

CDX Plus AUR Menu Topic List

Category	Topic Area	Topic Group	Topic
Brakes	Brakes - General Group	Chassis	Asbestos • Electronic stability program • Fluid friction • Handbrake turns • Rolling friction • Sliding friction • Traction control • Helix • Unsprung weight • Dampening • Coefficient of friction • Lever/mechanical advantage • Hydraulic pressure & force • Bleeding
		Braking fundamentals	Principles of braking • Drum & disc brakes • Coefficient of friction • Lever/mechanical advantage • Hydraulic pressure & force • Brake fade • Regenerative braking
		Braking systems	Brake type - principles • Brake types • Air brakes • Exhaust brakes • Electric brakes • Parking brakes • Engine brakes
		Braking system components	Park brake system • Brake pedal • Brake lines • Brake fluid • Bleeding • Master cylinder • Divided systems • Tandem master cylinder • Power booster or brake unit • Hydraulic brake booster • Electrohydraulic braking (EHB) • Applying brakes • Brake force • Brake light switch
		Drum brakes & components	Drum brake system • Drum brake operation • Brake linings & shoes • Backing plate • Wheel cylinders
		Disc brakes & components	Disc brake system • Disc brake operation • Disc brake rotors • Disc brake pads • Disc brake calipers • Proportioning valves • Proportioning valve operation
		Brakes procedures	Checking & adjusting brake fluid • Replacing brake fluid • Checking brake pads • Replacing brake pads • Removing & replacing a rotor • Checking wheel cylinders • Replacing brake linings • Adjusting a park brake cable
		Brakes tasksheets	C229 • C232 • C233 • C234 • C235 • C236 • C237 • C238 • C239 • C240 • C241 • C242 • C243 • C244 • C245 • C246 • C247 • C248 • C249 • C250 • C251 • C252 • C253 • C254 • C255 • C256 • C257 • C258 • C259 • C260 • C261 • C262 • C263 • C264 • C265 • C266 • C269 • C270 • C284 • C480 • C497 • C545 • C555 • C556 • C581 • C583
Electrical & Accessories	AC Electric Motor Drive Systems Group	Hybrid drive systems	Hybrid vehicles • Battery electric vehicles • Hybrid electric vehicles • Hybrid electric vehicle models • Service hybrid electric vehicles - safely! • Hybrid vehicle systems • Series-parallel hybrid systems • Hybrid system components • Hybrid vehicle driving
		AC electric motor drive systems tasksheets	C575

Electrical Group	Electrics	Absolute zero • Atoms • Electrical charge • Electrically conductive • Electric current • Electrolyte • Electromotive force • Electrons • Fermi energy • Neutrons • Nucleus • Protons
	Electrical fundamentals	Basic electricity • Free electrons • Basic electronic principles • Semi-conductors • Semiconductor device • Depletion layer • Dielectric • Resistance • Ground • Ohm's law calculations • Power equation
	Sources of electricity	Electrostatic energy • Thermo-electric energy • Electrochemical energy • Photo-voltaic energy • Piezo-electric energy • Electromagnetic induction • Electromagnetic components • Solar cells
	Effects of electricity	Heating effects • Chemical effects • Magnetic effects • Electrical conduction • Electrical resistance • Electromagnetic field
	Circuits & measurement	Ohm's law • Electrical power • Watt • Electrical measurement • Series circuits • Parallel circuits • Parallel circuit resistance • Series-parallel circuits • Wire sizing • Networking & multiplexing • Fiber optics
	Wires & connectors procedures	Stripping wire insulation • Installing a solderless terminal • Soldering wires & connectors
	Electrical testing procedures	Using a non-powered test light • Using a lead light • Using a DVOM to measure continuity • Using a DVOM to measure voltage
	Electrical components	Capacitors • Conductors & insulators • Wires • Shielding • Wire sizes • Length vs. resistance • Fuses & circuit breakers • Relays • Lamps • Ballast resistor • Diodes • Types of diodes • Lamps • Resistors • Resistor ratings • Variable resistors • Thermistors • Transistors • Avalanche diodes • Transient voltage suppression diodes • Zener diodes • P-n junctions • Superconductors • Thyristor
	Batteries	Lead-acid batteries • Batteries & cells • Battery charging
	Battery maintenance procedures	Inspecting & testing a battery • Cleaning & replacing a battery • Charging a battery
	Charging	Charging system • Alternator principles • Alternating current • Alternator components • Rectification • Phase winding connections • Rotor circuit • Voltage regulation • System operating voltage • High voltage charging systems
	Alternator construction	Rotor • Stator • Alternator end frames • Slip ring & brush assembly • Rectifier assembly • Alternator cooling fan
	Charging procedures	Checking a charging system • Removing & replacing an alternator • Inspecting & adjusting an engine drive belt • Replacing an engine drive belt
	Starting	Starting system • Starter motor principles • Starter motor construction • Starter magnet types • Starter motor engagement • Commutation • Switching

