

Service and repair mechanical transmission assemblies on land-based equipment

Overview

This standard covers the service and repair of mechanical transmission assemblies on land-based equipment. It includes the removal, dismantling, repairing and reassembly of gearboxes, transmissions and their component parts (e.g. sliding mesh, constant mesh, synchromesh), the testing, diagnosis and repair practices required for both simple and complex transmissions, as well as the transmission components necessary to transmit power to drive wheels and moving machinery parts, (e.g. rear axle assemblies, front axle assemblies or drive-shaft assemblies).

This standard is for those who work in land-based engineering and is appropriate for persons working under supervision.

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Performance criteria

You must be able to:

1. remove and replace mechanical **transmission assemblies** and their related components on land-based equipment
2. dismantle, service/repair and reinstate mechanical **transmission assemblies** and their components to manufacturers' specification and standards
3. carry out tests to confirm satisfactory completion of repair or replacement, and compliance with manufacturers' specifications

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Knowledge and understanding

You need to know and understand:

1. how to remove and replace mechanical transmission assemblies and their components on land-based equipment
2. how to dismantle, service/repair, and reinstate mechanical transmission assemblies and their components to manufacturers' specification and standards
3. how to follow the drive path through mechanical transmission assemblies and their components using the manufacturer's schematic drawings
4. the types, construction, and operating principles of **gearboxes and their components**
5. the types, construction and operating principles of powered **front and rear axles and their components**
6. the relationship between power, speed and torque, including the relationship to the transmission layout, siting of brakes and size of components
7. how to check and confirm satisfactory completion of repair or replacement and compliance with manufacturers' specifications

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Scope/range

Carry out the required activities for a minimum of three separate **transmission assemblies** and components: one of which must be a complex mechanical gearbox on a land-based vehicle.

gearboxes and their components e.g:

- sliding mesh
- constant mesh
- synchromesh
- range and reduction boxes
- forward and reverse shuttle
- PTO drives

front and rear axles and their components e.g:

- front and rear axle reduction units
- differentials
- differential locks
- half shafts
- constant velocity joints
- universal joints

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Links to other NOS The standard for setting bearings, the relationship of gears and pinions to one another and method of lubrication is covered in LANLEO4 Apply core land-based engineering principles: mechanical principles.

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