stuck.
6. Bad or not fully connected Quick-Coupler

Problem 9

Auxiliary hydraulics will only flow one way. Try both continuous flow and intermittent thumb switch.

Probable cause

1. Auxiliary hydraulic relay 1 or 2 failure.
2. Auxiliary hydraulic pilot generation coil faulty.
3. Auxiliary hydraulic pilot generation spool faulty.
4. Poor wire connections at relay, pilot generation solenoid, pin connector P16 or P21.
5. Loader valve malfunction.

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5. Operator Enclosure Disassembly and Assembly

Chapter Overview

This chapter provides disassembly and assembly procedures for the operator enclosure assembly.

Personal Safety

! WARNING !

Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product until you have read and understood the operation, lubrication, maintenance and repair information.

Before starting any disassembly or assembly procedures, refer to *Chapter 2. Product Safety – Basic Precautions* for personal safety information.

Machine Preparation

! WARNING !

Accidental machine starting can cause injury or death to personnel working on the machine.

To avoid accidental machine starting, disconnect the battery cables from the battery and tape the battery clamps and remove the key.

Place a "Do Not Operate" tag prominently on the machine to inform personnel that the machine is being worked on.

Before starting any disassembly or assembly procedures, refer to *Chapter 2. Product Safety – Repair* for machine preparation information.

Preliminary Checkout

If troubleshooting is required prior to disassembly or assembly, refer to *Chapter 15. Troubleshooting*.

Operator Enclosure Disassembly and Assembly Procedures

Disassembly and assembly procedures are provided for the following operator enclosure components.

- Light Bar
- Ignition Switch
- Console Gauge/Warning Panel
- Lap Bar Gas Assist Spring

N**ote:** Procedures are provided for only those operator enclosure components listed above. However, information for removal and installation of other operator enclosure components can be obtained from the Rubber Track Loader Parts List manual.

Light Bar Removal and Installation

The tools required for light bar console removal and installation are listed in Table 5-1. Use manufacturer-recommended tools whenever possible.

Table 5-1

Required Tools
Combination Wrench

Light Bar Removal



Figure 5-1 5-001

1. Remove the two bolts that attach the light bar to the cab frame.

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2. Technical Specifications

RC-50 & R-50 Specifications

Engine

- Model: Cat 3024C (Perkins 404C-22)
- Displacement: 2.2 liter
- Gross horsepower: 50 hp, 37.3 kW
- Torque: 105 lb-ft.143 Nm
- Idle rpm: 2800 (high idle); 1175 (low idle)
- Hot water temperature sender: 217°F, 102.7°C
- Average water /thermostat temperature: 190°F, 87.8°C

Transmission

- Model: Cat AA20VG45T tandem (Rexroth)

Drive pumps

- Displacement: 2.7459 in^3/rev (45 cc/rev)
- Relief pressure: 5500 psi, 380 bar
- Flow: 33.2 gpm (125 lpm) @ 2800 rpm (high idle)

Charge pump

- Displacement: 1.098 in^3/rev (18 cc/rev)
- Relief pressure: 400-450 psi

Drive Motors

- Model: Rexroth MCR 05C
- Displacement: 37.8 in^3/rev (620 cc/rev)

Control Handles

- Model: CAT 4TH6

Auxiliary Pump

- Make: Rexroth
- Displacement: 1.343 in^3/rev (22 cc/rev)
- Flow: 16.27 gpm (61.85 lpm) @ 2800 rpm (high idle)
- Relief pressure: 3000 psi (20,684 kPa)
- Cooling/filtering: Auxiliary oil is filtered and cooled at all times. In Auxiliary mode, the oil is filtered after the attachment to protect the machine if the attachment motor fails or contaminants are introduced from the quick couplers.

Loader Valve

- Model: Husko
- Relief pressure: 3000 psi (20,684 kPa)
- Pilot pressure required to move spools: 180-220 psi (1241-1517 kPa)

Cooler

- Burst pressure: 400 psi (2757 kPa)
- Operating pressure: 250 psi (1724 kPa)
- Bypass relief pressure: 80 psi (689 kPa)
- Hot oil sending unit: 225°F (107.2°C)

Critical Torque Specs

- Transmission Mounting Bolts
  - 85 ft-lb. w/Blue Loctite
- Drive Sprocket Drive Teeth Bolts
  - 105 ft-lb. -Dry
- Bogie Wheel Retaining Nut
  - 125 ft-lb. -Dry
- Drive Sprocket Lug Nut
  - 160 ft-lb. -Dry
- Drive Motor Mounting Bolts
  - 160 ft-lbs. -Dry

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13. Maintenance

Chapter Overview

This chapter contains maintenance requirements and procedures for the following Rubber Track Loader components.

