

My Machine

Service Library

Service
Troubleshooting



Overview

- Information is currently spread across 8+ systems for troubleshooting
- With information so difficult to find, we have had a steady rise in Troubleshooting cases over the last 8 years (roughly 9% year over year)
- Currently we average 1008 new troubleshooting cases a month, in addition to 1600 returning cases
 - This is an indication that we are not supplying the information needed to diagnose current machines
 - Results in increased down time of machines
 - Machines are getting more complex, and this trend would continue or increase without a solution

Introducing My Machine

- We have developed a system called My Machine which will serve as a “All-in-one” diagnostic solution
 - This system will go live on June 14th to all dealers
- Incorporates Service Library, Machine IQ data, IRW information, as well as symptom and code based **Guided Troubleshooting**

The screenshot displays the Bobcat Service My Machine dashboard. The top navigation bar includes the Bobcat Service logo, a 'MY MACHINE' tab, and a 'SERVICE LIBRARY' link. The main content area for machine B4CD11122 S76 shows a 'Change Serial number' dropdown, a 'Machine IQ' section with '511.5 Operating Hours' and '44% Fuel Level', and a 'Location' pin. Below this is a 'Search Guided Troubleshooting' bar. The left sidebar lists navigation options: Dashboard, Manuals, Schematics, Troubleshooting, Diagnostic History, Fault Codes, Field Modifications, Warranty, Safety Instructions, Location History, Machine Options, and Maintenance Schedule. The main content area is divided into three sections: 'Fault Codes' (showing no active fault codes), 'Field Modifications' (showing a pending modification for Engine Oil Level Monitoring), and 'Diagnostic History' (showing 10/21 records).

Bobcat SERVICE MY MACHINE SERVICE LIBRARY

Change Serial number:
B4CD11122 - S76

B4CD11122 S76

Machine IQ 5/25/2021 07:56 AM
511.5 Operating Hours
44% Fuel Level
Location: unnamed road, Carver County, Minnesota, US
View the map

Available Software - Latest Version
Service Analyzer v.89.06
V2 Bobcat Engine Analyzer ECU v.0.0.54

Search Guided Troubleshooting Error symptom or fault code

Fault Codes View All +
Active Fault Codes
There are no active fault codes on this asset.

Field Modifications View All +
PENDING A 02R316 Expires on 4/29/2023
Engine Oil Level Monitoring

Diagnostic History 10/21 View All +
Status Title Date Description Origin

Machine IQ data

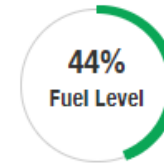
Machine specific information

B4CD11122
S76



Machine IQ

5/25/2021 07:56 AM



Location
unnamed road
Carver County
Minnesota
US
[View the map](#)

Available Software - Latest Version



Service Analyzer
v.89.06



V2 Bobcat Engine
Analyzer
ECU v.0.0.54

- If the machine is equipped with telematics and assigned to your dealer/enterprise, you now have telematics data to assist with diagnosis.

Search Guided Troubleshooting



Error symptom or fault code

Active fault codes displayed here, with option to view all fault codes ever logged

Fault Codes

[View All +](#)

Active Fault Codes



There are no active fault codes on this asset.

Field Modifications

[View](#)

PENDING A 02R316 Expires on 4/29/2023
Engine Oil Level Monitoring

Manuals and Schematics One Click Away

No more searching for correct schematic or manual in a different system; serial-based schematics and manuals provided

Change Serial number:
B4CD11122 - S76

Dashboard

Manuals

Schematics

Troubleshooting

Diagnostic History

Fault Codes

Field Modifications

Schematics

Electric

Wiring Schematic



Options



Hydraulic

Standard Control with Options



Standard Control



Selectable Joystick Control



Selectable Joystick Control with Options



Change Serial number:

B4CD11122 - S76

Dashboard

Manuals

Schematics

Troubleshooting

Diagnostic History

Manuals

Operation & Maintenance Manual

S/N B4CD11001 - B4CD99999

English



S/N B4CD11001 - B4CD99999

Español



S/N B4CD11001 - B4CD99999

Français




Service Manual

S/N B4CD11001 - B4CD99999

English



The New Service Library

MY MACHINESERVICE LIBRARY

Welcome to the Bobcat Service Library, home of the most up-to-date Bobcat service information.