Starting procedures	Checking a starting system • Jump-starting a vehicle	
Lighting	Lighting system • Light bulbs • Bulb information • LED lighting	
Types of lights	Stop lights • Reverse lights • Indicators • Headlights • High intensity discharge (HID) lights • Driving lights • Fog lights • Cornering lights • Smart lighting	
Lighting circuits	Park & tail light circuits • Headlight & dip circuits • Circuit diagrams • Networking & multiplexing	
Lighting procedures	Checking lighting & peripheral systems • Checking & changing an exterior light bulb • Checking & changing a headlight bulb • Aiming headlights	
General reference	DIN72552 Electric terminal numbers	
Security systems	Security systems • Remote control keys • Theft deterrent systems	
Electrical tasksheets	C271 • C272 • C285 • C288 • C289 • C290 • C291 • C292 • C293 • C294 • C295 • C296 • C297 • C298 • C299 • C300 • C301 • C302 • C303 • C304 • C305 • C306 • C307 • C308 • C309 • C310 • C311 • C312 • C313 • C314 • C315 • C316 • C317 • C318 • C319 • C320 • C321 • C322 • C323 • C324 • C325 • C326 • C331 • C406 • C485 • C517 • C518 • C524 • C525 • C526 • C527 • C546 • C551 • C558 • C559 • C560 • C561 • C563 • C564 • C567 • C582 • C584 • C587	
Electronics Group	Electronics	Solid state physics • Subatomic particles • N-type doping • P-type doping • Valence band • Electronics • Faraday's law • PZT • Stepper motor • Tolerances • Transformer
	Antilock braking system & components	ABS brake system • Antilock braking system operation • Principles of ABS braking • ABS master cylinder • Hydraulic control unit • Wheel speed sensors • ABS electronic control unit
	EFI operation	Modes of EFI • Electronic fuel injection • Idle speed control systems • Feedback & looping • Cold start systems • Air measurement • Air-flow monitoring • Variable intake manifold system • Electrical functions • EFI wiring diagram
	Electronic control unit - ECU	EFI system ECU • Electronic control unit settings • Engine speed limiting • Malfunction indicator lamp
	EFI sensors	Mass airflow sensor • Manifold absolute pressure sensor • Air vortex sensor • Fuel system sensor • Temperature sensor • Throttle position sensor • Exhaust gas oxygen sensor • Crank angle sensor • Hall effect voltage sensor • OBD and EOBD
	Diesel electronic control	Diesel electronic control systems • Common rail diesel injection system • HEUI diesel injection system
	Satellite assisted systems	Global positioning satellites (GPS) • Triangulation/trilateration • Satellite navigation • Telematics

