

Section 6- Schedule of supply

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1. List of Goods and Related Services

Package Name: Supply of Automobile and related items for Industrial Training Institutes to enhance technical and vocational skills among the youth of Himachal Pradesh (DOTE/07)

Lot No : Not Applicable				
Lot Name: Not Applicable				
Item No	Name of Goods or Related Services	Description	Unit of Measurement	Quantity
1.	Car Jet washer with standard accessories	- Power Supply: 3 Phase - Minimum Motor Power: 1 HP - Minimum RPM: 1400 - Discharge Pressure: 10.0-20MPa (1MPa: 10.2 kgf/cm ²) - No of Reciprocating Plungers: 3 - Max Water Discharge: 10-20 lpm	No.	1
2.	Lifting jack screw type 3 ton	Lifting Jack Screw Type: -Capacity: 3 Ton	No.	1
3.	Lifting jack screw type 5 Ton capacity	Lifting Jack Screw Type: -Capacity: 5 Ton	No.	1
4.	Lifting jack screw type 20 Ton capacity	Lifting Jack Screw Type: -Capacity: 20 Ton	No.	1
5.	Thermostat for Use with Petrol MPFI Engine	-This Thermostat is to be used with MPFI Engine being procured at SR. NO 177 of MMV Trade Syllabus.	No.	2
6.	Air bag simulator	Air bag simulator: - The simulator adopts the real components of Air bag system to illustrate Air bag safety system structure and working principle. - The simulator should have Driver & Co Driver Air Bags, Seat belts with front seats, crash sensors, air bag ECU, Wiring Harness - Airbag Control ECU Monitors no of Related Sensors within the Vehicle including accelerometers, Wheel Speed Sensors, Seat Occupancy Sensors and	No.	1

		Brake Pressure Sensors etc. -When requisite threshold has been reached or exceeded, the air bag control unit will trigger the ignition of a gas generator propellant to rapidly inflate air bag. - As the vehicle occupant collides with and squeezes the bag, the gas escapes in a controlled manner through small Vent Hole.		
7.	Air conditioning service Unit (Car)	- Functions: Recovery, Oil discharge, Vacuum, Oil re-integration, Gas Charging - Refrigerant Type: R134a or Equivalent - Operation: Automatic - Refrigerant filling accuracy: ± 10 gram - Vacuum Pump Capacity: 84 l/min(Minimum) - Gas reservoir capacity: 12 litres (Refillable) - Display: LCD Graphic - Power supply :220 V 50 Hz	No.	1
8.	Alternator assembly used for LMV	-This Alternator assembly is to be used with MPFI Engine being procured at SR. NO 177 of MMV Trade Syllabus.	No.	1
9.	Cut section Model of Mock layout of a motor car –electrical system working model	The mock layout consisting of minimum : - Head Light Circuit - Horn Circuit - Tail Light Circuit - Side Indicators - Brake light Circuit - Ignition Circuit - Working of Self-starter - Charging Circuit (Motor Driven Alternator) - Front Lighting Panel - Dash Board Panel - Ignition System (sparks from plug to be shown with Distributor & battery) - Car Audio system - Power Window mechanism - Wiper Motor - Anti Theft Device Wiring	No.	1

		Circuit - Electric Power Steering Circuit - Immobilizer Circuit - Reverse Parking Assist		
10.	Demonstration board of MPFI system working model	The Demonstration Board for Three Cylinder MPFI Engine consisting of minimum : - Injectors - Rail - Inlet manifolds - Throttle body - Distributor - ECU - Canister Purge Valve - Carbon Canister - Fuel Tank Module - Supporting Sensors such as Lambda Sensor, Engine Speed sensor, Cam Position sensor, Oxygen sensor, Airflow sensor, MAP sensor etc. - Crank Pulley - Fuel Tank Module -AC to DC convertor shall be provided as an alternative to battery for power input	No.	1
11.	Multi Scan Tool To scan Engine, ABS & EBD, AT, SRS, Body Control and immobilizer	- Should be connected to all current laptops/ computers via the USB interface. - Connectivity : Bluetooth, Wireless, USB cable - Should be easily connected to a vehicle of different models of all manufactures using an OBD connector - LED display - Should Measure all actuators and sensors in the vehicle - Multimeter measurements during guided trouble-shooting with automatic transfer of measured values - Automatic control unit search function	No.	1

		<ul style="list-style-type: none"> - Resistance measurement with extended measuring ranges - Continuity tester for fault localisation - Voltage measurement with enhanced measurement functions 		
12.	Starter motor axial type	Starter Motor : <ul style="list-style-type: none"> - Starter motor axial type - Compatible with Petrol/Diesel Engine 	No.	1
13.	Starter motor pre-engagement type	Starter Motor : <ul style="list-style-type: none"> - Starter motor Pre-engagement type - Compatible with Petrol/Diesel Engine 	No.	1
14.	Starter motor Co-axial type	Starter Motor : <ul style="list-style-type: none"> - Starter motor Co-axial type - Compatible with Petrol/Diesel Engine 	No.	1
15.	Ultrasonic injection cleaning equipment	Ultrasonic injection cleaning equipment : <ul style="list-style-type: none"> - Main Supply : 220 V AC, Single Phase, 50HZ - Also operatable on 12 V DC - Ultrasonic Cleaning Power : Minimum 80 W - Stimulated RPM Range 10~9900 rpm; step :10 rpm - Time range:1~9999 sec - Fuel tank capacity: Minimum 500 ML 	No.	1
16.	Working Model of power windows	<ul style="list-style-type: none"> - Actual working model of power window of Car/SUV Showing parts like door, glass with motor and its gear arrangement and operating switch. - Single Door should be provided - AC to DC convertor shall be provided as an alternative to battery for power input - Door should be suitable sectioned and arranged to demonstrate the internal construction details showing the minute information's 	No.	1

		such as motor and its gear arrangement etc.		
17.	Working model of Air Brake Assembly	<p>The working Model of Air brake assembly consisting of minimum :</p> <ul style="list-style-type: none"> - One front drum should be cut out show the working internally of drum and whole parts assembly fitted on the frame. - The front drum should run hand operated, - One rear drum assembly (without drum) brake shoe with liner show working of the brake. - Air compressor - Air Dryer - Unloader valve - Foot valve - Booster - Air tank with safety valve - Control valve - Brake chamber - Foot brake - Hand brake - Brake Light/Stop Light should be functional - Air Pressure gauges should be provided for checking air tank air pressure. - Single phase 220V AC motor should be coupled to the compressor for generation of the air, which is used for the operation of the air brake assembly 	No.	1
18.	AC alternator slip ring puller	<ul style="list-style-type: none"> - AC alternator slip ring puller of Variable Size - Puller Material: Steel 	No.	1
19.	Compression testing gauge suitable for diesel Engine with standard accessories	<p>Compression testing gauge:</p> <ul style="list-style-type: none"> - Analog Type - 2-1/2-inch gauge - Dual scale gauge reads 0-300 psi (0-2100 kPa) 	No.	2
20.	Cut section models of shock absorbers	<p>Cut section Model of Shock Absorber For Two Wheeler :</p> <ul style="list-style-type: none"> - Telescopic Type 	No.	1

		<p>- The Model should be suitably sectioned to demonstrate the internal construction details showing the minute information</p> <p>Cut section Model of Shock Absorber For Four Wheeler :</p> <p>- Telescopic Type</p> <p>- The Model should be suitably sectioned to demonstrate the internal construction details showing the minute information</p>		
21.	Cut section of cross ply tyres	<p>Cut Section Model of Cross Ply Tyre:</p> <p>- Size: 155/65 R13</p> <p>- Model should be suitably sectioned to demonstrate the internal construction details</p>	No.	1
22.	Cut section of radial tyres	<p>Cut Section Model of Radial Ply Tyre:</p> <p>- Size: 155/65 R13</p> <p>- Model should be suitably sectioned to demonstrate the internal construction details</p>	No.	1
23.	Cut section working model of automatic transmission Gear box	<p>Cut Section Working Model of Automatic Transmission:</p> <p>- Model made out of original full size gearbox</p> <p>- Model suitably sectioned to show the internal mechanism of forward and reverse speeds.</p>	No.	1
24.	Cut section working model of centrifugal clutch assembly.	<p>Cut Section Working Model of Four-Wheeler Centrifugal Clutch Assembly:</p> <p>- The model should be made out of original parts such as clutch pulley, clutch liner, clutch plate, clutch</p>	No.	1

		spring, and Input shaft. to demonstrate the working of clutch assembly. - Model should be operated by suitable electric motor (220V/50 Hz AC) with manually speed control for demonstration - Model should be suitably sectioned to demonstrate the internal construction details		
25.	Cut section working model of Diaphragm clutch assembly.	Cut Section Working Model of Diaphragm Clutch Assembly: - The model should be made out of original parts such as Flywheel, Pressure Plate Diaphragm type ,Clutch plate, fork clutch release bearing, input shaft etc. to demonstrate the working of clutch assembly. - By operating The pedal provided The operation can be demonstrated. - Model should be suitably sectioned to demonstrate the internal construction details	No.	1
26.	Cut section working model of Single plate clutch assembly.	Cut Section Working Model of Single Plate Clutch Assembly: - The model should be made out of original parts such as Flywheel, Pressure Plate Finger type ,Clutch plate, fork clutch release bearing, input shaft etc. to demonstrate the working of clutch assembly. - By operating The pedal provided The operation can be demonstrated. - Model should be suitably sectioned to demonstrate the internal construction details	No.	1
27.	Cylinder bore gauge capacity 20 to 160 mm	Cylinder Bore Gauge: - Display Type: Analog - Accuracy: 0.01mm - Measuring Range:20 to	No.	1

		160 mm		
28.	Cylinder liner- Dry & press fit liner	Cylinder liner: - Dry liner for engine cylinder (Press Fit)	No.	1
29.	Cylinder liner- wet liner & slide fit liner	Cylinder liner: - Wet liner for engine cylinder with Rubber 'O' Ring (Side fit liner)	No.	1
30.	Demonstration board of electronic Ignition system, ignition coil	Demonstration Board of Electronic Ignition System - The open demonstration-working unit consisting of minimum: - Ignition Switch - Electronic Ignition Coil - HT Wires - Distributor - Four Spark Plugs - Battery	No.	1
31.	Different type of Engine Bearing model	Different type of Engine Bearing(Generic Size for Demonstration) Model of(One Each) suitable for Engine: - Shell bearing for crankshaft(Main Journal & Big End Journal) - Thrust bearing for Crankshaft - Ball Bearing for Crank Shaft - Bush Bearing for Connecting Rod - Needle bearing for Connecting Rod - Bush bearing for Camshaft & Rocker Arm - Shell bearing for Overhead Cam Shaft - Needle Bearing for Rocker Arm	No.	1
32.	Different type of piston model	Different Type of Piston Model(Generic Size for Demonstration(One Each) : - As Per Piston Head Design :Dome head, Flat Head, Concave Head, Irregular Head. - As Per Skirt : Solid Skirt & Split Skirt - As Per Ring Groove	No.	1

		:Rectangular Groove, Taper Faced Ring Groove, Barrel Faced Ring Groove, Inside Bevel Ring Groove, Key Stone Ring Groove. - As per gudgeon pin : Fixed Gudgeon Pin, Semi Fixed Gudgeon Pin, Full Floating Gudgeon Pin. All to be provided with Lock.		
33.	Disk brake in working condition with calliper assembly with all parts	The Working Model of LMV disk brake assembly consisting of following minimum parts & practically demonstratable: - Brake disc Assembly - Calliper assembly - Tandem Master Cylinder & Operating Mechanism - Brake Hoses, Oil Reservoir with Oil - Pedal	No.	1
34.	Drum brake assembly in Working Condition	The Working Model of drum brake assembly should have minimum: - Brake drum Assembly - Drum with liner plate, wheel cylinder and operating mechanism - Wheel Cylinder - Tandem Master Cylinder & Operating Mechanism - Brake Hoses, Oil Reservoir with Oil - Brake Pedal	No.	1
35.	Front axle (Rzeppa Joint) with stand for Dismantling and assembly	Front axle (Rzeppa Joint) of a Generic LMV of Engine Minimum 1000cc Capacity(petrol/Diesel)	No.	1
36.	Fuel feed pump for diesel	-This Fuel feed pump for diesel is to be used with Fuel injection pump (Diesel) inline being procured at SR. NO 61 of MMV Trade Syllabus.	No.	1
37.	Fuel injection pump (Diesel) inline	Fuel injection pump (Diesel) Inline: - Complete Pump assembly suitable for 4/6 cylinders	No.	1