Refine your Search

Manual (0)

- ☐ Operation & Maintenance Manual (0)
- ☐ Service Manual (0)
- ☐ User Guide (0)

Bulletin (0)

- ☐ Field Modifications (0)
- ☐ General (0)
- ☐ Safety Notices (0)

Instruction (3)

- ☐ Instruction (3)

Language (3)




- ☐ English (3)
- ☐ Español (0)
- ☐ Português (0)
- ☐ Français (0)
- ☐ 中文 (0)



Product (3)

- ☐ Attachment (0)
- ☐ Backhoe Loader (0)
- ☐ Compact Tractor (0)
- ☐ Compaction (0)
- ☐ Excavator (1)
- ☐ Light Compaction (0)
- ☐ Light Construction (0)
- ☐ Loader (2)
- ☐ Loader Articulated (0)
- ☐ Loader Mini Track (0)
- ☐ Mower (0)

Search Library

3 results

Title	Description	Category	Language
7310440	REAR CAMERA KIT	Instruction	English 
7384720	REAR CAMERA KIT	Instruction	English 
7331167	REAR CAMERA KIT	Instruction	English 

Show: 25  **1**  Go to page:

- Service library online is moving and changing
- Easier to search
- Faster load times
- Can search part number, description, or serial number
- Easy to refine the search
- Goes live at same time as My Machine

IRW Information At Your Fingertips

Current warranty coverage and pending/completed Field
Mods supplied

Change Serial number:

B4CD11122 - S76

Dashboard

Manuals

Schematics

Troubleshooting

Diagnostic History

Fault Codes

Field Modifications

Warranty

Warranty

Status	Plan Description	Type	Start date	End date	Hours
ACTIVE	Standard - 60Months - 3000Hours - Emissons	Standard	10/29/2020	10/28/2025	3000
ACTIVE	Standard - 24Months - Unlimited Hours - Battery	Standard	10/29/2020	10/28/2022	99999
ACTIVE	Standard - 24Months - 2000Hours - Full	Standard	10/29/2020	10/28/2022	2000

Current coverage and
start/end date provided

Search Error symptom or fault code

View all pending or
completed Field Mods

View All +

Field Modifications

View All +

PENDING A 02R316 Expires on 4/29/2023
Engine Oil Level Monitoring



Service Letter one click
away

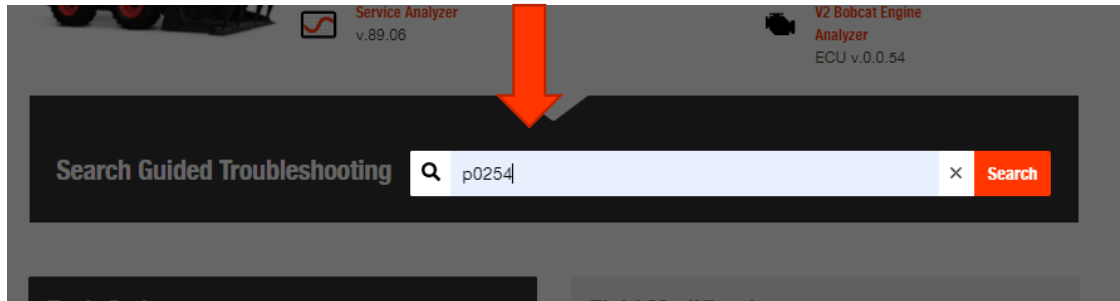
this

What is Guided Troubleshooting?

