HAND TOOLS
(Contained in individual sets or the tool crib in sufficient quantities to permit efficient instruction)

Air Blow Gun (meeting OSHA requirements)
Allen (Wrench or Socket) Set - Standard (.050" - 3/8")
Allen (Wrench or Socket) Set - Metric (2mm - 8mm, 10mm, 12mm)
Battery Post Cleaner
Battery Terminal Pliers
Battery Terminal Puller
Chisels:
  Cape  5/16"
  Cold  3/8", 3/4"
Chisel Holder
Claw Type Pickup Tool
Combination Wrenches:
  Standard (1/4" – 1 1/4") (optional)
  Metric (7mm - 24mm)
Crowfoot Wrench Set - Metric
Crowfoot Wrench Set – Standard (optional)
Ear Protection
Feeler Gauge (Blade Type):
  .002" - .040"
  .006mm - .070mm
Files:
  Coarse 6" and 12"
  Fine   6" and 12"
  Half Round 12"
  Round  6" and 12"
Flare Nut (tubing) Wrenches:
  3/8" - 3/4"
  10mm - 17mm
Flashlight
Fuse Puller
Fused Jumper Wire Set (with various adapters)
Hack Saw
Hammers:
  16 oz. Ball Peen
  Brass
  Dead Blow Plastic Mallet
  Plastic Tip
  Rubber Mallet
Inspection Mirror
Magnetic Pickup Tool
Pliers:
- Combination 6"
- Hose Clamp
- Locking Jaw
- Needle Nose 6"
- Side Cutting
- Slip Joint (Water Pump)

Pry Bars:
- Rolling Head
- Straight

Punches:
- Center
- Brass Drift
- Pin 1/8", 3/16", 1/4", 5/16"
- Taper 3/8", 1/2", 5/8"

Safety Glasses (meeting OSHA requirements)

Scraper:
- Plastic
- Gasket 1"

Screwdriver - Blade Type:
- Stubby
  - 6", 9", 12"
- Offset

Screwdriver - Phillips:
- Stubby #1, #2
  - 6" #1, #2
  - 12" #3
- Offset #2

Screwdriver - Impact Driver Set

Socket Set - 1/4" Drive:
- 1/4" - 1/2" Standard Depth (optional)
- 1/4" - 1/2" Deep (optional)
- 6mm - 12mm Standard Depth
- 6mm - 12mm Deep
- Flex/Universal Type
- 3", 6" Extensions
- Ratchet

Socket Set - 3/8" Drive:
- 5/16" - 3/4" Standard Depth (6 point)(optional)
- 3/8" - 3/4" Deep (6 point)(optional)
- 10mm - 19mm Standard Depth
- 10mm - 19mm Deep
- 3", 5", 10" Extensions
- Flexhead Ratchet
- Ratchet
- Spark Plug Sockets 5/8", 13/16", 9/16"
Spark Plug Sockets 14mm
Speed Handle
Universal Joint
Flexible Socket Set 3/8" - 3/4" (optional)
Flexible Socket Set 10mm - 19mm
Socket Set - 1/2" Drive:
  7/16" - 1 1/8" Standard Depth (optional)
  7/16" - 1 1/8" Deep (optional)
  10mm - 24mm Standard Depth
  10mm - 24mm Deep
  3", 6", 12" Extensions
  Flex Handle (Breaker Bar)
  Ratchet
Spark Plug Feeler Gauge (Gap Tool)
Tape Measure – Standard and Metric
Test Light (12V and self-powered)
Tire Pressure Gauge
Tire Tread Depth Gauge
Torque Wrench:
  3/8" Drive (10 - 250 lb. in.)
  3/8" Drive (5 - 75 lb. ft.)
  1/2" Drive (50 - 250 lb. ft.)
Torx® Set (screwdrivers and/or sockets):
  T-8 to T-60
Wire Brush
GENERAL LAB/SHOP EQUIPMENT

The tools and equipment on this list are used in general lab/shop work but are not generally considered to be individually owned hand tools. A well-equipped, accredited program should have all of these general tools and equipment readily available and in sufficient quantity to provide quality instruction.