		Safety systems	Airbags • Seatbelt • Vehicle safety systems • Crash sensors • Seat belt pre-tensioners • Tire pressure monitoring systems
		Entertainment & peripheral systems	Integrated communications • Body controlled lighting systems • Proximity sensors • Reflective displays
		Electronics tasksheets	C168 • C169 • C276 • C277 • C278 • C279 • C280 • C281 • C282 • C283 • C332 • C333 • C334 • C335 • C336 • C339 • C340 • C404 • C409 • C464 • C519 • C553 • C562
Ignition Group		Ignition systems	Basic ignition • Ignition principles • Ignition components • Vacuum & centrifugal units • Plug firing voltage • Faraday's law
		Contact breaker ignition	Contact breaker system • Primary & secondary windings • The ballast resistor coil • Dwell angle • Spark timing
		Contact breaker components	Battery power source • Ballast resistor • Ignition coil • Ignition switches • Contact breaker • Capacitor/condensor • Distributors • Distributor types • High-tension leads • Spark plugs • Spark plug components • Advance & retard mechanisms
		Electronic systems & components	Induction • Inductive system operation • Induction wiring • Hall effect sensors • Hall effect operation • Optical type sensors
		Distributorless systems	Distributorless ignition systems • Insulated coils • Distributorless ignition system timing
		Ignition procedures	Checking ignition timing • Checking & changing a spark plug • Removing & replacing contact points
		Ignition tasksheets	C410 • C411 • C412 • C413 • C414 • C415 • C416 • C417
Engine & Transmission 1	Clutch Group	Clutches	Clutch principles • Single-plate clutches • Multi-plate clutches • Dual mass flywheels • Operating mechanisms
		Clutch components	Pressure plate • Driven/center plate • Throw-out bearing
		Clutches & manual transmissions procedures	Checking gearbox oil • Changing manual gearbox oil • Checking & adjusting a clutch
		Clutch tasksheets	C101 • C104 • C105 • C106 • C107 • C108 • C109 • C110 • C111 • C112 • C113 • C114 • C115 • C116 • C117 • C118 • C119 • C120 • C121 • C122 • C123 • C124 • C125 • C126 • C127 • C128 • C130 • C131 • C483 • C484 • C490
	Cooling Group	Engine cooling	Electrolysis • Centrifugal force • Thermo-switch • Boiling point & pressure
		Cooling fundamentals	Cooling systems • Heat transfer • Vehicle coolant
		Cooling systems	Air cooling • Liquid cooling • Rotary engine cooling system

	Cooling system components	Basic cooling system components • Radiator • Coolant hoses • Water pump • Cooling system thermostat • Cooling fans • Temperature indicators • Radiator pressure cap • Recovery system • Boiling point & pressure • Electrolysis • Centrifugal force • Thermo-switch • Checking & adjusting coolant • Draining & refilling coolant • Checking & replacing a coolant hose • Testing cooling system pressure • Removing & replacing a radiator • Removing & replacing a thermostat • Inspecting & adjusting an engine drive belt • Replacing an engine drive belt
	Cooling tasksheets	C046 • C048 • C049 • C050 • C051 • C052 • C053 • C362 • C363 • C364 • C365 • C366 • C367 • C368 • C369 • C371 • C398 • C399 • C449 • C450 • C478 • C568 • C578
Driveline Group	Drive configurations	Engine & transmission configurations • Vehicle axles • Location of driving axles • Transmissions & final drives • 4-wheel drive transmission • Chassis • Transmission components • Chassis configurations
	Basic layouts	Front-wheel drive layouts • Rear-wheel drive layout • Four-wheel drive layout • All-wheel drive layout • 4WD vs AWD • Differential
	Final drives procedures	Checking free play • Checking drive shaft joints • Checking manual transaxle/differential oil
	Driveline tasksheets	C129 • C132 • C133 • C134 • C135 • C136 • C137 • C138 • C139 • C140 • C141 • C142 • C143 • C144 • C145 • C146 • C147 • C148 • C149 • C150 • C151 • C152 • C153 • C154 • C155 • C156 • C157 • C158 • C159 • C160 • C161 • C162 • C163 • C164 • C491 • C492 • C501
Emission Group	Alternate technology	Alternate fuel technology • A market overview of alternative fuel vehicles • Clean fuel technology and energy independence • Clean vehicles, fuels and clean air • Clean indoor vehicles
	Fuel & battery technology	Alternative fuels • Fuel cells • Ethanol and methanol • Natural gas • Propane • Fuel cell vehicles • Hydrogen • The Race to Hydrogen - Who's Winning? • Electric motors • Biodiesel
	Vehicle technologies	Hybrid vehicles • Electric vehicles • Hydrogen cars
	Creation of emissions	Sources of emission • Combustion • Combustion chamber design
	Types of emissions	Hydrocarbons • Hydrocarbons in exhaust gases • Oxides of nitrogen • Particulates • Carbon monoxide • Carbon dioxide • Sulfur content in fuels
	Emission control	Evaporation emission control • Catalytic conversion • Closed loop • Regulated emissions • Crankcase emission control • EGR valves • Controlling air-fuel ratios • Charcoal storage devices

