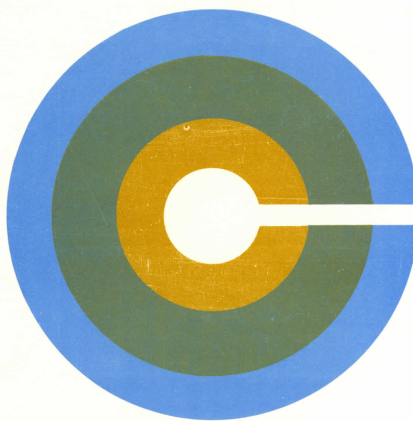


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REPORT  
on the  
PROGRAM REVIEW  
of the  
HEAVY DUTY MECHANICS PROGRAM



Cariboo College

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**REPORT  
on the  
PROGRAM REVIEW  
of the  
HEAVY DUTY MECHANICS PROGRAM**

**OFFICE OF INSTITUTIONAL RESEARCH & EVALUATION**

**JULY, 1990**

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### SUMMARY

The Heavy Duty Mechanics Program at Cariboo College entails:

1. a pre-apprentice TRAC program delivered at Kamloops and at Williams Lake;
2. a series of four modules required by working apprentices to qualify for journeyman status.

The curriculum is set down by the Ministry of Advanced Education, Training and Technology, and students are scheduled into the apprentice modules by the Apprenticeship and Employment Training Branch.

The Evaluation Committee for Heavy Duty Mechanics has found that the programs as offered at Cariboo College have a province-wide reputation for their high quality. The instructors are second to none in the province and graduates of the programs are generally well thought of by employers. The faculty has done well to achieve this reputation in spite of shortfalls in a number of areas associated with the program.

However, despite the present high quality of HDMECH, it is the opinion of the Evaluation Committee that unless some action is taken soon in the areas listed below the program will begin to suffer:

1. Curriculum (both pre-apprentice and apprentice modules);
2. Workload and Professional Development time for faculty;
3. Facilities;
4. Equipment and Tools;
5. Job Placement Centre;
6. Admissions Policy;
7. Liaison with Industry.

The Evaluation Committee wishes to commend the HDMECH faculty on their dedication and hard work as well as on the strong spirit of co-operation which has helped them overcome many of the strictures of workload and budget. We hope that our recommendations will be of assistance to them.

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**(May 22-23, 1990)**

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## INTRODUCTION

Review of the Heavy Duty Mechanics Program (TRAC and Apprentice) was initiated on November 30, 1989, with a formal request for program data from the Dean, Trades & Industrial Training. Initial discussion on questionnaire design and review procedures was held with HDMECH faculty on January 10, 1990. Current Apprenticeship students and TRAC students were surveyed on January 24 and February 28 respectively. Williams Lake current students were surveyed on January 26. Former TRAC and Apprenticeship students were mailed questionnaires on February 12 and 22 respectively; a second mailing took place on March 23. HDMECH faculty were sent questionnaires on February 8, while mailings to employers and advisory committee members occurred on February 13. Follow-up letters to employers went out on March 9, and advisory committee members were prompted on March 20. The cut-off date was April 27, 1990. The Evaluation Committee met to deliberate on and analyze the data on May 22 and 23, 1990.

## BACKGROUND

The Heavy Duty Mechanics Program was introduced in January, 1973 as a six-month pre-apprentice program. In April, 1974, an HDMECH Apprenticeship program commenced, with a second line being added in January, 1975. Classes were four weeks in duration. In January, 1981, class time was extended to five weeks per session.

In January, 1981, a new curriculum was introduced at pre-apprentice level, and the duration of the program was reduced to 3 1/2 months. January, 1983, saw the implementation of the TRAC curriculum, with its continuous entry/exit characteristics.

The Williams Lake Heavy Duty Mechanics operation began in September, 1977, with a pre-apprentice program. This was converted to continuous intake (TRAC) in January, 1983.



## DISCUSSION OF QUESTIONNAIRES

### Advisory Committee survey:

Thirteen out of 17 HDMECH Advisory Committee members responded for a return rate of 76%. Advisory Committee response rates in most programs under review are normally higher.