		Diesel engine - RSV Mechanical Pneumatic Governor Type		
38.	Distributor Type fuel rotary pump (DPC) pump along with special tools and accessories.	Fuel injection pump (Diesel): - Type: Distributor fuel rotary pump (DPC) - Complete Pump assembly compatible for 4 cylinders Diesel engine	No.	1
39.	Full floating axle Assembly	Full floating axle Assembly: The Assembly should be consisting of minimum: - Full floating axle - Differential assembly - Brake assembly	No.	1
40.	Semi-floating axle assembly	Semi floating axle Assembly: The Assembly should be consisting of minimum: - Semi floating axle - Differential assembly - Brake assembly	No.	1
41.	Functional/experiment model of different type of sensors.	Functional/experiment model of different type of sensors consisting of minimum: - Petrol injector - Inlet manifolds - Throttle body - Distributor - ECU - Canister Purge Valve - Carbon Canister - Fuel Tank Module - Supporting Sensors such as Throttle Position Sensor, Manifold Absolute Pressure Sensor, Engine Coolant Temperature Sensor, Vehicle Speed Sensor, Oxygen Sensor, Crankshaft Position Sensor, Camshaft Position Sensor, Intake Air Temperature Sensor, Mass Air Flow Sensor, Knock Sensor etc. -AC to DC convertor shall be provided as an alternative to battery for power input	No.	1

42.	Injector – Multi hole type	Complete Multi hole type Injector Assembly	No.	4
43.	Injector – Pintle type	Complete Pintle type Injector Assembly	No.	4
44.	Injector testing set (Hand tester)	Injector testing set (Hand tester): -Comprising of Injection pump with hand lever transparent fuel container with filter, Three way shut off valve with valve spindle to isolate the pressure gauge while operating hand lever at high speed. - High quality Pressure gauge Range: 0 - 400 BAR (0 - 40 MPa).	No.	1
45.	Piston ring compressor	Piston Ring Compressor: - Maximum size: 5 inches - Minimum size: 2 inches	No.	2
46.	Piston Ring expander and remover.	Piston Ring Expander and Remover: - Maximum size: 4 inches - Minimum size: 2 inches	No.	2
47.	Piston Ring groove cleaner	Piston Ring Groove Cleaner: - Multi sizes groove cleaners for cleaning groove of Piston	No.	1
48.	Radiator cut section-cross flow	Cut Section Model of Radiator: - Cross Flow Type - Radiator with sectioned side tanks, radiator core to demonstrate the internal construction details.	No.	1
49.	Radiator cut section-down flow	Cut Section Model of Radiator: - Down Flow Type - Radiator with sectioned upper & lower tanks, radiator core and cap to demonstrate the internal construction details.	No.	1
50.	Radiator pressure cap (LMV)	- This Radiator pressure cap for LMV is to be used with MPFI Engine being procured at SR. NO 177 of MMV Trade Syllabus.	No.	2
51.	Spark plug spanner Size: 14mm & 18 mm	Heavy Duty Spark Plug Spanner Long bit:	No.	2

	Long bit	<ul style="list-style-type: none"> - Long neck Socket type with T Handle, - Set of Sizes- 14mm,16mm & 18mm(One Each) 		
52.	Steering assembly - Rack & pinion	Rack & Pinion Steering Assembly Comprising of : <ul style="list-style-type: none"> - Steering wheel, - Steering Column & Steering Shaft - Rack & Pinion Assembly - Tie Rod, Tie Rod Ends & all other steering linkages - Boot - Brake Assembly with Wheels 	No.	1
53.	Steering assembly - Worm & roller	Worm & Roller Steering Assembly Comprising of minimum: <ul style="list-style-type: none"> - Steering wheel, - Steering Column & Steering Shaft - Worm & Roller Steering Gear Box - Drop Arm - Idler Arm - Tie Rod Ends - Centre Link - Brake Assembly with Wheels 	No.	1
54.	Steering assembly - Recirculating ball	Recirculating Ball Steering Assembly Comprising of minimum : <ul style="list-style-type: none"> - Steering wheel - Steering Column & Steering Shaft - Recirculating ball Steering Gear Box - Drop Arm - Pitman Shaft - Track Rod - Tie Rod - Steering Arms - Brake Assembly with Wheels 	No.	1
55.	Steering assembly - Power steering	Power steering(Hydraulic) Assembly Comprising of minimum : <ul style="list-style-type: none"> - Steering Wheel - Steering Column - Power Steering Unit (Rack 	No.	1

		& Pinion Type) - Power Steering Pump with Oil Reservoir - Hydraulic Hoses - Tie Rod, Tie Rod Ends & all other steering linkages - Brake Assembly with Wheels - Suitable Single Phase Motor to run the power steering pump		
56.	Steering assembly - Electric Assisted Power Steering	Electric Assisted Power Steering Comprising of minimum : - Steering Wheel - Steering Column - Rack & Pinion Assembly - Signal Sensors - Electric Motor and Motor Control Module with compatible battery supply - Tie Rod, Tie Rod Ends & all other steering linkages - Brake Assembly with Wheels	No.	1
57.	Synchronous Gear box with 5 Forward & 1 Reverse Gear for Use with CRDI Diesel Engine	Purpose : -This Synchronous Gear box with 5 Forward & 1 Reverse Gear is to be integrated with CRDI Engine being procured at SR. NO 164 of MMV Trade Syllabus.	No.	1
58.	Tachometer (Counting type)	Tachometer (Counting type): - Type: Digital - Display: 5-digit Backlight LCD Display - Accuracy: 0.02% +/- 2 digits - Contact Measuring Range: 2-20000 RPM - Non-contact Measuring Range: 2-99999 RPM - Measuring Distance: 50mm-600 mm -To be supplied with suitable power supply	No.	1
59.	Working model of Tandem master cylinder	The working Model should be made of following	No.	1

	with booster	minimum parts : - Tandem Master Cylinder - Complete Vacuum Booster System consisting of suitable vacuum pump and other necessary parts.		
60.	Tandem master cylinder with booster	-This Tandem master cylinder with booster is to be used with Working model of Tandem master cylinder with booster being procured at SR. NO 155 of MMV Trade Syllabus.	No.	4
61.	Tubed tyre of car, trucks & motorcycle	Tyre(One Each) : Tyre with Tube for Motorcycle: - Size : 100/90-17 - Fitted on a suitable alloy wheel Tyre with Tube for Car: - Size : 155/65 R13 - Fitted on a suitable alloy wheel Tyre with tube for Truck: -Size :10" X 20" 16 PR - Fitted on a suitable wheel	No.	1
62.	Tubeless tyre of cars & trucks	Tubeless Tyre (One Each) Tubeless Tyre with Tube for Car: - Size : 155/65 R13 - Fitted on a suitable alloy wheel Tubeless Tyre with tube for Truck: - Size :10" X 20" 16 PR - Fitted on a suitable wheel	No.	1
63.	Turbocharger cut sectional view Latest WGT type	Actual Cut Section of a Latest WGT type Turbocharger: - Turbocharger should be suitably sectioned to show following components: - turbine - impeller - compressor wheels - Waste Gate Valve - Inlet Manifold	No.	1
64.	Tyre & split rim wheel assembly	Tyre & Split Rim Wheel Assembly for Two Wheeler	No.	1

65.	Tyre pressure gauge with holding nipple	Tyre Pressure Gauge With Holding Nipple: - Type: Analog - Pressure Range : 0-170 PSI - Accuracy: ± 1 PSI - Unit: PSI, BAR	No.	2
66.	Universal puller for removing pulleys, bearings	- Universal puller Capable for Removing Pulleys and Bearings of Size Range : 1" to 8 " -Universal Puller Material : Steel	No.	1
67.	Vacuum gauge to read 0 to 760 mm of Hg.	- Vacuum Gauge: - Type: Analog - Range :0 to 760 mm of Hg	No.	2
68.	Valve Lifter	Valve Lifter	No.	1
69.	Valve spring compressor universal.	Valve Spring Compressor Universal	No.	1
70.	Automotive Water pump for dismantling and assembling	- This Automotive Water pump for dismantling and assembling is to be used with CRDI Engine being procured at Sr No. 164 of MMV Trade Syllabus.	No.	4
71.	Working model of torque converter of LMV	Working model of torque converter of LMV: - Driven by compatible Variable Speed Single Phase Motor to demonstrate the working of Torque Converter.	No.	1
72.	Automotive exhaust 5 gas analyser (petrol & Diesel)	Automotive exhaust 5 gas analyser (petrol & Diesel): - Exhaust 5 Gas Analyzer Petrol ARAI approved to check CO, CO ₂ , O ₂ and HC & NO. - CO Range : 0- 15 %,Resolution : 0.001% - HC Range :0-20000 ppm, Resolution : 1 ppm - CO ₂ Range : 0- 20 %,Resolution : 0.01% - O ₂ Range : 0- 25 %,Resolution : 0.01% - NO Range : 0-5000 ppm,	No.	1

		Resolution : 1 ppm - Accuracy : $\pm 2\%$ to $\pm 3\%$ - Measuring Gas Intake : Minimum 1 ltr/min - Display : LED display - Response time < 5 Seconds - Warm-up time @25°C & above < 3 Minutes - Operating temperature : 0°C to +50°C, - Power Supply : 230 V/50 Hz AC Mains		
73.	Diesel Engine – CRDI - 4 stroke for Dismantling and assembling with swivelling stand	Engine Specifications: - Latest 4 Stroke 4 Cylinder - Fuel Type : Diesel - Engine Displacement :800-1600cc - Fuel Injection System : CRDI, Turbocharged - The Diesel Engine should be in running condition, with ECM, BCM,a Ignition Switch with Keys, all sensors(Air Mass Flow, EGR, Lambda/Oxygen Sensor, Fuel Pressure Regulator, Rail Pressure Sensor, Crank Angle/RPM/TDC Sensor, Coolant Temperature Sensor, Cam Angle Sensor, Boost Pressure Sensor, Fuel Temperature & Water in Fuel Filter Sensor), wiring, fuel feed & cooling system & instrument cluster, Radiator with Intercooler and Cooling Fan, Air Filter Assy, A Mounting, Fuse Box, Glow Plug Timer, Fuel Filter, Engine Oil Pressure Switch, Alternator, Starter Motor - Instrument Cluster should display Fuel level, Battery Charging Light, Oil Pressure Light, Engine RPM. - Fuel Tank of Minimum Capacity 10 Litre, Engine Accessories- Silencer, and compatible Battery with clamp, Safety Guard for Silencer & Radiator.	No.	1

74.	Diesel engine (Running condition) Stationary type	Diesel engine (Running condition) Stationary type: - Type: Vertical, Single Cylinder, Water-Cooled, Four Stroke Cycle, OH valves, Compression Ignition Diesel Engine - Minimum Rated Power : 5 HP	No.	1
75.	Four stroke petrol engine with CNG setup-working condition	Engine Specifications: : - Fuel Type : Petrol & CNG - Fuel Injection System : MPFI - Engine Displacement :800-1600 cc - Cycle : Four Stroke - No of Cylinders : 3/4 - Engine should be supplied with ECM, BCM Ignition Switch with Keys, all sensors(Crank Angle/RPM/TDC Sensor, Oxygen/Lambda Sensor, Coolant Temperature Sensor, Engine Oil Pressure Switch, Absolute Pressure Sensor, Throttle Position Sensor), wiring, fuel feed system, Air Intake & Exhaust System, cooling system, Engine Starting System and Charging System, Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter, Lubrication System with compatible battery & instrument cluster with CNG/ Petrol selection switch on Panel - Instrument Cluster should display Fuel level, Battery Charging Light, Engine Oil Pressure Light, and Coolant	No.	1