	On-board diagnostics	OBD systems • Diagnostic trouble codes • Monitoring emissions • Checking & cleaning a PCV valve • Obtaining & interpreting scan tool data
	General reference	Emission Standards
	Emission tasksheets	C391 • C396 • C397 • C401 • C402 • C403 • C407 • C431 • C432 • C433 • C434 • C435 • C436 • C437 • C438 • C440 • C441 • C442 • C443 • C444 • C445 • C446 • C520
Exhaust Group	Exhaust system components	Exhaust system components • Exhaust manifold • Exhaust pipe • Extractors • Mufflers • Catalytic converters • Flexible connections • Ceramic coatings • Electronic mufflers • Thermal expansion • Superchargers • Intercoolers • Frequency • Back-pressure
Engines - General Group	Engine layouts	Identifying engines • Engine configurations • V engines
	Engine cycles	Pressure & temperature • Pressure & volume • Temperature & energy • Alloys • Engine output • Power range
	Engine components	Grey iron • Turbulence • Valve-timing diagram • Compression ratio
	Engines	Engine displacement • Electrolysis
	Information & tools	Gross vehicle mass • Hardening & tempering • Carbon-alloy • Bitumen • Bosch • Force • Inclined plane • Vacuum
	Platforms	Automobile platforms • Ford platforms • General Motors platforms • Volkswagen platforms
	Body designs	Sedan • Station wagon • Coupe • Hatch-back • Pick-up/utility • Light vehicle vans • General goods transport vehicles • Buses & coaches • Convertible • Truck • Vehicle closures
	Motive power fundamental principles	Pressure & temperature • Pressure & volume • Temperature & energy • Understanding power and torque
	4-stroke spark-ignition engines	Basic 4-stroke principles • 4-stroke engine cycle
	2-stroke spark-ignition engines	Basic 2-stroke principles • 2-stroke engine power stroke • 2-stroke engine cycle • 2-stroke intake system • 2-stroke cycle
	Spark-ignition engine components	Basic engine components • 4 & 2--stroke engine differences • Engine cams & camshaft • Engine power transfer • 2-stroke power transfer • Scavenging • Counter weights • Piston components • Alloys
	Rotary spark-ignition engine & components	Basic principles of the rotary engine • Basic components of the rotary engine • Rotary engine cycle • Rotary/piston engine comparison • Rotary engine power pulses • Renesis rotary engine
	Alternative engine cycles	Alternative engine cycles
Compression-ignition engines	Basic 4-stroke diesel principles • 4-stroke diesel engine cycle • Basic 2-stroke diesel principles • 2-stroke diesel engine cycle • Three phases of combustion	

		Compression-ignition engine components	Basic diesel engine components • Diesel engine passages • Diesel fuel delivery • Direct injection • Diesel valves & components • Diesel scavenging • Crankshaft rotation • Diesel crankshaft • Diesel engine pistons
		Engine characteristics	Engine output • Power range
		Cylinder blocks	Cylinder block • Cylinder block construction • Engine blocks & pistons • Cylinder sleeves • Grey iron
Engine & Transmission 2	Engines - General Group	Cylinder heads	Cylinder head • Cylinder head design • Diesel combustion chambers • Intake & exhaust passages • Gaskets • Gaskets and oil seals • Head gaskets • Turbulence
		Valves & valve trains	Valves • Valve seats • Valve seats in cylinder heads • Valve rotation • Valve stem oil seals • Intake valves • Valve trains • Valve-timing diagram • Variable valve timing
		Camshafts & drives	Camshafts & drives • Overhead camshaft • Cam lobes • Timing belts & chains • Timing belts & tensioners
		Pistons	Pistons • Piston rings • Connecting rod • Compression ratio
		Crankshaft assemblies	Crankshaft • Engine bearings • Flywheel • Reciprocating action • Crankshaft & bearings • Valve train overview
		Engines procedures	Testing cylinder compression • Checking idle speed • Obtaining & interpreting scan tool data • Removing & replacing a cam belt • Inspecting & adjusting an engine drive belt • Replacing an engine drive belt
		Introduction to engine rebuilding	Engine rebuilding introduction • Engine removal preparation & safety
		Removing the engine	Topside engine disconnection • Front accessories disconnection • Underside engine disconnection • Remove the engine
		Engine disassembly	Remove centerbolt & flywheel • Drain engine fluids • Remove front peripherals • Remove side & top peripherals • Disassemble valve train • Remove cylinder heads • Remove oil pan & timing set • Disassemble block underside • Disassemble pistons • Remove crankshaft • Remove camshaft • Remove plugs • Remove valve assembly
		Engine machining	Clean & degrease engine • Inspect & measure engine • Machine diagnosis • Machine cylinder block • Machine cylinder heads • Machine connecting rods • Clean pistons and fit new pins • Hone cylinders • Install piston rings
		Engine pre-assembly	Pre-assembly introduction • Test install camshaft • Test install crankshaft • Test install timing set • Test install pistons • Test install oil pump • Piston to valve clearance check • Long-block build-up • Paint the engine

