MTS™ Catalog

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MTS World Inc.
Because Technology Depends On People

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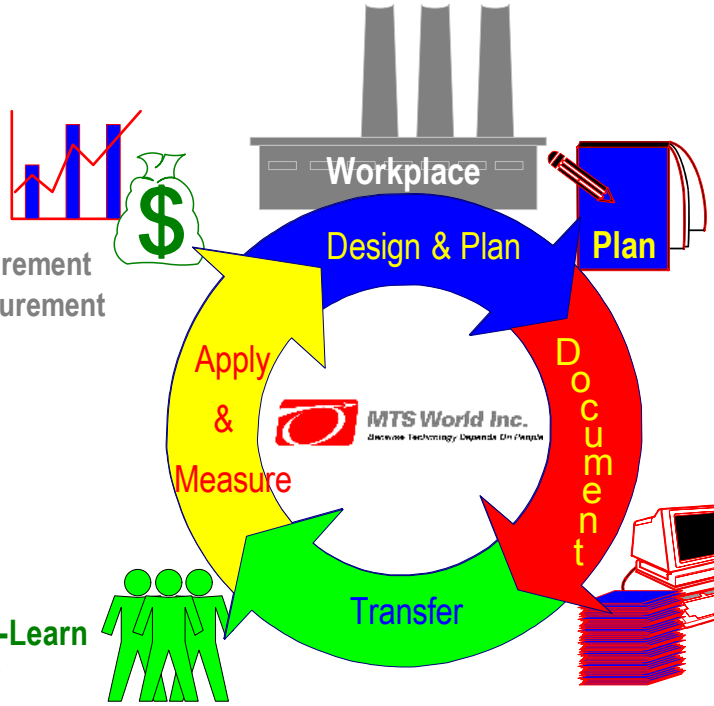
MTS World Inc.
Because Technology Depends On People

MTS™ SYSTEM

The ***MTS***™ System, focusing on the workplace itself, can be represented by a cycle in which four essential and inter-related phases are included. ***MTS***™ can deliver the total integrated system, or we can deliver certain selected products within the total system. Those products and services are shown below, in the context of the total system.



- ✓ Training Measurement
- ✓ Business Measurement
- ✓ Audits
- ✓ Certification
- ✓ Sustainment
- ✓ Optimization

- ✓ Map Processes
- ✓ Map Competencies
- ✓ Design Programs
- ✓ Develop Plan

- ✓ Learning-To-Learn
- ✓ Train and/or
- ✓ Train Trainers
- ✓ Gap Assessment
- ✓ Training Vs. Gaps

- ✓ Document Technology
  - ○ *Processes*
  - ○ *Procedures*
- ✓ Write Manuals and/or
- ✓ Train Writers
- ✓ Electronic System
- ✓ Existing Manuals

IMPORTANT NOTE: Most ***MTS***™ products, including workbooks, are not sold off the shelf. To insure effective results, a customized delivery is designed, however large or small the needs are. When you find an interest in this catalog, con-tact ***MTS***™ so we can jointly decide how to best meet your needs.

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CUSTOM SERVICES

MTS™ TRAINING CONCEPTS

The ***MTS™*** Training System is based on the following four training concepts:

- Functional Training
- Inductive Learning
- Gestalt Structure
- Behavioral Objectives

Functional Training focuses on the work to be done, not on a subject. The essential theory and principles required to do a job well are incorporated with the practice; theory and practice are learned together and in the context of the work to be done — and this work in turn is based on the requirements imposed by the technology of the workplace. Functional training is perhaps best defined as learning the job by doing the job in the real job environment.

Inductive Learning, sometimes called guided discovery, is the kind of learning wherein the learner, by direct confrontation with what's being studied, literally discovers the essential principles involved. Inductive learning requires that the learner do things, compare things, postulate theories, test those theories, come to some conclusions and confirm that those conclusions are correct. In a properly designed inductive learning experience, the role of the instructor is not to "teach", but to set up the learning experience, monitor it, manage it, keep it safe and debrief it.

Gestalt Structure refers to how what is to be learned is packaged: whole to part back to the whole, rather than a series of discrete pieces. Structuring the training in a gestalt fashion makes it possible to learn against a pattern — a trait of the adult learner. Gestalting a something, as well as learning it, makes it possible for parts of the whole to relate to each other as well as to the whole. This provides a more comprehensive view of the entity in question and produces a stronger ability to deal with analytical troubleshooting techniques.

Behavioral Objectives are the learning goals. They provide a target to shoot for and an outline of how the course is going to progress. Behavioral objectives define learning outcomes in the form of performances. They become the basis for the "testing" (better known as feedback). A fully stated behavioral objective defines, operationally, what the learner will be doing (when he/she demonstrates that he/she has learned) — where he/she will be doing it — what he/she will be using — how well it will be done — and how long it will take. Behavioral objectives take the training out of the subjective arena. They also provide the basis for connecting training to workplace performance, on the proposition that every primary training objective, when achieved by the learner and implemented by the organization, contributes in a predictable and measurable manner to the performance of the work-place.

DESIGN PHASE

Analysis Of The Workplace's Technology.

Divide the workplace into its natural increments (processes or steps of operation), identify the functions and equipment for each, and set down the abilities required to operate and/or maintain the workplace's processes and equipment.

Training Needs Assessment.

Based on the analysis of the workplace's technology, an objective determination can be made of each individual's ability and knowledge to operate and/or maintain the workplace. This process, the Gap Analysis Process, can be done in one-on-one interviews, written tests, computer based tests, performance evaluation, or a combination of these techniques.

Training Program Design.

Based on the workplace's technology and on the training needs assessment, ***MTS***™ designs customized and modularized training programs.

Development Of The Training Implementation Plan.

Combining the above with the workplace's goals and other organizational factors, ***MTS***™ can develop a plan which uses training in order to achieve workplace objectives.

DOCUMENTATION PHASE

Writing.

MTS™ can write up in uniform and pre-defined formats the training and the procedures of the specific processes and equipment of the work-place, either from a supervision, operations, or a maintenance point of view, or all of above. ***MTS***™ can also train your personnel to write MTS style workbooks (see Train The Writer)

Production of Documents.

Using the appropriate ***DOC***™ System, ***MTS***™ can convert writers' drafts (either on site or at ***MTS***™ offices) and print those documents in the required quantities, or deliver the native files with a copy in Adobe Acrobat format. ***MTS***™ can also train your personnel to create ***MTS***™ style workbooks. For further information on ***MTS***™ Document Creation Systems—refer to ***MTS***™ Documentation On Call (***DOC***™) in the Software Systems Section of this catalog.

TRAINING PHASE

MTS™ can provide instructors for the on-site training of operating and/or maintenance personnel. Training can be done in groups or individual, off-the-job or at-the-job. ***MTS***™ can also train your personnel to train your employees using MTS techniques and methods (see Train The Trainer).

APPLY & MEASURE PHASE

Integration of Initiatives.

MTS™ is able to devise a plan for the effective integration of the ***MTS***™ training with other customer initiatives, such as: loss control, process safety management, total quality, ISO certification, participative management.

Performance Plan.

Working with the workplace's management, develop a plan aimed at improving workplace performance (quality, costs, safety, environmental control, etc.) using training as one of the strategies.

Pay For Qualification.

Using the training program as a basis ***MTS***™ has developed a program called SKILCOMP, an administrative system for designing and maintaining a compensation program which is tied to qualification of abilities.

Management Consultation.

MTS™ is able to provide on-going consultation to the plant/workplace manager and/or his staff.

Audits.

Beyond the initial ***MTS***™ intervention, we can provide annual (or more frequent) audits of the training system.

MTS™ COURSES

COURSES FOR TRAINERS

TTT – Train The Trainer

MTS™ Trainer training is aimed at getting people to do productive instructing; the kind of instructing that gets the learners able to do their job with understanding. This kind of training is called ***MTS™*** Functional Training.

The kind of training to be learned is structured, functional, experiential training which is different from the more traditional lecture type of training. The key is on developing an understanding of why and how adults in industry learn and using that, becoming more able to make learning happen.

TTT is an action-oriented, learn by doing course. Concepts are induced via a series of exercises plus discussion. The focus is ***MTS™*** gestalt structured, functional, inductive training defined by behavioral objectives.

Outcomes from the training are either the trainer conducting at least one group training session (TII) and/or train learners individually using At-The-Job methods (AJL).

Manner Of Presentation. TTT emphasizes “Learn By Doing”. Theory and practice is introduced only when it is necessary to make operational the techniques and concepts of industrial instruction. Over a five day period, 6–10 participants are given opportunities to make presentations that demonstrate the ***MTS™*** learning principles.

TII – Training Industrial Instructors

The training of instructors is designed to help people become able to plan, implement and mea-sure the effectiveness of any increment of learning.

Uses an ***MTS™*** formatted work-book to conduct group training in the workplace by:

- determining training needs
- scheduling the session
- preparing the training room
- getting the learner(s) ready
- making learning assignments
- measuring results of learning
- answering learner’s questions

Manner Of Presentation. The TII course is designed for groups of 4 to 8 people, for 10 days.

AJL – At-the-Job Learning

AJL is a proven method of workplace learning that synergizes the best features of the informal on the job training and the formal structured training.

Uses an ***MTS™*** formatted work-book to conduct At-The-Job Learning by:

- determining training needs
- scheduling training time
- getting the learner(s) ready
- making learning assignments
- measuring results of learning
- answering learner’s questions

Manner Of Presentation. The AJL session takes one week. Two days reviewing the process and its concepts, and three days of practicing installing and managing the AJL process.

At-The-Job Learning is a course that also works hand-in-hand with Managing Industrial Learning (MIL) and Learning How To Learn (LHL).

COURSES FOR LEARNERS

LHL – Learning How to Learn

Learning How To Learn (LHL) serves as an introduction and orientation to ***MTS***™ functional, gestalt structured, inductive training. This session lets learners who are starting into a fairly comprehensive ***MTS***™ designed learning program know how the training will be done, what is expected of them and some of the more basic assumptions and principles of the ***MTS***™ approach to industrial training. LHL is a transition session used to introduce and orient learners in either group training or at-the-job learning.

Manner Of Presentation. Learning How To Learn is a one full day workshop for a group of up to 10 people and is led by an ***MTS***™ instructor.

COURSES FOR LEARNING DOCUMENTATION

TTW – Train The Writer

Train The Writer (Operations) is a learn-by-doing session for writers of Step Of Operation (SO) and Equipment Operation (EO) workbooks. The ***MTS***™ type SO format is used. Participants will work on assigned SO's throughout the sessions.

As a result, participants can document the technology and use it to prepare Step of Operation workbooks. This understanding equips them to perceive the technology in new and different ways and enhance their technical abilities and knowledge, as well as to help others learn.

Train The Writer (Maintenance) is a two week session conducted in the same way for getting workplace people to document equipment and systems for maintenance.

Train The Writer (SMO) is for getting people able to document machine manufacturing such as Packaging Lines using the SMO workbook format.

Custom formats and courses exist, or can be developed, for administrative, information, and other systems.

Manner Of Presentation. Train The Writer, a 2 week session for a group of up to 10 people, is a means of developing operators and/or supervisors and/or others in a specific technology. The writer documents data related to a given process by figuring out how it works, how it is controlled, how it is operated, what the step does and why it is important and what to do if the step is not doing what it is supposed to do.

THE *MTS™* DEVELOPMENT PROCESS FOR SUPERVISORS (DPS)

The ***MTS™*** Development Process For Supervisors is a process for the effective development of supervisors (or team leaders, or coaches, or mentors). It develops the required leadership abilities in the 3 territories of the supervisor's job: Technical Management, Results Leadership (through the work of those the supervisor leads) and Organizational Implementation.

The process consists of the following phases:

1. A preprocess agreement between supervisor and his/her boss.
2. A one week workshop titled What Is A Supervisor? (WIS)
3. The preparation of the Supervisor Development Plan.
4. The implementation of that plan with specific at-the-job assignments.

The third and fourth item can include any number of the below listed ***MTS™*** courses depending on the needs of the customer. They are:

EAP – Event Analysis Process

- MTFS – Motivational Training For Supervisors
- NBAS – Nuts & Bolts Of Administration For Supervisors
- OLS – Operational Leadership For Supervisors
- SJT – Supervisors Job "After The Training"
- SWAP – Supervisor Work & Availability Profiling
- EAP – Event Analysis Process

The Event Analysis Process is a method for analyzing events that make a significant difference in productivity — good or bad. This analysis provides supervisors, operators and maintenance people with a method for working through difficult problems in an effective way to develop long term, permanent solutions.

It also provides analysis and documentation that explains the cause of the event and establishes a process for either eliminating or repeating the event.

Manner Of Presentation. The EAP learning is conducted in a two day workshop using guided discussion and team exercises. Participants assume responsibility for various jobs required to guide their teams through the learning process.

MAC – Managing and Communicating

The ***MTS™*** Managing and Communicating courses are designed to assist Management/Supervisors to develop their effectiveness in managing and communicating.

MTS™ has two separate courses that focus on 2 specific subjects:

- MAC(S) – Managing And Communicating Safety
- MAC(Q) – Managing And Communicating Quality

Safety and Quality are used to provide learning both in the specific area of how to manage and communicate safety and quality but also to provide learning in managing and communicating in any result area related to safety and/or quality.

MAC(S) – Managing and Communicating Safety

Manner Of Presentation. The MAC(S) program consists of four 3 – 4 hour group sessions, each followed by daily individual communications practice in the field to reinforce the concepts learned. The practice periods between sessions are of at least one week duration.

MAC(Q) – Managing and Communicating Quality

Manner Of Presentation. The MAC(Q) program consists of four 3–4 hour group sessions, each followed by daily individual communications practice in the field to reinforce the concepts learned. The practice periods between sessions are of at least one week duration.

MTFS – Motivational Training for Supervisors

Motivation Training For Supervisors concentrates on using the abilities/knowledge that result in performance improvements. Results are measured by positive change in the relationship between supervisor and employee. The workshop materials used give the participants tools for dealing with situations that prior to training were ignored, avoided, or handled poorly.

Manner Of Presentation. Instructional Techniques include short participative presentations. Motivational theories and practice are followed by individual drill response and/or small team exercises with group discussion. Inductive learning occurs in individual drills, role plays, and small team exercises.

NBAS – Nuts and Bolts of Administration for Supervisors

Nuts and Bolts of Administration for Supervisors is workplace specific. In all workplaces, supervisors must know what the “ground rules” are and what is required by workplace management. To make this happen, Nuts and Bolts of Administration covers how to initiate administrative procedures and why the procedures are needed.

Manner Of Presentation. Instructional techniques include short participative presentations on policies and procedures followed by individual drill response and/or small team exercises with group discussion of feedback.

OLS – Operational Leadership for Supervisors

Operational Leadership for Supervisors is designed to provide a second layer to the supervisor’s understanding of his job. (WIS, described below, provides a first layer). A collage of concepts is presented to help supervisors understand, internalize and discover the second tier ingredients of their jobs. The module provides supervisors with an opportunity to discover what effective leadership is all about and how to use it.