- Engine oil
- Hydraulic fluid and filter
- Fuel separator and filter
- Track tension
- Air cleaner
- Fuse box
- Grease fittings
- Fuel bleeding

Maintenance Schedule

The general maintenance schedule for the Rubber Track Loader is listed in the table below.

Item	Frequency	Lubricant	Capacity
Hydraulic Fluid	500 hrs	**ASV Posi-Lube Hydraulic Oil**, or Rykon MV	8 gal/30 l
Hydraulic Filter	250 hrs		
Engine Oil	250 hrs	**Posi-Lube HD Diesel Engine Oil**, or other	2.6 gal/9.8 l
Engine Filter	250 hrs		
Fuel Filter	500 hrs		
Primary Air Filter	Check daily, clean and reuse as needed up to 5 times; change at least once per year		
Secondary Air Filter	Every 3 cleanings of primary filter		
Grease Fittings	10 hrs	**Posi-Lube Lithium Grease**	
Track Tension	As needed		
Coolant	Test for coolant additive at 250 hrs. Change at 1000 hrs or two years		

NOTICE

When replacing engine coolant, use **Posi-Lube Long Life 50/50 Antifreeze/Coolant**, Caterpillar Extended Life Coolant or equivalent antifreeze with the proper SCA (Supplemental Cooling Additive)

Engine Oil

The normal oil change interval is every 250 service hours or six months, whichever comes first. Engines that are operated under severe conditions may need the oil changed every 100 service hours or every 3 months, whichever comes first. Severe operating conditions include: high temperatures, continuous high loads and dusty conditions.

Oil Change Procedures

1. Run the engine for a few minutes to warm the engine oil.

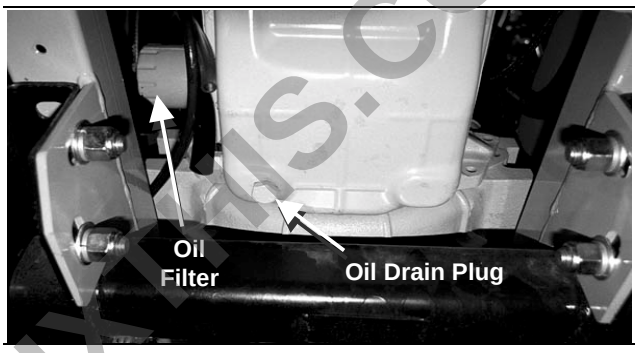


Figure 16-1 16-001

2. Remove the drain plug from the bottom of the engine.
3. Drain oil into suitable container.
4. Remove engine oil filter, making sure the gasket is also removed.
5. Put some fresh oil on the new filter gasket and install new filter.
6. Tighten filter to specifications on filter label.
7. Refill engine to capacity with oil, as specified.

Engine Oil Specifications

Due to the significant variations in the quality and performance of commercially available oils, ASV **Posi-Lube Heavy Duty Diesel Engine Oil** – 10W30 is recommended. If Posi-Lube is not available, use one of the the following:

- Caterpillar Diesel Engine Oil – 10W30 (-4°F to 104°F)
- Caterpillar Diesel Engine Oil – 15W40 (5°F to 122°F)

Use only use commercial oils that meet the following classifications:

- EMA LRG-1 multigrade oil
- API CG-4 multigrade oil
- API CH-4 multigrade oil
- API CF-4 multigrade oil

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1. Product Safety

Chapter Overview

This chapter contains product safety information for the R-50 and the RC-50 the Rubber Track Loaders. Read this chapter and understand all safety messages and information messages before attempting to service the machine.

Safety Messages

Safety messages are provided in this document and on the machine. If these hazard warnings are not heeded, bodily injury or death could occur to you or other persons.

Hazards are identified by the Safety Alert Symbols **!DANGER! … . !WARNING!….!CAUTION!**.

The meaning of these safety alerts is as follows: **Attention! Become Alert! Your Safety is Involved.**

The message that appears under a Safety Alert Symbol explains the hazard and can be either written or pictorially presented.

! DANGER !

This symbol is used to alert service personnel of an imminently hazardous situation that will result in serious injury or death.

! WARNING !

This symbol is used to alert service personnel of a potentially hazardous situation that could result in serious injury or death.

! CAUTION !

This symbol is used to alert service personnel of an unsafe practice that could result in injury.

Information Messages

Information messages are provided in this document and on the machine. These messages are identified by the labels **NOTICE….Note**.

NOTICE

This label is used to alert service personnel to the possibility of damaging the equipment.

Note: This label is used to provide important additional information, comments, explanations or amplification of the accompanying subject matter.