	Engine final assembly	Fit engine plugs • Install camshaft • Install crankshaft • Install timing set • Fit piston rings • Install pistons • Install timing cover • Install rear main seal • Install oil pump & pan • Assemble heads • Install heads • Install valve train • Adjust valve lash • Install intake manifold • Install engine externals • Pre-oil engine • Install distributor • Assemble accessories
	Engine re-installing	Hoist & reconnect the engine • Connect engine peripherals
	Engine start-up	Pre-start engine check • Camshaft break-in • Engine timing adjustment
	Oil	Functions of oil • Viscosity • Oil additives • Synthetic oils
	Lubrication systems	The lubrication system • Splash system • Pressure system • 2-stroke engine premix fuel systems • 2-stroke engine oil injection systems • Rotary engine lubrication system • Corrosion/ noise reduction
	Lubrication system components	Sump • Oil collection pan • Oil tank • Pickup tube • Oil pump • Oil pressure relief valve • Oil filters • Spurt holes & galleries • Oil indicators • Oil cooler
	Lubrication procedures	Checking engine oil • Draining engine oil • Replacing an oil filter • Refilling engine oil
	General reference	ILSAC standards
	Engines - general tasksheets	C001 • C004 • C005 • C006 • C008 • C009 • C010 • C011 • C012 • C013 • C014 • C015 • C016 • C017 • C018 • C019 • C020 • C021 • C022 • C023 • C024 • C025 • C026 • C027 • C028 • C029 • C030 • C031 • C032 • C033 • C034 • C035 • C036 • C037 • C038 • C039 • C040 • C041 • C042 • C043 • C044 • C045 • C047 • C054 • C055 • C056 • C386 • C389 • C390 • C392 • C393 • C394 • C395 • C400 • C447 • C448 • C477 • C485 • C505 • C514 • C535 • C541 • C543 • C570 • C573 • C576 • C577 • C586
Final Drive Assemblies Group	Front-wheel drive	Front-wheel drive shafts • Front-wheel final drives • Front-wheel differentials • Rear-wheel drive shafts • Universal joints • Rear-wheel final drive • Salisbury axles • Rear-wheel drive differentials • Limited slip differentials
	Four-wheel drive (part-time)	Four-wheel drive shafts • Four-wheel final drive • Four-wheel drive transfer case • Free wheeling hubs • Four-wheel drive differentials
	All-wheel drive	Full-time four-wheel final drives • All-wheel drive transfer case • Transfer case differential action
Forced Induction Group	Intake system components	Intake system components • Air cleaners • Carburetor air cleaners • EFI air cleaners • Intake manifolds • Intake air heating • Volumetric efficiency • Forced induction
Fuel Systems - Diesel Group	Liquid fuels	Diesel
	Diesel fuel systems	Diesel fuel injection • High pressure components • Diesel fuel • Diesel fuel characteristics • Cetane number • The quiet diesel evolution • Clean diesel technology