Manner Of Presentation. OLS uses an array of inductive exercises, short participative sessions on concepts and principles, case studies followed by individual drill responses and/or small team exercises with group discussions followed by at-the-job practice.

SJT – Supervisor’s Job “After the Training”

Supervisor’s Job “After the Training” is for supervisors of the learners who have attended and completed an ***MTS***™ module of training.

The SJT training module includes discussion on the principles and practices the supervisor can use to evaluate the learning the operators achieved during ***MTS***™ training.

Manner Of Presentation. The first couple of days are spent discussing training concepts and principles and practices of the ***MTS***™ Training System. Later tests and exercises are designed so supervisors can determine whether or not the workers have achieved their objectives.

SWAP – Supervisor Work and Ability Profiling

Supervisor Work And Ability Profiling is designed to get the supervisor to develop a comprehensive job analysis in terms of specific job elements, assess his job abilities in conjunction with his boss and identify a critical development map that will give him in his effort to correct job skill deficiencies.

A typical SWAP day will resemble this format: The instructor will state the learning objectives, review the day's assignment, give some guidelines and/or lead the learners through some inductive exercises that will set the stage for what is to be experienced and learned. During the At-The-Job phase, the learners will complete the job activities.

WIS – What is a Supervisor?

What Is A Supervisor? is designed to help the supervisor put his job in sharp perspective regarding his role and function.

In this workshop the participants discover (or rediscover) and validate through their experience and that of their peers, the following essential leadership concepts: pro-activity, mission, results, power/influence, delegation, planning, time management, joint accountability,. The specific take-home outcomes of the WIS workshop are:

1. A **plan** on how to apply the concepts learned in the workshop.
2. A **job description** structured around the technical-organizational- people aspects of the job. For each of these three territories, the functions of the supervisor and the expected results are defined.
3. A set of **analysis sheets** in each of the three territories setting down what the supervisor does, what he uses and what he/she needs to know. These analysis sheets become the basis for the preparation of the supervisor's Development Plan.

Manner Of Presentation. The 5 day WIS workshop, is a highly participative, inductive experience for a group(s) of 12 supervisors (the number of participants is important because of the many small group exercises in the workshop).

COURSES FOR TECHNICAL LEARNING

SPC – Statistical Process Control For Managers

Statistical Process Control, or SPC as it is sometimes abbreviated, is the use of statistically organized information to make action decisions required to manage a process. Statistical Process Control is related to, but different from, traditional process control in that it does not deal with how we regulate or adjust our process equipment. The focus of SPC is the identification and elimination of process problems which cause “bad” product. Thus the focus of SPC is on preventing problems before they occur, rather than on detecting them after they occur.

SPC – Statistical process Control for Users

Statistical Process Control (SPC) is a way of thinking about manufacturing processes and a series of methods and techniques that are used to help support that thinking. SPC thinking and techniques are important manufacturing problem solving tools available to operating people. The purpose of this course is to assist operators and supervisors to gain more overall control of their territory by helping them become available to them and how they and others in the organization can use those tools.

TTP – Troubleshooting Principles and Practices

Troubleshooting Principles And Practices is the ***MTS***™ approach to process and/or equipment troubleshooting. Four basic troubleshooting methods; historical, input/ output, logical analysis and hysterical, are analyzed and the advantages and disadvantages of each are compared. The use of a system of troubleshooting along with the necessity of knowing what is normal

is emphasized.

Manner Of Presentation. TPP is a five day session to train supervisors and others in the methodology of troubleshooting. The training consists of 10 four hour sessions. TPP combines theory (Principles) with application (Practices).

MTS™ EQUIPMENT OPERATION WORKBOOKS

Within the following lists of Equipment Operation Workbooks are Workbooks identified as ***EQUAL*** Modules. ***EQUAL*** Modules are aimed at people not familiar with the equipment used in chemical plants, refineries and other process workplaces. The content of these ***EQUAL*** modules is designed to develop an understanding of the language used to describe the equipment and used to operate and maintain that equipment. We find all kinds of people, both beginners and experienced, benefit from the ***EQUAL*** treatment.

CO – INSTRUMENT AND ELECTRICAL CONTROL OPERATION WORKBOOKS

The “CO” workbooks cover operation of both ordinary and analytical instruments, electrical equipment and such measuring or metering devices as scales or measuring feeders.

CO2 Gravimetric Feeders

CO3 Metering Pump Operation (***EQUAL***)

CO4 Motor Control Center Operation (***EQUAL***)

CO5 Dial Scale Weighing

CO6 Clarkson Liquid Reagent Feeders

CO8 Rotary Valve Feeder Operation

CO14 Process Control Operation (***EQUAL***)

CO15 Controlled Flow Operation (***EQUAL***)

CO15S1 Controlled Mass Flow Operation

CO16 Controlled Pressure Operation (***EQUAL***)

CO17 Controlled Level Operation (***EQUAL***)

CO18 Controlled Temperature Operation (***EQUAL***)

CO19 Cascade Controlled Loop Operation (***EQUAL***)

CO20 Controlled pH Operation

CO22 Scale Tank Operation

CO28 Fluid Flow System Operation (***EQUAL***)

CO29 Electric Motor Operation (***EQUAL***)

CO30 Controlled Speed AC Motor Operation

CO31 Ratio Controlled Operation (***EQUAL***)

CO32 Fisher PRoVOX/ProVue Control Operation (DEC Version)

CO33 Taylor MOD 300 Control System Operation

CO33S1 ABB MOD 300 Control System

CO34 Honeywell TDC 3000 Control System Operation

CO35 Rosemount RMV 9000 Control System Operation

CO36 Bailey Infi 90 DCS System

CO37 LXE Operation

CO40 Honeywell TDC 3000 Operation

CO41 Upgrade Operating DCS Installation

CO219 Fabric And Felt Guiding And Tensioning Operation

MO – MECHANICAL OPERATION WORKBOOKS

The “MO” workbooks cover operations of all kinds of mechanical equipment, particularly equipment with moving parts, other than process equipment and mobile equipment.

MO1 Centrifugal Pump Operation (*EQUAL*)

MO1S1 Canned Motor Pump Operation

MO2 Reciprocating Positive Displacement Pump Operation (*EQUAL*)

MO3 Belt Conveyor Operation

MO4 Screw Conveyor Operation

MO5 Centrifugal Compressor Operation (*EQUAL*)

MO5S1 Motor Driven Centrifugal Compressor Operation

MO6 Reciprocating Compressor Operation (*EQUAL*)

MO7 Steam Turbine Operation (*EQUAL*)

MO8 Moyno Tubular Pump Operation

MO9 Bucket Elevator Operation

MO10 Fan And Blower Operation

MO11 Jaw Crusher Operation

MO23 Rotary Positive Displacement Pump Operation (*EQUAL*)

MO24 Valve Operation (*EQUAL*)

MO25 Packaging Conveyor Operation

MO26 Scraped Surface Heat Exchanger (SSHE) Operation

MO28 The Feeder Hoist Operation

MO32 Centrifuge Operation

MO33 Air Conveying Operation

MO35 About Vapor Compression Refrigeration

MO36 Centrifugal Exhauster Operation

MO37 Extensible Conveyor Operation

MO40 Dry Electrostatic Precipitator Operation

MO48 Oil Firing Systems

MO49 Agitating Tank Operation

MO59 Super-Flo Conveyor Operation

MO60 Flex-Kleen Filter Operation

MO90 Air Driven Diaphragm Pump Operation

MO115 Scandia Banding Operation

MO204 Rotary Pressure Screen Operation

MO211 Liquid Ring Vacuum Pump Operation

MO510 About Packaging Conveyors

PO – PROCESS EQUIPMENT OPERATION WORKBOOKS

The “PO” workbooks cover operating process equipment, particularly equipment without moving parts.

PO1 Rotary Dryers

PO2 Wet Cyclone Classifier

PO3 Baghouse Operation

PO8 Heat Exchanger Operation (*EQUAL*)

PO8S1 Plate And Frame Heat Exchanger Operation

PO9 Steam Preheater Operation

PO10 Steam Reboiler Operation (*EQUAL*)

PO11 Air Dryer Operation

PO12 Cooling Tower Operation (*EQUAL*)

PO13 Fin/Fan Cooler Operation (*EQUAL*)

PO14 Fired Heater Operation (*EQUAL*)

PO15 Steam Jet Operation (*EQUAL*)

PO16 Separator Operation (*EQUAL*)

PO17 Liquid Filter Operation

PO20 Bottoms Overhead Fractionator Operation (*EQUAL*)

PO21 Vacuum Fractionator Operation (*EQUAL*)

PO22 Stripper Operation (*EQUAL*)

PO23 Absorber Operation (*EQUAL*)

PO26 Boiler Operation (*EQUAL*)

PO27 Steam Condensate System Operation (*EQUAL*)

PO30 Multidraw Fractionator Operation (*EQUAL*)

PO36 Rotary Drum Vacuum Filter Operation

PO50 Water Treatment By Ion Exchange

PO67 Secondary Reactor Operation

PO75 Hot Melt Glue Application Operation

TO – MOBILE EQUIPMENT OPERATION WORKBOOKS

The “TO” workbooks cover operation of wheeled, tracked and rail-guided mobile equipment. Sometimes, a stationary piece of equipment mounted on a mobile frame is classified as a “TO”.

TO4 Railcar Trackmobile Operation

TO11 P&H Rough Terrain Crane 40 Ton Omega

TO13 P&H Hydraulic Truck Crane 75 Ton T-750

TO14 Mobile Carrier Lattice Boom Crane American Model5680

TO15 Link Belt Crane LS-418

TO16 15 Ton Dresser Hydraulic Truck Crane

TO17 The Drott Mobile Picker Crane

TO18 Gradall G-660 Grader

TO19 Case Tractor Model 580K

TO20 Galion Motor Grader Model T500C

TO21 Caterpillar D6D Bulldozer

TO22 Dempster Dumpster Truck

TO23 The Elgin Pelican Sweeper Model S or T

TO24 Chemical Truck

TO25 Trailmaster Vacuum Truck

TO26 Fuel Pumper Truck

TO27 The 3 Ton Winch Truck

TO28 Ford Truck And Gooseneck Trailer

TO29 Chevrolet Kodiac Cab Tractor Trailer Truck

TO30 1840 Case Uni-loader

TO31 225D Caterpillar Excavator

TO32 Manlift

TO33 Anfo Bulk Loader

TO34 Lift Truck

TO35 Training Guide For Commercial Driving License (CDL)

TO35.S1 CDL – Supplement Practice Assignments And Answers

TO36 Bridge Crane Monorail Operation

TO56 Caterpillar 988B Front End Loader

TO158 Front End Loader Operation

WO – TASK-ORIENTED OPERATION WORKBOOKS

The “WO” workbooks cover a wide range of task oriented operations. These operating workbooks may be used alone or they may support a step of operation (SO) in a process.

WO10 About Troubleshooting Operations (*EQUAL*)

WO14 Skid Wrapping Operation

WO21 Automatic Samplers

WO25 Grabbing Samples (*EQUAL*)

WO35 Nitrogen Purging, Testing And Blanketing (*EQUAL*)

WO51 Core Capping

MTS™ EQUIPMENT MAINTENANCE WORKBOOKS

AM – ANALYZER MAINTENANCE WORKBOOKS

These workbooks are maintenance related workbooks on the “care and feeding” of analytical instruments. The analyzer workbook numbers are grouped by type of analyzers.

Analyzer Basics

AM100 Introduction To Process Analytical Instrumentation

Infrared Analyzers

AM150 Infrared Analyzer Overview

AM152 MSA Infrared Analyzer Model 303 LIRA

AM153 Beckman 865 Infrared Analyzer

Chromatographs

AM200 A First Look At A Chromatograph

AM201 Gas Chromatograph Detectors Overview

AM202 The Flame Ionization Detector

AM203 Beckman 6710 Chromatograph

AM203S1 Beckman Model 6710 Benzene Analyzer Specific Calibration

AM204 Beckman D620 Chromatograph

AM205 Beckman Model 6750 Process Chromatograph

AM206 Applied Automation 201 Chromatograph

AM207 Houston-Atlas Models 825R, 722R H2S Analyzer

AM208 Sun Gas Chromatograph

AM209 Varian Model 2700 Gas Chromatograph

AM210 Applied Automation Optichrom 2100 Process Chromatograph System

AM211 Applied Automation Optichrom 2100 Programmer

AM212 Applied Automation Optichrom 2100 Analysis Interface Unit

AM213 Bendix Model 7000/007 Process Gas Chromatographic Analyzer

pH Analyzers

AM250 Measuring pH

AM251 Uni-Loc pH Analyzer System

AM252 Beckman Model J pH Analyzer

AM253 Foxboro Model 699 pH To Current Converter

AM254 Leeds And Northrup pH Indicator 7070 Series

AM255 Great Lakes pH Meter Model 60

AM256 Beckman 940 pH Analyzer

AM257 Beckman 942 pH Analyzer

AM258 Polymetron NH3 (pH) Analyzer

AM259 Yokogawa pH Transmitters Model PHGF And PHGP

AM260 Leeds And Northrup 7073 pH Receiver

AM261 Foxboro Model 870 pH Transmitter and 871 pH Sensor

AM262 Foxboro 2220 Monitors pH And ORP

AM263 Foxboro 872 Electro-Chemical Monitor pH ORP Conductivity

Water Analyzers

AM300 Overview Water Quality Analysis

AM301 Milton Roy Model A-62603 Sodium Ion Analyzer

AM302 Hach Silica Analyzer

AM303 ITT Barton Model 342 Recorder Sulfur Analyzer

AM305 Uni-Loc H2SO4 Concentration Analyzer Model 713

AM306 The General Monitors H2S Analyzer Model 2200

AM307 Orion a/Sled Low Level Sodium Analyzer

Gas Analyzers

AM401 Bailey Gas Sampling System

AM402 Bailey Gas Analyzer

AM403 Bacharach Combustible Gas Analyzer Model CD 800/830

AM404 The Rexnord 810 Gas Detector

AM407 Mitaka Model 6643 Hydrogen Analyzer

AM411 Panametrics Moisture Analyzer Model 3000

AM412 DuPont Moisture Analyzer Model 560

AM413 General Monitors Dual Channel Combustible Gas Monitor Model 520

AM414 DuPont Model 460 Photometric SO2 Analyzer System

AM415 Bambeck 3100 CO Analyzer

AM416 Westinghouse Probe Type Sulfur Dioxide Analyzer (Model 260)

AM417 Westinghouse Model 620A CO Analyzer Package

AM418 Sensidyne Gas Alert Monitor (Hydrogen Sulfide)

Oxygen Analyzers

AM450 Oxygen Analyzers Overview

AM451 Thermox Oxygen Analyzer

AM452 Taylor Servomex Oxygen Analyzer

AM453 Teledyne Trace Oxygen Analyzer Model 316B-2X

AM454 Beckman Model F3 Oxygen Analyzer

AM455 Milton Roy Oxygen Analyzer (Mod. A–10007 Oxyprobe)

AM456 MSA TM6 Oxygen Analyzer

AM457 Westinghouse-Hagan Oxygen Analyzer Model 132

AM458 The Bailey Oxygen Combustibles Analyzer

AM459 Westinghouse Probe Type Oxygen Analyzer (Models 218/225/240)

Conductivity

AM500 About Conductivity

AM501 The Thermal Conductivity Detector

AM502 Beckman Thermal Conductivity Analyzer Model 7C

AM503 Uni-Loc Conductivity Analyzer

AM504 Beckman Direct Reading Conductivity Meter (Solumeter) Model RA5

AM509 Leeds And Northrup Conductivity Meter Model 7070

AM528 Yokogawa Salinometer Transmitter (Yokogawa Conductivity Transmitter) Model 8531

AM529 Rosemount Model 1181C Conductivity Transmitter

Other Analyzers

AM551 Eur-Control OPTICON Consistency Transmitter

AM552 Fischer And Porter Residual Chlorine Analyzer Series 17B4200

AM553 Lower Explosive Limit Analyzer Overview

AM554 Innomatic Freeness Tester Model 63B–4

AM555 Cupric Analyzer

AM556 TOTCO Boiling Point Analyzer

AM557 CO Millionaire Installation

AM558 Nickel Carbonyl Analyzer System

AM560 Polymetron Urea Analyzer

AM566 Jiskoot Sampling System

AM567 ARMCO PSM–400 Particle Size Monitor

AM568 Electron Machine Refractometer (Model MPR–83/ MPR–83R)

Brightness

AM569 Technitbrite Brightness And Opacity Tester (Model TB–1)

AM570 Kajaani Brightness Monitor

Density (See also *IM About Special Instruments* series.)