Air Chisel Set (various bits)
Air Compressor and Hoses
Air Pressure Regulator
Air Ratchet (3/8” drive)
Automotive Stethoscope (electronic recommended)
Axle Stands (Jack Stands)
Axle Support Stands (Screw Jacks)
Battery Charger
Battery/Starter/Charging System Tester
Bearing Packer (hand operated)
Belt Tension Gauge
Bench or Pedestal Grinder
Coolant/Combustion Gas Detector (recommended)
Coolant Tester
Cooling System Pressure Tester and Adapters
Creeper
Cylinder Leakage Tester
Dial Indicator with Flex Arm and Clamp Base
Digital Multimeter (DMM) with various lead sets (sufficient quantities to meet instruction goals)
Drain Pans
Drill - 3/8” variable speed, reversible
Drill - 1/2” variable speed, reversible
Electric Heat Gun
Engine Coolant Recovery Equipment or Recycler or Coolant Disposal Contract Service
Extension Cords
Face Shields
Fender Covers
Floor Jack (1½ Ton Minimum)
Hand Held Vacuum Pump
Hoist(s)
Hood Prop
Hydraulic Press with adapters
Impact Socket Sets - 3/8” Drive (Standard - optional)
Impact Socket Set - 3/8” Drive (8mm-19mm)
Impact Sockets - 1/2” Drive (7/16” - 1 1/8”)(optional)
Impact Sockets - 1/2” Drive (12mm – 24mm)
Impact Sockets – 1/2” Drive Deep (30 mm, 32 mm, 36mm)
Impact Wrench - 1/2" Drive
Impact Wrench - 3/8" Drive
Jumper Cables
Master Puller Set
Micrometer (Depth)
Micrometers - (Outside Type) 0-1", 1-2", 2-3", 3-4", 4-5"
Oil Can - Pump Type
Oil Filter Wrench and Sockets
Oxy-Acetylene Torch Set
Parts Cleaning Tank and Gloves (non-solvent based cleanser suggested)
Remote Starter Switch
Scan Tool OBDII w/CAN capability or Personal Computer (PC) with equivalent interface (appropriate capability to support tasks taught)
Screw Extractor Set
Seat Covers
Serpentine Belt Tensioner Tools
Snap Ring Pliers Set - external
Snap Ring Pliers Set - internal
Soldering Gun
Soldering Iron (Pencil Tip)
Spark Plug Boot Puller
Tap and Die Set - Standard (optional)
Tap and Die Set – Metric
Temperature Sensing Device
Thread Repair Insert Kit
Tire Inflator Chuck
Trouble/Work Lights (Non-incandescent)
Tube Quick Disconnect Tool Set
Tubing Bender
Tubing Cutter/Flaring Set (Double-lap and ISO)
Twist Drill Set Ultra Violet Leak Detection Device (Black Light)
Used Oil Receptacle with extension neck and funnel
Valve Core Removing Tool
Calipers
0 - 6"
0 - 125mm
Wheel Chocks
Workbenches with vises
SPECIALTY TOOLS AND EQUIPMENT
WITHIN EACH ACCREDITATION CATEGORY

This section covers the tools and equipment a lab/shop should have for training in any given specialty area. This equipment is specialized and it must be available in the lab/shop or to the program. No specific type or brand names are identified because they will vary in each local situation.

For all tasks which are taught in the program, the training should be as thorough as possible with the tools and equipment necessary for those tasks. In other words, if a program does not teach a particular task, the tool from the tool list associated with that task is not required.

MAINTENANCE & LIGHT REPAIR

SUSPENSION & STEERING
   Brake Pedal Depressor
   Hand Grease Gun
   Shock Absorber Tools
      Spring Compressor Tool
   Tire Mounting Machine (rim clamp type)
   Tire Pressure Monitoring System Tool (TPMS) as appropriate
   Tire Patching Tools and Supplies
   Wheel Balancer - Electronic Type
   Wheel Weight Pliers

BRAKES
   Bearing Seal and Race Driver Set
   Brake Bleeder, (Pressure or Vacuum)
   Brake Disc Micrometer
   Brake Drum Micrometer and Calibration Equipment
   Brake Fluid Test Strips or Kit
   Brake Lathe (bench with disc and drum service attachments)
   Brake Lathe (on car)
   Brake Shoe Adjusting Gauge
   Brake Spring Remover/Installer
   Brake Spring Pliers
   Brake Spoon
   Piston Retraction Set
   Wheel Stud Service Kit
ENGINE PERFORMANCE
- Compression Tester
- Cylinder Power Balance Tester (scan tool/manual method)
- Infrared Thermometer (or appropriate substitute)
- Vacuum/Pressure Gauge

ELECTRICAL/ELECTRONIC SYSTEMS
- Connector Pick Tool Set
- Door Panel Trim Tool(s)
- Headlight Aimer or Screen
- Heat Gun (or equivalent for heat shrinking operations)
- Wire and Terminal Repair Kit

MANUAL DRIVE TRAIN AND AXLES
- Axle Nut Socket Set (or equivalent)
- Spindle Rethreader Die Set
- Universal Joint Tools

