

Precision Learning Systems
Differential Inspection, Service, Repair, and Overhaul
Dana 30, 35, 44
Class Hours 28

Books and Materials; Various informational sheets, Differentials Identification, Restoration, and Repair by Jim Allen and Randy Lyman

Cost

\$600.00 includes all classroom materials

What you can expect to learn

- Identifying dana axle assemblies
- Theory of operation
- Nomenclature
- Inspection of external and internal parts common failures within the offroad industries
- How to make both internal and external repairs
- Choosing the right components for your application (gear ratios, and carrier, locker options)

Learning Activities

Day 1 (6:00pm - 9:00pm)

<p>Knowledge Based Information</p> <ul style="list-style-type: none"> ● Introductions and review class logistics ● Why we need differentials (Gear reduction, differentiated wheel speed, and, turning motion 90 degrees) ● How they work ● Nomenclature 	<p>Guided Shop Practice</p> <ul style="list-style-type: none"> ● Lab/Demo - Review parts of the differential (Pinion yoke, pinion bearing, seals, baffles, crush sleeve, slinger, diff cover, carrier, side gears, spyder gears, ring and pinion gear, bearings, and bearing shims)
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Day 2 (6:00pm - 9:00pm)

<p>Knowledge Based Information</p> <ul style="list-style-type: none"> ● Fluid, Seals, and Gaskets ● Extending Breathers 	<p>Guided Shop Practice</p> <ul style="list-style-type: none"> ● Lab/Demo -External Inspections, seals, gaskets, and breather tubes. (Extending Breather tubes) ● Lab/Demo - Servicing a rear differential ● Lab/Demo - Identify a rear differential by either the ID tag or cover. ● Lab/Demo - Determine gear ratio
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Day 3 (9:00am - 4:00pm)

<p>Knowledge Based Information</p> <ul style="list-style-type: none">• Provided Lunch 12:00 - 12:30	<p>Guided Shop Practice</p> <ul style="list-style-type: none">• Student Vehicle - servicing rear differentials, Internal and external inspection. Check gears, bearings, limited slips, shaving covers, lube lockers. ID• Student Vehicles - Determine gear ratios• Lab demo - using the case spreader• Student/Lab - disassembling your rear differentials
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Day 4 (6:00pm - 9:00pm)

<p>Knowledge Based Information</p> <ul style="list-style-type: none">• Replacing axle, and pinion seals. Why do they need to be replaced?	<p>Guided Shop Practice</p> <ul style="list-style-type: none">• Lab demo - replacing axle and pinion seals. (Dana 30,35,44)• Lab demo using a bearing puller
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Day 5 (6:00am - 9:00pm)

<p>Knowledge Based Information</p> <ul style="list-style-type: none">• Nomenclature of the ring gear.• Setting backlash and gear pattern• Setting pinion and carrier bearing preload.• Review types of carriers (Open, automatic locking, selectable locking, limited slip)• Choosing the right gear ratio	<p>Guided Shop Practice</p> <ul style="list-style-type: none">• Lab demo setting backlash and gear pattern• Lab demo setting pinion and carrier bearing preload
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Day 6 (9:00am to 4:00pm)

<p>Knowledge Based Information</p> <ul style="list-style-type: none">• Provided lunch 12:00 - 12:30	<p>Guided Shop Practice</p> <ul style="list-style-type: none">• Student/Lab - Setting pinion depth and and turning torque• Student/Lab - Setting backlash and pinion depth• Student/Lab - Reassemble differential assemblies
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Prerequisite: You should have a basic knowledge in using hand tools.