	Diesel fuel system components	Diesel tanks & lines • Diesel fuel filters • Lift pump • Plunger pump • Priming pump • Inline injection pump • Mechanical or pneumatic governors • Distributor-type injection pump • Diesel injectors • Glow plugs • Cummins & Detroit Diesel injection
	Fuel systems - diesel tasksheets	C428 • C429 • C430 • C439 • C486 • C530 • C498 • C499 • C500 • C503 • C528 • C529
Fuel Systems - Petrol Group	Liquid fuels	Alcohol fuel • Petrol/Gasoline
	Intake & exhaust systems	Carbureted systems • Electronic fuel injection systems • Diesel induction systems • Exhaust systems
	Fuel systems	Bernoulli's principle • Carbon monoxide • Oxygen • Venturi • Volumetric efficiency • Thermal expansion • Frequency • Back-pressure • Stoichiometric ratio • Pressure & vacuum • Air density • Tachometric relay • Potentiometer • Closed loop
	Gasoline fuel system principles	Gasoline fuel • Gasoline fuel characteristics • Controlling fuel burn • Stoichiometric ratio • Air density • Fuel supply system • Pressure & vacuum
	Carburetor operation	Carburation • Carburetor operation overview • Carburetor systems • Metering jets • Accelerating • Carburetor barrels
	Carbureted system components	The carburetor • Mechanical fuel pumps • Electric fuel pumps • Tanks & lines • Fuel lines • Charcoal canister • Carburetor filters
	EFI fuel supply system - principles	EFI principles • EFI development • Basic EFI principles • Air supply • Air volume • EFI modes of operation • Multi-point injection systems • Simultaneous injection • Efficient combustion
	EFI fuel supply system - components	Fuel pumps • Fuel filters • Tanks & lines • Fuel lines • Fuel rail • Fuel pressure regulator • Injectors • Tachometric relay • Thermostat switch • EFI sensors • Potentiometer • Auxiliary air valves • Idle speed control devices • Inertia sensors
	Fuel system procedures	Replacing a fuel filter
	Fuel systems - petrol tasksheets	C418 • C419 • C420 • C421 • C422 • C423 • C424 • C425 • C426 • C427
Transmissions - Automatic Group	Torque converters	Torque converter principles • Converter operation • Torque multiplication • Fluid flow • Heat exchanger • Lock-up converters • Sprag one way clutches • Machine torque
	Planetary gearing	Planetary gears • Simple planetary gearsets • Compound planetary gearsets • Automatic transmission brake bands • Multi-disc clutches • Plate clearance
	Electronic control transmission	Electronic control • Fully hydraulically controlled transmission • Electronic shift programs • Environment identification • Driving situation identification • Fast-off identification • Corner identification • Downhill gradient • Stop & go • Manual selection

		Layout & operation	Borg Warner 35 gearbox • Selector positions • Planetary gearset • High range powerflow • Low range powerflow
		Servos & clutches	Rear servo • Front servo • One way clutch • Multi-plate front clutch • Clutch pack • Rear clutch
		Hydraulic system & controls	Hydraulic system components • Spool valves • Regulating or flow control valves • Control valves • Orifices
		Valve types & functions	Basic valve action • Regulator & control valves • Shift & governor valves
		Pressure regulation	The primary regulating valve • Line pressure variation • Modulator valve pressure • The governor • Governor pressure • Kickdown pressure
		Flow control	Gear position 1 • 1-2 shift valve • 2-3 shift valve assembly • The servo orifice control valve • 3-2 kickdown
		Continuously variable transmission (C.V.T.)	Continuously variable transmission • Drive or reverse • The steel belt • Secondary pulley shaft
		Automatic transmissions procedures	Checking automatic transmission fluid • Changing transmission fluid & filter
		Transmissions - automatic tasksheets	C057 • C060 • C061 • C062 • C063 • C064 • C065 • C066 • C067 • C068 • C069 • C070 • C071 • C072 • C073 • C074 • C075 • C076 • C077 • C078 • C079 • C080 • C081 • C082 • C083 • C084 • C085 • C086 • C087 • C088 • C089 • C090 • C091 • C092 • C093 • C094 • C095 • C096 • C097 • C098 • C099 • C100 • C516 • C547
	Transmissions - Manual Group	Manual transmissions	Gear ratios • Compound gear trains • Gear selection • Bearings • Oil seals & gaskets
		Gearbox layout & operation	Gearbox layouts • Transaxle designs • Gearbox operation • Baulk-ring synchromesh unit • Transaxle synchromesh unit
General Mechanical	Air-Conditioning Group	HVAC basic principles	HVAC legislation • Vehicle heating & ventilation systems • Basic air-conditioning principles • Air-conditioning capacity • Air-conditioning refrigerant • Humidity
		Fixed orifice tube air-conditioning system	Fixed orifice • Control devices
		Thermal expansion valve air-conditioning system	Thermostatic expansion valve system • Thermal expansion valves
		Air-conditioning components	Air-conditioning compressors • Condensers & evaporators • Receiver drier • Lines & hoses • TX valve construction • Temperature monitoring thermostat • Refrigerants • Pressure switches • Heating elements • Heater cores
		Climate control	Air-conditioning ECU • Ambient air temperature sensor • Servo motors • Electric servo motors • Automatic climate control sensors • Evaporator temperature sensor • Blower speed control • Ventilation systems
		HVAC procedures	Checking an A/C system • Checking a heating system • Inspecting & adjusting an engine drive belt • Replacing an engine drive belt

