



# MacAllister Technician School

## Information Packet

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## **Purpose**

The purpose of the MacAllister Technician School (MTS) is the provision of foundational training for new technicians leading to:

- Familiarity with standard equipment and procedures at MacAllister Machinery,
- Competency level performance on common and required technician tasks for servicing and repairing equipment sold and rented by MacAllister Machinery,
- Understanding of, and integration into, the MacAllister Machinery culture.



## **Selection of Candidates**

Candidates for MTS must meet the following minimum requirements:

1. High school graduate or GED
2. Demonstrate appropriate mechanical aptitude using a computerized test
3. Demonstrate a minimum 6<sup>th</sup> grade reading comprehensive using a computerized test
4. Be hired by MacAllister Machinery as a Technician Assistant, having met all pre-hire requirements including interviews with the branch manager.

Candidates may be hired at any service branch in Indiana, depending on local need:

- Indianapolis
- Ft. Wayne
- Lafayette
- Terre Haute
- Washington
- South Bend
- Field Service

## **Program Format**

The MTS program is designed as a classroom – lab – hands-on experiential model. Concepts and principles are introduced in a classroom setting, reinforced in the shop environment.

- As part of the scheduled class time, laboratory sessions present opportunities to apply the concepts and principles learned in a hands-on practical environment.
- Assessment is conducted at the end of the class time to ensure retention of key concepts and skills. This includes written and practical assessments.
- After successfully completing the class time, knowledge and skills are practiced and reinforced in the shop environment under the guidance and instruction of advocates and lead personnel.
- At key points in the program the candidate's performance is reviewed with their shop manager and a continue/not continue decision is made.
- Candidates in the program can be asked to leave MTS anytime in the program's timeline.

## **Assessments**

Each course, except New Hire Orientation, will require:

- Pre-course assessment
  - Written quiz covering key aspects of the course material, taken before the course begins.
- Hands-on laboratory work
  - Throughout a course check sheets are used to track and assess the practical portion of the participant's performance.
  - Lack of participation or unsatisfactory participation is documented on the check sheets.
- Post-course assessment
  - Following successful attendance and participation, the participant will take written and practical hands-on assessments covering the material in that course.
  - Successful completion of the written assessment is 75% or greater score.
  - Successful completion of the practical assessment is a score of 90% or more.
  - Participant may retake each portion once at the convenience of the instructor. Failure to achieve a satisfactory score on the second attempt for either portion constitutes failure of the course.
  - Any participant not successfully completing a course may not proceed in that level until they have successfully completed that course at the next opportunity.
- Final Evaluation Process
  - After successful completion of ALL courses, the participant will take a comprehensive written test, covering all objectives of the program. A minimal score of 75% is required.
  - After successful completion of ALL courses, the participant will perform in five hands-on, practical scenarios. A minimum performance score of 90% is required.
  - Failure to meet the minimum requirements on the Final Evaluation will lead to a retest. THE WRITTEN AND ONE PRACTICAL STATION MAY BE RETESTED.

## **Course Content**

Technical course content is based on a **Systems Approach**. Courses are designed to familiarize the candidate with the systems of large equipment and engines and help them understand the interaction and function of those systems to create an operating, productive machine:



- Electrical System
- Hydraulic System
- Engines and Ignition System
- Fuel System
- Powertrain System
- Braking System

In-depth safety training is included as well.

The program includes classes to prepare the candidate to work with other technicians in the shop by developing interpersonal skills and communication techniques. Additionally candidates receive guidance and direction in planning their future careers and developing strategies to achieve career goals. A basic understanding of business principles is also included.

## MacAllister Technician School Course Descriptions



### Course Descriptions: Phase 1

| Course # | Title   | Description  |
|----------|---|--|
| 100      | New Hire Orientation                            | General orientation for new MacAllister Employees; history, safety introduction, handbook, benefits and wellness.  |
| 101      | Safety  | An overview of safety policies and procedures in the MacAllister shop environment, including emergency action plans and zero injury philosophy.  |
| 103      | Caterpillar Product Intro and Machine Operation | Caterpillar product categories and designations; recognizing Caterpillar equipment innovation and common service requirements. Operation of common Caterpillar machines: dozers, wheel loaders, excavators, etc. Emphasis is on starting equipment, "driving" equipment from one location to another, and safety concerns when moving heavy machinery. |
| 105      | Shop Floor Teamwork                             | Concepts of teamwork; characteristics of a "team player"; role of teamwork in the shop.  |
| 106      | Technician Computer Use                         | Intense course on using common virtual programs in everyday technician tasks, such as VIMS, Electronic Technician, etc. Course length includes in-shop evaluation of use of programs covered. Includes e-mail and on-line learning systems.  |
| 107      | General Maintenance                             | Overview of general maintenance tasks associated with heavy Caterpillar equipment, common in the MacAllister shops. Course time includes at least ten hours of hands-on lab. Components of a successful service report; impact of service reports on the business; practice writing a service report.  |
| 108      | Fundamentals of Electrical Systems              | Basic concepts associated with electricity and its principles. Understanding the characteristics of electrical flow and circuitry. Brief association of electrical fundamentals with Caterpillar machinery.  |
| 109      | Fundamentals of Hydraulic Systems               | Basic concepts of how hydraulic systems function, including principles of hydraulic theory and application to machine hydraulic systems. Concepts of troubleshooting hydraulic systems are included.   |
| -        | DPC Courses                                     | Candidate is assigned on-line DPC classes. These classes support and provide additional content. Each class must be successfully completed.  |