### Employer Survey:

Of the 66 employers surveyed, 29 responded to the questionnaire for a response rate of 44%. This is an adequate data base from which to draw meaningful inferences.

### Faculty Survey:

Four out of five faculty members completed and returned the questionnaire for a response rate of 80%

### Current Student Survey:

Thirteen out of 22 current TRAC Heavy Duty Mechanic students were surveyed giving a 59% response rate, while 15 out of 15 current apprentices responded for a 100% return.

### Former Student Survey:

All 355 students who participated in the HDMECH Apprentice Program between December, 1986 and August, 1989, were surveyed, with 124 responding for a response rate of 35%. Allowing for the 99 non-locatables, this produces an adjusted response rate of 48%. Thirty-two out of 155 former TRAC students from the same period responded for a 21% response rate. With allowance for the 54 non-locatables, this produces an adjusted response rate of 35%. Both adjusted response rates are sufficient to justify meaningful statistical inferences.

## SUMMARY OF QUESTIONNAIRE DATA

The following trends were noted in the questionnaire data:

### 1. Advisory Committee:

Thirteen of the 17 Advisory Committee members responded. They indicated concern regarding:

- i) the lack of funds and equipment available to sustain an effective program;
- ii) the employment chances of the TRAC pre-apprentice graduates;
- iii) a perceived gap between the abilities of the TRAC graduates as indicated on their transcripts and those demonstrated on the job;
- iv) an apparent lack of communication channels between the College and employers.

The Advisory Committee expressed satisfaction with:

- i) the objectives of the programs;
- ii) the opportunity afforded students to develop basic skills and work habits.

They ranked technical knowledge, professional conduct, and problem solving (trouble shooting and diagnostic skills) as the key elements of the program. Written communication and interpersonal skills were also seen as being important.

### 2. Employers:

Twenty-nine of 66 employers surveyed responded. They indicated:

- i) graduates generally displayed good work habits and practical/technical skills, and were dependable and willing to learn;
- ii) notwithstanding the above, employers expressed concern about the uneven quality of graduates they interviewed for employment;
- iii) they suggested that an improvement in trouble shooting skills, and writing skills (work orders, reports, etc.) is desirable;
- iv) they felt that more emphasis could be laid on electricity and fuel injection in Module IV;
- v) there was concern regarding communication with the College.

### **3. Faculty:**

- i) the faculty's perception is that the HDMECH Program lacks sufficient capital funding and that the facilities, staffing and equipment are less than adequate;
- ii) they felt that lack of professional development time is making inroads into instructional currency and is beginning to affect the quality of the program;
- iii) they expressed serious concern about the compression of instruction time in the apprenticeship modules into five weeks;
- iv) they noted some concern over the sequencing of the TRAC pre-apprentice material;
- v) they expressed concern regarding job opportunities available to graduates and the need for assistance for students in preparing for job search.

### **4. Former Students:**

#### **Apprentices**

- i) apprentices rated the level of instruction at 4.51 on a scale of 5.00, which is extremely high. More than 1/3 of the comments praised the quality of instruction given by Joe Strumecki;
- ii) over 40% of respondents felt that five weeks is insufficient to cover the material in the apprenticeship Modules II through V;
- iii) a large number commented on outdated equipment and audio/visual aids and criticized the quality of the tools.

#### **TRAC Pre-apprentices**

- i) the quality of instruction was again rated high (4.1);
- ii) the respondents appreciated the self-pace of the TRAC program;
- iii) they expressed concern over the availability of training-related jobs. Approximately 1/3 of the respondents were working in areas unrelated to their training;
- iv) a number expressed dissatisfaction with the Common Core portion of the program.



## **5. Current Students:**

### **Apprentices**

- i) the students were virtually unanimous in their contention that five weeks is insufficient to cover a module adequately ("time to learn" rated 1.93);
- ii) the quality of instruction was highly rated (4.20);
- iii) a number mentioned out-of-date equipment and worn tools;
- iv) some objected to the text books by Dagel and Brady;
- v) a few expressed displeasure with the assistance given by the staff in the Registrar's office.

### **TRAC Pre-apprentices**

The students responded favourably to:

- i) the quality of instruction (rating 4.25);
- ii) the self-pace of the TRAC program (rating 4.26).