		High Temperature Warning Light. Fuel Tank of Capacity Minimum 10 Litre, CNG Tank/ Cylinder of Capacity Minimum 7 Kgs. Engine Accessories- Silencer, New Battery with clamp, and Wire Mesh/Perforated Sheet - Safety Guards for Radiator and Silencer.		
76.	Heavy Commercial vehicle type Fitted with Latest 06 cylinder CRDI diesel engine with all parts and accessories. (without body on frame), Non-Air Conditioned	<ul style="list-style-type: none"> - Transmission Type : Manual - No of Gears(Minimum) : 5 Forward+1 Reverse - Engine Displacement(Minimum) : 5500 cc - Drive : Rear Wheel drive - Clutch Type: Single Clutch Plate Hydraulic Assisted - Comfort Features: <ul style="list-style-type: none"> - Air Brake - Push Back Front Seats - Seat Belts & Warning - Power Steering - Anti Glare Rear View Mirror - Engine Immobilizer - Seat Belt Warning - Fitted with Latest 06 cylinder CRDI diesel engine with all parts and accessories All other standard Specifications of any standard HCV 	No.	1
77.	Hydraulic jack HI-LIFT type -3 ton capacity	Hydraulic Jack: <ul style="list-style-type: none"> - Hydraulic Jack HI-LIFT type: -Capacity: 3 Ton 	No.	1
78.	Hydraulic jack HI-LIFT type - 5 Ton capacity	Hydraulic Jack: <ul style="list-style-type: none"> - Hydraulic Jack HI-LIFT type: -Capacity : 5 Ton 	No.	1
79.	MPFI petrol engine with swivelling stand along with special tools for	Engine Specifications: : <ul style="list-style-type: none"> - Fuel Type : Petrol - Fuel Injection System : 	No.	1

	dismantling and assembling	<p>MPFI</p> <ul style="list-style-type: none"> - Engine Displacement :800-1600 cc - Cycle : Four Stroke - No of Cylinders : 3/4 - Engine should be supplied with ECM, BCM Ignition Switch with Keys, all sensors(Crank Angle/RPM/TDC Sensor, Oxygen/Lambda Sensor, Coolant Temperature Sensor, Engine Oil Pressure Switch, Absolute Pressure Sensor, Throttle Position Sensor), wiring, fuel feed system, Air Intake & Exhaust System, cooling system ,Engine Starting System and Charging System, Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter, Lubrication System with compatible battery & instrument cluster - Instrument Cluster should display Fuel level, Battery Charging Light, Engine Oil Pressure Light, and Coolant High Temperature Warning Light. Fuel Tank of Capacity Minimum 10 Litre, - Engine Accessories- Silencer, Compatible Battery with clamp, and Wire Mesh/Perforated Sheet - Safety Guards for Radiator and Silencer. 		
80.	Spring tension tester	<p>Spring tension tester:</p> <ul style="list-style-type: none"> - Capable to test the spring up to upto 5" free length - Manually operated - Display : analog. - Capacity to test springs :100 Kg/CM2 	No.	1
81.	Transfer case with stand for Dismantling	-This Transfer case is to be integrated with	No.	1

	and assembly.	Synchronous Gear box being procured at SR. NO 154 of MMV Trade Syllabus.		
82.	Tube/ tyre vulcanizing machine	Tube/ Tyre Vulcanizing Machine: - Voltage : 220 V/50Hz Mains - Minimum Heater Capacity :400W x 2 - The electric heating plate with Thermostat to control Heat.	No.	1
83.	Two post car lift – capacity 4000 kg Hydraulic Type with Mechanical Arms Locking	Two Post Car Lift : - Capacity : 4000 Kg - Hydraulic Type with Mechanical Arms Locking - Minimum Overall Width:3400 mm - Minimum Width Between Columns:2750 mm - Minimum Drive-Thru:2400 mm - Minimum Over all Height : 3700 mm	No.	1
84.	Tyre Changer Machine	Tyre Changer Automatic Passenger Carrying Vehicle(PCV) & Light commercial vehicle(LCV): - Can Work with Tyres upto 23" rim diameter - Motorcycle tyres with optional adaptor - Minimum Motor Power: 1.1 kW - Air Requirement: 8 – 10 bar - Internal Rim Clamping :12" – 23" - External Rim Clamping: 10" – 20" - Bead breaker tire width :3" – 15" - Maximum Tire Diameter: 41" - Power supply Single phase - Complete with all accessories and components	No.	1
85.	Wheel alignment	Latest Wheel alignment	No.	1

	Machine –computerised 3D	Machine for four wheel alignment–Computerised 3D: - Rim Size:10" - 22" - Tyre Width:48" - 96" - Wheel Base:79" - 180" - Individual Toe:+/- 35 degrees - Caster:+/- 30 degrees, - Camber:+/- 55 degrees		
86.	Wheel balancing machine For wheel balancing of LMV	Wheel Balancing Machine For wheel balancing of LMV: - Motor : Minimum 0.5 HP - Shaft Diameter : Min 38mm - Rim Diameter : 8" - 32" - Rim Width :1" - 20" - Offset :1" - 20 - Power Supply :220 - 240 V, 50 - 60 Hz - Max. wheel diameter :1050 mm - Wheel width:76-508 mm - Max. wheel weight : 70 Kg	No.	1
87.	Diesel Engine – CRDI - 4 stroke Engine assembly with fault simulation board in working condition	Complete Engine assembly with Fault simulation Board with following minimum : - Engine Fuel Type : Diesel - Fuel Injection System : CRDI, Turbocharged - Cycle : Four Stroke - No of Cylinders : 4 - Engine Displacement(Minimum) : 1200-2200 cc - The Diesel Engine should be in running condition, with ECM, BCM, Ignition Switch with Keys, all sensors(Air Mass Flow, EGR, Lambda/Oxygen Sensor, Fuel Pressure Regulator, Rail Pressure Sensor, Crank Angle/RPM/TDC Sensor, Coolant Temperature Sensor, Cam Angle Sensor, Boost Pressure Sensor, Fuel Temperature & Water in Fuel Filter Sensor), wiring, fuel feed & cooling system &	No.	1

		instrument cluster, Radiator with Intercooler and Cooling Fan, Air Filter Assy, A Mounting, Fuse Box, Glow Plug Timer, Fuel Filter, Engine Oil Pressure Switch, Alternator, Starter Motor - Instrument Cluster should display Fuel level, Battery Charging Light, Oil Pressure Light, Engine RPM. - Fuel Tank of Minimum Capacity 20 Litre, Engine Accessories- Silencer, and compatible Battery with clamp, Safety Guard for Silencer & Radiator.		
88.	Working Condition of Petrol MPFI Engine Assembly with fault simulation board	Complete Engine assembly with Fault simulation Board with following minimum : - Fuel Type : Petrol - Fuel Injection System : MPFI - Engine Displacement :800-1600 cc - Cycle : Four Stroke - No of Cylinders : 3/4 -Engine should be supplied with ECM, BCM Ignition Switch with Keys, all sensors(Crank Angle/RPM/TDC Sensor, Oxygen/Lambda Sensor, Coolant Temperature Sensor, Engine Oil Pressure Switch, Absolute Pressure Sensor, Throttle Position Sensor), wiring, fuel feed system, Air Intake & Exhaust System, cooling system, Engine Starting System and Charging System, Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter, Lubrication System with	No.	1

		<p>compatible battery & instrument cluster</p> <ul style="list-style-type: none"> - Instrument Cluster should display Fuel level, Battery Charging Light, Engine Oil Pressure Light, and Coolant High Temperature Warning Light. <p>Fuel Tank of Capacity Minimum 10 Litre,</p> <p>Engine Accessories- Silencer, Compatible Battery with clamp, and Wire Mesh/Perforated Sheet</p> <ul style="list-style-type: none"> - Safety Guards for Radiator and Silencer. 		
89.	Chain Pulley Block-3 ton capacity with tripod stand	<p>Chain Pulley Block with compatible tripod stand:</p> <ul style="list-style-type: none"> - Capacity :3 Ton <p>Tripod Stand Specifications :</p> <ul style="list-style-type: none"> - Capacity to lift minimum 3 Ton of load - Minimum Height to Eye : 3000 mm - Minimum Leg Length : 3400 mm - Minimum Weight : 85 Kg - Legs should be Adjustable for un-level ground, shallow slopes and slight inclines - Feet Should be suitable for hard and soft ground. 	No.	1
90.	Cut section of 6 cylinder diesel engine with moving condition to show momentum of internal parts	<p>The model should be made out of full size original six cylinder, four stroke Diesel engine comprising of parts and accessories like Six cylinders, cylinder head, inlet and Exhaust manifolds, Fuel pump, oil pump, Water pump, Fuel Filter, Fuel Injection pump, injectors, self-starter, alternator.</p> <ul style="list-style-type: none"> - Suitable single phase AC Motor should be coupled through a Reduction drive unit to the engine by which the model can be demonstrated at very low 	No.	1

		<p>speed of about 15 to 20 rpm.</p> <ul style="list-style-type: none"> - By running the engine, the working of individual parts and accessories like Crankshaft, Camshaft, Connecting rod, Pistons, Valves, different pumps, can be demonstrated. -The Injector should spray as per firing order with LED light Simultaneously. 		
91.	Diesel Engine six Cylinder in running condition	<p>Latest Diesel Engine six Cylinder in running condition with minimum :</p> <ul style="list-style-type: none"> - Fuel Type : Diesel - Fuel Injection System : CRDI, Turbocharged - Cycle : Four Stroke - No of Cylinders : 6 - Engine Displacement(Minimum) : 5500 cc - The Diesel Engine should be in running condition, with ECM, BCM, a Ignition Switch with Keys, all sensors(Air Mass Flow, EGR, Lambda/Oxygen Sensor, Fuel Pressure Regulator, Rail Pressure Sensor, Crank Angle/RPM/TDC Sensor, Coolant Temperature Sensor, Cam Angle Sensor, Boost Pressure Sensor, Fuel Temperature & Water in Fuel Filter Sensor), wiring, fuel feed & cooling system & instrument cluster, Radiator with Intercooler and Cooling Fan, Air Filter Assy, A Mounting, Fuse Box, Glow Plug Timer, Fuel Filter, Engine Oil Pressure Switch, Alternator, Starter Motor, - Instrument Cluster should display Fuel level, Battery Charging Light, Oil Pressure Light, Engine RPM. - Fuel Tank of Minimum Capacity 20 Litre, Engine 	No.	1

		Accessories- Silencer, and compatible Battery with clamp, Safety Guard for Silencer & Radiator.		
92.	Automotive oil pump for dismantling and assembling.	- This Automotive oil pump for dismantling and assembling. for dismantling and assembling is to be used with CRDI Engine being procured at Sr No. 164 of MMV Trade Syllabus.	No.	2

2. Delivery and Completion Schedule

The delivery period shall start as of *date of Signing the Contract*

Item No	Description of Goods or Related Services	Delivery Schedule (Duration)	Location	Required Arrival Date of Goods or Completion Date for Related Services
1 To 92	As per Schedule 1 – List of Goods and Related Services	Within 365 Days from the Signing of the contract.	The location of Delivery of various items attached separately	Within 365 Days from the Signing of the contract.