	Air-conditioning tasksheets	C341 • C344 • C345 • C346 • C347 • C348 • C349 • C350 • C351 • C352 • C353 • C354 • C355 • C356 • C357 • C358 • C359 • C360 • C361 • C370 • C372 • C373 • C374 • C375 • C376 • C377 • C378 • C379 • C380 • C381 • C382 • C383 • C384 • C385 • C485 • C493 • C494 • C495 • C585
Maintenance Group	Basic tool preparation	Safety first • Hardening & tempering • Carbon-alloy
	Tools & equipment fundamentals	Lockout/tagout • Cleaning tools & equipment • Identifying defective equipment • Compressed air equipment • Rolling road & brake testing equipment • Batteries & chargers • Vehicle inspection pits • Wheel & tire safety
	Power tools	Drills & drill bits • Power grinder • Air tools
	Using electric power tools	Using an angle grinder • Using a bench grinder • Using pressure washers & cleaners
	Using air power tools	Using an air drill • Using an air impact wrench • Using an air blow gun • Using an air chisel
	Common workshop tools	Basic hand tools • Hammers • Chisels • Saws • Screw-drivers • Vices & clamps • Spanners • Sockets & accessories • Pliers • Wrenches • Files • Torque wrenches
	Automotive tools	Pipe flaring & cutting • Marking tools • Gauges • Taps & dies • Fasteners • Pullers
	Additional tools	Punches • Rivetting tools
	Using non-powered tools	Repairing an external thread • Repairing an internal thread • Removing a stud • Using a screw extractor • Using a gear puller
	Working with equipment	READ the instructions
	Diagnostic equipment	Engine analyzers • Dynamometer • Pressure testers • Scan tools • Multimeters (DVOM) • Test light • Hydrometer
	Lifting equipment	Hoists • Jacks • Stands • Engine & component hoists
	Using workshop equipment	Using a two-post hoist • Using a four-post hoist • Using an engine hoist • Using a floor jack • Setting up an oxyacetylene torch • Using an oxyacetylene torch
	Information procedures	Locating vehicle information • Decoding a VIN • Obtaining & interpreting scan tool data • Using a repair manual • Using a shop manual • Using an owner's manual • Using a labor guide • Using a parts program • Using a service information program
	General reference	VIN - Vehicle Identification Number
Vehicle inspection procedures	Carrying out a visual inspection • Inspecting under body components • Measuring a wheelbase • Checking windshield washer liquid • Checking & replacing wiper blades • Checking a security system • Checking door hinges • Checking a seat belt • Checking interior trim • Checking driver's seat fabric • Vehicle valet service • Routine vehicle checks	
Intake system procedure	Checking & changing an air filter	

		Maintenance tasksheets	C002 • C003 • C007 • C058 • C059 • C102 • C103 • C166 • C167 • C230 • C231 • C286 • C287 • C327 • C328 • C329 • C330 • C337 • C338 • C342 • C343 • C387 • C388 • C405 • C408 • C453 • C454 • C466 • C468 • C469 • C470 • C471 • C472 • C473 • C474 • C475 • C476 • C481 • C482 • C487 • C488 • C489 • C502 • C506 • C507 • C512 • C515 • C521 • C522 • C531 • C532 • C534 • C536 • C537 • C538 • C540 • C542 • C544 • C548 • C549 • C554 • C557 • C565 • C566 • C569 • C571 • C572 • C574
	Measuring Group	Using measuring tools	Using a torque wrench & an angle gauge • Using a thread pitch gauge • Using a vacuum gauge • Using a dial indicator • Using a feeler gauge • Using a micrometer • Using a tire pressure gauge
		Units of measure	Multiples and decimals for the SI system • Length • Mass • Time • Velocity • Volume • Area • Electrical units • Pressure • Energy • Temperature • Torque • Power
		Measuring tasksheets	C467 • C539
Management & Admin	Communication Group	Workplace scenario 1	A day with Henry
		Active listening	I am listening • I am with you
		Art of speaking	You know what I mean? • May I ask a question? • On the phone
		People skills	The other half • Good team player • How may I help you?
		Effective reading	Practice makes perfect
		Writing at work	Yours sincerely • Job sheet • Inspection report • Equipment defect report • Accident report
		Researching	How to go about it • Where to look
		Workplace scenario 2	Another day with Henry
		Communication tasksheets	C496 • C511 • C513 • C540 • C549 • C554 • C557 • C565 • C569
		Workplace Safety Group	Hazards & emergencies
	Personal & property safety		Personal protection • Basic injury prevention • Basic first aid & CPR • Property security
	Workplace safety tasksheets		C451 • C452 • C455 • C456 • C457 • C458 • C459 • C460 • C461 • C462 • C463 • C465 • C504 • C508 • C509 • C510 • C523 • C533
Steering & Suspension	Steering Group	Steering principles	Steering systems • Principles of steering • Rack-and-pinion steering • Rack-and-pinion steering system • Recirculating ball & nut steering system • Four-wheel steering systems