They expressed concern regarding:

- i) the slowness of service in the toolroom, the quality of the tools and the outdated training aids;
- ii) the availability of job opportunities upon graduation;
- iii) the small size of the Learning Resource Centre (12 seats for a possible 60 students);

### **Williams Lake TRAC**

The students gave positive responses to:

- i) the quality of instruction;
- ii) admissions and program procedures;
- iii) the facilities;
- iv) the self-paced nature of the TRAC program.

They responded negatively to:

- i) the availability of jobs on graduation;
- ii) the lack of field trips;
- iii) the unavailability of the instructor for consultation out of class;
- iv) the level of service in the toolroom;
- v) the shortage of heavy duty equipment to work on.



**TABULAR SUMMARY OF QUESTIONNAIRE DATA**

**(Heavy Duty Mechanics Program)**

The categories and quantities of responses are tabled below:

<b>Recipient</b>	<b># Sent</b>	<b># Completed and Returned</b>	<b>% Return (adjusted)</b>
Advisory Committee	17	13	76%
Employers	66	29	44%
Faculty	5	4	80%
Students: Current			
TRAC	22	13	59%
APPRENTICE	15	15	100%
Students: Former			
TRAC	155	32	21%
TRAC non-locatable:	54		
<b>ADJUSTED RATE</b>			<b>32%</b>
APPRENTICE	355	124	35%
APPRENTICE non-locatable:	99		
<b>ADJUSTED RATE</b>			<b>48%</b>
<b>TOTAL</b>	<b>635</b>	<b>230</b>	<b>36%</b>
<b>(incl. adjusted rate)</b>	<b>482</b>	<b>230</b>	<b>48%</b>

Former Students Non-Respondents  
TRAC: 69  
APPRENTICE: 132

As At April 27, 1990

## ADMISSION DATA AND PERFORMANCE STATISTICS

### Admissions Requirements:

#### a) Educational Requirements:

Entry Level - Grade 10 minimum, Grade 12 preferred  
Successful completion of College Pretest

Apprentice Classes - Indentured Apprentices are scheduled by  
MAETT.

#### b) General Requirements:

Good Health  
Mechanical aptitude  
Safety-toed shoes

### Program Capacity/Program Demand over past five years:

Program Capacity: Entry Level - Kamloops: 20; Williams Lake:  
20. Apprentice classes take up  
to 18.

Program Demand: Demand for the pre-apprentice program has always been excellent. The waiting list numbers stand at between 10 and 20 at all times. The program remained full throughout the mid-80's when the economy was at its worst. However, the waiting lists during the same period were down.

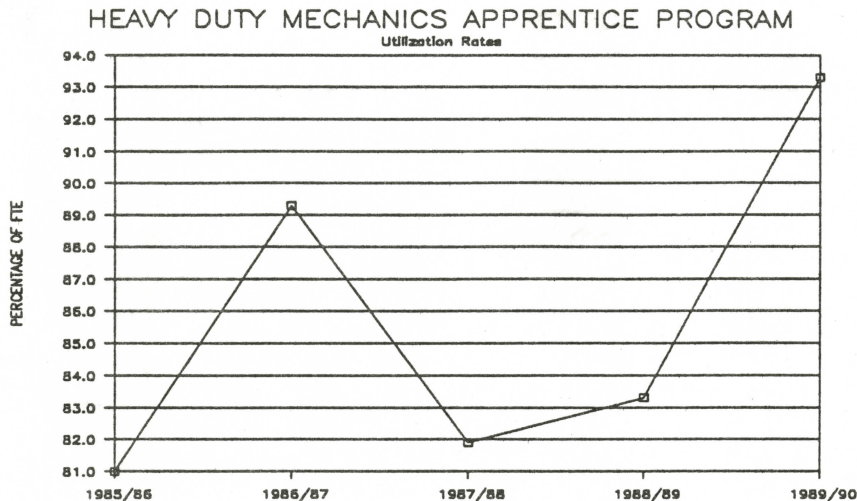
Apprentice classes always fill to capacity.