AM581 Ranarex Specific Gravity Indicator Recorder With Pneumatic Or Electronic Transmission

AM587 Dynatrol Density Analyzer

AM588 Kay-Ray Model 3660 Liquid Density System

CM – CIVIL MAINTENANCE WORKBOOKS

These workbooks are civil related workbooks and are generally associated with the various building trades required by process workplaces to maintain their physical facilities.

Materials

CM201 Materials Of Construction

CM202 Some Building Materials

Concrete And Masonry Work

CM240 Mixing And Pouring Concrete

CM241 Basic Masonry Skills

CM245 Masonry Materials

CM247 Plastering

CM250 Refractories And Refractory Repairs

CM250S1 Application Of Tenax Protective Coating

CM251 Applying Acid-Proof Bricks

Insulation

CM300 About Thermal Insulation And Thermal Insulation Products

CM302 Insulation Applications And Repairs

Roofing

CM350 Roofing Application And Repair

Painting And Coating

CM370 About Paintings And Coatings

Carpenter Work

CM400 Wooden Fabrication And Construction

CM401 Construction Of Foundation Forms

CM402 Wharf Maintenance

CM403 CC Converter Woodwork Maintenance

CM411 Industrial Door Maintenance

EM – ELECTRICAL MAINTENANCE WORKBOOKS

The “EM” workbooks cover equipment typically maintained by industrial electricians. Basic electricity, tools, and test equipment is found in the EM500 series, Motors and motor control begin at EM900. Information electricity, including programmable controllers are found beginning at EM600. High Voltage and power electricity are found at EM700 with Generation and Distribution beginning at EM800. Some related subjects may be found in the IM section.

Electrical Safety

EM100 Electrical Safety Training for Unqualified Personnel OSHA 1910.330-1910.335

EM101 Electrical Safety Training for Qualified Personnel OSHA 1910.330-1910.335

Commercial Electricity

EM200 About Commercial Electricity In Industrial Plants

EM202 Lighting Systems

EM203 Installing Lighting Systems

EM204 Maintaining Lighting Systems

Electrical Equipment

EM221 Goring/Kerr Tek-21 DSP Metal Detector

Planned Maintenance

EM301 Magneto Repair And Testing

EM403 Molded Case Breaker Maintenance

EM406 Inspection And Testing Of High Tension Lines

EM407 Testing And Troubleshooting Motor Installations

EM408 Motor Testing And Maintenance

Basic Electricity

EM500 About Industrial Electricity

EM501 About DC Electricity

EM502 About AC Electricity

EM503 About Magnetism

EM510 About Electrical Test Equipment

EM511 Using A Megger Tester

EM513 Ammeters And Power Meters

EM514 Using An Oscilloscope

EM515 Electrical Drawings, Diagrams And Schematics

EM516 Using The Fluke Model 8022A Multimeter

EM521 Wire And Insulation

EM522 Fuses And Their Uses

EM524 Cable Splicing, Termination And Phasing-Out

EM584 Power Factor And Corrections

EM584S1 Actual Power, Apparent Power, Reactive Power

EM585 Using The Simpson 260 VOM

Information Electricity

EM611 Panalarm Series 50 Annunciators

EM612 Panalarm Series 70 Annunciators

EM613 Ronan Annunciators Series X12-X16

EM614 Marconi Annunciator

EM615 RTD's And RTD Monitors Edison Omnigard® 3 Wire System

EM620 Switching And Shutdown Systems

EM621 Switching And Shutdown Components

EM622 Process Switches

EM623 Swanson Monitrol MR

EM624 About Photoelectric Sensors

EM625 ATC 2800 Series Timer

EM662 Beta System 420S Sequential Events Recorder

EM663 Ronan Sequential Events Monitor Series X500

EM840 Cutler-Hammer Directrol Multiplexer Overview

EM840S1 Cutler-Hammer Directrol Multiplexer Communications Station

EM840S2 Cutler-Hammer Directrol Multiplexer Terminal Station

EM840S3 Cutler-Hammer Directrol Multiplexer I/O Modules

EM840S4 Cutler-Hammer Directrol Multiplexer Power Supply

EM840S5 Cutler-Hammer Directrol Multiplexer Monitor Panel

EM840S6 Cutler-Hammer Directrol Multiplexer Computer Interface

Programmable Logic Controllers

EM630 Introduction To Programmable Controllers

EM631 Transistor Logic System Components

EM631S1 About Relay Logic

EM633 Programmable Controller Modicon 384

EM634 Programmable Controller Modicon 484

EM635 Saab-Totem And Modicon Electrical System

EM636 Saab-Totem Scanner System

EM637 Sy/Max Programmable Controller System

EM638 General Electric Series Six Programmable Controller

EM639 General Electric Workmaster Program Development Terminal (PDT)

EM640 Programmable Logic Controller Allen-Bradley 2/30

EM641 Modicon Micro 84 Programmable Controller

EM642 Westinghouse Numalogic Programmable Controllers PC700/900/1100

EM643 Gemco's Programmable Limit Switch, Quick-Set 2, Typical Installation

EM644 Troubleshooting A PC Controlled Batch Process

EM645 Texas Instruments 5TI Programmable Control System

EM646 Allen-Bradley PLC–2, PLC–3, PLC–5 Programmable Logic Controller

Burner Management

EM650 About Flame Provers

EM651 Fireye Flame Safeguard

EM652 Honeywell "Protecto-Glo" Flame Safeguard "The Purple Peeper"

EM652S1 Honeywell C7076A Flame Monitoring System

EM653 Uvisor 100 Flame Prover

EM661 Control System Of The Breda IK300 Retractable Sootblowers

EM680 United Electric Controls Co. DigiTrace Model D720 Heat Trace Controller & The Raychem Auto-Tracing System

Power Electricity

EM700 Power Electricity

EM701 DC High Potential Testing With Associated Research Model 5471M1 Hypot Tester

EM711 Electrostatic Precipitator

EM712 Rectifiers

EM713 Batteries And Battery Chargers

EM715 Joy Electrostatic Precipitator

EM716 Cyberex Inverter

EM717 Staticon "Stativolt" Uninterruptible Power Supply

EM718 Yokogawa Isolating Units

EM719 Solidstate Controls Inc. 10 KVA Uninterruptible Power Supply Model SV12100/TS100NB/A/TS100MB

EM720 Uninterruptible Power Supplies

EM722 Deltec 6000 Series Uninterruptible Power System

Generation And Distribution

EM807 Vitec Vibration Monitor

EM810 About Transformers

EM810S1 Westinghouse Tap Changer Transformer

EM813 Secondary Substation Transformer

EM814 Power Distribution Substations

EM820 Distribution Systems Relays

EM820S1 ITE 27 Undervoltage Relay Series 411

EM820S2 ITE 60 Voltage Balance Relay Series 412

EM820S4 ITE 40 Loss Of Excitation Relay

EM820S5 ITE 32R Reverse Power Relay

EM820S6 ITE 51 Series 443 Time-Overcurrent Relay

EM820S7 Allen-Bradley Programmable Motor Protector

EM820S8 ITE 59 Overvoltage Relay Series 411

EM822 General Electric Type GCX51 Distance Relays

EM823 Testing And Resetting Power Relays

EM830 About Generating Electricity

EM831 Generators

EM833 BEMAC III Synchronous Generator

EM834 Kamag II Steam Driven Generator

EM850 Power Distribution System

EM859 General Electric Power Circuit Breakers Type AM Installation

EM860 System Protection; Relaying And Disconnects

EM861 General Electric Type M–26 Metal-Clad Switchgear

EM861S5 General Electric Magne-Blast Circuit Breaker Installation

EM862 Siemens Oil Circuit Breaker

EM863 Molded Case Circuit Breakers Description

EM864 Westinghouse Metal-Clad Switchgear And DH-P Breaker

EM865 Westinghouse De-Ion Type BK Oil Circuit Breaker

EM866 FPE Type HF-100 Fusematic Air Circuit Breaker

EM867 General Electric Type KSO 69KV Oil Blast Circuit Breaker

EM868 General Electric Power Circuit Breakers, Types AK–2–25, 50 And 75 And 100

EM869 General Electric Switchgear And Vacuum Breaker

EM870 Standard Transformer Company Class OA/FA Transformer

EM871 S And C Electric 4160V Metalclad Switchgear

EM872 General Electric Type IAC Overcurrent And Type IAV Undervoltage Relays

EM873 Westinghouse XASV Auto Synchronizer And “Y” Synchro Acceptor

EM880 Brush Synchronous Generator Installation

EM880S1 Brush Modulator Automatic Voltage Regulator

EM881 Pratt And Whitney Industrial Turbine Installation

EM881S1 Hamilton Standard Fuel Control System (SPC) For Industrial Turbines

EM881S2 Pratt And Whitney Gas Turbine Liquid Fuel Forwarding System

EM882 United Technologies Power Pac Automatic Sequencer

EM883 Woodward Electronic Control And Valve

EM887 General Electric Transformer On-Load Automatic Tap Changer Control And Load VAC Tap Changer, Type LRT–200

EM888 Brown Boveri System 89 Industrial Motor Control Center

EM889 Typical Steam Turbine Electronic Governor (Woodward)

About Motors, Control And Installations

EM900 About Electric Motors

EM904 Squirrel Cage Motors

EM905 Wound Rotor Motors

EM906 Synchronous Motors

EM907 Fractional Horsepower Motors

EM908 DC Motors

EM909 General Electric Synchronous Motor Type TS 7,000 HP 13.8 KV Drive System

EM920 About Motor Controls

EM921 Motor Control Circuits 1

EM922 Motor Control Circuits 2

EM923 Motor Control Circuits 3

EM924 Typical AC Motor Control Circuits

EM925 Motor Overload Relays

EM926 Motors Starters/Breakers

EM927 Combination Magnetic Starter (Polyphase)

EM928 Combination Magnetic Starters For 480V AC Motors

EM929 Drawout Switchgear

EM930 Reduced Voltage Starters

EM931 Elliott Motor Controller Type 211 And 220

EM932 Square D Medium Voltage Controller

EM933 Westinghouse Ampgard 4160 Volt Starter

EM934 Westinghouse Rapcon DC Motor Control

EM935 General Electric Limitamp Controller

EM936 Allen-Bradley 4160V Centerline HVC Starter

EM937 General Electric Silpac DC Motor Control System

EM938 About High Voltage Motor Controllers

EM939 General Electric Lodtrack III Solid State Motor Protection Module

EM943 Motors On Crushers

EM945 Electric Limitorque Actuators

EM952 Inovec Positioner

Variable Frequency Drives

EM721 Eaton Series E., AF5000 Adjustable Frequency AC Drive

EM940 Reliance MaxPak Plus Controller (For DC/VS Drives)

EM941 Square “D” Omegapak Frequency Controller

EM960 About Variable Frequency Drives

EM961 Reliance AC VS Variable Frequency Drive (Current Source Type) 75–100 HP Model AF7000

EM962 Eaton Dynamic Variable Frequency Drive

EM963 Allen-Bradley Bulletin 1334 Adjustable Frequency Drive (5HP, 7.5HP, 10HP)

EM964 Reliance AC VS Variable Frequency Drive (Voltage Source Type) 5-150 HP

EM965 Eaton Series E, AF5000 Adjustable Frequency AC Drive

EM966 Veritron TWK-S Series AC Variable Frequency Drive

EM967 General Electric Load Commutated Inverter/AC Adjustable Speed Drive System

Electrical Control Systems

EM971 The Harperizer Control System — (PCNR)

EM972 Tri-Sen Minitronic Model M-300 Electronic Governor

EM972S1 Tri-Sen TS310 Digital Governor Controller

EM973 General Electric Siltron Digital Drive: Distributed Micro Controller

EM974 General Electric Siltron Digital Drive: Power Conversion Module (PCM)

EM980 About Mine Hoist Electrical Control Systems

EM980S1 Westinghouse Mine Hoist Control (1928-1950)

EM980S2 General Electric Hoist Control (1948-1954)

EM981 P & H Overhead Traveling Crane

EM982 Englehardt Industries Chloropac System

EM983 CA Computer System

EM989 York Chiller Motor Control System And Refrigeration

EM990S1 6,000 HP Ingersoll-Rand Centrifugal Compressor Drive System

EM991 Auto Sentry II Air Compressor Controller

GM – GENERAL MAINTENANCE WORKBOOKS

The following workbooks are used in a wide variety of training programs. Often they are used by maintenance people regardless of their specialty. Frequently they are included for operators.

GM100 About Numbers

GM101 Diagramming I, E, M And P Components

GM103 Using Structural Steel Drawings

GM104 About Mathematics

GM105 Lockout And Tagging Procedures

GM106 Blinds And Blinding Procedures

GM107 Computer Basics

GM112 A First Look At Computerized Information Management

Using Tools

GM129 About Pneumatic Power

GM130 Mechanic's Hand Tools

GM130S1 Woodworking Hand Tools

GM131 Pneumatic Power Tools

GM132 Powered Woodworking Tools - Part One

GM133 Powered Woodworking Tools - Part Two

GM134 Masonry Hand And Power Tools

GM136 About Power Track Tools

GM140 General Hand Tools

GM141 Machine Grinding

GM142 Hand Grinding

GM155 Arc Welding Power Sources

Rigging And Scaffolding

GM280 Rigging Fundamentals

GM281 Rigging Field Applications

GM282 Fixed Scaffolding

GM283 Using Small Rigging Equipment

Troubleshooting

GM701 Some Troubleshooting Methods

GM702 Input/Output Method Of Troubleshooting

GM703 Locate Trouble On Paper-The Troubleshooting Map

GM705 Signal Tracing And Continuity Testing

GM710 About Troubleshooting Processes

WO10 About Troubleshooting Operations

CT53 Troubleshooting Principles And Practices

LP – LEARNING PLAN WORKBOOKS

Learning plan workbooks are normally used with other source materials.