3. Technical Specifications

Item No.	Name of Goods or Related Services	Technical Specifications of Item and/or Bureau of Indian Standards (BIS) (if applicable) reference	Features	Accessories	Spare parts	Documents	Installation & Training	Warranty of equipment /parts
1.	Car Jet washer with standard accessories	<ul style="list-style-type: none"> - Power Supply: 3 Phase - Minimum Motor Power: 1 HP - Minimum RPM: 1400 - Discharge Pressure: 10.0-20MPa (1MPa: 10.2 kgf/cm²) - No of Reciprocating Plungers: 3 - Max Water Discharge: 10-20 lpm 	<ul style="list-style-type: none"> - Compact design for easy use - Reliable operations - Long functional life - To be provided with all safety guards 	<ul style="list-style-type: none"> - Pressure regulator & gauge - High-pressure water hose minimum 8m with pressure adjustable brass nozzle - Inlet Hose: 10 mtrs - Starter - SS Gun - Water Filter - Trolley - Attachment for foam wash 	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - List of Service Centres in India - Warranty Certificate 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	One Year
2.	Lifting jack screw type 3 ton	Lifting Jack Screw Type: -Capacity: 3 Ton	-The jack needs to be operational by inserting the bar in	- Bar for operating the Jack	- Standard	- Test Certificate from	- To be delivered at the	One year

			the hole at the top of turning			Competent Authority for Rated Load Capacity for Jack should be Provided - Warranty Certificate	designated Industrial Training Institute in Himachal Pradesh	
3.	Lifting jack screw type 5 Ton capacity	Lifting Jack Screw Type: -Capacity: 5 Ton	-The jack needs to be operational by inserting the bar in the hole at the top of turning	- Bar for operating the Jack	- Standard	- Test Certificate from Competent Authority for Rated Load Capacity for Jack should be Provided - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One year
4.	Lifting jack screw type 20 Ton capacity	Lifting Jack Screw Type: -Capacity: 20 Ton	-The jack needs to be operational by inserting the bar in the hole at the top of turning	- Bar for operating the Jack	- Standard	- Test Certificate from Competent Authority for Rated Load Capacity for Jack should be Provided - Warranty Certificates	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One year

5.	Thermostat for Use with Petrol MPFI Engine	-This Thermostat is to be used with MPFI Engine being procured at SR. NO 177 of MMV Trade Syllabus.	- The item Should be New - This item will be used by trainees for practical integration with the MPFI Engine.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
6.	Air bag simulator	Air bag simulator: - The simulator adopts the real components of Air bag system to illustrate Air bag safety system structure and working principle. - The simulator should have Driver & Co Driver Air Bags, Seat belts with front seats, crash sensors, air bag ECU, Wiring Harness - Airbag Control ECU Monitors no of Related Sensors within the Vehicle including accelerometers, Wheel Speed Sensors, Seat Occupancy Sensors and Brake Pressure Sensors etc. -When requisite threshold has been reached or exceeded, the air bag control unit will trigger the ignition of a gas generator propellant to rapidly inflate	- Real and operatable Air bag system	- Standard	- Standard	- User/Operating Manual - List of Service Centres in India - Warranty Certificates	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

		air bag. - As the vehicle occupant collides with and squeezes the bag, the gas escapes in a controlled manner through small Vent Hole.						
7.	Air conditioning service Unit (Car)	<ul style="list-style-type: none"> - Functions: Recovery, Oil discharge, Vacuum, Oil re-integration, Gas Charging - Refrigerant Type: R134a or Equivalent - Operation: Automatic - Refrigerant filling accuracy: ± 10 gram - Vacuum Pump Capacity: 84 l/min (Minimum) - Gas reservoir capacity: 12 litres (Refillable) - Display: LCD Graphic - Power supply :220 V 50 Hz 	<ul style="list-style-type: none"> - Automatic operation - Suitable for All Types of Cars - Fully automatic single gas station for recovering, recycling and recharging R134 refrigerant or Equivalent - Recovery with vacuum pump - Alarm for High pressure, Full bottle & Empty bottle - Service Alarm for maintenance and filter replacement, replacement request - Automatic leak check during vacuum phase - Automatic drain & stop after recovery - Automatic discharge of non-condensable gases from the bottle 	- Suitable Capacity voltage Stabilizer for safer operation of AC unit	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - List of Service Centres in India - Warranty Certificate 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	One Year

8.	Alternator assembly used for LMV	-This Alternator assembly is to be used with MPFI Engine being procured at SR. NO 177 of MMV Trade Syllabus.	- This item will be used by trainees for practical integration with the MPFI Engine. - Nominal output >50 Amp - The item should be New	- Standard	- Standard	- Warranty Certificate	'- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
9.	Cut section Model of Mock layout of a motor car –electrical system working model	The mock layout consisting of minimum : - Head Light Circuit - Horn Circuit - Tail Light Circuit - Side Indicators - Brake light Circuit - Ignition Circuit - Working of Self-starter - Charging Circuit (Motor Driven Alternator) - Front Lighting Panel - Dash Board Panel - Ignition System (sparks from plug to be shown with Distributor & battery) - Car Audio system - Power Window mechanism - Wiper Motor - Anti Theft Device Wiring Circuit - Electric Power Steering Circuit - Immobilizer Circuit	- Wiring with parts and accessories of a car to be arranged according to the electrical circuit of a car - Should be mounted on suitable table of suitable dimension.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

		- Reverse Parking Assist						
10.	Demonstration board of MPFI system working model	<p>The Demonstration Board for Three Cylinder MPFI Engine consisting of minimum :</p> <ul style="list-style-type: none"> - Injectors - Rail - Inlet manifolds - Throttle body - Distributor - ECU - Canister Purge Valve - Carbon Canister - Fuel Tank Module - Supporting Sensors such as Lambda Sensor, Engine Speed sensor, Cam Position sensor, Oxygen sensor, Airflow sensor, MAP sensor etc. - Crank Pulley - Fuel Tank Module - AC to DC convertor shall be provided as an alternative to battery for power input 	<ul style="list-style-type: none"> - The Demonstration board should be mounted on painted iron frame. - All the items used should be New 	- Standard	- Standard	<ul style="list-style-type: none"> - Warranty Certificate - Wiring Diagram 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	One Year
11.	Multi Scan Tool To scan Engine, ABS & EBD, AT, SRS, Body Control and immobilizer	<ul style="list-style-type: none"> - Should be connected to all current laptops/ computers via the USB interface. - Connectivity : Bluetooth, Wireless, USB cable - Should be easily 	<ul style="list-style-type: none"> - Suitable for most Indian vehicles of different models and manufactures - Should perform automotive sensor simulation test 	<ul style="list-style-type: none"> - OBD connection cable (1.5m) - Power supply Unit - Measuring 	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - List of Service Centres in India 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in 	3 Years

		<p>connected to a vehicle of different models of all manufactures using an OBD connector</p> <ul style="list-style-type: none"> - LED display - Should Measure all actuators and sensors in the vehicle - Multimeter measurements during guided trouble-shooting with automatic transfer of measured values - Automatic control unit search function - Resistance measurement with extended measuring ranges - Continuity tester for fault localisation - Voltage measurement with enhanced measurement functions 	<p>specially designed to diagnose and simulate vehicle sensor faults for sensors like MAP sensor, Intake air temperature sensor, TP sensor etc</p> <ul style="list-style-type: none"> -Support for all relevant and future diagnostic protocols based on ethernet. - Enhanced measurement technique included to Support diagnosis and vehicle repair - Parallel operation of diagnostic protocols ensuring optimal use of vehicle manufacturer protocols - Sturdy design, optimised for rough workshop environments - Powerful Bluetooth hardware for mobile use and reliability - Built-in technology to measure voltage, resistance and 	<p>accessories</p> <ul style="list-style-type: none"> - USB connecting cable (3m) - Bluetooth USB adaptor - Trolley mounting parts set - Case - Operating Software compatible with Windows 7, Windows 8 and Windows 10 		<p>- Warranty Certificates</p>	<p>Himachal Pradesh</p> <ul style="list-style-type: none"> - As required by the training and maintenance staff of the Industrial Training Institute 	
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			current - Built-in LEDs indicate the current communication status between the vehicle and PC					
12.	Starter motor axial type	Starter Motor : - Starter motor axial type - Compatible with Petrol/Diesel Engine	- The item should be New	-Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
13.	Starter motor pre-engagement type	Starter Motor : - Starter motor Pre-engagement type - Compatible with Petrol/Diesel Engine	- The item should be New	-Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
14.	Starter motor Co-axial type	Starter Motor : - Starter motor Co-axial type - Compatible with Petrol/Diesel Engine	- The item should be New	-Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year

15.	Ultrasonic injection cleaning equipment	Ultrasonic injection cleaning equipment : - Main Supply : 220 V AC, Single Phase, 50HZ - Also operatable on 12 V DC - Ultrasonic Cleaning Power : Minimum 80 W - Stimulated RPM Range 10~9900 rpm; step :10 rpm - Time range:1~9999 sec - Fuel tank capacity: Minimum 500 ML	- Ultra Sonic Cleaning - Ultrasonic test with timer - Flow analysis & spray pattern test - Leakage test - Injecting Flow test - Auto programming mode - On-Vehicle Cleaning - Ultrasonic test with timer - SS Tank with Lid - SS Stand	- 10 Ltr Cleaning Chemical for Injector - Adaptors and couplers to facilitate cleaning on injectors on vehicle	- Standard	- User/Operating Manual - Warranty Certificate	To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
16.	Working Model of power windows	- Actual working model of power window of Car/SUV Showing parts like door, glass with motor and its gear arrangement and operating switch. - Single Door should be provided - AC to DC convertor shall be provided as an alternative to battery for power input - Door should be suitable sectioned and arranged to demonstrate the internal construction details showing the minute	- The model should be suitably painted and The entire model shall be mounted on a sturdy iron frame	-Standard	- Standard	- Warranty Certificate	To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

		information's such as motor and its gear arrangement etc.						
17.	Working model of Air Brake Assembly	<p>The working Model of Air brake assembly consisting of minimum :</p> <ul style="list-style-type: none"> - One front drum should be cut out show the working internally of drum and whole parts assembly fitted on the frame. - The front drum should run hand operated, - One rear drum assembly (without drum) brake shoe with liner show working of the brake. - Air compressor - Air Dryer - Unloader valve - Foot valve - Booster - Air tank with safety valve - Control valve - Brake chamber - Foot brake - Hand brake - Brake Light/Stop Light should be functional - Air Pressure gauges should be provided for checking air tank air 	- Complete unit is mounted on a painted sturdy iron frame with caster wheel.	-Standard	- Standard	- Warranty Certificate	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	One Year

		pressure. - Single phase 220V AC motor should be coupled to the compressor for generation of the air, which is used for the operation of the air brake assembly						
18.	AC alternator slip ring puller	- AC alternator slip ring puller of Variable Size - Puller Material: Steel	- Standard	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
19.	Compression testing gauge suitable for diesel Engine with standard accessories	Compression testing gauge: - Analog Type - 2-1/2-inch gauge - Dual scale gauge reads 0-300 psi (0-2100 kPa)	- Suitable for diesel Engine - Corrosion resistant nickel plated finish - Adapters work on both flat and tapered seat plugs - Extra long 25 inch flex hose gauge assembly with quick coupler - Should be provided in Rugged blow moulded hard case	- 12 inch flex-14 millimetre standard reach - 12 inch flex-14 millimetre long reach - 10, 12, and 18 millimetre thread adapters	- Standard	- Warranty Certificate	-To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
20.	Cut section models of shock	Cut section Model of Shock Absorber For Two Wheeler :	-The Model should be mounted on iron frame painted.	- Standard	- Standard		- To be delivered at the	

	absorbers	<ul style="list-style-type: none"> - Telescopic Type - The Model should be suitably sectioned to demonstrate the internal construction details showing the minute information <p>Cut section Model of Shock Absorber For Four Wheeler :</p> <ul style="list-style-type: none"> - Telescopic Type - The Model should be suitably sectioned to demonstrate the internal construction details showing the minute information 	<ul style="list-style-type: none"> - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet 				designated Industrial Training Institute in Himachal Pradesh	
21.	Cut section of cross ply tyres	<p>Cut Section Model of Cross Ply Tyre:</p> <ul style="list-style-type: none"> - Size: 155/65 R13 - Model should be suitably sectioned to demonstrate the internal construction details 	<ul style="list-style-type: none"> -The Model should be mounted on iron frame painted - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet 	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
22.	Cut section of radial tyres	<p>Cut Section Model of Radial Ply Tyre:</p> <ul style="list-style-type: none"> - Size: 155/65 R13 - Model should be suitably sectioned to demonstrate 	<ul style="list-style-type: none"> -The Model should be mounted on iron frame painted. - The item should be supplied in a dust 	- Standard	- Standard		- To be delivered at the designated Industrial	

		the internal construction details	proof wooden box & covered by the acrylic sheet				Training Institute in Himachal Pradesh	
23.	Cut section working model of automatic transmission Gear box	Cut Section Working Model of Automatic Transmission: <ul style="list-style-type: none"> - Model made out of original fullsize gearbox - Model suitably sectioned to show the internal mechanism of forward and reverse speeds. 	- Complete unit is mounted on a sturdy iron frame	- Standard	- Standard	- User/Operating Manual	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
24.	Cut section working model of centrifugal clutch assembly.	Cut Section Working Model of Four-Wheeler Centrifugal Clutch Assembly: <ul style="list-style-type: none"> - The model should be made out of original parts such as clutch pulley, clutch liner, clutch plate, clutch spring, and Input shaft. to demonstrate the working of clutch assembly. - Model should be operated by suitable electric motor (220V/50 Hz AC) with manually speed control for demonstration - Model should be suitably sectioned to demonstrate the internal construction details 	- Complete unit is mounted on a painted sturdy iron frame	- Standard	- Standard	- User/Operating Manual	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	