The person servicing the Rubber Track Loader may be unfamiliar with many of the systems on the machine. This makes it important to use caution when performing service work. Knowledge of the system and/or components is important before the removal or disassembly of any component.

It is not possible to anticipate every circumstance that might involve a potential hazard. The safety messages in this document and on the product are, therefore, not all inclusive. If you use a tool, procedure, work method or operating technique that is not specifically recommended by the manufacturer, you must satisfy yourself that it is safe for you and for others. You should also ensure that the product will not be damaged or be made unsafe by the operation, lubrication, maintenance or repair procedures that you choose.

Basic Precautions

! WARNING !

Improper operation, lubrication, maintenance or repair of this product can be dangerous and could result in injury or death.

Do not operate or perform any lubrication, maintenance or repair on this product until you have read and understood the operation, lubrication, maintenance and repair information.

Following is a list of basic precautions that should always be observed.

Safety Signs

Read and understand all "Safety" signs on the product before operating, lubricating or repairing this product. Replace any damaged, illegible or missing safety plates, signs or decals.

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3. System Diagrams

Chapter Overview

This chapter contains diagrams for the following RC-50 and R-50 systems.

- Filtering and cooling system
- Auxiliary circuit system
- Drive loop system

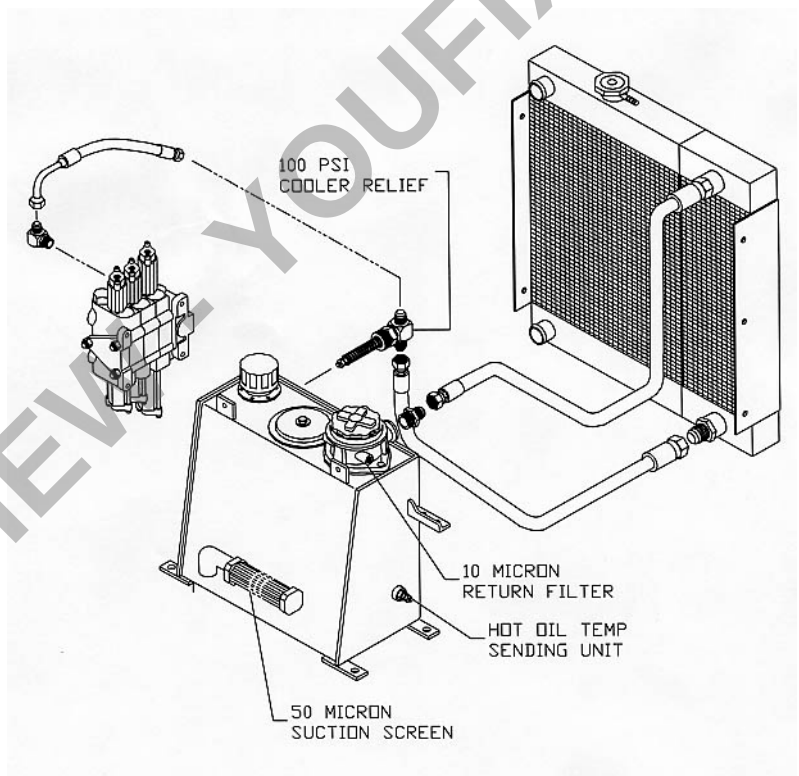
Filtering and Cooling System

The filtering and cooling system (Figure 3-1) contains the following major components.

- Hydraulic reservoir
- Radiator/oil cooler
- Loader valve

Figure 3-1

RC-50 and R-50 Filtering and Cooling System 3-001



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4. Machine Controls and Instrumentation

Chapter Overview

This chapter contains an overview of the machine controls and instrumentation. It includes an illustration of the following controls and instrumentation components and a description of their functions.

- Machine controls
- Dash panel
- Gauge/warning light panel

Machine Controls

There are three primary machine controls: loader & drive control (1&2) and throttle (3).

Loader Control (RC-50)

The loader control (1) allows the operator to raise, lower and pivot the attachment using a simple, pilot-operated joystick.



Figure 4-1 4-001

Loader Control (R-50)

The loader and bucket are controlled by the sideways motion of the controls (1&2). The right joystick operates the bucket and the left joystick operates the loader boom.

Drive Control (RC-50)

The drive control (2) allows the operator to change directions and speed using a simple, pilot-operated joystick.

Drive Control (R-50)

The forward and reverse motion of each track is controlled by the forward and back motion of the controls (1&2). The right joystick operates the right track and the left joystick operates the left track.

Throttle

The throttle controls engine rpm.

Dash Panel

The dash panel (Figure 4-2) is positioned for easy visibility in the “heads up” position inside the operator’s enclosure. The dash panel includes the following components.