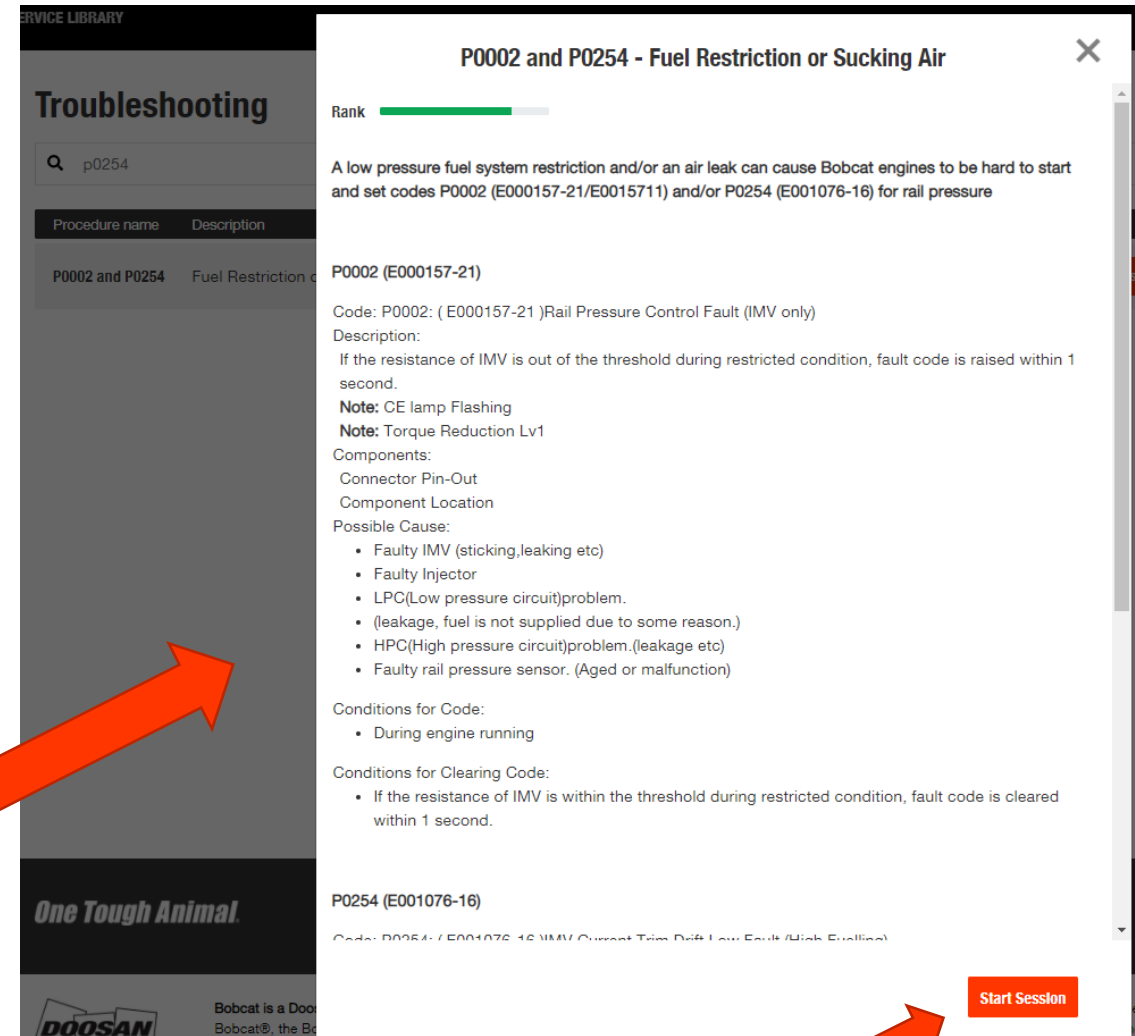
- Currently we provide a diagnostic “tree” in BATS that tells different tests to run, maybe leading to a solution
 - No information on how to perform the tests or specifications are provided
 - No visuals showing what is a good vs. bad test
 - Only provided code-based diagnosis
 - Doesn’t link to any other information on the failure
- With guided troubleshooting we are able to provide technicians with all the information they need to diagnose a machine properly
- We can now provide symptom-based diagnosis, as well as link all related material into a single, guided troubleshooting experience.

Guided Troubleshooting

Enter a fault or symptom



Overview of fault code/codes provided



Start the Session

Guided Troubleshooting

Serial: B4CD11122
Product: SSL S76

Fault Overview

Diagnostic Session for P0002 Related Content PAUSE SESSION FINISH SESSION

Perform IMV Valve Test Details

Perform the IMV Valve Test in Bobcat Engine Analyzer under the 'Input/Output Test' menu. See attached instructions.

Does the IMV feedback follow demand?

☐ Yes

☐ No

Attachments

[ImvTest](#)

NEXT QUESTION Feedback

Current DTC List

P0002 Active

Fuel Rail Pressure Fault

5 Possible Causes Suggested

- 1 FAULTY IMV
- 2 HP PUMP
- 3 FAULTY INJECTOR(S)
- 4 HP FUEL SYSTEM REPLACEMENT REQUIRED
- 5 ESCALATE CONCERN

Diagnostic Test History

Session Start

Install a clear line between the fuel filter and HP pump and run the machine. Do you observe air bubbles in the clear fuel line?

No

What test do I perform?

Related Information (graphs, pictures, etc)

Possible causes listed in order of most likely to least

Fault Overview

How do I perform the test? (See next slide)

Just in Time Training- The Details Tab

We can now teach technicians how to perform the requested test right in the guide

More Information

IMV Valve Test Engine D18 / D24 / D34

Purpose: to determine the performance capability of IMV Valve

Test Logic:

- Increasing amp of IMV Valve from 100mA to 500mA over a 14 second span and repeat

Test Conditions

- Engine: Stop

- Ignition Key: Key On

- Parking Brake: Parking

- Fuel Temp: 10 ~ 75 degC

Procedure:

1. Go to Input/Output Tests in Bobcat Engine Analyzer
2. Select "IMV Valve Test"
3. Click "Show Graph"
4. Click "Auto Start"
5. Test in progress
6. Test Finished

7. Review graph to look for signs that the IMV is not following demand well.

1. Note that the min/max values of the IMV demand and actual might not be the same resulting in a different scale on the graph for each value. This can be changed by double clicking in the table on the graph window.