25.	Cut section working model of Diaphragm clutch assembly.	Cut Section Working Model of Diaphragm Clutch Assembly: <ul style="list-style-type: none"> - The model should be made out of original parts such as Flywheel, Pressure Plate Diaphragm type ,Clutch plate, fork clutch release bearing, input shaft etc. to demonstrate the working of clutch assembly. - By operating The pedal provided The operation can be demonstrated. - Model should be suitably sectioned to demonstrate the internal construction details 	- Complete unit is mounted on a painted sturdy iron frame	- Standard	- Standard	- User/Operating Manual	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
26.	Cut section working model of Single plate clutch assembly.	Cut Section Working Model of Single Plate Clutch Assembly: <ul style="list-style-type: none"> - The model should be made out of original parts such as Flywheel, Pressure Plate Finger type ,Clutch plate, fork clutch release bearing, input shaft etc. to demonstrate the working of clutch assembly. - By operating The pedal provided The operation can be demonstrated. - Model should be suitably 	- Complete unit is mounted on a painted sturdy iron frame	- Standard	- Standard	- User/Operating Manual	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	

		sectioned to demonstrate the internal construction details						
27.	Cylinder bore gauge capacity 20 to 160 mm	Cylinder Bore Gauge: - Display Type: Analog - Accuracy: 0.01mm - Measuring Range: 20 to 160 mm	- Should be provided in Rugged blow molded hard case	- Measuring head - Extension rods	- Standard	- User/Operating Manual - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
28.	Cylinder liner- Dry & press fit liner	Cylinder liner: - Dry liner for engine cylinder (Press Fit)	- The item used should be New	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
29.	Cylinder liner- wet liner & slide fit liner	Cylinder liner: - Wet liner for engine cylinder with Rubber 'O' Ring (Side fit liner)	- The item used should be New	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
30.	Demonstration board of electronic Ignition	Demonstration Board of Electronic Ignition System - The open demonstration-working unit consisting of	- The model should be supplied with necessary wiring connections.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated	One Year

	system, ignition coil	minimum: - Ignition Switch - Electronic Ignition Coil - HT Wires - Distributor - Four Spark Plugs - Battery	- By switching on the switch and by giving rotation to the Distributor, Sequential Sparks in the spark plugs - Complete unit is mounted on a painted sturdy iron frame				Industrial Training Institute in Himachal Pradesh	
31.	Different type of Engine Bearing model	Different type of Engine Bearing(Generic Size for Demonstration) Model of(One Each) suitable for Engine: - Shell bearing for crankshaft(Main Journal & Big End Journal) - Thrust bearing for Crankshaft - Ball Bearing for Crank Shaft - Bush Bearing for Connecting Rod - Needle bearing for Connecting Rod - Bush bearing for Camshaft & Rocker Arm - Shell bearing for Overhead Cam Shaft - Needle Bearing for Rocker Arm	- Model should be mounted on a wooden board name mentioned of each bearing - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
32.	Different type of piston	Different Type of Piston Model(Generic Size for	- All the Piston Models should be	- Standard	- Standard		- To be delivered at	

	model	Demonstration(One Each) : - As Per Piston Head Design :Dome head, Flat Head, Concave Head, Irregular Head. - As Per Skirt : Solid Skirt & Split Skirt - As Per Ring Groove :Rectangular Groove, Taper Faced Ring Groove, Barrel Faced Ring Groove, Inside Bevel Ring Groove, Key Stone Ring Groove. - As per gudgeon pin : Fixed Gudgeon Pin, Semi Fixed Gudgeon Pin, Full Floating Gudgeon Pin. All to be provided with Lock.	mounted on a wooden board name mentioned of each type of Piston. - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet				the designated Industrial Training Institute in Himachal Pradesh	
33.	Disk brake in working condition with calliper assembly with all parts	The Working Model of LMV disk brake assembly consisting of following minimum parts & practically demonstratable: - Brake disc Assembly - Calliper assembly - Tandem Master Cylinder & Operating Mechanism - Brake Hoses, Oil Reservoir with Oil - Pedal	- Complete unit is mounted on a painted sturdy iron frame - Disc should be run by suitable electrical motor with facility for changing the speed along with necessary safety circuit for motor to show working of brake system. - Should be able to rotate the disc	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial	One Year

			manually as and when desired.				Training Institute	
34.	Drum brake assembly in Working Condition	The Working Model of drum brake assembly should have minimum: - Brake drum Assembly - Drum with liner plate, wheel cylinder and operating mechanism - Wheel Cylinder - Tandem Master Cylinder & Operating Mechanism - Brake Hoses, Oil Reservoir with Oil - Brake Pedal	- Complete unit is mounted on a painted sturdy iron frame - Drum should be run by suitable electrical motor with facility for changing the speed along with necessary safety circuit for motor to show working of brake system. - Should be able to rotate the drum manually as and when desired.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
35.	Front axle (Rzeppa Joint) with stand for Dismantling and assembly	Front axle (Rzeppa Joint) of a Generic LMV of Engine Minimum 1000cc Capacity(petrol/Diesel)	- The axle should be mounted on stand	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
36.	Fuel feed pump for diesel	-This Fuel feed pump for diesel is to be used with Fuel injection pump (Diesel) inline being	- Hand operated Plunger Type - The item should be New	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated	One Year

		procured at SR. NO 61 of MMV Trade Syllabus.	- The item should be supplied in a dust proof wooden box & covered by the acrylic sheet.				Industrial Training Institute in Himachal Pradesh	
37.	Fuel injection pump (Diesel) inline	Fuel injection pump (Diesel) Inline: - Complete Pump assembly suitable for 4/6 cylinders Diesel engine - RSV Mechanical Pneumatic Governor Type	- The part should be New - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet.	- Standard	- Standard	- Complete Basic setting Chart - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
38.	Distributor Type fuel rotary pump (DPC) pump along with special tools and accessories.	Fuel injection pump (Diesel): - Type: Distributor fuel rotary pump (DPC) - Complete Pump assembly compatible for 4 cylinders Diesel engine	- To be supplied with along with all tools & special tools and accessories for dismantling & assembling Fuel injection pump	- Standard	- Standard	- Complete Basic setting Chart - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and	One Year

							maintenance staff of the Industrial Training Institute	
39.	Full floating axle Assembly	Full floating axle Assembly: The Assembly should be consisting of minimum: - Full floating axle - Differential assembly - Brake assembly	- Complete unit is mounted on a sturdy frame - Drum & axle casing should be with all components in working condition - Working can be demonstrated by operating the crank handle fitted on the differential pinion.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
40.	Semi-floating axle assembly	Semi floating axle Assembly: The Assembly should be consisting of minimum: - Semi floating axle - Differential assembly - Brake assembly	- Complete unit is mounted on a sturdy frame - Drum & axle casing should be with all components in working condition - Working can be demonstrated by operating the crank handle fitted on the differential pinion.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and	One Year

							maintenance staff of the Industrial Training Institute	
41.	Functional/experiment model of different type of sensors.	Functional/experiment model of different type of sensors consisting of minimum: - Petrol injector - Inlet manifolds - Throttle body - Distributor - ECU - Canister Purge Valve - Carbon Canister - Fuel Tank Module - Supporting Sensors such as Throttle Position Sensor, Manifold Absolute Pressure Sensor, Engine Coolant Temperature Sensor, Vehicle Speed Sensor, Oxygen Sensor, Crankshaft Position Sensor, Camshaft Position Sensor, Intake Air Temperature Sensor, Mass Air Flow Sensor, Knock Sensor etc. -AC to DC convertor shall be provided as an alternative to battery for power input	- The Demonstration board should be mounted on painted iron frame. - All the items used should be New.	- Standard	- Standard	- Warranty Certificate - Wiring Diagram	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
42.	Injector –	Complete Multi hole type	- The item should be	- Standard	-	- Warranty	- To be	One

	Multi hole type	Injector Assembly	New - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet		Standard	Certificate	delivered at the designated Industrial Training Institute in Himachal Pradesh	year
43.	Injector – Pintle type	Complete Pintle type Injector Assembly	- The item should be New - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One year
44.	Injector testing set (Hand tester)	Injector testing set (Hand tester): -Comprising of Injection pump with hand lever transparent fuel container with filter, Three way shut off valve with valve spindle to isolate the pressure gauge while operating hand lever at high speed. - High quality Pressure gauge Range: 0 - 400 BAR (0 - 40 MPa).	- Hand Operated Injector Testing set capable to adjust nozzle seat tightness, carrying out leakage tests, for Injector nozzle opening pressure, chatter characteristic tests and spray pattern atomization repetition tests	- Standard	- Standard	- User/Operating Manual - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

45.	Piston ring compressor	Piston Ring Compressor: - Maximum size: 5 inches - Minimum size: 2 inches	- Standard	- Allen Key for Operation	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
46.	Piston Ring expander and remover.	Piston Ring Expander and Remover: - Maximum size: 4 inches - Minimum size: 2 inches	- Standard	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
47.	Piston Ring groove cleaner	Piston Ring Groove Cleaner: - Multi sizes groove cleaners for cleaning groove of Piston	- Suitable to clean the all types of piston ring groove of Car, Buses, Trucks, Motorcycles	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
48.	Radiator cut section-cross flow	Cut Section Model of Radiator: - Cross Flow Type - Radiator with sectioned side tanks, radiator core to demonstrate the internal construction details.	- The Model should be mounted on painted iron frame - Radiator should be corrosion free and dent free.	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in	

							Himachal Pradesh	
49.	Radiator cut section-down flow	Cut Section Model of Radiator: - Down Flow Type - Radiator with sectioned upper & lower tanks, radiator core and cap to demonstrate the internal construction details.	- The Model should be mounted on painted iron frame - Radiator should be corrosion free and dent free.	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
50.	Radiator pressure cap (LMV)	- This Radiator pressure cap for LMV is to be used with MPFI Engine being procured at SR. NO 177 of MMV Trade Syllabus.	- The item Should be New - This item will be used by trainees for practical integration with the MPFI Engine.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
51.	Spark plug spanner Size: 14mm & 18 mm Long bit	Heavy Duty Spark Plug Spanner Long bit: - Long neck Socket type with T Handle, - Set of Sizes- 14mm,16mm & 18mm(One Each)	- Chrome Plated	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
52.	Steering assembly - Rack & pinion	Rack & Pinion Steering Assembly Comprising of : - Steering wheel, - Steering Column &	- The assembly should be operational - All items should be mounted on suitable	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial	One Year