Arc Welding

LP101 Gas Tungsten Arc Welding Of Mild Steel Pipe

LP102 Shielded Metal Arc Welding Of Mild Steel Pipe

Maintenance Safety

LP100 First Aid

LP103 Respiratory Protection

LP104 Hazardous Materials

LP105 Defensive Driving

LP106 Firefighting

LP107 Cardiopulmonary Resuscitation

IM – INSTRUMENT MAINTENANCE WORKBOOKS

Two basic instrument type workbooks are listed: *principles* and *hardware*. The principles workbooks cover concepts, principles and fundamentals. The hardware workbooks cover specific instruments and devices.

- The IM100 series workbooks are principles workbooks.
- The IM200 to IM300 series workbooks are mechanical and pneumatic hardware workbooks.
- The IM500 series are electrical instrument related workbooks. Included in this series are transducers, e.g., current to pressure devices and “converters”.
- The IM600 series starts the *electronic* series. The first ten of this series cover basics.
- The balance cover specific electronic instruments. The electronic hardware workbooks are grouped by a manufacturer’s line. Some related subjects may be found in the EM section.

Mechanical Instruments

IM10 About Pressure Regulators

IM18 ITT-Barton Indicator/Recorder 200

IM19 Barton D/P Indicator

IM19S1 Barton Models 288A And 290A Differential Pressure Indicating Switch

IM20 About Positive Displacement Meters

IM21 Totalizers/Integrators

IM22 Thayer Electronic Integrator Model I–128

IM23 Daniel Direct Reading Totalizer Model 2239

IM24 Brooks Oval Gear Flowmeters

IM30 About Rotameters

Instrument Control Systems

IM51 Smith/Geosource Metering Systems

Instrument Principles

IM100 Introduction To Industrial Instrumentation

IM101 Mechanisms; Components

IM102 Mechanisms; Subassemblies

IM103 Pneumatic Components And Subassemblies

IM104 Calibration Principles And Practices

IM105 The Instrument Maintenance Outline (IMO)

IM106 Head Concept Applied To Instrumentation

IM107 Level Measurement Using The Displacer

IM108 Measuring Flow And The Orifice

IM109 Pressure Measurements (And Its Variations)

IM110 Filled System Temperature Measurements

IM111 Instruments Classified: Feedforward And Feedback

IM112 Instruments Classified: Motion Balance

IM113 Controller Alignment Principles

IM114 On/Off And Proportioning Only Mechanisms

IM115 Proportioning And Derivative Mechanisms

IM116 Proportioning And Reset Mechanisms

IM117 Controllers And Controller Outputs

IM118 Control Loop Concepts

IM120 Tuning Controllers

IM121 Properly Tuned Loops And Typical Controller Settings

IM122 Tune A Flow Loop (Using The Three Methods)

IM123 Tune A Level Loop

IM125 A Flow Control Loop

IM126 A Temperature Control Loop

IM127 A Level Control Loop Using The D/P Cell

IM128 A Pressure Control Loop

IM129 Ratio Control

IM130 Cascade Control

IM132 Level Measurement By Bubble Pipe

Function Relays

IM140 About Function Relays

IM141 Moore 612, 61L, H & F, And 58L, H & F Series Function Relays

IM142 Moore Model 59D, 59R Direct And Inverse Derivative Relays; Model 661 Amplifying

IM143 Moore Model 65 Square Root Extractor

IM145 Foxboro Model 557 Square Root Converter

Process Control Systems

IM151 Controlling A Steam Generator

IM152 Boiler Control System

IM153 Automatic Boiler Control System

IM156 Combustion Control Of The Reduction Kiln

IM158 Mitsubishi Turbine Control System

IM162 Centac Compressor Controls

IM163 Allis-Chalmers Compressor Controls

Some Transmitters And Controllers

IM170 About Pneumatic Instruments

IM171 Fisher Governor Multi-Trol Controller

IM172 Fisher Governor 2500 Series Level Transmitters/ Controllers

IM173 Foxboro 17BS Buoyancy Level Transmitter

IM174 Honeywell Low Pressure Controller

IM175 Honeywell Air-O-Line Controller

IM176 Parcol Pressure Controller

IM177 Taylor Pneumatic 390T Series Differential Pressure Transmitter

IM178 Foxboro Model 760 Single Station Micro Controller

IM179 Taylor Differential Pressure Transmitter Types 503T, 504T, 505T, 506T Model A

IM180 Foxboro 13F Liquid Level Transmitter

IM181 Honeywell Vumatik Indicator

IM182 Moore Products Company Mycro 352 Single Loop Digital Controller

IM183 DeZurik Consistency Transmitters 525 And 530

IM185 Honeywell Process Pressure To Pneumatic Transmitter Model NKP–10

IM186 Honeywell Pneumatic Differential Pressure Transmitter Model NDP 11, 22

IM187 Honeywell Liquid Level To Pneumatic Transmitter Model NQP

IM188 Honeywell Pneumatic Temperature And Pressure Transmitter Model N637N1 And N737N1

IM189 Honeywell Currentronic Vertical Scale Indicator For Cascade Control Model NBC

IM190 Bristol Pneumatic Controller Model 624 A/D

IM191 Bristol Series 5458 Indicating Pneumatic Transmitter

IM192 Honeywell Dialapak Controller M/N AV-54

IM193 Foxboro Model 870 pH Transmitter And 871 pH Sensor

IM194 Honeywell UDC 400 Universal Digital Controller

IM195 Foxboro 130 F–NS Indicating Controller

IM196 Foxboro D/P Transmitter

IM201 Instrument Pressure Gauges

IM202 Moore Nullmatic Indicator And Setpoint Signal Transmitter

IM203 Masoneilan 12000 Series Level Transmitter

IM204 Foxboro 37, 40, 44 And 45 Measuring Side

IM205 Manual Automatic Station; Foxboro Consotrol And Model 40 And Moore Nullmatic

IM206 Relays: Foxboro, Masoneilan, Bailey

IM207 Foxboro Temperature Transmitter; 12A

IM208 Foxboro D/P Transmitter: 13A And Variations

IM209 Foxboro Transmitting Mechanisms: 44 And 45

IM210 Foxboro Model 54 Receiver Recorder

IM211 Masoneilan 2700 And 3700 Series Pneumatic Controllers

IM212 Fisher Governor Wizard I Controllers Models 4100U And 4101U

IM213 Fisher Governor Wizard II Controller

IM214 Foxboro 40R Controller

IM215 Foxboro 41A Pneumatic Controller

IM216 Foxboro 43A Pneumatic Controller

IM217 Foxboro 52A Indicating Control Station

IM218 Foxboro Model 58 Controller

IM219 Bailey Relay; Type AS 300 Standatrol Relay

Valves, Actuators And Positioners

IM220 About Valves, Actuators And Positioners

IM221 Diaphragm Actuators

IM222 Annin Positioner/Actuator

IM222S1 Jamesbury Ball Valves And Actuators

IM223 Power Control Drives: Foxboro And Hagan

IM224 Positioners; Masoneilan

IM224S1 Masoneilan Series 4600 Pneumatic Positioners

IM224S2 Masoneilan Model 7700 Pneumatic Positioner And Model 33 Spring Diaphragm Actuator

IM225 Masoneilan Camflex Valves

IM226 Fisher Control 3500, 3560 And 3580 Positioners

IM226S1 Fisher Valves

IM226S2 Fisher Control 3590, S And ST Electro/Pneumatic Valve Positioner

IM227 Masoneilan Valves

IM228 The ESPE, PMV Model P–1500 Positioner

IM229 Masoneilan Minitork Control Valve

IM230 Fisher Control 476 DOP Direct Operating Pressure Actuator And Positioners

IM230S1 Fisher 3618J And 3620J Series Valve Positioners

IM230S3 Bettis Actuators

IM231 Yamatake-Honeywell Positioner Model HTP

IM232 Bailey Control Drive

IM233 Severe Service Valves

IM234 Parcol 2-4649 Series Pneumatic Positioner

IM235 Masoneilan Micropak Series 2900 Control Valve, Actuator And Positioner

IM236 Yamatake-Honeywell Piston Actuator Positioner Model VPP

IM237 Moore Products Model 746 Positioner

IM238 Valtek Mark One Control Valves

IM239 Fisher Continental Butterfly Valves

Taylor Pneumatic

IM240 Taylor Series 120 Controllers (Fulscope)

IM241 Taylor 400R Controllers

IM244 Taylor 440R Series Indicating Controller

IM246 Taylor 640R Quick Scan Controller

IM250 Taylor Models 200T And 201T D/P Transmitters

IM251 Taylor Model 212T D/P Transmitter

IM252 Taylor 90J Recording Control Station

IM253 Taylor Model 222T Liquid Level (Transcope) Transmitter

IM254 Taylor Models 316R And 317R Temperature Or Pressure Transmitters

IM255 Taylor Model 339R D/P Transmitter

IM256 Taylor Model 303 D/P Transmitter

IM257 Taylor Model 202 Sensaire Transmitter

IM258 Taylor Pressure Transmitter 332TD, TF; 333TD, TF

Foxboro Pneumatic Series 100

IM260 Foxboro 100 Series Loops

IM262 Foxboro Model 130P And 130F Controller 3-Mode

IM265 Foxboro 135Z And 135ZG Ratio Station

IM266 Foxboro Model 120 Receiver Recorder

IM267 Foxboro Model 130 Controller Station

IM269 Foxboro (Yokogawa) 4030 Recorder

Moore Pneumatic

IM270 Moore Pneumatic Loops

IM271 Moore Model 55 Controller

IM272 Moore 50 And 50M Controllers

IM273 Moore Product Models 523, 524, 525, 526, 52N3, 52N4 Control Stations

IM274 Moore Synchro Transmitter

IM275 Moore 68 Series Multi-Function Relays

IM276 Moore Series 174 Pressure Transmitter

IM277 Moore Series 33 Temperature Transmitter

IM278 Moore 5300 Recorder Control Stations

Bailey Pneumatic

IM279 Bailey Manual/Automatic Station

IM280 Bailey Mini-Line Loop

IM281 Bailey PS Indicators Type 1100 And 1500

IM282 Bailey Type KL Strip Chart Recorder Model R

IM283 Bailey 500 Series Type AD Controller

IM284 Bailey PB Pneumatic Transmitter

IM284S1 Bailey Pneumatic Positioner Type AP2

IM285 Bailey Type AN Summing Relay

IM286 Bailey Type KP 13 Pneumatic Pressure Transmitter

IM287 Bailey Class 8 Pneumatic Receiver

IM288 Bailey Type KT Pneumatic Temperature Transmitter

IM289 Bailey AL51A10 Setpoint Manual Station

IM290 Bailey Type BK Differential Pressure Transmitter

IM291 Bailey KC1610ABB Square Root Converter Transmitter

IM292 Bailey CE Flow Indicator

IM293 Bailey LK-3112 Level Transmitter

IM294 Bailey Type AF51002 Function Generator

IM295 Bailey JR1343A Flow Transmitter

IM296 Bailey Type KD 1411A Pneumatic Transmitter

IM297 Bailey Type WM Recorder

IM298 Bailey Mini-Line Type FS Square Root Extractor

IM299 Bailey Mini-Line 520 Type FC Summer

Weigh Belts And Feeders

IM300 Introduction To Weigh Belts And Feeders

IM303 Auto Weight Belt Feeder

IM305 BIF Model 37–04 Mechanical Feeder

IM306 Toledo Checkweighers

IM307 Wallace And Tiernan G-100 Electronic Feeder

IM309 Selecting, Installing And Operating Weigh Belts And Feeders

IM310 Merrick Model WLSV Weightometer

IM311 Ransey Precision Belt Scale System Model 10-14/40-17

IM312 Nuclear Chicago Belt Weigh Scale 55CC706553 Model Qualicon 5080 System – PNYA

Scales

IM321 Dactron Batch Totalizers

IM322 Feeding/Weighing System

IM323 Howe Richardson 5700–2 Portable Weight Scales

IM324 Fairbanks Morse Model H90-3700 Truck Scale

IM325 Ransey Truck-Track Scale

Kent-Tieghi Instruments

IM347 Kent-Tieghi Indicating Controller J-AA

Honeywell Vutronik And Currentronik Series

IM351 Honeywell Vutronik Deviation Indicating Control Station, Model 37611

IM352 Yamatake-Honeywell Vumatik Indicating Controller Models NUL, NUC, NUS, NUR

IM353 Yamatake-Honeywell Electronic Liquid Level Transmitter Model NQI 11/12

IM354 Yamatake-Honeywell Square Root Extractor Model NAX 500

IM355 Yamatake-Honeywell Signal Limiter Relay Model NAX 541

IM356 Yamatake-Honeywell Adder/Subtracter Model NAX 550

IM357 Yamatake-Honeywell Signal Isolator Model NAX 180

IM358 Yamatake-Honeywell Vutronic MV/I Transmitter ETOS Fixed Range

IM359 Yamatake-Honeywell Ration/Bias Relay Station Models NAX 511, NBW 81

IM360 Yamatake-Honeywell Signal Selector Model NAX 530

IM361 Yamatake-Honeywell Ratio/Bias Station Model NSB

IM362 Yamatake-Honeywell V/I (I) Converter Model M312112

IM363 Yamatake-Honeywell Nupak Monitor Switches Models NTX 140, 143, 144

IM364 Yamatake-Honeywell Electronic Control Loop

IM365 Yamatake-Honeywell Electronic Multiplier/Divider

IM366 Yamatake-Honeywell Nutronik Indicators Model NSF

IM367 Nutronik Recorders

IM369 Yamatake-Honeywell Nutronik Indicating Controllers Model NSL And NSS

IM370 Yamatake-Honeywell Indicating Controller Models NSC And NSP

IM371 Yamatake-Honeywell Nupak Integrator Model NTX 260

Digital Electronics

IM401 Digital Electronic Logic Gates

IM402 Digital Electronic Flip Flops

Microprocessor Control Systems

IM450 About Microprocessor Systems

IM451 Bristol UCS 3000 Processor Control System Overview

IM461 Milltronics Multiranger Plus Ultrasonic Level Controller

IM479 Moore DAI Backup Systems – PNYA

IM487 Rosemount RMV–9000 Recorders – PNYA

IM490 Dual Rolm I/O Equipment

IM491 Dual Rolm Panel I/O

IM492 Siemens Simatic S5 PG675 Programming Unit

IM493 Moore Industries Direct Analog Interface

IM495 Fischer And Porter DCI System Overview

IM885 Foxboro 99M–100 Digital Controller

Honeywell TDC

IM452 Honeywell TDC2000 System Overview

IM453 Honeywell TDC2000 Basic Operator Station Operation

IM453S1 Honeywell TDC2000 Basic Operator Station 460

IM454 Honeywell TDC2000 Basic Operator Station Configuration And Diagnostics

IM455 Honeywell TDC2000/3000 Basic Operator Station Maintenance Overview

IM456 Honeywell TDC2000 Basic Controller

IM456S1 Honeywell TDC2000 Extended Controller

IM456S2 Honeywell TDC3000 Extended Controller

IM457 Honeywell TDC2000 Power Supplies And Battery Back-Up

IM458 Honeywell TDC2000 High Level PIU

IM459 Honeywell TDC2000 Hi-Way Traffic Director

IM460 Honeywell TDC2000 Square Root Extractor

IM471 Honeywell TDC2000 Data Entry Panel

IM472 Honeywell TDC2000 MV/I Transducer Model AMLOO

IM473 Honeywell TDC2000 Alarm Module

IM474 Honeywell TDC2000/3000 Low Energy Process Input Unit

IM476 Honeywell TDC2000/3000 Signal Isolator

IM477 Honeywell TDC2000/3000 Signal Limiter

Rosemount RMV–9000 DCS

IM480 About The Rosemount RMV–9000 System

IM481 Rosemount RMV-9000 Operator Station

IM482 Rosemount RMV-9000 System Multivariable Control Unit

IM483 Rosemount RMV–9000 Communications Control Module

IM484 Rosemount RMV–9000 System Analog Conditioning Unit

IM485 Rosemount RMV–9000 System Digital Conditioning Unit

IM486 Rosemount RMV–9000 System IPAC Model 1550 Multiplexer (Including Modpac Interface)

