SEBM036601

SHOP MANUAL

KOMATSU®

12V170-2 SERIES ENGINE

MidWestTech | Komatsu 12V170-2 Series Engine Service Manual | Publication SEBM036601

Order the manual at mid-west-tech.com >

CONTENTS

No. of page

01 GENERAL 01-1

11 STRUCTURE AND FUNCTION 11-1

12 TESTING AND ADJUSTING 12-1

13 DISASSEMBLY AND ASSEMBLY 13-1

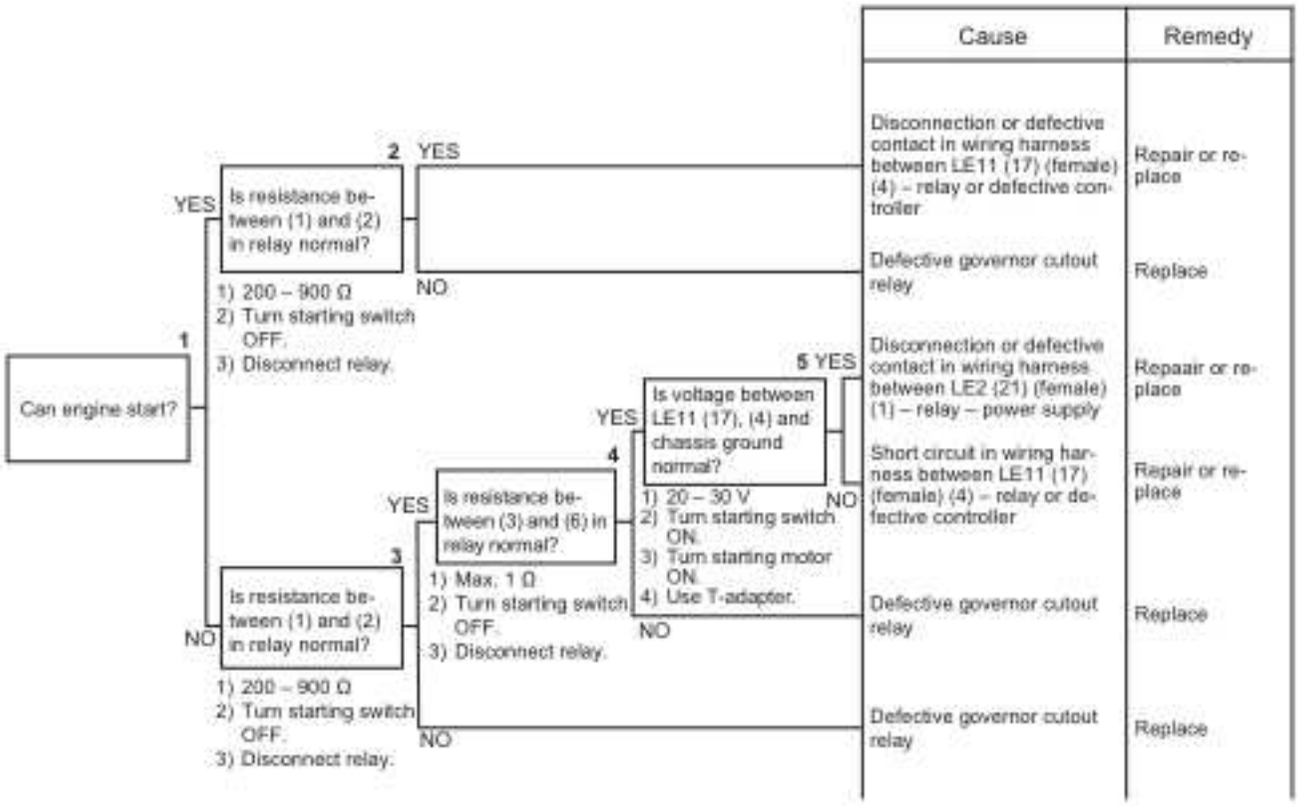
14 MAINTENANCE STANDARD 14-1

15 REPAIR AND REPLACEMENT OF PARTS 15-1

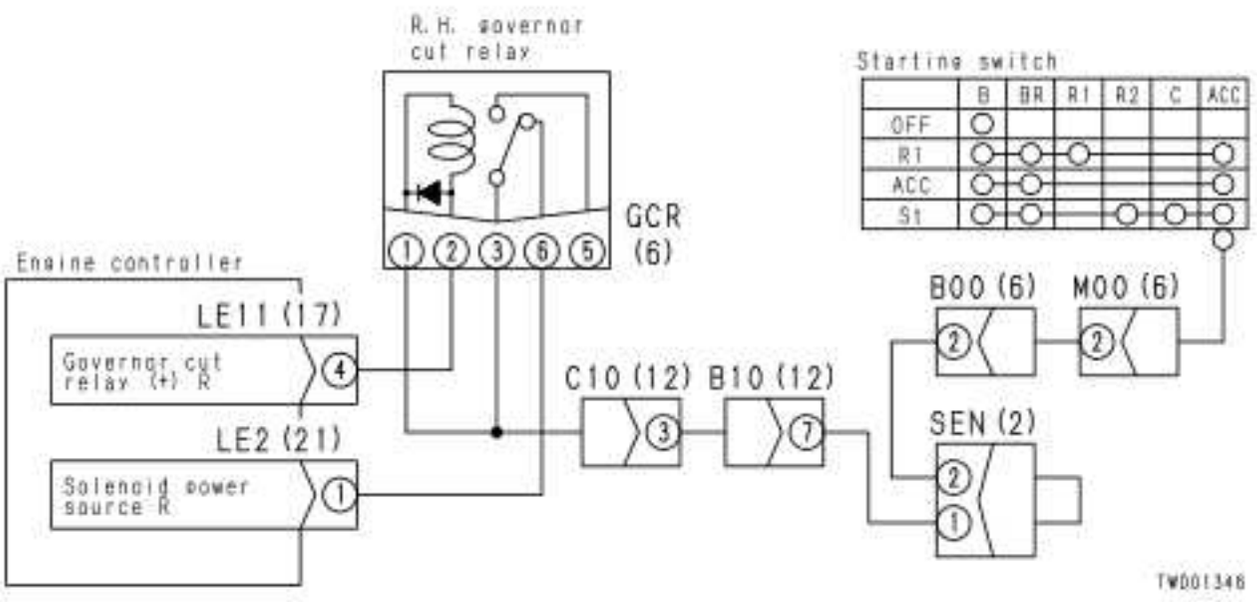
MidWestTech | Komatsu 12V170-2 Series Engine Service Manual | Publication SEBM... Order the manual at mid-west-tech.com >

E-16 [E0425] Short circuit in right governor cut relay system is displayed

★ If the starting switch was turned off after the abnormality occurred, turn the starting switch on and check that the service code displays "**E**" at the head. (If "**P**" is displayed, the condition has returned to normal.)
★ Before carrying out troubleshooting, check that all the related connectors are properly inserted.
★ Always connect any disconnected connectors before going on to the next step.



E-16 Related electrical circuit diagram



MidWestTech | Komatsu 12V170-2 Series Engine Service Manual | Publication SEBM... Order the manual at mid-west-tech.com >

POINTS TO REMEMBER WHEN TROUBLESHOOTING

⚠ Stop the machine in a level place, and check that the safety pin, blocks, and parking brake are securely fitted.