		Steering Shaft - Rack & Pinion Assembly - Tie Rod, Tie Rod Ends & all other steering linkages - Boot - Brake Assembly with Wheels	iron frame and easily operatable.				Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
53.	Steering assembly - Worm & roller	Worm & Roller Steering Assembly Comprising of minimum: - Steering wheel, - Steering Column & Steering Shaft - Worm & Roller Steering Gear Box - Drop Arm - Idler Arm - Tie Rod Ends - Centre Link - Brake Assembly with Wheels	- The assembly should be operational - All items should be mounted on suitable iron frame and easily operatable.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
54.	Steering assembly - Recirculating ball	Recirculating Ball Steering Assembly Comprising of minimum: - Steering wheel - Steering Column &	- The assembly should be operational - All items should be mounted on suitable	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial	One Year

		Steering Shaft - Recirculating ball Steering Gear Box - Drop Arm - Pitman Shaft - Track Rod - Tie Rod - Steering Arms - Brake Assembly with Wheels	iron frame and easily operatable.				Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
55.	Steering assembly - Power steering	Power steering(Hydraulic) Assembly Comprising of minimum : - Steering Wheel - Steering Column - Power Steering Unit (Rack & Pinion Type) - Power Steering Pump with Oil Reservoir - Hydraulic Hoses - Tie Rod, Tie Rod Ends & all other steering linkages - Brake Assembly with Wheels - Suitable Single Phase Motor to run the power steering pump	- The assembly should be operational - All items should be mounted on suitable iron frame and easily operatable.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
56.	Steering assembly - Electric Assisted	Electric Assisted Power Steering Comprising of minimum: - Steering Wheel	- The assembly should be operational - All items should be	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated	One Year

	Power Steering	<ul style="list-style-type: none"> - Steering Column - Rack & Pinion Assembly - Signal Sensors - Electric Motor and Motor Control Module with compatible battery supply - Tie Rod, Tie Rod Ends & all other steering linkages - Brake Assembly with Wheels 	mounted on suitable iron frame and easily operatable.				Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
57.	Synchronous Gear box with 5 Forward & 1 Reverse Gear for Use with CRDI Diesel Engine	Purpose : '-This Synchronous Gear box with 5 Forward & 1 Reverse Gear is to be integrated with CRDI Engine being procured at SR. NO 164 of MMV Trade Syllabus.	<ul style="list-style-type: none"> - Complete unit is mounted on a painted sturdy frame suitable for Dismantling and assembly practice. - This item will be used by trainees for practical integration with the CRDI Engine. 	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year
58.	Tachometer (Counting type)	Tachometer (Counting type): <ul style="list-style-type: none"> - Type: Digital - Display: 5-digit Backlight 	<ul style="list-style-type: none"> - Can Measure RPM in Non-contact & Contact - Should be provided 	- Reflecting Tape	- Standard	- User/Operating Manual - Warranty	- To be delivered at the designated	One Year

		LCD Display - Accuracy: 0.02% +/- 2 digits - Contact Measuring Range: 2-20000 RPM - Non-contact Measuring Range: 2-99999 RPM - Measuring Distance: 50mm-600 mm -To be supplied with suitable power supply	in Rugged blow hard case			Certificate	Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
59.	Working model of Tandem master cylinder with booster	The working Model should be made of following minimum parts: - Tandem Master Cylinder - Complete Vacuum Booster System consisting of suitable vacuum pump and other necessary parts.	- Standard - This item should be independently operatable - All the items should be new	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
60.	Tandem master cylinder with booster	-This Tandem master cylinder with booster is to be used with Working model of Tandem master cylinder with booster being procured at SR. NO 155 of MMV Trade Syllabus.	- The item Should be New - This item will be used by trainees for practical integration with the Working model of Tandem master cylinder with booster.	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
61.	Tubed tyre of car, trucks & motorcycle	Tyre(One Each) : Tyre with Tube for Motorcycle:	- All items Should be New	- Standard	- Standard	- Warranty Certificate	- To be delivered at the	One Year

		<ul style="list-style-type: none"> - Size : 100/90-17 - Fitted on a suitable alloy wheel Tyre with Tube for Car: <ul style="list-style-type: none"> - Size : 155/65 R13 - Fitted on a suitable alloy wheel Tyre with tube for Truck: <ul style="list-style-type: none"> -Size :10" X 20" 16 PR - Fitted on a suitable wheel 					designated Industrial Training Institute in Himachal Pradesh	
62.	Tubeless tyre of cars & trucks	Tubeless Tyre (One Each) Tubeless Tyre with Tube for Car: <ul style="list-style-type: none"> - Size : 155/65 R13 - Fitted on a suitable alloy wheel Tubeless Tyre with tube for Truck: <ul style="list-style-type: none"> - Size :10" X 20" 16 PR - Fitted on a suitable wheel 	- All items Should be New	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
63.	Turbocharger cut sectional view Latest WGT type	Actual Cut Section of a Latest WGT type Turbocharger: <ul style="list-style-type: none"> - Turbocharger should be suitably sectioned to show following components: - turbine - impeller - compressor wheels - Waste Gate Valve - Inlet Manifold 	<ul style="list-style-type: none"> - The sectioned parts to be suitably painted to demonstrate the internal construction details - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet 	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	

64.	Tyre & split rim wheel assembly	Tyre & Split Rim Wheel Assembly for Two Wheeler	- All items Should be New	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
65.	Tyre pressure gauge with holding nipple	Tyre Pressure Gauge with Holding Nipple: - Type: Analog - Pressure Range: 0-170 PSI - Accuracy: ± 1 PSI - Unit: PSI, BAR	- Suitable for testing Pressure in Car, Motorcycle and Truck	- Standard	- Standard	- User/Operating Manual - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
66.	Universal puller for removing pulleys, bearings	- Universal puller Capable for Removing Pulleys and Bearings of Size Range: 1" to 8 " -Universal Puller Material : Steel	- Standard	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
67.	Vacuum gauge to read 0 to 760 mm of Hg.	- Vacuum Gauge: - Type: Analog - Range :0 to 760 mm of Hg	- Suitable for checking the engine vacuum of Two Wheeler/Four Wheeler Vehicles of different Models & Manufacturers	- Adaptors and standard accessories	- Standard	- User/Operating Manual - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in	One Year

			- Should be provided in Rugged blow moulded hard case with removable lid				Himachal Pradesh	
68.	Valve Lifter	Valve Lifter	- Compatible with Engines of Two Wheeler/Four Wheeler Vehicles of different Models & Manufacturers	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
69.	Valve spring compressor universal.	Valve Spring Compressor Universal	- Compatible with Engines of Two Wheeler/Four Wheeler Vehicles of different Models & Manufacturers	- Standard	- Standard	- Warranty Certificate		One Year
70.	Automotive Water pump for dismantling and assembling	- This Automotive Water pump for dismantling and assembling is to be used with CRDI Engine being procured at Sr No. 164 of MMV Trade Syllabus.	- The item Should be New - This item will be used by trainees for practical integration with the CRDI Engine. - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One Year
71.	Working model of torque	Working model of torque converter of LMV:	-The Model should be mounted on suitable stand for	- Standard	- Standard	- Warranty Certificate	To be delivered at the	One Year

	converter of LMV	- Driven by compatible Variable Speed Single Phase Motor to demonstrate the working of Torque Converter.	safety and working purpose.				designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
72.	Automotive exhaust 5 gas analyser (petrol & Diesel)	Automotive exhaust 5 gas analyser (petrol & Diesel): - Exhaust 5 Gas Analyzer Petrol ARAI approved to check CO, CO ₂ , O ₂ and HC & NO. - CO Range : 0- 15 %,Resolution : 0.001% - HC Range :0-20000 ppm, Resolution : 1 ppm - CO ₂ Range : 0- 20 %,Resolution : 0.01% - O ₂ Range : 0- 25 %,Resolution : 0.01% - NO Range : 0-5000 ppm, Resolution : 1 ppm - Accuracy : ±2 % to ±3 % - Measuring Gas Intake :	- Should Measure emission in petrol and diesel engines - Self diagnostic facility - Integrated self check facility - Electronic leak check facility - Automatic pump control facility - Automatic zero calibration - Digital span calibration - USB and RS 232C parts for PC interface - Operable on both AC and DC	- Sampling Tube - Sampling Probe - Battery cable (for DC operation & Engine RPM measurement) - RPM adaptor - Vertical exhaust extension pipe - Camera - Latest software &	- Standard	- User/Operating Manual - Warranty Certificate - List of Service Centres in India	To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

		Minimum 1 ltr/min - Display : LED display - Response time I < 5 Seconds - Warm-up time @25°C & above < 3 Minutes - Operating temperature : 0°C to +50°C, - Power Supply : 230 V/50 Hz AC Mains	- Fuel selection facility petrol/Diesel - Low battery voltage cut-off - Pass / Fail indication and emission limit in printout - Vehicle no., vehicle specification, operator name and test data in printout - RS232C serial port for PC interface - RPM and oil temperature of the engine	RS232 Interface cable - Printer and all other standard accessories.				
73.	Diesel Engine – CRDI - 4 stroke for Dismantling and assembling with swivelling stand	Engine Specifications: - Latest 4 Stroke 4 Cylinder - Fuel Type : Diesel - Engine Displacement :800-1600cc - Fuel Injection System : CRDI, Turbocharged - The Diesel Engine should be in running condition, with ECM, BCM, a Ignition Switch with Keys, all sensors(Air Mass Flow, EGR, Lambda/Oxygen Sensor, Fuel Pressure Regulator, Rail Pressure Sensor, Crank	- The Engine Assembly Should be New - The Engine should be possible to mount on a swivelling stand with 360 degree rotation and inerlockable at different positions. - A large oil drip pan should be provided at the bottom to collect the small screws, parts and oil dripping. - Separate Trolley	- Standard	- Standard	- User/Operating Manual - Warranty Certificate from OEM or Proof of New Engine to be provided - List of Local Service Providers	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

		<p>Angle/RPM/TDC Sensor, Coolant Temperature Sensor, Cam Angle Sensor, Boost Pressure Sensor, Fuel Temperature & Water in Fuel Filter Sensor), wiring, fuel feed & cooling system & instrument cluster, Radiator with Intercooler and Cooling Fan, Air Filter Assy, A Mounting, Fuse Box, Glow Plug Timer, Fuel Filter, Engine Oil Pressure Switch, Alternator, Starter Motor</p> <ul style="list-style-type: none"> - Instrument Cluster should display Fuel level, Battery Charging Light, Oil Pressure Light, Engine RPM. - Fuel Tank of Minimum Capacity 10 Litre, Engine Accessories- Silencer, and compatible Battery with clamp, Safety Guard for Silencer & Radiator. 	<p>with castor wheels on which radiator assembly with perforated safety guard is fixed.</p> <ul style="list-style-type: none"> - Separate Trolley with castor wheels on which Battery, panel Board, fuel tank, with wiring harness is fixed. - Any other accessories required to run the engine and test its performance. - Complete tool kit required for Dismantling and assembling the Engine. 					
74.	Diesel engine (Running condition) Stationary type	<p>Diesel engine (Running condition) Stationary type:</p> <ul style="list-style-type: none"> - Type: Vertical, Single Cylinder, Water-Cooled, Four Stroke Cycle, OH 	<ul style="list-style-type: none"> - The assembly should be mounted on iron frame and painted. - All items should be 	- Standard	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - Warranty Certificate 	- To be delivered at the designated Industrial	One Year

		valves, Compression Ignition Diesel Engine - Minimum Rated Power : 5 HP	New - Should be provided with Air Intake System, Exhaust System, Fuel Supply System, Oil Lubrication System and other standard accessories etc.			from OEM or Proof of New Engine to be provided - List of Local Service Providers	Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
75.	Four stroke petrol engine with CNG setup-working condition	Engine Specifications: : - Fuel Type : Petrol & CNG - Fuel Injection System : MPFI - Engine Displacement : 800-1600 cc - Cycle : Four Stroke - No of Cylinders : 3/4 - Engine should be supplied with ECM, BCM Ignition Switch with Keys, all sensors(Crank Angle/RPM/TDC Sensor, Oxygen/Lambda Sensor, Coolant Temperature Sensor, Engine Oil Pressure Switch, Absolute Pressure Sensor, Throttle Position Sensor), wiring, fuel feed system, Air Intake & Exhaust System, cooling system, Engine	-All the items should be new - The assembly should be mounted on iron frame and painted. - Any other accessories required to run the engine and test its performance. - This assembly should be independently operatable	- Filled CNG Gas Cylinder (Re-fillable) mounted on trolley for running the Engine	- Standard	- User/Operating Manual - Warranty Certificate from OEM or Proof of New Engine to be provided - List of Local Service Providers	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One Year