IM488 Rosemount RMV–9000 AMOP Manual Backup System

IM489 Rosemount RMV–9000 Configuration Module

Basic Electrical Instruments

IM500 Introduction To Electrical Instruments

IM501 Electrical Components

IM502 Electrical Subassemblies

IM503 Moore Indicating Controller Syncro 350 Model 3505

IM504 Potentiometers And Thermocouple Circuits

IM505 Wheatstone Bridge And Bridge Circuits

IM506 Temperature Measurement Using A Thermocouple

IM507 Resistance Measurements: Conductivity And Strain

IM508 Honeywell Electronik 15 Recorder

IM509 Leeds And Northrup Speedomax H And W Recorders And Indicators

IM510 Thermoelectric Multipoint Recorder

IM511 Leeds And Northrup OR Indicator 7070 Series

IM512 Leeds And Northrup Series 165 And 250 Recorders Multipoint, Pen Type Recorder

IM513 Foxboro Dynalog

IM514 Westronic M11B Potentiometer Recorder

IM517 Moore Model Series 3611 Electronic Recorder

IM518 Tracor-Westronics Digital Multiplexer Control Unit 7202 And Multiplexer 7140

IM519 Taylor Type 2142 J Multi-Scan Recorder

IM520 Tracor-Westronics Random Access Digital Indicating System

IM521 Tracor-Westronics Model 7202 Temperature Indicator – PNYA

IM522 Honeywell Indicating Temperature Controllers T654A, C And F

IM523 Acromag Digital Indicating System

IM524 Leeds And Northrup 7073 pH Receiver

IM525 Metroscope Temperature Indicator

IM526 Delta Type 106 Level Switch

IM528 Tracor-Westronics Model 7201 Digital Indicator

IM529 Chessell Recorder Model 301

Transducers

IM530 About Transducers

IM531 Transmation 462T Transducer

IM532 Foxboro 69 I/P Transducer

IM533 Masoneilan Electropneumatic Transducers Model 8005 And 8006

IM534 Masoneilan 8012 Electropneumatic Valve Positioner

IM535 Foxboro 33AR EMF/P Converter

IM536 Fisher Model 546 I/P Converter

IM537 Moore Model 77 And 77R E/P Transducer

IM538 Acromag Model 821-BX-U Transmitter

IM539 Bell And Howell Series 18-150 Electric-To-Current Converter

IM540 Rochester Current Alarm

IM541 Foxboro 33B EM F/P Converter

IM542 Honeywell MV/I Transducer Model NAX100

IM543 Moore Industries Converter Model MVT

IM544 Fischer And Porter Resistance To Current Converter Model 50ER4000

IM545 Moore Industries Alarm Models M111 Alarm Line

IM547 Conoflow I/P Converter Model T-15

IM548 Moore Products Company Model Series 771 I/P Transducers

IM549 Foxboro 693A EMF To Current Converter Style C Transducer

IM550 Foxboro 694 R/I Converter Transducer

IM551 Foxboro Model E-92-F P/I Converter

IM552 Foxboro Current To Pulse Converter Model 66KST Transducer

IM553 Acromag Frequency To Current Transmitter

IM554 Dahl Pressure To Current Transmitter

IM555 Varec 1610 Pulse Code Receiver

IM556 Foxboro Model 556 Computing Relay

IM557 Taylor Model 376N A And B Square Root Extractor

IM558 Acromag 821-WM-U Millivolt To Current Converter

Electronic Transmitters

IM470 Honeywell ST3000 Smart Transmitter And SFC Smart Field Communicator

IM571 Masoneilan 12120 Electronic Level Transmitter

IM572 Magnetrol Displacer Level Controller

IM573 Honeywell Electronic D/P Transmitter Models NDI 11, 22, 33, 61

IM574 The Foxboro 823 D/P Cell

IM575 Taylor Electronic Pressure Transmitter Series 3300

IM576 Rosemount Model 1151 DP Flow Transmitters

IM577 Rosemount Model 444 T&M (Thermocouple) Alphaline Temperature Transmitter

IM578 Wesmar Ultrasonic Level Transmitter DLM12

IM579 Foxboro Electronic Transmitter Type 630

IM580 Moore Industries Resistance Bulb Transmitter Model RBT

IM581 Rosemount Model 1151DP Differential Pressure Transmitter (Without Square Root Extraction)

IM581S1 Rosemount Model 1151 Smart Pressure Transmitters

IM582 Ohmart Levelart 1000 Series Point Level Gauge (Model GM-11)

IM583 Drexelbrook Series 700 Level Probe And Model 408 - 6200 Transmitter

IM584 Moore Industries Transmitters Models PIT

IM585 Moore Industries Transmitters Linear Current Model LIT

IM586 Foxboro E93 Series Temperature Transmitter

IM587 Bristol Model 2408 Differential Pressure Transmitter

IM588 Moore Industries Adder-Subtracter Model ASM/2

IM589 Acromag, Frequency To Current Transmitter

IM590 Rosemount Model 3044 Temperature Transmitter

IM590S1 Rosemount Model 3051 Differential Pressure Transmitter

IM591 Rosemount 2510 Process Indicator

IM592 Foxboro Vortex Flowmeter Transmitter E83W

IM593 Rosemount Model 1144 Absolute And Gauge Pressure Transmitters

IM594 Fisher Type PM503 Thermocouple Temperature Transmitter

IM594S1 Fisher Type TE1240 Resistance Temperature Transmitter

IM595 Honeywell Electronic D/P Cell Model 411

IM596 Dahl Pressure To Current Transmitter

IM597 Foxboro Gauge Pressure Transmitter 821G Series

IM598 Kay-Ray 4800F Single Point Level System

IM599 Rosemount Model 444 - Alphaline Temperature Transmitter (RTD)

IM809 Johnson Yokogawa Model EJA430–D Gauge Pressure Transmitter

IM810 Johnson Yokogawa Vortex Flowmeter Model YF100–A &YFA11

IM811 Johnson Yokogawa Model YA11 Electronic Differential Pressure Transmitter

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IM601 Electronic Components

IM602 Electronic Subassemblies Using Transistors

IM603 Electronic Subassemblies Using Vacuum Tubes

IM604 Servo Amplifiers

IM604S1 Honeywell Solid State Amplifier

IM604S2 Indramat TDM And KDS Servo Amplifiers – PNYA

IM605 Thermoelectric Amplifier

IM608 Field Effect Transistors And Thyristors

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Foxboro E Consotrol

IM610 Foxboro Electronic Loops

IM613 Foxboro 64 Recorder And Foxboro 65 Indicator

IM614 Foxboro 62H Controller Style A And B

IM615 Foxboro 61H Controller

IM616 Foxboro 67HF Bypass Station

IM617 Foxboro 67HTG Manual Station

IM619 Foxboro Electronic Power Supplies

IM620 Foxboro 613 Force Balance Transmitter

IM621 Foxboro Model 63R Alarm

IM622 Foxboro 66A Square Root Converter Style E

IM623 Foxboro 66B Current Repeater

IM624 Foxboro 66C Summing Amplifier

IM625 Foxboro 66D Multiplier/Divider

IM628 Foxboro E11DM D/P Transmitter

IM629 Foxboro 66KL Integrator Series C

IM630 Foxboro 99A Totalizer-Batcher

IM631 Foxboro E13T Target Meter

IM632 Foxboro 693A EMF To Current Converter Style C

IM633 Foxboro 694A R/I Convertor

IM634 Foxboro E13DM D/P Transmitter

IM635 Foxboro 67HZG Ratio Station

IM636 Foxboro 617 Buoyancy Level Transmitter

IM637 Foxboro Model E–92–F P/I Converter

Foxboro Spec 200

IM640 Foxboro Spec 200 Overview

IM641 Foxboro Spec 200 Loop Module

IM642 Foxboro Spec 200 Control Station 230SM

IM643 Foxboro Spec 200 Controller Cards

IM644 Foxboro Spec 200 Ratio Control Station 230SZ

IM645 Foxboro Spec 200 Control Station 230SF

IM646 Foxboro Model 220 Series Recorders

IM646S1 Foxboro Spec 200 Controller Series E27AM

IM647 Foxboro Spec 200 Remote Set Unit 230SE-L

IM648 Foxboro Spec 200 Multinest Power Supply 2ARPS

IM649 Foxboro Spec 200 Dual Absolute Alarm

IM649S1 Foxboro Spec 200 Dual Absolute Alarm Models 2APALM- AR/AS

IM650 Foxboro Spec 200 Duplex Deviation Alarm 2AX-ALM-B

IM651 Foxboro Spec 200 Resistance To Voltage Converter 2NIN2V

IM652 Foxboro Spec 200 Input Module 2AI + 13V

IM653 Foxboro Spec 200 Output Module 2AO-V31

IM654 Foxboro Spec 200 EMF/V Converter 2AI-T2V

IM655 Foxboro Spec 200 Display Area Absolute Alarm

IM656 Foxboro Spec 200 2AP + SQE Square Root Unit

IM657 Foxboro Spec 200 Integrator Model 2AP And INT S/E 16

IM658 Foxboro Spec 200 2AP + Mul Multiplier/Divider

IM659 Foxboro Spec 200 Model 210S Indicator

IM660 Foxboro Spec 200 Control Station M250, PE, PM, PZ

IM661 Foxboro Spec 200 Signal Characterizer 2AP + SGC

IM662 Foxboro Spec 200 Signal And Power Distribution Modules

IM663 Foxboro Spec 200 Model 2AP Signal Distribution Module And Model 2AC Control Modules

IM664 Foxboro Spec 200 Summer Model 2AX + SUM

IM665 Foxboro Spec 200 Battery Back-Up Module 24VDC Mode 2AX-BB3

Magnetic And Turbine Meters

IM690 Foxboro 696A Magnetic Flow Meter

IM691 Fischer And Porter 10D1415A Magnetic Flow Transmitter

IM692 Fischer And Porter Series 10C1516 Industrial Turbine Flowmeter

IM693 Fischer And Porter 10D1465 COPA-X Magnetic Flowmeter

IM694 Daniel Liquid Turbine Meters PT

IM695 Foxboro Turbine Flow Transmitter Model 81

IM696 Deltaflux Model BEF200 Magnetic Flowmeter System

IM697 Foxboro Magnetic Flow Meter Model 2803 And E96

Fisher PRoVOX

IM700 DCS Fisher PRoVOX® Instrumentation System Overview (HP Version)

IM701 Fisher PRoVOX® Instrumentation Operator Station System (HP Version)

IM702 DCS Fisher PRoVOX® Instrumentation System Overview (DEC Version)

IM703 Fisher PRoVOX® Instrumentation System Operator Interfacing (DEC Version)

IM704 Fisher PRoVOX® Instrumentation System Programmable Controller Interfacing

IM705 Fisher PRoVOX® Instrumentation System Data Collection And Process Controlling

IM706 Fisher PRoVOX® Instrumentation System Communication Controlling

IM707 Fisher PRoVOX® Instrumentation System Power Supplying

IM708 Fisher PRoVOX® Instrumentation System Maintenance Interfacing (Configuration Station)

IM709 Fisher PRoVOX® Instrument System Configuration

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IM713 Fischer And Porter Armored Thruflow Flowmeter With Indicator And Transmitter Series 10A500A

IM714 Fischer And Porter Totalizer/Batching Totalizer Series 3863

IM715 Fischer And Porter Series 10B24 Electronic Differential Pressure Transmitter

IM720 Fischer And Porter DCI System Overview

Taylor 1300 Line

IM730 Taylor 1300 Loop Overview

IM731 Taylor 1015N, 1060N Alarms

IM732 Taylor Trend Selector

IM733 Taylor 1302T, 1303T, DP Transmitter

IM734 Taylor 1320T, 1324T, DP Model A Transmitter With Remote Seals

IM735 Taylor 1340T Series Gauge Pressure Transmitter

IM736 Taylor 1300K Model A Indicators

IM737 Taylor 1300R, 1310R Indicator/Controller

IM738 Taylor 1320R, 1330R Indicator/Controller

IM739 Taylor 1313TF, 1318TD Liquid Level Transmitter

IM740 Taylor 1000TA, 1001TA And 1002TB Transmitters

IM741 Taylor 1340N Manual Loading Station

IM742 Taylor 1300N Ratio Station

IM743 Taylor 1300J Series And 1313J Recorders

IM744 Taylor 1100L, 1101L, Magnetic Flow Meter Sensing Head

IM745 Taylor Magnetic Flow Meter 1100T, 1101T Transmitter

IM746 Taylor 1336N Square Root Extractor

IM747 Taylor Absolute Pressure Transmitter 1352T, 1353T, 1354T, Model B

IM748 Taylor 1320N Series Signal Selector/Limiter

IM750 Taylor 1310C Computer Setpoint

IM751 Taylor Integrator/Totalizer Series 1310N

IM753 Taylor 1337N Adder/Subtractor

IM754 Taylor 1344N Auto/Manual Transfer Station

IM755 Taylor 1331N Multiplier/Divider

IM756 Taylor 1400T/1401T I/P Transducer

IM757 Taylor 1400J Series Pneumatic Recorder

IM758 Taylor 1022T, 1023T Model A Thermocouple-To-Current Transmitter

IM759 Taylor 1400R, 1410R Indicating Controllers

Fisher AC2 Line

IM761 Fisher AC2 MC751/MC752 Power Supplies

IM762 Fisher AC2 MC756, 757, 768 And 769 Power Supplies

IM764 Fisher AC2 Indicators

IM765 Fisher AC2 TL101 Process Controller

IM766 Fisher AC2 TL155 Computer A/M Station

IM767 Fisher AC2 TL104 Proportional Only Controller

IM768 Fisher AC2 TL105 Controller

IM769 Fisher AC2 TL123 Auto-Manual Station

IM770 Fisher AC2 TL122 Manual Loading Station

IM771 Fisher AC2 TL143 Ratio Station

IM772 Fisher AC2 TL174 High-Low Signal Selector

IM772S1 Fisher KM1301 High/Low Signal Selector

IM773 Fisher KM1304 Adder-Subtractor

IM774 Fisher Type 2340 Level Transmitter

IM778 Fisher AC2 AL401 And AL402 Annunciators

IM779 Fisher AC2 TL172 Multiplier/Divider

IM780 Fisher AC2 TL113 Transfer Station

IM781 Fisher AC2 TL173 Adder/Subtractor

IM783 Fisher AC2 RD221 Recorder

IM784 Fisher Controls Type MC702/703/716 Instrument Cases

IM785 Fisher AC2 TL106 Override Controller

IM786 Fisher AC2 TL109 Cascade Controller

IM787 Fisher AC2 Type TL175 Programmable Set Point Generator

Transmation Instruments

IM792 Transmation Touch Temperature And Scan Alarm System

IM793 Transmation 310A Thermocouple Alarm

IM794 Transmation 209F Frequency-To-Current Converters

IM795 Transmation R To I Models 650T And 654T Transmitters

IM796 Transmation Alarm Switch Models 210A/220A

IM797 Transmation 902-1 Integrator

IM798 Transmation 610-IT Thermocouple To Current Transmitter 630-IJ Millivolt To Current Transmitter