ENGINE REPAIR
- Antifreeze/Coolant Tester
SPECIALTY TOOLS AND EQUIPMENT

AUTOMOBILE SERVICE TECHNOLOGY

SUSPENSION & STEERING
- Ball Joint Press and other Special Tools
- Brake Pedal Depressor
- Bushing Driver Set
- Coil Spring Compressor Tool
- Chassis Ear (recommended)
- Frame Angle Gauge or Portable Digital Protractor (appropriate for tasks being taught)
- Hand Grease Gun
- Inner Tie Rod End Tool
- Pitman Arm Puller
- Power Steering Pump Pulley Special Tool Set (appropriate for tasks being taught)
- Shock Absorber Tools
- Steering Angle Gauge or Portable Digital Protractor (appropriate for tasks being taught)
- Steering Column Special Tool Set (appropriate for teaching tasks being utilized)
- Strut Spring Compressor Tool
- Tie Rod Puller
- **Tire Mounting Machine**
- Tire Patching Tools and Supplies
- Tire Pressure Monitoring System (TPMS) Tool (appropriate for tasks being taught)
- Wheel Alignment Equipment-4 wheel (including alignment tools)
- Wheel Balancer - Electronic Type
- Wheel Weight Pliers

BRAKES
- Bearing Seal and Race Driver Set
- **Brake Bleeder, (Pressure or Vacuum)**
- Brake Disc Micrometer
- Brake Drum Micrometer and Calibration Equipment
- Brake Fluid Test Strips or Kit
- Brake Lathe (bench with disc and drum service attachments)
- Brake Lathe (on car)
- Brake Shoe Adjusting Gauge
- Brake Spring Remover/Installer
- Brake Spring Pliers
- Brake Spoon
- Master Cylinder Bleeder Kit
- **Caliper Piston Retraction Set**
- Wheel Stud Service Kit
HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

- A/C Compressor Clutch Service Tools
- A/C Service Port Adapter Set
- Dye Injection Kit
- Hygrometer
- A/C Leak Detector (to meet current industry standard)
- A/C Manifold Gauge Set or equivalent (to meet current industry standard)
- A/C Refrigerant Recovery/Recycling/Recharging Station (to meet current industry standard)
- Thermometer(s) (digital)
- A/C Sealant Detector Kit

ENGINE PERFORMANCE

- Cylinder Power Balance Tester (Scan Tool/Manual Method)
- Evaporative Emissions Control System (EVAP) Leak Detector (Smoke or Nitrogen)
- Fuel Injection Pressure Gauge Sets with Adapters
- Infrared Thermometer (or appropriate substitute)
- Injector Pulse Tester
- Logic Probe (suggested)
- Oxygen Sensor Socket
- Pinch-off Pliers
- Sending Unit Socket(s)
- Spark Plug Thread Tap
- Spark Tester
  - Vacuum/Pressure Gauge

AUTOMATIC TRANSMISSION/TRANSAXLE

- Transmission Jack(s)
- Transmission/Transaxle Flushing Equipment (recommended)
- Transmission/Transaxle Holding Fixtures
- Transmission/Transaxle Removal and Installation Equipment
- Transmission/Transaxle Special Tool Sets (appropriate for units being utilized)

ELECTRICAL/ELECTRONIC SYSTEMS

- Connector Pick Tool Set
- Molding and Trim Tool(s)
- Headlight Aimer or Screen
- Heat Gun (or equivalent for heat shrinking operations)
- Terminal Tension (Pin Drag) Test Kit/Terminal Probe Kit (or equivalent)
- Wire and Terminal Repair Kit
MANUAL DRIVE TRAIN AND AXLES
   Axle Nut Socket Set (or equivalent)
   Clutch Alignment Set
   Clutch Pilot Bearing/Bushing Puller/Installer
   Constant Velocity Joint (CV) Service Tools:
       Boot Installation Tool
       Boot Clamp Pliers or Crimping Ring
   Engine Support Fixture
   Rotating Torque Wrench (beam-type or equivalent)
   Universal Joint Tools
   Spindle Rethreader Die Set

ENGINE REPAIR
   Antifreeze/Coolant Tester
   Oil Pressure Gauge
   Straight Edge
   Torque Angle Gauge
SPECIALTY TOOLS AND EQUIPMENT

MASTER AUTOMOBILE SERVICE TECHNOLOGY

SUSPENSION & STEERING
   Ball Joint Press and other Special Tools
   Brake Pedal Depressor
   Bushing Driver Set
   Coil Spring Compressor Tool
   Chassis Ear (recommended)
   Frame Angle Gauge or Portable Digital Protractor (appropriate for tasks being taught)
   Hand Grease Gun
   Inner Tie Rod End Tool
   Pitman Arm Puller
   Power Steering Pump Pulley Special Tool Set (appropriate for units being taught)
   Power Steering Pressure Gauges (recommended)
   Shock Absorber Tools
   Strut Spring Compressor Tool
   Steering Angle Gauge or Portable Digital Protractor (appropriate for tasks being taught)
   Steering Column Special Tool Set (appropriate for teaching units being utilized)
   Tie Rod Puller
   **Tire Mounting Machine**
   Tire Patching Tools and Supplies
   Tire Pressure Monitoring System (TPMS) Tool (appropriate for tasks being taught)
   Wheel Alignment Equipment-4 wheel (including alignment tools)
   Wheel Balancer - Electronic Type
   Wheel Weight Pliers