		<p>Starting System and Charging System, Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter, Lubrication System with compatible battery & instrument cluster with CNG/ Petrol selection switch on Panel - Instrument Cluster should display Fuel level, Battery Charging Light, Engine Oil Pressure Light, and Coolant High Temperature Warning Light.</p> <p>Fuel Tank of Capacity Minimum 10 Litre, CNG Tank/ Cylinder of Capacity Minimum 7 Kgs.</p> <p>Engine Accessories- Silencer, New Battery with clamp, and Wire Mesh/Perforated Sheet - Safety Guards for Radiator and Silencer.</p>						
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76.	Heavy Commercial vehicle type Fitted with Latest 06-cylinder CRDI diesel engine with all parts and accessories. (without body on frame), Non-Air Conditioned	<ul style="list-style-type: none"> - Transmission Type : Manual - No of Gears(Minimum) : 5 Forward+1 Reverse - Engine Displacement(Minimum) : 5500 cc - Drive : Rear Wheel drive - Clutch Type: Single Clutch Plate Hydraulic Assisted - Comfort Features: <ul style="list-style-type: none"> - Air Brake - Push Back Front Seats - Seat Belts & Warning - Power Steering - Anti Glare Rear View Mirror - Engine Immobilizer - Seat Belt Warning - Fitted with Latest 06 cylinder CRDI diesel engine with all parts and accessories All other standard Specifications of any standard HCV 	<ul style="list-style-type: none"> - Seat Upholstery: Fabric - Mud Guard Flaps 	<ul style="list-style-type: none"> - One Spare Wheel - Tool Kit with Jack - First Aid Kit - Warning Reflector with Stand 	<ul style="list-style-type: none"> - Spare Head Light Bulbs - Spare Ignition Key 	<ul style="list-style-type: none"> - User/Operating Manual - Service Manual - List of Service Centres in India - Warranty Certificates - Insurance Certificates - Registration Certificate in the name of Industrial Training Institute of Delivery Location 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	3yrs comprehensive
77.	Hydraulic jack HI-LIFT type -3 ton capacity	Hydraulic Jack: <ul style="list-style-type: none"> - Hydraulic Jack HI-LIFT type: -Capacity: 3 Ton 	<ul style="list-style-type: none"> - Standard 	<ul style="list-style-type: none"> - Standard 	<ul style="list-style-type: none"> - Standard 	<ul style="list-style-type: none"> - Test Certificate from Competent Authority for Rated Load 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in 	One year

						Capacity for Hydraulic Jack should be Provided - Warranty Certificate	Himachal Pradesh	
78.	Hydraulic jack HI-LIFT type - 5 Ton capacity	Hydraulic Jack: - Hydraulic Jack HI-LIFT type: -Capacity: 5 Ton	- Standard	- Standard	- Standard	- Test Certificate from Competent Authority for Rated Load Capacity for Hydraulic Jack should be Provided - Warranty Certificate	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	One year
79.	MPFI petrol engine with swivelling stand along with special tools for dismantling and assembling	Engine Specifications: : - Fuel Type : Petrol - Fuel Injection System : MPFI - Engine Displacement :800-1600 cc - Cycle : Four Stroke - No of Cylinders : 3/4 - Engine should be supplied with ECM, BCM Ignition Switch with Keys, all sensors(Crank Angle/RPM/TDC Sensor, Oxygen/Lambda Sensor, Coolant Temperature	-All the items should be new - The assembly should be mounted on iron frame and painted. - Any other accessories required to run the engine and test its performance. - This assembly should be independently operatable	- All tools and special tools for dismantling and assembling Engine and standard accessories	- Standard	- User/Operating Manual - Warranty Certificate from OEM or Proof of New Engine to be provided - List of Local Service Providers	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial	One Year

		<p>Sensor, Engine Oil Pressure Switch, Absolute Pressure Sensor, Throttle Position Sensor), wiring, fuel feed system, Air Intake & Exhaust System, cooling system ,Engine Starting System and Charging System, Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter, Lubrication System with compatible battery & instrument cluster</p> <p>- Instrument Cluster should display Fuel level, Battery Charging Light, Engine Oil Pressure Light, and Coolant High Temperature Warning Light.</p> <p>Fuel Tank of Capacity Minimum 10 Litre,</p> <p>- Engine Accessories- Silencer, Compatible Battery with clamp, and Wire Mesh/Perforated Sheet - Safety Guards for Radiator and Silencer.</p>					Training Institute	
80.	Spring	Spring tension tester:	- Standard	- Standard	-	- Standard	-To be	One

	tension tester	<ul style="list-style-type: none"> - Capable to test the spring up to upto 5" free length - Manually operated - Display : analog. - Capacity to test springs :100 Kg/CM2 			Standard		delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	year
81.	Transfer case with stand for Dismantling and assembly.	-This Transfer case is to be integrated with Synchronous Gear box being procured at SR. NO 154 of MMV Trade Syllabus.	<ul style="list-style-type: none"> - Complete unit is mounted on a painted sturdy frame suitable for Dismantling and assembly practice. - This item will be used by trainees for practical integration with Synchronous Gear box. 	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	
82.	Tube/ tyre vulcanizing machine	Tube/ Tyre Vulcanizing Machine: <ul style="list-style-type: none"> - Voltage : 220 V/50Hz Mains - Minimum Heater Capacity :400W x 2 - The electric heating plate 	<ul style="list-style-type: none"> - The main frame should be tough, strong and durable - Auto Controlled can maintain constant temperature 	- Different types of Die & Mould	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - Warranty Certificate - List of Service 	- To be delivered at the designated Industrial Training Institute in	One year

		with Thermostat to control Heat.	automatically to ensure the temperature required during tire vulcanization. - Auto control temperature indicator light for safety			Centres in India	Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
83.	Two post car lift – capacity 4000 kg Hydraulic Type with Mechanical Arms Locking	Two Post Car Lift : - Capacity : 4000 Kg - Hydraulic Type with Mechanical Arms Locking - Minimum Overall Width:3400 mm - Minimum Width Between Columns:2750 mm - Minimum Drive-Thru:2400 mm - Minimum Over all Height : 3700 mm	Key Features: - Two separate lifting piston synchronized by steel cable - Twin stage adjustable lifting pad suitable for low pick up points - Two stage telescopic arms suitable to reach lifting points. safety mechanisms - Mechanical lock with the slotted bar at a various height - Dual function auto shut off overhead limit switch - Arm lock with gear teeth design Safety features: - Mechanical lock at	- Standard	- Standard	- User/Operating Manual - Warranty Certificate - List of Service Centres in India	- Installation and Commissioning of Lift in Supplier's Scope - Test Certificate to be provided after installation - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance	Two years

			both column - Dual function overhead shut off switch - Arm lock 25mm teeth design				staff of the Industrial Training Institute	
84.	Tyre Changer Machine	Tyre Changer Automatic Passenger Carrying Vehicle(PCV) & Light commercial vehicle(LCV): - Can Work with Tyres upto 23" rim diameter - Motorcycle tyres with optional adaptor - Minimum Motor Power: 1.1 kW - Air Requirement: 8 – 10 bar - Internal Rim Clamping :12" – 23" - External Rim Clamping: 10" – 20" - Bead breaker tire width :3" – 15" - Maximum Tire Diameter: 41" - Power supply Single phase - Complete with all accessories and components	-Motorized Pneumatic Type, Rim clamping facility, and bead breaking facility with air inflating device - Handles both standard steel wheels and delicate alloy wheels - High torque turntable with reversible direction Tilt – back arm design - Pneumatic lock for tower	-The Machine to be provided with suitable voltage stabilizer	- Standard	- User/Operating Manual - Warranty Certificate - List of Service Centres in India	- Installation and Commissioning of Tyre Changer Machine in Supplier's Scope - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	Two years

85.	Wheel alignment Machine – computerised 3D	Latest Wheel alignment Machine for four wheel alignment– Computerised 3D: <ul style="list-style-type: none"> - Rim Size:10" - 22" - Tyre Width:48" - 96" - Wheel Base:79" - 180" - Individual Toe:+/- 35 degrees - Caster:+/- 30 degrees, - Camber:+/- 55 degrees 	<ul style="list-style-type: none"> - Fixed Vertical Support - Camera Boom LH and RH with Ultra High Resolution Camera System - IR Lighting Source min. 8mm - Reflector metal based -Should work in sunlight - New light wheel clamps 12"-22" with targets,front,1each for RH and LH side - Closed Mobile Cabinet with printer drawer -PC with software and Power Backup(UPS)of Minimum 30 min - 19" color monitor 	<ul style="list-style-type: none"> - 1 set (2 nos) Turn Plates - Mechanical wheel chock unit - Steering wheel holder - Brake pedal depressor - Connecting lead cabinet with PC - Power cord - Color Printer - Vehicle specs, hard disc & DVD & Floppy drive - Suitable UPS - All other Standard Accessories 	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - Warranty Certificate - List of Service Centres in India 	<ul style="list-style-type: none"> - Installation and Commissioning of Wheel alignment Machine – computerised 3D in Supplier's Scope -Test Certificate to be provided after installation '- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	Two years
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86.	Wheel balancing machine For wheel balancing of LMV	Wheel Balancing Machine For wheel balancing of LMV: <ul style="list-style-type: none"> - Motor : Minimum 0.5 HP - Shaft Diameter : Min 38mm - Rim Diameter : 8" - 32" - Rim Width : 1" - 20" - Offset : 1" - 20 - Power Supply : 220 - 240 V, 50 - 60 Hz - Max. wheel diameter : 1050 mm - Wheel width: 76-508 mm - Max. wheel weight : 70 Kg 	<ul style="list-style-type: none"> - Semi-automatic input of rim diameter and offset with gauge arm - Hardened flange assy. Balancing catch nut of metal - 19" TFT monitor - Manual input of rim width - Imbalance optimisation program - Imbalance minimisation program - Constant rotational speed - Semi-automatic selection of balancing modes - Reduced cycle time - Split weight mode - The pedal-operated mechanical lock should firmly hold the wheel in every position 	-The Machine to be provided with suitable voltage stabilizer	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - Warranty Certificate - List of Service Centres in India 	<ul style="list-style-type: none"> - Installation and Commissioning of Tyre Changer Machine in Supplier's Scope - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	Two years
87.	Diesel Engine – CRDI - 4 stroke Engine assembly with fault simulation	Complete Engine assembly with Fault simulation Board with following minimum : <ul style="list-style-type: none"> - Engine Fuel Type : Diesel - Fuel Injection System : 	<ul style="list-style-type: none"> - All the items should be new - The assembly should be mounted on iron frame and painted. 	- Standard	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - Warranty Certificate from OEM 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training 	One year