About Special Instruments

IM801 Ohmart Density Gauge

IM802 Bently Nevada Vibration Indication System

IM803 Berthold Density Gauge

IM804 Varec Series 2500-B Liquid Level Indicators

IM805 Eastech Model 2300 Vortex Flowmeter

IM806 DuPont Ultrasonic Flow Transmitter

IM807 Vibration Monitoring Instruments

IM808 Bently Nevada Model 7200 Monitoring System

IM813 Fisher Vortex Flowmeter

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IM851 Waugh Gasoline Blender

IM852 Air Compressor Control System

IM853 Instrumentation Control Loops - Plant 5 – Liquefaction Control Systems

IM854 Foxboro Blendtrol Digital Blending System

IM855 Foxboro 99M-100 Digital Controller

IM856 Tokyo Keiki 200P Docking Sonar

IM857 Waugh Model 220 Microprocessor Blending System

Motorola

IM961 Motorola 55RC Series Recorders

IM962 Motorola 55RT Trend Recorders

IM963 Motorola 55RC 1003 Recorder/Manual Station

IM964 Motorola 55DC Series Indicator/Controller

IM965 Motorola 55IC 1107 Manual Stations

IM966 Motorola 55Series Alarm Units

IM967 Motorola 56 DP 1220 Transmitters

IM968 Motorola 56 Series Transmitters

IM969 Motorola 55TR8 Resistance Amplifier

IM970 Westinghouse Millivolt/Thermocouple Amplifiers, Models 55MAI And 55TA Series Transmitters

IM971 Motorola 55FP02 Square Root Extractor

IM972 Motorola 55MD1 Multiplier/Divider

IM973 Motorola SP-79/SP-91 Signal Selectors

IM974 Motorola 53 LB Rotary Motion Transmitters

IM975 Motorola 52PA-56PA Absolute Pressure Transmitters

IM978 Motorola 55CA1 Computing Amplifier

MM – MACHINERY AND MACHINE SHOP MAINTENANCE WORKBOOKS

This group of workbooks is related to machinery and is prefixed with “MM”.

- The first group of workbooks, numbered MM100 through MM129, cover shop machines.
- The balance of the MM100 series are *principles* or *basics* workbooks, which do not cover specific machines. These basic workbooks cover subjects that repeat in the study of specific machines.
- The numbers from 170 on up, are grouped to cover similar machines. For example, MM170 through MM209 are related to conveyors. The same kind of machine is covered by an *overview* or *about* workbook followed by a series of **supplement** workbooks. Notice, for example, group MM219 About Centrifugal Pumps. This series contains many “**S**” workbooks denoting specific pumps.

Shop Machines

MM100 About Shop Machines

MM101 What Is A Lathe And How Does It Work?

MM102 Straight Turning, Taper Turning And Knurling

MM103 Facing And Boring On The Lathe

MM104 Screwcutting On The Lathe

MM105 What Is A Milling Machine And How Does It Work?

MM106 Using A Milling Machine To Make Simple Parts

MM110 Openside Shaper

MM111 Radial Drill

MM112 Band Saw

MM114 About The Surface Grinder

MM115 Lapping Using The Lapmaster

MM121 Print Reading For Millwright Mechanics

Industrial Machinery Basics

MM130 Introduction To Industrial Machinery

MM131 Fasteners

MM131S1 High Tensile Fasteners

MM132 Bearings

MM132S1 Babbitting Bearings

MM133 Mechanical Packing

MM134 Mechanical Seals

MM135 Lubrication

MM136 Coupling Alignment

MM136S1 Spacer Coupling Shaft Alignment

MM136S2 Close Coupling Shaft Alignment

MM136S3 A Learning Plan For A Workshop On Principles Of Shaft Alignment

MM136S4 Optalign Laser Alignment System

MM137 Pumping Curves (For Centrifugal Pumps)

MM138 Shaft Couplings

MM139 Pumping Head Concept

MM140 About Power Transmission

MM141 Machinery Drives

Vibration Testing And Balancing

MM160 About Vibration Testing And Dynamic Balancing

MM162 Vibration Analysis

MM163 Field Dynamic Balancing

MM164 Shop Dynamic Balancing

Conveyors, Elevators And Feeders

MM170 About Conveyors

MM171 About Conveyor Maintenance

MM200 About Elevators

MM201 Bucket Elevators

MM202 Hydrastroke Feeder

MM204 Belt Conveyors

MM205 Screw Conveyors

MM207 Rotary Feeders

MM207S1 Radar EF And EFG Series Feeders

MM207S7 Fuller Kinyon Type H Screw Pump

MM208 Vibrating Feeders

MM208S4 Stephens-Adamson Vibratory Feeder

Classifiers, Screeners And Separators

MM210 Classifiers, Screeners And Separators

MM210S2 WS Tyler Vibratory Screens (Model 1064)

MM210S8 Eriez Magnetic Separator

MM210S9 Dillon Model 50 Vibratory Screen

MM210S10 Magnetic Drum Separator

MM212 WS Tyler 5′ × 12′ Ty-Rock Screen (Type F–600)

MM213 Denver Flotation Machine DR-30

MM214 Wemco-Fagergren Flotation Machine

Centrifugal Pumps

MM219 About Centrifugal Pumps

Type 1 Single Stage-Horizontal Cantilevered Or End Suction

MM219T1S1 Ingersoll-Rand Type A Horizontal Pump

MM219T1S2 Gould 3196 ST Horizontal Pump

MM219T1S3 Bingham Type CF Horizontal Pump

MM219T1S4 Peerless Type DM Horizontal Pump

MM219T1S5 Pacific Radially Split Single Stage Centrifugal Pump

MM219T1S6 La Bour Centrifugal Pumps

MM219T1S7 Wilfley Pump

MM219T1S8 Nouvo Pignone Single Stage Centrifugal Pump Types TC And CTC

MM219T1S9 Durco Mark II Self Priming Pump

MM219T1S10 Worthington HNN Pump

MM219T1S11 Allis-Chalmers Model SRL Pump

MM219T1S12 Pacific Type SV Centrifugal Pump

MM219T1S13 Georgia-Iron Works Type AH Single Stage Pump

MM219T1S14 Crane Chem Pump Series GB

MM219T1S15 R Series Durco Pump

MM219T1S16 Marushichi Type SC Centrifugal Pump

MM219T1S17 Shinko Kinzoku Type GHJ Centrifugal Pump

MM219T1S18 Gabbioneta R300/100G Centrifugal Pump

MM219T1S19 Ingersoll-Rand High Speed Pump

MM219T1S20 Worthington Slurry Pump, Type R And M

MM219T1S21 Worthington Type CN Centrifugal Pump (Currently available in Spanish only)

MM219T1S22 Morris SEAF Pump

Type 2 Single Stage-Horizontal-Double Suction

MM219T2S1 Gould Model 3416 Centrifugal Pump

MM219T2S2 Ingersoll Rand Type U Horizontal Pump

MM219T2S3 Allis-Chalmers Custom VII Centrifugal Pump

MM219T2S4 Union Class HO Centrifugal Pump

MM219T2S5 Ingersoll Rand General Service Pump Type S

MM219T2S6 Canada Buffalo Pumps (SAC And SL)

MM219T2S7 Marashichi Type DBH–450 Centrifugal Pump

Type 3 Single Stage-Vertical-Inline

MM219T3S1 Pump: Ingersoll Rand, 26 APM-1

MM219T3S4 Pacific SPM Pump

MM219T3S6 Ingersoll Rand Inliner Type “W” 1 to 3 × 5 WLS Centrifugal Pumps

MM219T3S7 Bingham Vertical Inline Type CVA Pump

MM219T3S8 Byron Jackson Type GASJ Pump

MM219T3S9 Gabbionetta Centrifugal Pumps

MM219T3S12 Unichem VCM (Union) Pump

Type 4 Single Stage-Vertical-High Speed

MM219T4S1 Sundyne Centrifugal Pump LMV 801

MM219T4S2 Sundyne Centrifugal Pump LMV 322

MM219T4S3 Sundyne Centrifugal Pump LMV 311

MM219T4S4 Sundyne Centrifugal Pump LMV 331

Type 5 Sump Pump

MM219T5S1 Gould Vertical Sump Pump

MM219T5S2 Plastonics QR500 Sump Pumps

MM219T5S3 Sala Vasa G Sump Pumps

MM219T5S4 Lewis Type MS Vertical Pump

Type 6 Multi-Stage-Horizontally Split Case

MM219T6S1 Worthington Type UNB Centrifugal Pump

MM219T6S2 Pacific Type JTC Centrifugal Pump

MM219T6S3 Ingersoll Rand Class GT And GTS Centrifugal Pump

MM219T6S4 United 3 × 9 WMSND 8 Stage Centrifugal Pump

MM219T6S5 Bingham Type MSD And Type MSD-D Heavy Duty Multi-Stage Pump

MM219T6S6 Pacific Type BFIC Centrifugal Pump

MM219T6S7 Babcock-Wilcox Two Stage Centrifugal Pump

MM219T6S8 Bingham Type MSB Centrifugal Pump

MM219T6S9 Gould Model 3330 6 Stage Boiler Feed Water Pump

Type 7 Multi-Stage-Vertically Split-Double Case

MM219T7S1 Bingham BFW Pump-Horizontal Double Case CD

MM219T7S2 Union Class “M” Multistage Centrifugal Pump

MM219T7S3 Aurora One And Two Stage Turbine Pumps

MM219T7S4 Worthington Type WT Pumps

MM219T7S5 Mather And Platt Plurovane Centrifugal Pump

MM219T7S6 Shin Nippon Type HST-R15 Multistage Centrifugal Pump

Type 8 Multi-Stage-Vertical

MM219T8S1 Gould Vit Pump

MM219T8S2 Byron Jackson Vertical Pumps

MM219T8S4 Pacific WY Vertical Pump

MM219T8S5 Denver Vertical Centrifugal Pump

Positive Displacement Reciprocating Pumps

MM220 Positive Displacement Reciprocating Pumps

MM220S1 Hills McCanna “U” Type Proportioning Pump

MM220S2 Union Type TX Triplex Power Pump

MM220S3 Milton Roy Controlled Volume Pumps: Models A-1 And B-1

MM220S4 Lapp Pulsafeeder Pumps

MM220S5 Milton Roy “mRoy” Pump

MM220S6 OMG Type DOXA–P Metering Pump

MM220S7 Dawson And Downie Steam Driven Reciprocating Pump

MM220S8 Worthington Duplex Steam Pump

MM220S9 Milton Roy “Milroyal” Pump Models A, B And C

MM220S10 OMG Type DOXE-M Metering Pump

MM220S11 Smart Turner 4″ × 6″ Triplex Power Pump

MM220S12 BIF Metering Pumps

MM220S13 Warren-Rupp Diaphragm Pump (Sandpiper)

MM220S14 Gaso 1800 Pump Series

MM220S16 Peroni Horizontal Quintuplex Pump

Reciprocating Compressors

MM221 Reciprocating Compressors

MM221S1 Ingersoll Rand Type 40 Air Compressors

MM221S2 Ingersoll Rand Type PHE Compressor

MM221S3 Ingersoll Rand Compressor HHE

MM221S4 Pennsylvania HAE-CP Reciprocating Compressor

MM221S5 Norwalk Reciprocating Compressor Type TR-S3T

MM221S6 Haskel Air Pump

MM221S7 RIX Gas Compressor Model 2E2BG

MM221S8 Ingersoll-Rand 4 HHE Hyper Compressor

MM221S9 Ingersoll-Rand 6 HHE Primary Compressor

MM221S10 Quincy Model 230 Air Compressor

MM221S11 Chicago Pneumatic Type FE Compressor

MM221S12 Ingersoll-Rand Reciprocating Air Compressor

MM221S13 Ingersoll-Rand XLE-2-NL Reciprocating Air Compressor 10″ Stoke Non-Lubricated

MM221S14 Ingersoll-Rand 2HSE-1NL Compressor

MM221S17 Clark 4-Cylinder Horizontally Opposed Compressor, Model CLBA–4

MM221S18 Cooper Energy FM-3 Reciprocating Compressor

MM221S19 Bellis And Morcom Two-Stage Vertical Compressor

MM221S20 Ingersoll-Rand KVG Gas Engine Driven Compressor

MM221S21 Cooper-Bessemer JM-2 Two Cylindar Horizontal Opposed Compressor

MM221S22 Joy Reciprocating Compressors Model WB14

MM221S23 Atlas Copco NR Series Reciprocating Air Compressor

MM221S25 Bellis And Morcom Two Stage Type VH-100 Air Compressor

MM221S26 Frick Reciprocating Refrigeration Reciprocating Compressor Series HDI

MM221S27 Mikuni Jukogyo Model DVNL-08 Compressor

MM221S28 Mayekawa (Mycom) Model 4-A Reciprocating Compressor

MM221S29 Hitachi Model OP-7T Reciprocating Compressor

MM221S30 Corken Vertical Reciprocating Compressor 250G

Vacuum Pumps

MM222 Vacuum Pumps

MM222S1 Sutorbuilt Vacuum Pumps

MM222S3 Nash CL700 Series Vacuum Pump

Fans And Blowers

MM224 Fans And Blowers

MM224S1 Chicago Industrial Fans

MM224S2 Hudson Fin Fan Cooler

MM224S3 Sutorbuilt Blower

MM224S4 Zurn Forced Draft And Induced Draft Fans Series 5550 AF

MM224S5 Clarage Type AF Centrifugal Fans

MM224S6 Hoffman Centrifugal Blowers

MM224S7 Roots RAS Whispair Blower

MM224S8 Aladin Centrifugal Fan Type BA

MM224S10 Brown-Boveri Air Blower

MM224S11 Beach-Russ Type RP High Vacuum Pump

MM224S12 Delaval Class 4C Centrifugal Compressor

MM224S13 Cooper-Bessemer RD5S Compressor

MM224S15 Buffalo Blowers

MM224S16 Industrial Air Products Centrifugal Fans

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MM225 Centrifugal Compressors