⚠ When carrying out the operation with two or more workers, keep strictly to the agreed signals, and do not allow any unauthorized person to come near.

⚠ If the radiator cap is removed when the engine is hot water may spurt out and cause burns, so wait for the engine to cool down before starting troubleshooting.

⚠ Be extremely careful not to touch any hot parts or to get caught in any rotating parts.

⚠ When disconnecting wiring, always disconnect the negative (–) terminal of the battery first.

⚠ When removing the plug or cap from a location which is under pressure from oil, water, or air, always release the internal pressure first. When installing measuring equipment, be sure to connect it properly.

The aim of troubleshooting is to pinpoint the basic cause of the failure, to carry out repairs swiftly, and to prevent reoccurrence of the failure.

When carrying out troubleshooting, and important point is of course to understand the structure and function. However, a short cut to effective troubleshooting is to ask the operator various questions to form some idea of possible causes of the failure that would produce the reported symptoms.

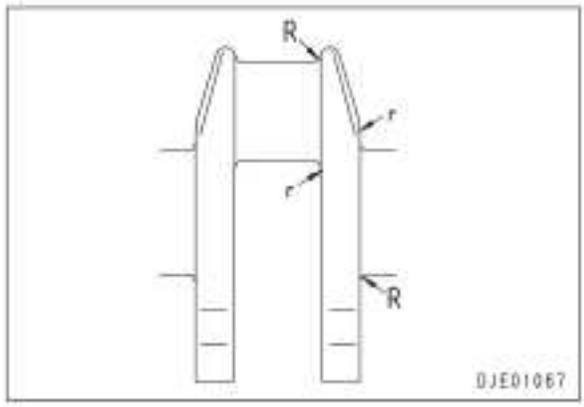
1. When carrying out troubleshooting, do not hurry to disassemble the components.
   If components are disassembled immediately any failure occurs:
   - Parts that have no connection with the failure or other unnecessary parts will be disassembled.
   - It will become impossible to find the cause of the failure.