Theory of Operation,
Description of Test, and
Operating Conditions Provided

How its Done

CLOSE

NEXT QUESTION

Changing Troubleshooting Cases

- Escalate an issue to a case if a solution is not found or incorrect solution provided
- Automatically redirects you to case system, filling in the serial number, diagnostic guide used, and linking your session summary(*see next slide*)
- ECU, DCU, and Service logs no longer required on connected machines unless requested
- **Only way** to submit a case going forward

Diagnostic Session for P0002

[Related Content](#)

✓ Solution

Escalate Concern

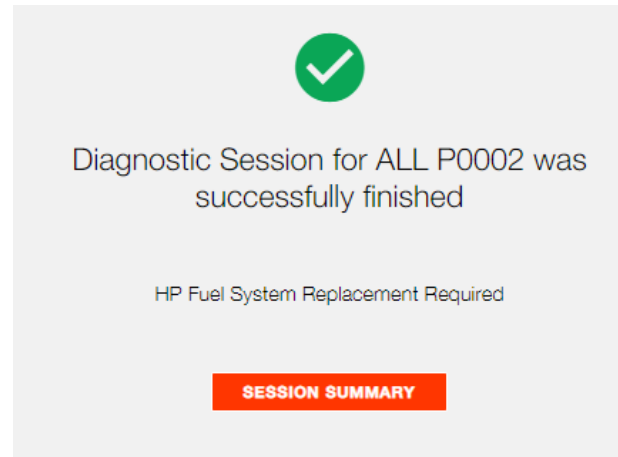
You have reached the end of this guide. If your issue was resolved, please select "Finish Session" below.

If further assistance is needed, please escalate the concern as needed via the option below.

[FINISH SESSION](#)[CREATE SERVICE TROUBLESHOOTING CASE](#)

Getting Techs and Troubleshooters on the Same Page

- When a session is finished or escalated, a session summary is created.
- This information tells the troubleshooter exactly what tests have been done and the outcome
- Troubleshooter is now able to “hit the ground running” with the tech, working from the guide to provide the next steps
 - No more trying to get on the same page for first couple comments
- This session can be saved/downloaded and attached to a warranty claim
 - Helps to tell the story of what was done and why a component was replaced



Vehicle Session Summary


Case Number:	60ad09d1ac680730ac5c168a
User:	apiuser
Status:	Closed New Solution on May 25, 2021 11:17 AM
VIN:	B4CD11122
Make:	SSL
Model:	S76
Year:	
Engine Code:	
Engine Description:	
Odometer:	
Session Start:	May 25, 2021 10:29 AM
Session End:	May 25, 2021 11:17 AM
Total Session Time:	48 minutes
Session State:	new-solution

Diagnostic Session History

00:00:00	Vehicle Session Started
00:00:00	Diagnostic Session Started
Selected DTC	ALL:P0002 Active
Question	Install a clear line between the fuel filter and HP pump and run the machine Do you observe air bubbles in the clear fuel line?
Answer	No
Solution	Escalate Concern
Question	Install a clear line between the fuel filter and HP pump and run the machine Do you observe air bubbles in the clear fuel line?
Answer	No
Question	Perform IMV Valve Test Perform the IMV Valve Test in Bobcat Engine Analyzer under the 'Input/Output Test' menu. See attached instructions. Does the IMV feedback follow demand?
Answer	Yes
	Perform a Injector Dynamic Test (V1 Engine Only) When performing this test do the following: This test MUST be performed with Bobcat Engine Analyzer. 1/8 in. clear line needs to be connected to the fuel returns on each injector and leading to containers to catch and measure the fuel that has backleaked for

Continually Changing Content

- We now have a team that's primary function is content creation and improving diagnostic guides
- Multiple ways for dealers to provide feedback
 - This information taken and quickly incorporated into guides
- As trends in repairs develop, the guides will be adjusted to get to the correct solution quicker
- BATS content was imported to get us off the ground. Currently only about 150 “enhanced” guides exist.
 - We will be building content based on most used/searched faults and KBA's
 - BATS system will be discontinued with implementation of this system



The diagram illustrates a diagnostic session flow. A box labeled "Feedback button on every step" has an orange arrow pointing to a "Feedback" button. The flow continues through a "Finish Diagnostic Session" screen, which includes a progress bar, a "Diagnostic Test History" section, and a "Session Start" button. Below the flow diagram is a screenshot of the "Finish Diagnostic Session" form.

Finish Diagnostic Session

Select State

Successful Repair

Engine Hours

Did Guided Troubleshooting help you solve the problem?

☐ Yes

☐ No

Would you be willing to talk to a Bobcat representative about your experience using Guided Troubleshooting?

☐ Yes

☐ No

General Comment

Attachments

Can provide comments on the guide including suggestions in the survey

CANCEL FINISH SESSION

Thank You!