MM225S1 Allis-Chalmers VH Barrel Type Centrifugal Compressor

MM225S2 Ingersoll-Rand Barrel Compressor With Cone Seals

MM225S3 Elliott 70 M7-6 Centrifugal Compressor

MM225S4 Ingersoll-Rand Centac Air Compressor

MM225S6 Elliott Plant Air Package

MM225S7 Ingersoll-Rand CVS 16 Centrifugal Compressor Installation

MM225S8 Clark 2M Centrifugal Compressors

MM225S11 Escher Wyss (Sulzer) Type 58-7 Turbo-Compressor

MM225S12 Ingersoll-Rand MGGB-524 Centrifugal Compressor

MM225S13 Sullair Air Compressor Model 20-125

MM225S14 Clark 2BC9/2BF9-8 Tandem Centrifugal Compressor Installation

MM225S15 Delaval Horizontal Split Compressors C, CK

MM225S16 Delaval Type 9BK26 Barrel Centrifugal Compressor

MM225S17 Clark 2M9-8 Centrifugal Compressor

Rotary Positive Displacement Compressors

MM226S1 Ingersoll-Rand Type H AXI-Compressor

MM226S2 Nash Hytor 1251C Compressor

MM226S4 Sullair Rotary Screw Air Compressor

MM226S5 Fuller Single Stage Rotary Compressor (Vane Type)

MM226S7 Ingersoll-Rand Rotary Type L AXI-Compressor

MM226S9 Fuller-Kinyon Model C150A Compressor

MM227 Ingersoll-Rand SSR Rotary Screw Air Compressor

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MM230S2 Terry Type GF Steam Turbine

MM230S3 Terry Steam Turbines E and Z

MM230S4 Coppus Steam Turbines (TF And TFV)

MM230S5 Coppus RL Horizontal Steam Turbine

MM230S6 Coppus RL Vertical Steam Turbine

MM230S7 Worthington Single Stage Turbine R25, 62R, U2

MM230S8 Worthington 6TDFOX2 Steam Turbine

MM230S9 Worthington Model IQS2 Steam Turbine

MM230S10 Mitsubishi Steam Turbine

MM230S11 Delaval KCB Single Stage Steam Turbine

MM230S14 Turbodyne Curtis Stage Steam Turbines

MM230S15 Terry Type 24ZSA Steam Turbine

MM230S16 General Electric Steam Turbine Model DRX

MM230S18 Delaval Steam Turbines KJDF

MM230S19 Delaval GJ-MV-DC-2/GJ-MV-6 Tandem Steam Turbine Drive

MM231 Turbodyne-Dresser US-3 Multi-Stage Steam Turbine

MM239 Mechanical Hydraulic Governors

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MM241 Rotary Vane Pumps

MM242 Rotary Gear Pumps

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MM243 Forced Feed Lubricators And Lubrication Systems

MM243S3 Alemite Oil Mist System

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MM250S6 Plate And Frame Filter Press

MM250S7 Dorrco Rotary Vacuum Filter

MM250S8 Eimco Agidisc Filter

MM250S9 Shriver Filter Press

MM250S12 Wheelabrator Dust Collector

MM251 Eimco-Extractor Horizontal Belt Filter

MM252 Larox Pressure Filter

Geared And Hydraulic Variable Speed Drives

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MM261S1 Reeves Vari-Speed Motodrive

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MM263S7 Falk Series L Motor Reducer

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MM305 Hydraulic Pumps

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MM306 Hydraulic Accessories

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MM310 About Pneumatic Systems

MM312 Pneumatic Actuators And Motors

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MM320S12 Lightnin Mixers Model 15TB–300

MM320S16 About Emulsifiers

MM328 Philadelphia PTE Mixer Drives

MM330 Chemineer High Speed Agitator (Side Entry)

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MM340 About Centrifuges

MM340S2 Sharples Super-D-Canter Centrifuge Models P5000, P5400 (Continuous Horizontal Bowl Type With Scroll Discharge)

MM340S3 Sharples Super-D-Hydrator C-41 Centrifuge

MM340S4 Sharples CD-200 And CD-330 Centrifuge

MM340S5 Bird Centrifuge (Batch Type)

MM340S6 Baker Perkins S-32 Centrifuge

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MM358 1022 Bemis Case Taper

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MM370 Thiele Reciprocating Couponer

MM371 Thiele Model 200 Rotary Coupon Placer – PNYA

Dryers, Calciners And Roasters

MM380 About Dryers, Kilns And Calciners

MM380S6 Link-Belt Gas Fired Rotary Dryer Installation

MM385 Lochhead-Hagarty 4′ 6″ × 10′ Rotary Dryer

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MM410 About Cranes

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MM411 American Overhead Bridge Crane

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MM430S5 Pellet Seed Mill

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Engines

MM500 About Diesel Engines

MM500S2 Fiat 306S2 Diesel Engines

MM503 Clark RA And HRA Two Cycle Gas Engines

MM512 White Superior 4 Stroke Gas Engine 8G-825 And 6G-825

MM540 About Diesel Engine Fuel Injection Systems

Miscellaneous Machinery

MM551 About Soot Blowers

MM551S2 Diamond G9B Rotary And 1K Retractable Sootblower

MM551S4 Forest Rotary And Retractable Sootblowers

MM551S5 Breda And Thermomeccanica Retractable Sootblowers

MM551S6 Blower: Diamond, Model IK525B

MM552 Bingham Hydraulic Turbine Type HST

MM553 Johnson Rotary Pressure Joints

MM554 Lodding IVO Water Oscillator

Thickeners

MM650 About Thickeners And Clarifiers

MM651 Thickeners

Marine Arms

MM700 Marine Arm Overview

Crushers And Mills

MM730 About Crushers And Mills

MM731 Rietz Disintegrator Model RI 1-6K211

MM732 Farrel-Bacon Jaw Crusher

MM734 Kemco Double Toggle Jaw Crusher C-160

MM737 Allis-Chalmers 5′ × 8′ Ball Mill

MM740 Allis-Chalmers 22′ × 8′ Semi-Autogenous Grinding Mill

MM741 Marcy Grinding Mill

MM742 Symons Heavy Duty Cone Crusher

MM743 Traylor Jaw Crusher

MM744 Allis-Chalmers 16 1/2′ × 29′ Ball Mill Liners

MM748 Dominion Engineering Grinding Mill

MM771 CM And E Chipping Edger

About Special Machines

MM901 Ingersoll Pointing Machine

MM904 Dravo Hydraulic Oscillating Conveyor

MM905 Schade Portal Scrapper

MM907 Rotoflow Turbo Expander Installation

MM908 Continuous Casting Machine

MM909 Matte Breaker Machine

MM910 Wagner Cold Saw KMV6S Installation Assembly

MM911 Acme Automatic Strapping Machine Assembly

MM912 Wheelabrator Tumblast Machine

MM913 The Harperizer Machine

MM914 Automatic Round Steel Strapping Machine Model 300 – PNYA

MM937 Model 400 Galigher Sampler

MM940 Atlas Silo Storage And Reclaim System – PNYA

PM – PIPING AND VESSEL MAINTENANCE WORKBOOKS

This group of workbooks cover piping and vessels common in industrial installations. Piping and vessel workbooks are prefixed with a “PM”.

Basic Piping

PM1 Industrial Piping

PM3 Measuring And Sketching Pipe

PM4 Piping Hand And Power Tools

PM5 Valves

PM6 Steam Traps And Piping Specialties

PM7 Relief And Safety Valves

PM7S1 Farris Relief And Safety Valves

PM8 Valve Repairs

PM8S1 General Twin Seal Double Block And Bleed Valves

PM10 Using Pipe Drawings

PM11 Screwed, Flanged And Welded Piping Systems

PM11S1 Threaded Piping Systems

PM12 Sealing Flanged Joints

PM13 Steam And Condensate Piping Systems

PM14 Soldered And Brazed Copper Pipe System

PM15 Instrument Tubing Systems

PM16 Plastic Piping Systems

PM17 High Pressure Piping Systems

PM18 Cast Iron Pipe Systems

PM19 Pipe And Tube Bending

PM20 Steam Tracing And Jacketing Of Pipe Lines

PM21 Sanitary Piping Systems

PM22 Victaulic Coupled Piping

PM23 Sprinkler Systems

PM24 Supporting Pipe

PM25 Developing Pattern Layouts

PM26 Chemline Piping Systems

PM28 Hot Tapping

PM29 About Hose Assemblies

PM32 Plastic Piping System

PM40 Fiberglass Piping Systsms

PM41 Lead Piping

PM51 Welded Pipe Systems

Burning And Welding

PM100 About Burning And Welding

PM101 Oxy-Acetylene Cutting And Burning

PM102 Oxy-Acetylene Welding And Brazing

PM103 Electric Arc Welding

PM103S1 Arc Welding Electrodes

PM105 Arc Welding Power Sources

PM106 Cutting And Welding- Safety And Health

PM109 TIG Welding

PM111 Low Hydrogen Electrodes

PM112 Introductory Welding Metallurgy

Fabrication

PM150 About Fabricating Metal Structures

PM151 Structural And Platework Fabrication

PM152 Small Tank Fabrication

PM154 Plate And Structural Shapes Forming

Process Vessels & Tanks

PM9 Steam Ejectors

PM160 About Maintaining Piping And Vessels

PM161 Maintenance Of Unfired Heat Exchangers

PM162 Maintenance Of Fired Heat Exchangers

PM163 Preventive Maintenance Of Tanks And Vessels

PM164 Maintenance Of Fractionating Towers

PM166 Hydrostatic Testing

PM167 Heat Exchangers Retubing

PM169 Reactors

PM200 Heat Exchangers

PM201 Maintenance Of Plate And Frame Heat Exchangers

Boilers And Furnaces

PM300 About Boilers

PM303 Mitsubishi/CE Boilers Mechanical Maintenance

PM350 About Furnaces

PM352 Air Carbon Arc Torch

PM353 Plasma Arc Cutting

Arc Welding

LP101 Gas Tungsten Arc Welding Of Mild Steel Pipe

LP102 Shielded Metal Arc Welding Of Mild Steel Pipe

RR – REMOVE AND REPLACE WORKBOOKS

R & R's are specific maintenance instructions that have to do with the removing and replacement of equipments in manufacturing workplaces. To be adequately covered by an R & R the equipment itself and its removing and replacement must meet the following criteria:

- No complicated or expensive tools are needed.
- No time consuming or complex training is needed.
- There are no hazards and risks involved if the procedures are followed.
- The requirement for judgment type decisions are minimal.
- Accessible.

Remove and replace workbooks are prefixed with an "RR".

RR07 Remove And Replace Positive Displacement Gear Pump

RR08 Remove And Replace Oilers

RR09 Remove And Replace Relamping Lighting Fixture

RR10 Remove And Replace Air Diaphragm Pump

RR11 Disconnect Electric Motors

RR12 Remove And Replace Small Gear Speed Reducer Units

RR13 Remove And Replace Vari-Speed Drive Belt

RR21 Taking Motor Load Readings

RR23A Remove And Replace Pressure Indicators

RR23B Remove And Replace Temperature Indicators

RR24 Remove And Replace Orifice Plates

RR25 Remove And Replace Simple Control Valves

RR26 Remove And Replace Control Valve Limit Switches

RR27 Remove And Replace Air Pressure Regulators

RR28 Remove And Replace Control Board Controllers

RR29 Remove And Replace DP, Flow And Temperature Transmitters

RR30 Instrument, Charts, Pens And Inks

TM – MOBILE EQUIPMENT MAINTENANCE WORKBOOKS

This group of workbooks cover the maintenance of vehicles found in industrial workplaces. See also the MM500 series covering engines.

TM502 Mobile Equipment Axle Assemblies

TM503 Mobile Equipment Brakes And Power Assists

TM504 Mobile Equipment Transfer Cases

TM508 Mobile Equipment Electrical Systems

TM512 Mobile Equipment Manual Transmissions

TM513 Mobile Equipment Power Shift Transmissions

TM516 Johnson Brain

TM517 Allison CLBT606 Transmission Manual/Electric Control

TM522 About Light Vehicle Suspension Systems

TM523 About Light Vehicle Braking Systems

TM530 About Gasoline/Petrol Engines

TM531 About Gasoline Engine Fuel Systems

TM541 Toyota 2F Petrol Engine Rebuild

TM542LP Antilock Brake Systems

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MTS™ INSTRUMENT PROCEDURES

IMO & TP – INSTRUMENT MAINTENANCE OUTLINES/ TASK PROCEDURES

IMO's and TP's are completely evaluated and tested procedures to insure that your progress control instruments are calibrated and repaired the right way in the minimum amount of time.