   It will also cause a waste of manhours, parts, or oil or grease, and at the same time, will also lose the confidence of the user or operator.
   For this reason, when carrying out troubleshooting, it is necessary to carry out thorough prior investigation and to carry out troubleshooting in accordance with the fixed procedure.
2. Points to ask user or operator
   1) Have any other problems occurred apart from the problem that has been reported?
   2) Was there anything strange about the machine before the failure occurred?
   3) Did the failure occur suddenly, or were there problems with the machine condition before this?
   4) Under what conditions did the failure occur?
   5) Had any repairs been carried out before the failure?
      When were these repairs carried out?
   6) Has the same kind of failure occurred before?
3. Checks before troubleshooting
   1) Check the oil level.
   2) Check for any external leakage of oil from the piping or hydraulic equipment.
   3) Check the travel of the control levers.
   4) Check the stroke of the control valve spool.
   5) Other maintenance items can be checked externally, so check any item that is considered to be necessary.
4. Confirming failure
   Confirm the extent of the failure yourself, and judge whether to handle it as a real failure or as a problem with the method of operation, etc.
   ★ When operating the machine to reenact the troubleshooting symptoms, do not carry out any investigation or measurement that may make the problem worse.
5. Troubleshooting
   Use the results of the investigation and inspection in Items 2 – 4 to narrow down the causes of failure, then use the troubleshooting flowchart to locate the position of the failure exactly.
   ★ The basic procedure for troubleshooting is as follows.
      1) Start from the simple points.
      2) Start from the most likely points.
      3) Investigate other related parts or information.
6. Measures to remove root cause of failure
   Even if the failure is repaired, if the root cause of the failure is not repaired, the same failure will occur again.
   To prevent this, always investigate why the problem occurred. Then, remove the root cause.

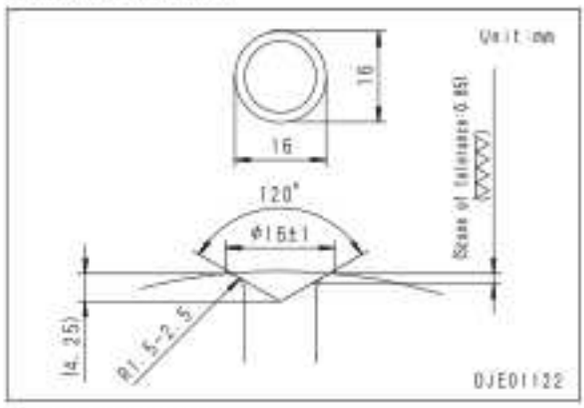
MidWestTech | Komatsu 12V170-2 Series Engine Service Manual | Publication SEBM... Order the manual at mid-west-tech.com >

GRINDING CRANKSHAFT

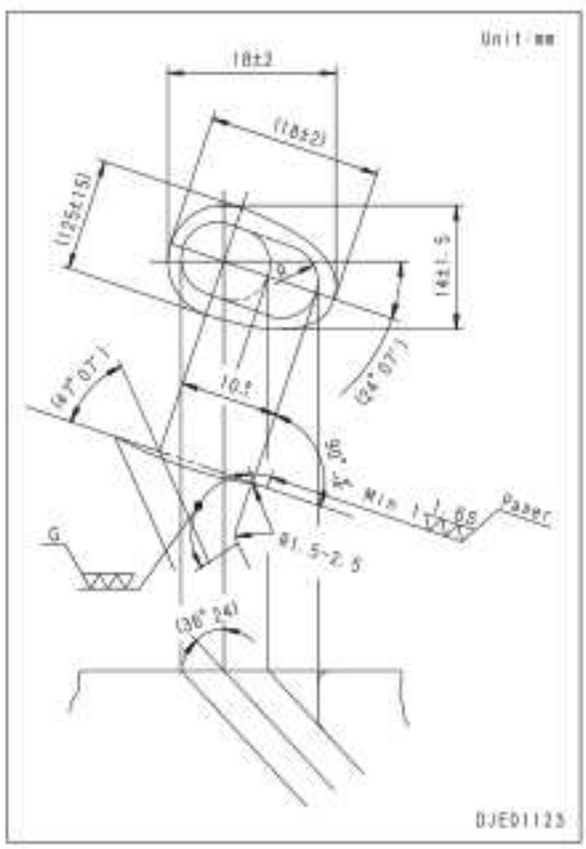
- If the crankshaft is worn or slightly seized or damaged, machine it to any one of the following thicknesses.
  Undersize dimensions: 0.25, 0.50, 0.75, 1.00 mm
- If the crankshaft is bent or worn unevenly, replace it instead of repairing it. (A lot of skill is required to repair it.)
- Carefully finish section **R** of the fillet of the crankshaft, section **r** on the shoulder, and section **R** facing the hole.
  - Finishing dimensions of fillet
    R: $8.25^{+0.5}_{0}$ mm,
    Surface roughness 3.2S
    r: 8.5 ± 0.5mm,
    Surface roughness 12.5S
- Finishing dimensions for main journal and pin journal are show in diagram in the right.



Main journal portion



Pin journal portion



MidWestTech | Komatsu 12V170-2 Series Engine Service Manual | Publication SEBM... Order the manual at mid-west-tech.com >