	board in working condition	<p>CRDI, Turbocharged</p> <ul style="list-style-type: none"> - Cycle : Four Stroke - No of Cylinders : 4 - Engine Displacement(Minimum) : 1200-2200 cc - The Diesel Engine should be in running condition, with ECM, BCM, Ignition Switch with Keys, all sensors(Air Mass Flow, EGR, Lambda/Oxygen Sensor, Fuel Pressure Regulator, Rail Pressure Sensor, Crank Angle/RPM/TDC Sensor, Coolant Temperature Sensor, Cam Angle Sensor, Boost Pressure Sensor, Fuel Temperature & Water in Fuel Filter Sensor), wiring, fuel feed & cooling system & instrument cluster, Radiator with Intercooler and Cooling Fan, Air Filter Assy, A Mounting, Fuse Box, Glow Plug Timer, Fuel Filter, Engine Oil Pressure Switch, Alternator, Starter Motor - Instrument Cluster should display Fuel level, Battery Charging Light, Oil Pressure Light, Engine 	<ul style="list-style-type: none"> - Any other accessories required to run the engine and test its performance. - This assembly should be independently operatable - Fault setting bank for minimum 8 sensors and with diagnostic socket & Scanner to read the faults. - Engine management circuit diagram to be printed on the panel board 			<p>or Proof of New Engine to be provided</p> <ul style="list-style-type: none"> - List of Local Service Providers 	<p>Institute in Himachal Pradesh</p> <ul style="list-style-type: none"> - As required by the training and maintenance staff of the Industrial Training Institute 	
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		RPM. - Fuel Tank of Minimum Capacity 20 Litre, Engine Accessories- Silencer, and compatible Battery with clamp, Safety Guard for Silencer & Radiator.						
88.	Working Condition of Petrol MPFI Engine Assembly with fault simulation board	Complete Engine assembly with Fault simulation Board with following minimum : - Fuel Type : Petrol - Fuel Injection System : MPFI - Engine Displacement :800-1600 cc - Cycle : Four Stroke - No of Cylinders : 3/4 -Engine should be supplied with ECM, BCM Ignition Switch with Keys, all sensors(Crank Angle/RPM/TDC Sensor, Oxygen/Lambda Sensor, Coolant Temperature Sensor, Engine Oil Pressure Switch, Absolute Pressure Sensor, Throttle Position Sensor), wiring, fuel feed system, Air Intake & Exhaust System,	-All the items should be new - The assembly should be mounted on iron frame and painted. - Any other accessories required to run the engine and test its performance. - This assembly should be independently operatable - Fault setting bank for minimum 6 sensors and with diagnostic socket & Scanner to read the faults. - Engine management circuit diagram to be	- Standard	- Standard	- User/Operating Manual - Warranty Certificate from OEM or Proof of New Engine to be provided - List of Local Service Providers	- To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	One year

		cooling system, Engine Starting System and Charging System, Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter Radiator with Cooling Fan, Air Filter Assy., Fuse Box, Fuel Pump & Filter, Lubrication System with compatible battery & instrument cluster - Instrument Cluster should display Fuel level, Battery Charging Light, Engine Oil Pressure Light, and Coolant High Temperature Warning Light. Fuel Tank of Capacity Minimum 10 Litre, Engine Accessories- Silencer, Compatible Battery with clamp, and Wire Mesh/Perforated Sheet - Safety Guards for Radiator and Silencer.	printed on the panel board					
89.	Chain Pulley Block-3 ton capacity with tripod stand	Chain Pulley Block with compatible tripod stand: - Capacity :3 Ton Tripod Stand Specifications :	- Standard	- Standard	- Standard	- User/Operating Manual Test Certificate from	To be delivered at the designated Industrial Training	One Year

		<ul style="list-style-type: none"> - Capacity to lift minimum 3 Ton of load - Minimum Height to Eye : 3000 mm - Minimum Leg Length : 3400 mm - Minimum Weight : 85 Kg - Legs should be Adjustable for un-level ground, shallow slopes and slight inclines - Feet Should be suitable for hard and soft ground. 				Competent Authority for Rated Load Capacity for Chain Pulley Block & tripod Stand should be Provided - List of Service Centres in India - Warranty Certificates	Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute	
90.	Cut section of 6 cylinder diesel engine with moving condition to show momentum of internal parts	The model should be made out of full size original six cylinder, four stroke Diesel engine comprising of parts and accessories like Six cylinders, cylinder head, inlet and Exhaust manifolds, Fuel pump, oil pump, Water pump, Fuel Filter, Fuel Injection pump, injectors, self-starter, alternator. - Suitable single phase AC Motor should be coupled through a Reduction drive unit to the engine by which the model can be demonstrated at very low	- The sectioned parts to be suitably painted to demonstrate the internal construction details showing the minute information and momentum of internal parts - The Engine should be mounted on painted iron frame.	- Standard	- Standard		- To be delivered at the designated Industrial Training Institute in Himachal Pradesh	

		<p>speed of about 15 to 20 rpm.</p> <p>- By running the engine, the working of individual parts and accessories like Crankshaft, Camshaft, Connecting rod, Pistons, Valves, different pumps, can be demonstrated.</p> <p>-The Injector should spray as per firing order with LED light Simultaneously.</p>						
91.	Diesel Engine six Cylinder in running condition	<p>Latest Diesel Engine six Cylinder in running condition with minimum :</p> <ul style="list-style-type: none"> - Fuel Type : Diesel - Fuel Injection System : CRDI, Turbocharged - Cycle : Four Stroke - No of Cylinders : 6 - Engine Displacement(Minimum) : 5500 cc - The Diesel Engine should be in running condition, with ECM, BCM, a Ignition Switch with Keys, all sensors(Air Mass Flow, EGR, Lambda/Oxygen Sensor, Fuel Pressure Regulator, Rail Pressure Sensor, Crank 	<ul style="list-style-type: none"> -All the items should be new - The assembly should be mounted on iron frame and painted. - Any other accessories required to run the engine and test its performance. - This assembly should be independently operatable 	- Standard	- Standard	<ul style="list-style-type: none"> - User/Operating Manual - Warranty Certificate from OEM or Proof of New Engine to be provided - List of Local Service Providers 	<ul style="list-style-type: none"> - To be delivered at the designated Industrial Training Institute in Himachal Pradesh - As required by the training and maintenance staff of the Industrial Training Institute 	One year

		<p>Angle/RPM/TDC Sensor, Coolant Temperature Sensor, Cam Angle Sensor, Boost Pressure Sensor, Fuel Temperature & Water in Fuel Filter Sensor), wiring, fuel feed & cooling system & instrument cluster, Radiator with Intercooler and Cooling Fan, Air Filter Assy, A Mounting, Fuse Box, Glow Plug Timer, Fuel Filter, Engine Oil Pressure Switch, Alternator, Starter Motor,</p> <p>- Instrument Cluster should display Fuel level, Battery Charging Light, Oil Pressure Light, Engine RPM.</p> <p>- Fuel Tank of Minimum Capacity 20 Litre, Engine Accessories- Silencer, and compatible Battery with clamp, Safety Guard for Silencer & Radiator.</p>						
92.	Automotive oil pump for dismantling and assembling.	- This Automotive oil pump for dismantling and assembling. for dismantling and assembling is to be used with CRDI Engine being	<p>- The item Should be New</p> <p>- This item will be used by trainees for practical integration with the CRDI</p>	- Standard	- Standard	- Warranty Certificate	- To be delivered at the designated Industrial Training	One Year

		procured at Sr No. 164 of MMV Trade Syllabus.	Engine. - The item should be supplied in a dust proof wooden box & covered by the acrylic sheet				Institute in Himachal Pradesh	
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Annexure- A**Mechanic Motor Vehicle**

Syllabus S. No.	Item Name
32	Car Jet washer
79a	Lifting jack screw type 3 ton capacity
79b	Lifting jack screw type 5 Ton capacity
79c	Lifting jack screw type 20 Ton capacity
119	Thermostat
173	Air bag simulator
174	Air conditioning service Unit (Car)
136	Alternator assembly used for LMV
139	Cut section Model of Mock layout of a motor car –electrical system – working model
147	Demonstration board of MPFI system working model
167	Multi scan tool /ECU diagnostics kit
110a	Starter motor axial type
110b	Starter motor pre-engagement type
110c	Starter motor Co-axial type
183	Ultrasonic injection cleaning equipment
159	Working Model of power windows
135	Working model of Air Brake Assembly
21	AC alternator slip ring puller
37	Compression testing gauge suitable for diesel Engine with standard accessories
140	Cut section models of shock absorbers
141a	Cut section of cross ply tyres
141b	Cut section of radial tyres

142	Cut section working model of automatic transmission Gear box
143	Cut section working model of centrifugal clutch assembly.
144	Cut section working model of Diaphragm clutch assembly.
145	Cut section working model of Single plate clutch assembly.
39	Cylinder bore gauge capacity 20 to 160 mm
40a	Cylinder liner- Dry & press fit liner
40b	Cylinder liner- wet liner & slide fit liner
146	Demonstration board of electronic Ignition system, ignition coil
43	Different type of Engine Bearing model
44	Different type of piston model
148	Disk brake in working condition with calliper assembly with all parts
149	Drum brake assembly in Working Condition
150	Front axle (Rzeppa Joint) with stand for Dismantling and assembly
60	Fuel feed pump for diesel
61	Fuel injection pump (Diesel) inline
62	Fuel injection pump, VE pump / Distributor fuel rotary pump (DPC) pumps / along with special tools and accessories.
151a	Full floating axle assembly
151b	Semi-floating axle assembly
152	Functional/experiment model of different type of sensors.
75a	Injector – Multi hole type
75b	Injector – Pintle type
76	Injector testing set
90	Piston ring compressor
91	Piston Ring expander and remover.

92	Piston Ring groove cleaner.
99	Radiator cut section-cross flow
100	Radiator cut section-down flow
101	Radiator pressure cap
109	Spark plug spanner 14mm x 18mm x Size
153a	Steering assembly - Rack & pinion
153b	Steering assembly - Worm & roller
153c	Steering assembly - Recirculating ball
153d	Steering assembly - Power steering
153e	Electric Assisted Power Steering
154	Synchronous Gear box with stand for Dismantling and assembly.
117	Tachometer (Counting type)
155	Tandem master cylinder with booster
118	Tandem master cylinder with booster
156	Tubed tyre of car, trucks & motorcycle
157	Tubeless tyre of cars & trucks
123	Turbocharger cut sectional view
158	Tyre & split rim wheel assembly
124	Tyre pressure gauge with holding nipple
125	Universal puller for removing pulleys, bearings
127	Vacuum gauge to read 0 to 760 mm of Hg.
128	Valve Lifter
129	Valve spring compressor universal.
132	Automotive Water pump for dismantling and assembling

160	Working model of torque converter
163	Automotive exhaust 5 gas analyser (petrol & Diesel) and Diesel Smoke meter (Optional)
164	Diesel Engine – CRDI - 4 stroke for Dismantling and assembling with swivelling stand
165	Diesel engine (Running condition) Stationary type single cylinder
175	Four stroke petrol engine with CNG setup-working condition
176	Heavy Commercial vehicle
166a	Hydraulic jack HI-LIFT type -3 ton capacity
166b	Hydraulic jack HI-LIFT type - 5 Ton capacity
177	MPFI petrol engine with swivelling stand along with special tools for dismantling and assembling
168	Spring tension tester
179	Transfer case with stand for Dismantling and assembly.
180	Tube/ tyre vulcanizing machine
181	Two post car lift – capacity 4000 kg
182	Tyre Changer Machine
184	Wheel alignment Machine –computerized 3D (Optional)
185	Wheel balancing machine
170	Working Condition of Diesel Engine – CRDI - 4 stroke Engine Assembly with fault simulation board
186	Working Condition of Petrol MPFI Engine Assembly with fault simulation board
138	Chain Pulley Block-3 ton capacity with tripod stand
171	Cut section of 4/6 cylinder diesel engine with moving condition to show momentum of internal parts
172	Diesel Engine six Cylinder in running condition
84	Automotive oil pump for dismantling and assembling.

4. Drawings

Not Applicable