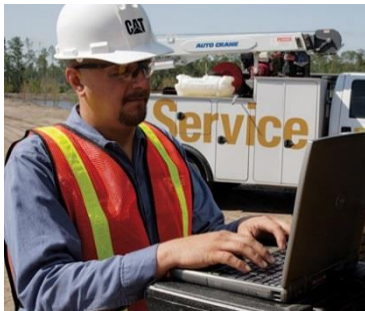
### Course Descriptions: Phase 2

| Course # | Title                               | Description  |
|----------|-------------------------------------|--|
| 200      | Workplace Communications            | The importance of written and verbal communication in the shops; skills in communication applicable to the shop. Practice in the skills.   |
| 201      | Introduction to Engine Systems      | Fundamentals of diesel engine design and construction; principles of diesel engine function and performance.   |
| 202      | Fundamentals of Ignition/Fuel Syst. | Fundamentals of ignition systems design and construction; principles of ignition system function and performance. Fundamentals of diesel fuel systems design and construction; principles of diesel fuel systems function and performance. |
| 203      | Basic Troubleshooting               | Caterpillar Seven Steps of Troubleshooting; twenty hours of this class is hands-on trouble-shooting lab. Integrating various troubleshooting tools into the troubleshooting process.   |
| 204      | Electrical Systems 2                | Detailed look at Caterpillar electrical systems and their design. Includes extensive hands-on troubleshooting and analysis of electrical problems using various troubleshooting tools.   |
| 205      | Hydraulic Systems 2                 | Detailed look at Caterpillar hydraulic systems and their design. Includes extensive hands-on troubleshooting and analysis of hydraulic problems using various troubleshooting tools.   |
| 206      | Seals and Fasteners                 | Detailed work with the various seals and fasteners used in Caterpillar heavy equipment.  |
| -        | DPC Courses                         | Candidate is assigned on-line DPC classes These classes support and provide additional content. Each class must be successfully completed.   |

### Course Descriptions: Phase 3

| Course # | Title  | Description   |
|----------|--|---|
| 300      | Planning a Technical Career; Know the Business | Importance of career development; investigating and planning a career path; applicable opportunities at MacAllister Family of Companies. Basic concepts of profit and cost from the technician's perspective. |
| 301      | Engine Systems 2                               | Diagnostics and troubleshooting of diesel engines and related systems. Extensive hands-on lab time utilizing various diagnostic and troubleshooting tools. Focus on emissions controls and standards.         |
| 302      | Fundamentals of Powertrains                    | Fundamentals of heavy equipment powertrain design and construction; principles of heavy equipment powertrain function and performance.  |
| 303      | Applied Failure Analysis 1                     | Introduction to systematic analysis of failed components on Caterpillar heavy equipment.  |
| 304      | Basic Welding/Metal Handling                   | Fundamentals of metallurgy. Application of various welding techniques. Preparing and manipulating metal in preparation for repair and refurbishing.   |
| 305      | Powertrain Systems 2                           | Diagnostics and troubleshooting of heavy equipment powertrain components and related systems. Extensive hands-on lab time utilizing various diagnostic and troubleshooting tools.                             |
| 306      | Troubleshooting 2                              | Advanced techniques and application of troubleshooting principles. Extensive hand-on lab time performing diagnostics and troubleshooting on all systems of heavy equipment.                                   |
| 307      | Final Performance Evaluation                   | Written evaluation and multiple hands-on evolutions to assess the student's retention and comprehension at the Level 1 Technician Level.  |
| -        | DPC Courses                                    | Candidate is assigned on-line DPC These classes support and provide additional content. Each class must be successfully completed.  |

The courses and timeline of the program can change at any time based on needs and changing business conditions. Participants are notified of such changes as far in advance as possible.



### Cohort Program

The MacAllister Technician School functions in a “cohort system.” Up to ten participants are placed in a “cohort” and remain with that group of participants throughout the program. In the event a participant is unsuccessful at completing a course, but remains in the program, they will join the next cohort when the opportunity comes around to retake the course and remain a member of the new cohort. Cohorts begin as business conditions dictate.

Individuals seeking to be hired by MacAllister and accepted into a cohort should allow time to complete the hiring process.

## **MacAllister Technician School Application Process**

To apply for the MacAllister Technician School:

1. Please direct your applications to <https://www.macallister.com/about/careers/macallister-technician-school/>
2. Complete telephone interview with MacAllister Recruiters.
3. If selected, complete mechanical aptitude and reading comprehension on-line assessments.
4. If selected, attend interview with hiring manager.
5. Be hired by hiring manager.
6. We hire one MTS class per year that starts in the first week of July.