Williams Lake numbers have held steady. The class runs in conjunction with Automotive Mechanics. Enrolment is usually soft in the fall due to seasonal employment. However, the program fills up in October and November.

FTE figures for the Apprenticeship Program over the past five years are as follows:

	<u>Funded</u>	<u>Actual</u>	<u>Utilization Rate</u>
1989/90	18.0 FTE	16.8 FTE	93.3%
1988/89	18.0 FTE	15.0 FTE	83.3%
1987/88	10.5 FTE	8.6 FTE	81.9%
1986/87	11.2 FTE	10.0 FTE	89.3%
1985/86	11.6 FTE	9.4 FTE	81.0%

As this table indicates, FTE funding has shown an overall increase between 1985 and 1990; utilization rates have also increased from 81% in 1985/86 to 93% in 1989/90.



1985/86	81
1986/87	89.3
1987/88	81.9
1988/89	83.3
1989/90	93.3

### Grade Distribution:

Grade distribution in the Heavy Duty Mechanics program is typical of most vocational programs in that the minimum pass is a "C" or 70%, and the distribution is over the range of "A" to "C". Withdrawal rates are low, seldom rising above 7%. The pie charts on page 9 illustrate the grade distribution over the period of September, 1986, to March, 1990, for two randomly selected modules: TRAC3 HDD (Service Braking Systems); TRAC3 HDI (Wheel Machine Suspension).

### Graduation & Attrition Rates:

#### **Entry Level:**

- a) Failures: because the program is competency based, students work at the material until they complete it at the required level.
- b) Discontinuants: withdrawal rates run at approximately 8-10%; major reasons for leaving are employment, financial or personal problems, lack of aptitude for the trade, or termination due to poor performance.

#### **Apprentices:**

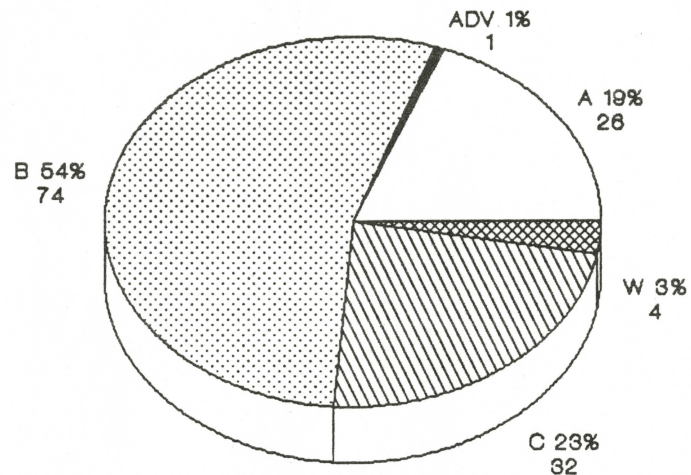
- a) Failures: approximately 2-5%; the main reasons are inability to cope with workload, poor educational preparation or personal problems.
- b) Discontinuants: less than 1%; students seldom withdraw from the apprentice levels.



# STUDENT PERFORMANCE IN SELECTED COURSES

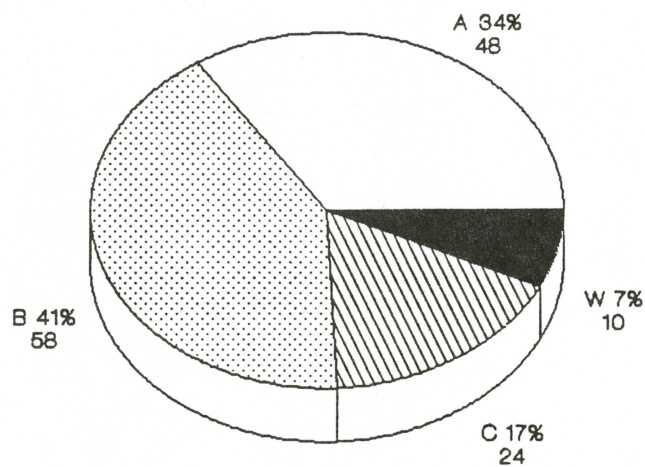
## September 1986 to March 1990

**TRAC3 HDD GRADE DISTRIBUTION**  
Service Braking Systems



Note: Numbers represent total number of students

**TRAC3 HDI GRADE DISTRIBUTION**  
Wheel Machine Suspension



Note: Numbers represent total number of students



Graduation Numbers (five year period):

Entry/Level Module (I):	147	Apprentice Module (II):	119
		(III):	155
		(IV):	163
		(V):	152

TOTAL:

147

589

## PLACEMENT DATA

### Types of Employment:

Graduates of the TRAC Program are prepared to enter the trade as second year apprentices. They are allowed time credit towards an apprenticeship upon successful completion (70% min. pass mark) of each training session.

