SAULT COLLEGE OF APPLIED ARTS A TECHNOLOGY SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: HEAVY EQUIPMENT DIESEL - THEORY A-mnp

Code No.: MCH 115-10 & MCH 102 ^

Program: HEAVY EQUIPMENT DIESEL

Semester: i

Date: December, 1982

Author: Ivan Murphy

New: Revision:

APPROVED:

Chairperson Date

Sault College of Applied Arts and Technology sault ste. marie

Course Outline

HEAVY EQUIPMENT DIESEL I

MCH-402-9-^~5HOP

MCH 115-10 - THEORY

SEMESTER 1

HEAVY EQUIPMENT DIESEL I - FIRST SEMESTER

MCH 102-9 Shop
MCH 115-10 Theory

TEXT: DIESEL FUNDAMENTALS - Thiessen & Dales

REFERENCES: Design of High Speed Diesel Engines - Howarth

Diesel Engineering Handbook - 11th Edition

Diesel Publications, Inc.

The Auto Book - 2nd Edition - Crouse & Anglin

Diesel Engine Manual - 4th Edition - E. Molloy

Power Mechanics - Davies & Atteberry

Simplified Hydraulics - McNickle

Dictionary of Technical Terms- Grispin

Maintenance of High Speed Diesel Engines - Judge

Diesel Engine & Operation Maintenance - Maleer

American Bosch Fuel Injection Manual

Fuel Injection and Controls - Burman & Deluca

Vickers Hydraulic Manual 935100

Moving the Earth - Nichols; 2nd Edition

How to Operate Excavation Equipment - Nichols

Mobile Hydraulic Manual - Vickers

Mobile Hydraulic Testing - Glenn & Blinn

Heavy Vehicle Technology - Leeming & Hartley

Diesel Fundamentals - Tobolt

Fundamentals of Service - John Deere

Diesel Mechanics - Schulz

Diesel & Mobile Plant - Tempest

Heavy Equipment Repair - Nichols 2nd Edition

<u>Diesel Engine Repair</u> - Wiley

Diesel Equipment II - Schultz

Diesel Equipment III - Schultz

1 Course of Study 1 Marking Scheme 1 Certification 5 Parts & Wehicle Cleaning Methods 2 Fire Extinguishers 4 Rubber & Crawler Operating Maintenance 4 Rubber & Crawler Operating Techniques 5 Seals & Bearings 2 Faps & Diesel Diesel Diesel Diesel Drills 2 Grading capscrews, nuts and washers 2 Hydraulic Hose Sizing & fitting 3 Measuring Instruments - micrometers, dial indicators and Verniers 1 Metrication - Measuring & fasteners 2 Dis and Greases 3 Lube systems 8 Engines #1 (Diesel Oriented) 7 Technical Description and History 8 Four Stroke Cycle principles 1 Terms 6 Starting Aids 1 Diesel-Gas Comparisons and Advantages 8 Engine Construction and Classification 1 Crankshafts 8 Set Engine Valves 8 Balancers 1 Bearings (crankshaft) 1 Liners and Cylinders 1 Pistons 1 Lines and Cylinders 1 Pistons 1 Liners and Cylinders 1 Pistons 2 Detroit Diesel Injector and Valve Settings Clutches 2 Jaw Type 2 Cone Type 3 Shoe 6 Spring Loaded 1 Overcentre 6 Wet Clutch 3 Troubleshooting Clutches	NUMBER	PERIODS	TOPIC DESCRIPTION REFERENCE
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NUMBER	PERIODS	TOPIC DESCRIPTION REFERENCE
		Manual Transmissions
	2	Gear - Types, Applications A Ratios
	6	Sliding Gear Transmissions
	6	Constant Mesh Transmissions
	2	Synchromeshes
	2	Shift Controls
	2	Shifter Locking
	2	Fluid Drives
	2	Types
	3	Fluid Couplings
	1	Torque Converters Terms
	8	Single Stage Converters
	8	Torque Dividers
	8	Twin Turbine Converters
	6	Variable Capacity Converters
	6	Three Stage Converters
	6	Retarders
	2	Lock Up Options
	6	Stall Testing $oldsymbol{\&}$ Troubleshooting
		Hydraulics I
	2	Principles
	2	Uses and Advantages
	10	Circuits: Simple to Complex
	1	Types of Pumps
	6	Gear Pumps
	6	Vane Pumps
	10	Piston Pumps
	1	Types of Valves
	4	Relief Valves
	6	Directional Valves
	6	Flow Control Valves and Dividers
	1	Types of Motors
	5	Low Speed High Torque
	5	Gear
	5	Vane
	5	Piston
	14	Hydraulic Cylinders
	2	Hydraulic Fluids
	2	Hydraulic Tanks and Filters