BRAKES
   Bearing Seal and Race Driver Set
   Brake Bleeder, (Pressure or Vacuum)
   Brake Disc Micrometer
   Brake Drum Micrometer and Calibration Equipment
   Brake Fluid Test Strips or Kit
   Brake Lathe (bench with disc and drum service attachments)
   Brake Lathe (on car)
   Brake Shoe Adjusting Gauge
   Brake Spring Remover/Installer
   Brake Spring Pliers
   Brake Spoon
   Master Cylinder Bleeder Kit
   **Caliper Piston Retraction Set**
   Wheel Stud Service Kit
HEATING AND AIR CONDITIONING
- A/C Compressor Clutch Service Tools
- A/C Service Port Adapter Set
- Dye Injection Kit
- Hygrometer
- A/C Leak Detector (to meet current industry standards)
- A/C Manifold Gauge Set or equivalent (to meet current industry standards)
- A/C Refrigerant Identification Equipment
- Refrigerant Recovery/Recycling/Recharging Station (to meet current industry standards)
- Thermometer(s) (digital)
- Sealant Detector Kit

ENGINE PERFORMANCE
- Cylinder Power Balance Tester
- Evaporative Emissions Control System (EVAP) Leak Detector (Smoke or Nitrogen)
- Four or Five Gas Exhaust Analyzer (Five Gas recommended)
- Fuel Injection Pressure Gauge Sets with Adapters
- * Graphing Multimeter (GMM) and/or Digital Storage Oscilloscope (DSO)
- Infrared Thermometer (or appropriate substitute)
- Injector Pulse Tester
- Logic Probe (appropriate for tasks being taught)
- Oxygen Sensor Socket
- Pinch-off Pliers
- Sending Unit Socket(s)
- Spark Plug Thread Tap
- Spark Tester
- Vacuum/Pressure Gauge

* Also necessary to accomplish tasks in other MAST categories (Brakes and Electrical/Electronic Systems)

AUTOMATIC TRANSMISSION/TRANSAXLE
- Differential Set-up Tools
- Hydraulic Pressure Gauge Set
- Transmission Jack(s)
- Transmission/Transaxle Flushing Equipment (recommended)
- Transmission/Transaxle Removal and Installation Equipment
- Transmission/Transaxle Holding Fixtures
- Transmission/Transaxle Special Tool Sets (appropriate for units being utilized)
ELECTRICAL/ELECTRONIC SYSTEMS
  Connector Pick Tool Set
  Molding and Trim Removal Tool(s)
  Headlight Aimer or Screen
  Heat Gun (or equivalent for heat shrinking operations)
  Terminal Tension (Pin Drag) Test Kit/Terminal Probe Kit (or equivalent)
  Wire and Terminal Repair Kit

MANUAL DRIVE TRAIN AND AXLES
  Axle Nut Socket Set (or equivalent)
  Clutch Alignment Set
  Clutch Pilot Bearing/Bushing Puller/Installer
  Constant Velocity Joint (CV) Service Tools:
    Boot Installation Tool
    Boot Clamp Pliers or Crimping Ring
  Engine Support Fixture
  Rotating Torque Wrench (beam-type or equivalent)
  Special Tools for Transmissions/Transaxles (appropriate for units being taught)
  Spindle Rethreader Die Set
  Universal Joint Tools

ENGINE REPAIR
  Antifreeze/Coolant Tester
  Ball (Small Hole) Gauges
  Cam Bearing Driver Set (suggested)
  Camshaft Holding Tool (appropriate for units being taught)
  Cylinder Deglazer
  Dial Bore Indicator
    Engine Stands/Benches
  Inside Micrometer Set:
    0 - 6"
    0 - 125mm
  Micrometer (Depth)
    0 - 6"
    0 - mm
  Oil Pressure Gauge
  Outside Micrometer Set:
    0 - 6"
    0 - 125mm
  Portable Crane - 1/2 Ton
  Ring Compressor
  Ring Expander
  Ring Groove Cleaner
  Precision Straight Edge
  Telescopic Gauge Set
  Torque Angle Gauge
V-Blocks
Valve Spring Compressor
Valve Spring Tester