IMO119 Automation Products Types EC-112F And EC-113F Converters

IMO217 Bristol A/D Series Pneumatic Control Unit

IMO221 Bristol Series 760 Dynamaster Recorder

IMO219 Brooks Model 3611 Rotameter Model Series 5500 Pneumatic Transmitter

IMO224 Conoflow Model J Positioners And Series B-50 Cylinder Actuators

IMO111 Fischer And Porter 1323 Series Flowrate Indicating Receiver

IMO99 Fischer And Porter Model 10D1415A Magnetic Flowmeter

IMO72 Fischer And Porter Model 50K

IMO115 Fischer And Porter Model 50WT4050 Pneumatic Transmitter

IMO101 Fischer And Porter Models 1081463A, 1081465A, 1381463A And 1381465A

IMO73 Fischer And Porter Models 1101, 1102, 1103, 1401

IMO15 Fischer And Porter Models 1202WC, 1212WC

IMO117 Fischer And Porter Models 50WT4010, 50WT4030 Pneumatic Transmitter

IMO118 Fischer And Porter Models 50WT4010, 50WT4030 Pneumatic Transmitter

IMO16 Fischer And Porter Models 53PL45, 53PL46, 53PR45, 53PR46

IMO21 Fischer And Porter Models 53PM45, 53PM46, 53PN45, 53PN46

IMO96 Fischer And Porter Series 1301 And 1303 Ratographic Indicator

TP108 Fisher Governor Model 2506 Controller

IMO107 Fisher Governor Model 2516 Controller

IMO114 Fisher Governor Model 3541 Valve Positioner

IMO113 Fisher Governor Series 557 Diaphragm Actuator

TP12 Fisher Governor Type 2500T

TP60 Fisher Governor Type 543

IMO45 Fisher Governor Type A

IMO46 Fisher Governor Types 2310, 2311, 2312

IMO47 Fisher Governor Types 3500, 3500A, 3500G, 3501

TP47 Fisher Governor Types 3500, 3500A, 3500G, 3501

IMO48 Fisher Governor Types 3560, 3560A, 3560G

TP48 Fisher Governor Types 3560, 3560A, 3560G

TP13 Fisher Governor Types 4150, 4151, 4152, 4153, 4154, 4159

IMO14 Fisher Governor Types 4160, 4162, 4164

IMO71 Fisher Governor Types 470, 3570

TP71 Fisher Governor Types 470, 3570

IMO83 Foxboro CO Relay

TP10 Foxboro Model 40 (Proportional Only)

TP11 Foxboro Model 40 (Stabilog And Hyper-Reset)

TP22 Foxboro Model 40, Types 22, 26, 27, 29

IMO109 Foxboro Model 41A Indicating Controller

TP207 Foxboro Model 43A Proportional Only Indicating Controller

TP208 Foxboro Model 43A Proportional Plus Reset Indicating Controller

TP35 Foxboro Model 45

IMO105 Foxboro Model 52A Indicating Controller

IMO104 Foxboro Model 52A Manual Control Unit

IMO50 Foxboro Model 59

TP62 Foxboro Model 59 Controller

IMO54 Foxboro Model 610

IMO63 Foxboro Model 63

IMO31 Foxboro Model 64D

IMO64 Foxboro Model 65E

IMO76 Foxboro Model 67RG

IMO77 Foxboro Model 67TG

IMO228 Foxboro Model 9330 EMF Dynalog Recorder

IMO49 Foxboro Models 14A, 14A-EP, 14A-PB, 14A-EB

IMO32 Foxboro Models 40, 40F

TP23 Foxboro Models 40, 41A, 43A, 44, 45, 631 Recorders/ Indicators

TP24 Foxboro Models 40, 41A, 43A, 44, 45, 632 Temperature Recorders And Indicators

TP5 Foxboro Models 40C, 40D, 40E

IMO17 Foxboro Models 5001, 5002

IMO33 Foxboro Models 53, 54

IMO51 Foxboro Models 61-4, 62-4, 62-5

IMO52 Foxboro Models 61-4, 62-4, 62-5

IMO78 Foxboro Models 67ZG, 67BG

IMO66 Foxboro Models 68PD, 68RD

TP74 Foxboro Type 12A

TP1 Foxboro Type 13A DP Transmitter

IMO6 Foxboro Type 13LA D/P Transmitter

IMO7 Foxboro Type 13RA D/P Transmitter

IMO4 Foxboro Type 15A

IMO40 Foxboro Type 15LA

IMO53 Foxboro Type 15RA

IMO85 Foxboro Type 37

TP85 Foxboro Type 37

IMO34 Foxboro Type 611GM

IMO27 Foxboro Type 630-2

IMO65 Foxboro Type 66BR

IMO75 Foxboro Type 66D

IMO69 Foxboro Type 694

IMO67 Foxboro Type 69TA

IMO106 Foxboro Type 8 Valve Positioner

IMO84 Foxboro Type 9

TP84 Foxboro Type 9

IMO98 Foxboro Type 965OC

IMO61 Foxboro Type C

IMO79 Foxboro Types 613DL, 613DM, 613HM

IMO55 Foxboro Types 617FM, 617FEM

IMO68 Foxboro Types 693P-0, 693P-2, 693R-0, 693R-2

TP226 General Electric Series Six: CPU Troubleshooting

TP227 General Electric Series Six: I/O Troubleshooting

IMO223 General Electric Type 531 Strip-Chart Recorder

IMO215 General Electric Type 540-31 And 540-35 Proportional Plus Reset Controllers

IMO214 General Electric Type 550 MV/I Transmitter

IMO216 General Electric Type 570-06 And 570-07 Power Supply

IMO3 Honeywell Air-O-Line

IMO2 Honeywell Model 152

IMO88 Honeywell Model 30200

IMO89 Honeywell Model 31200

IMO90 Honeywell Model 31300

IMO91 Honeywell Model 32600

IMO92 Honeywell Model 32610

IMO93 Honeywell Model 32620

IMO86 Honeywell Model 33311

IMO95 Honeywell Model 33400

IMO206 Honeywell Models 292N7, 292N8 D/P Transmitters

IMO94 Honeywell Modesl 33321, 33331

IMO59 Kieley And Mueller Series 1200, 1200R, 1250, 1250R, 1400, 1400R, 1450, 1450R

IMO57 Kieley And Mueller Types D, DN

IMO58 Kieley And Mueller Types R, RN

IMO41 Leeds And Northrup Micromax Series 40,000 Models S, R

IMO39 Leeds And Northrup Micromax Series 40,000 PH

IMO36 Leeds And Northrup Series 49

IMO56 Leeds And Northrup Speedomax G, Model S

TP70 Leeds And Northrup Speedomax H, Models R And S

IMO124 Masoneilan 1200 Series Liquid Level Controller

IMO127 Masoneilan 12820 Series Liquid Level Transmitter

TP225 Masoneilan 7000 Series Valve Positioner

IMO37 Masoneilan Model 8010

IMO103 Masoneilan Models 2710, 2717 Pressure Controller

IMO218 Moore Model 173 Pressure Transmitter

IMO209 Moore Model 33 Temperature Transmitter

IMO227 Moore Model 522S And 522SM Indicating Control Station (Early Version)

IMO102 Moore Products Models 25, 27

IMO80 Moore Products Types 71,72, 711, 721

IMO110 Moore Series 50 Pneumatic Controllers

IMO226 Moore Series 561 Pneumatic Controllers

IMO220 Rockwell-Republic Model 4171-1, Type LDP Low Differential VDP Transmitter

IMO201 Taylor 740T Series Electronic Transmitter

IMO202 Taylor 750T D/P Transmitter

IMO210 Taylor 760T Series Potentiometer Transmitter

IMO9 Taylor Model 414R Controller

IMO44 Taylor Model 701JF

TP25 Taylor Model 88S35

IMO81 Taylor Models 202T, 203T

IMO112 Taylor Models 212T, 213T D/P Transmitters

IMO42 Taylor Models 229R-1, 229R-2

IMO43 Taylor Models 700JD, 700JF

IMO18 Taylor Models 90J, 91J, 92J, 93J, 94J, 95J, 96J

IMO29 Taylor Seires 334R

IMO26 Taylor Series 121R, 191R

IMO38 Taylor Series 122R, 123R, 124R, 192R, 193R, 194R

IMO82 Taylor Series 316RG, 317RG

IMO28 Taylor Series 333R

IMO8 Taylor Series 400R

IMO123 Taylor Series 530J, 531J, 630J, 631J Pneumatic Recorder

IMO121 Taylor Series 540R And 640R Deviation Indicating Controller

IMO122 Taylor Series 542R And 642R Controller Unit

IMO211 Taylor Series 720T, 721T Potentiometer Transmitter

IMO20 Taylor Type 700T

IMO30 Taylor Type 76R Series 120R, 125R, 160R, 190R 215R

IMO19 Taylor Types 91J, 92J, 93J, 94J, 95J, 96J

TP205 US Gauge Series DPICO7N, PIC7N And TICO7N Measuring Elements

TP204 US Gauge Series DPICO7N, PIC7N And TICO7N Proportional Controller With Reset

TP203 US Gauge Series DPICO7N, PIC7N And TICO7N Proportional Only Controller

IMO120 Westronics Models M5 And M11 Multipoint Recorder

SOFTWARE SYSTEMS

DOCUMENT CREATION SYSTEMS — *MTS™* DOCUMENTATION ON CALL *DOC™*

The ***MTS™ Documentation On Call (DOC™) System*** packages the ***MTS™*** way of producing up-to-date workplace documentation either page by page or publication by publication. By processing information, in and out of ***DOC™***, your organization can maintain current, accurate training and other workplace materials using Microsoft Word And Microsoft Visio applications software and ***MTS™*** templates.

This is a “value-added” product which packages and delivers ***MTS™*** know-how for your workplace and gives you a strong in workplace documentation creating, editing and printing capability immediately after installation and training.

The ***DOC™*** System can be located at your workplace and your workplace personnel are trained by ***MTS™*** to operate the system (or it can be operated by ***MTS™*** people).

The operator works with ***MTS™*** trained writers to produce documentation in integrated, ***MTS™*** standardized formats. These formats include our preformatted software “templates”. This system helps you to set up and regularly update formatted documentation. It also provides an easy, consistent way to keep information “evergreen” and delivered via your computer network, or on up to 11″ × 17″ paper in color. File information can be sent from ***DOC™*** to other computers via the workplace’s network utilizing Adobe Acrobat (pdf) “view only” versions.

DOC™ represents over 25 years of industrial experience. This system can help bring your workplace closer to a safer, more compliant, more cost effective, environmentally sensitive operation. The ***DOC™*** System requires MS Word, MS Visio, and Adobe Acrobat. Training is mandatory and varies depending on the background experience of the learners.

MTS™ TRAINING NEEDS ASSESSMENT:

CorKnET evaluates core knowledge of workers in skilled jobs. Core knowledge is an easy–to–assess indicator of training needs.

The evaluation is conducted by asking a series of questions in one-on-one interviews or by computer. Results are evaluated to determine strengths and weaknesses of individuals and groups. The main outcome is a set of specific needs, which can be addressed by training, and a measure of their priority.

The evaluation, based on questions which have been developed from proven training materials, was developed with the intent of creating an assessment tool which is valid for most workplaces and industries. However, there are differences in workplaces and industries — so the evaluation is modular, providing some choice of sections used. Workplace specific questions can also be easily added when desired.

Packages currently available or planned include:

- Mechanical Maintenance
- Electrical Maintenance
- Instrument Maintenance
- Piping and Vessels Maintenance
- Welding
- Plant Engineering
- Process Equipment Operator
- Other packages can be developed on request.

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MTS™ INFORMATION PUBLICATIONS

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HES11 A Representative Boilermaker Training Program

HES13 A Representative Millwright Training Program

HES14 A Representative Instrument Training Program

HES15 A Representative Electrical Training Program

HES16 A Representative Machinery Training Program

HES17 A Representative Heavy-Duty Mechanic Training Program

THE WAY *MTS™* …

PA2 A Day In The Life Of Billy Bourdon — J. Warren

PA3–91 ***MTS***™ Contribution To EPA And Compliance

PA1–90 Risk Analysis And Loss Control

PA1–91 ***MTS***™ Contribution To ISO 9002 Certification

PA2–91 ***MTS***™ Contribution To Compliance With OSHA Proposed Rule 29 CFR, Part 1910.119

PA2–92 ***MTS***™ Contribution To The ISRS 5 Star Program Of ILCI

PA45 Train–Maintain – An Innovation To Contract Maintenance — R. Denoux

PA62 The Way ***MTS***™ Defines And Implements Maintenance Management — N. Blahut

PA65 The Way ***MTS***™ Certifies Operators — N. Blahut

PA66 The ***MTS***™ Way Of Certifying Maintenance Craftsman

PA69 A Discussion Of Procedures And Training

PA71 Criteria For Training Recordkeeping Software

PA72 Strategies For Structured Workplace Learning

PA73 Refresher Training: Scheduling By Performance Measurement

PA84 ***MTS***™ System For Risk Analysis And Loss Control

PA85 Multi-Skill Cross Training: How Much? How Far?

PA88 ***MTS***™ WORLD

PA94 The ***MTS***™ Way Of Managing Productive Training – Learn & Work

PA95 Measuring The Impact Of Training And Reporting Results

PA96 Building Safety Into Operating Procedures

PA103 ***MTS***™ Stories

CASE HISTORIES AND EXPLANATIONS

PA7 *Hydrocarbon Processing* – “Functional Training In Industry” — V. Estrada

PA16 *Industry Forum* – “Self-Directed Training In Safety & Quality” — V. Estrada

PA17 *Quality Digest* – “Eight Principles Of Functional Training” — V. Estrada

PA32 First Annual User’s Conference Report, May 1994 (also available in Spanish)

PA34 *St. Louis Business Journal* – “MTS Provides The Tools To Help Manufacturers Help Themselves” — A. Heather Irwin

PA36 *Chemical Processing* – “Comprehensive Training Program Strengthens Amoco Operations” — Walker Wells, Amoco Chemical, Joliet, IL

PA37 *Wall Street Journal* – “Labor Letter”

PA41 *Cerro Matoso’s Ventana* – “Programa Para El Desarrollo De Personal” — Rodolfo Baron

PA42 *Engineer's Digest* – “Seven Steps To Effective Training” — V. Estrada

PA43 *Across The Board* – “Manual Labor”

PA44 *Human Resource Professional* – “How Workers Became Trainers, Learners And Writers” — J. Cusimano

PA48 *National Industrial Plant & Equipment Magazine* – “Rubber Company’s Skilled Workers Learn New Skills: Increased Flexibility Improves Production” — Keith Acland

PA70 *Chilton’s Industrial Maintenance & Plant Operation* – “Rubber Company Uses Cross-Training To Bounce Back From Tough Times”

PA74 *Executive Excellence* – “Turning Workers Into Learners” — V. Estrada

PA75 *Human Resource Professional* – “Training in Manufacturing Continues to Evolve” — V. Estrada

PA76 *The President* – “The Transformation Of The Factory Worker”.

PA77 *Meridiano* – “Manufacturing Technologies Strategies Provedora de Sistemas Gerenciales” — V. Estrada

PA78 *Hydrocarbon Processing* – “Chemical Plant Satisfies OSHA And ISO Standards” — Walker Wells, Ken Taylor

PA79 *Quality Digest* – “Functional Training Builds Knowledge Workers” — V. Estrada

PA80 *Technical & Skills Training* – “Skilled Tradesworkers Learn New Skills” — Keith Acland

PA81 *Training & Development* – “Turning Blue Collar Workers Into Knowledge Workers” — J. Cusimano

PA82 *Personnel Journal* — “Are Your Factory Workers Know-It- Alls?” – V. Estrada

PA83 Second Annual International Users’’ Conference Report

PA86 Pulp & Paper – “Abitibi’s Iroquois Falls Mill Flies Solo With New Learning System” — Jocelyne Guinard

PA87 *Hart’s Petroleum Engineer International* – “Commitment, Planning And Money Overcome Training Obstacles” — Jennifer F. Koury

PA89 *Fortune* – “Training Workers Better, Faster And Cheaper” — G. Bylinsky

PA90 *Journal Of Business Strategy* – “Eastman Chemical’s Spanish Composition”

PA91 “Missouri Highway Department Reinvents Itself: Employee Gripes Show Way; New Matrix Gives Answers” — J. Cusimano

PA92 “Eastman Installs Training System: Pattern For Global Expansion” — J. Cusimano

PA92-1 A “Hands-On” Approach To Process Safety Management

PA93 Third Annual International Users’ Conference Report

PA96 *Occupational Hazards* – “Building Safety Into Operating Procedures” — Chris Ford

PA97 *Corporate University Review* – “Turnkey Technical Training System Suits Eastman Chemical’s Worldwide Needs”

PA98 “Workers At Cerro Matoso Partner With Management To Implement Employee Development System” — V. Estrada

PA99 *Hydrocarbon Processing* – “Installing Training System Provides Pattern For Global Expansion”

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