(1) Interior light

(2) Slope indicator

(3) Switch panel

(4) Ignition switch

(5) Gauge/warning light panel

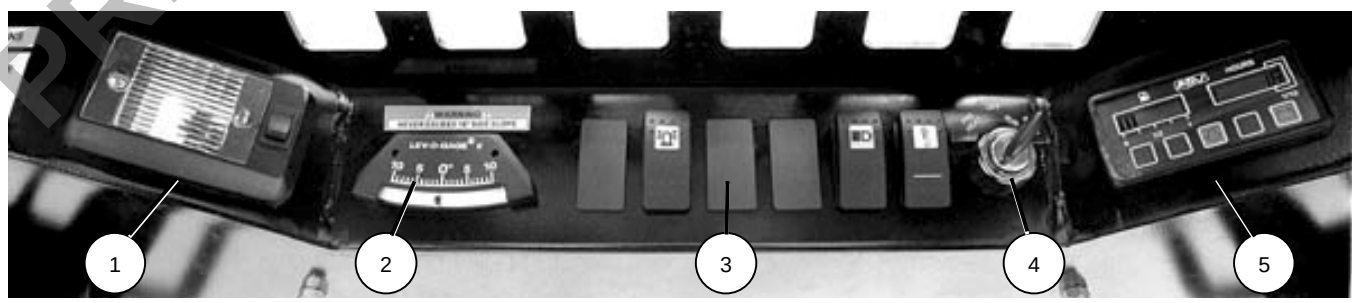


Figure 4-2 4-002

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Machine Operation

Pre-Start Checklist

Before operating a Rubber Track Loader, inspect the machine. Look for any loose or worn parts. This inspection will help avoid machine damage or personal injury during operation.

Check for proper:

1. Track tension;
2. Fluid levels;
3. Fan belt tension and condition;
4. Hoses (no visible signs of wear);
5. Fittings (no leaks);
6. Battery cables;
7. Controls for neutral.

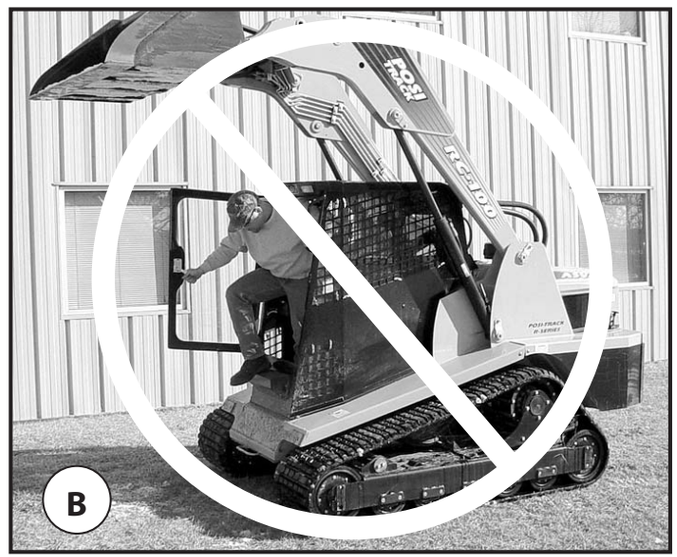
Starting Procedure

Before starting the engine, perform the pre-start checklist then proceed with the following procedure:

1. Enter machine with lift arms all the way down. Maintain a three-point contact with the machine (photo A).
2. Fasten seat belt, and lower lap bar into position.



3. Starting with the throttle in the SLOW position, push the throttle 1/3 the way open.
4. Turn the ignition key to the left for 6 seconds to “pre-heat” the engine. While pre-heating, the glow plug operation light will illuminate.
5. Turn the ignition key to the right to start the engine.
6. Run the engine at low idle for 3 to 5 minutes to warm up the engine.
7. Set throttle to desired rpm.



!WARNING! Entering or exiting the vehicle under raised lift arms could cause serious injury or death. Never allow anyone to be underneath raised, unsecured lift arms (photo B).

NOTE: The parking brake is automatically engaged when the engine is turned off, the operator is not in the seat or the lap bar is raised.

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CATERPILLAR ENGINE SERVICE ITEMS

(Machine Serial #: RSC 00101-1553)

ITEM	MANUFACTURER/DESCRIPTION	ASV P/N
Engine Oil Filter	Caterpillar (150-4140)	0304-398
Primary Air Filter	Donaldson (P822768)	0200-339
Secondary Air Filter	Donaldson (P822769)	0200-340
Engine Fuel Filter	Caterpillar (0676978)	0200-212
Fan Belt	Caterpillar (211-5172)	0200-363

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