		Steering boxes & columns	Steering columns • Rack-and-pinion gearbox • Helix • Variable ratio steering • Worm gearbox • Power steering • Steering process • Flow-control valve • Electric power assisted steering • Basic electric power steering operation
		Steering arms & components	Forward control vehicle steering • Steering linkages • Joints • Bushes/bushings
		Steering system procedures	Checking & adjusting power steering fluid • Pressure testing a power steering system • Flushing a power steering system • Inspecting & adjusting an engine drive belt • Servicing a steering system • Servicing wheel bearings
		Steering tasksheets	C165 • C170 • C171 • C172 • C173 • C174 • C175 • C176 • C177 • C178 • C179 • C180 • C181 • C182 • C183 • C184 • C185 • C186 • C203 • C267 • C268 • C273 • C274 • C275 • C479 • C485 • C550
Suspension Group		Suspension fundamental principles	Principles of suspension • Suspension force • Unsprung weight • Wheel unit location • Dampening
		Types of suspension	Suspension systems • Solid axle • Dead axle • Independent suspension • Rear independent suspension • Rear-wheel drive independent suspension • Adaptive air suspension • Adaptive air suspension operation
		Types of springs	Coil springs • Leaf springs • Torsion bars • Rubber springs
		Shock absorber types	Hydraulic shock absorbers • Gas-pressurised shock absorbers • Load-adjustable shock absorbers • Manual adjustable-rate shock absorbers • Electronic adjustable-rate shock absorbers • Automatic load-adjustable shock absorbers
		Front suspension types & components	Strut suspension • Short/long arm suspension • Torsion bar suspension
		Rear suspension types & components	Rigid axle leaf spring suspension • Rigid axle coil spring suspension • Independent type suspension • Rigid non-drive suspension
		Suspension system layouts	Driven rear suspension layouts • Non-driven rear suspension layouts • Independent rear suspension layouts • Front suspension layouts • Bushes/bushings • Arms & linkages
		Suspension system procedures	Checking shock absorbers • Changing shock absorbers • Lubricating a suspension system • Servicing a suspension system
		Suspension tasksheets	C187 • C188 • C189 • C190 • C191 • C192 • C193 • C194 • C195 • C196 • C197 • C198 • C199 • C200 • C201 • C202 • C204
Tyres & Wheels	Tyres, Rims & Wheels Group	Wheel types & sizes	Wheels • Rim sizes & designations • Types of wheels
		Tire types & characteristics	Tires • Radial ply tires • Radial ply tire sidewalls • Tire pressure monitoring systems • Runflat tires • Space-saver tires • Tire distortion • Center of gravity

		Tire construction	Tire construction • Types of tire construction • Tire materials • Hysteresis • Tire sizes & designations • Tire information • Tire tread designs • Tire ratings for temperature & traction
		Wheels & tires procedures	Using a tire pressure gauge • Checking & adjusting tire pressure • Checking for tire wear patterns • Rotating tires • Removing a tire • Fitting a tire • Dynamic balancing a tire
		Tyres, Rims & Wheels tasksheets	C206 • C208 • C217 • C219 • C220 • C221 • C222 • C223 • C224 • C225 • C226 • C227 • C228 • C552 • C579 • C580
	Wheel Alignment Group	Wheel alignment fundamentals	Basic principles of wheel alignment • Caster • Camber • Scrub radius • Steering axis inclination • Toe-in & toe out • Toe-out on turns • Turning radius • Thrust angle & centerlines
		Wheel alignment tasksheets	C205 • C207 • C209 • C210 • C211 • C212 • C213 • C214 • C215 • C216 • C218
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