Typical heavy duty mechanics repair, adjust and service a variety of industrial, construction, logging and mining machinery.

### Employment Rates:

As the pie charts on page 12 indicate, Heavy Duty Mechanic Apprentice graduates experience a high employment rate of 76.6% in the field for which they were trained; a further 8.9% report employment related to some extent to their training, and 0.8% report themselves employed in jobs unrelated to their training. These figures produce an overall employment rate of 86.3%.

TRAC graduates find it somewhat harder to obtain employment: 37.5% report themselves in training related jobs, 15.6% in jobs to some extent related to their training, and a further 18.8% in jobs unrelated to their training. These figures give a total of 71.9% employment.

### Current Salaries:

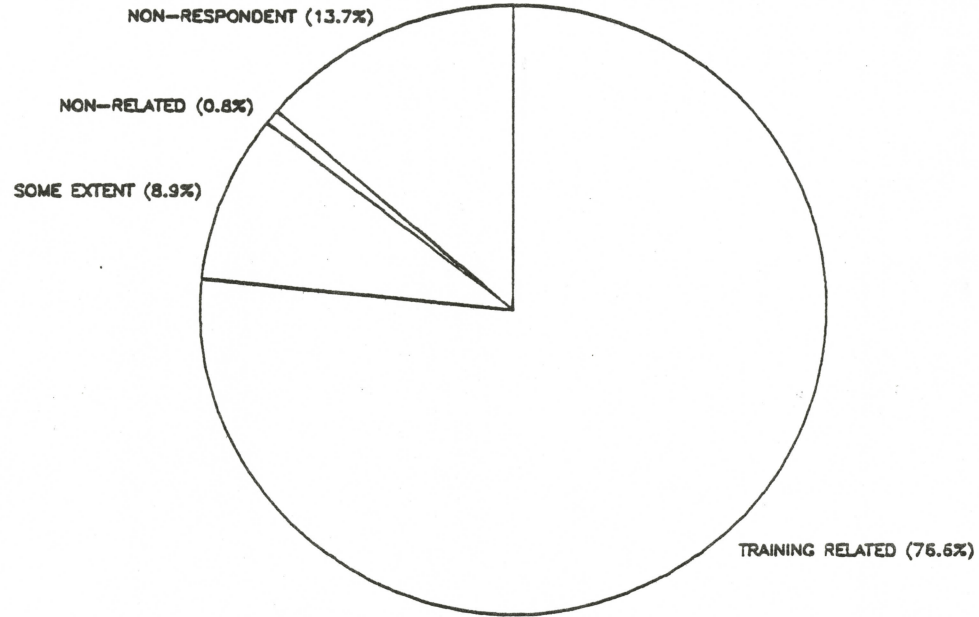
According to Job Futures, in 1987, heavy duty equipment mechanics in Vancouver earned between \$12.16 and \$19.13 per hour in union jobs. (At latest report, journeymen can earn over \$21.00 per hour.) Non-union positions are recorded as paying slightly less, between \$11.00 and \$18.00 per hour.

Informal estimates indicate that the starting wage for apprentices varies with employers and union contracts. The minimum starting rate laid down by the apprenticeship contract is 50% of journeymen's rate at that job site. Journeymen's rate averages between \$18.00 and \$20.00 per hour, depending on the regions within the province.

On their returned surveys, 107 Apprentice graduates--86% of all responding Apprentices--reported monthly salaries ranging from a high of \$9,000.00 to a low of \$1,200.00. Ninety-five Apprentices reported salaries on an average of \$3,297.00 per month (\$39,564.00 per annum) in training-related jobs; eleven

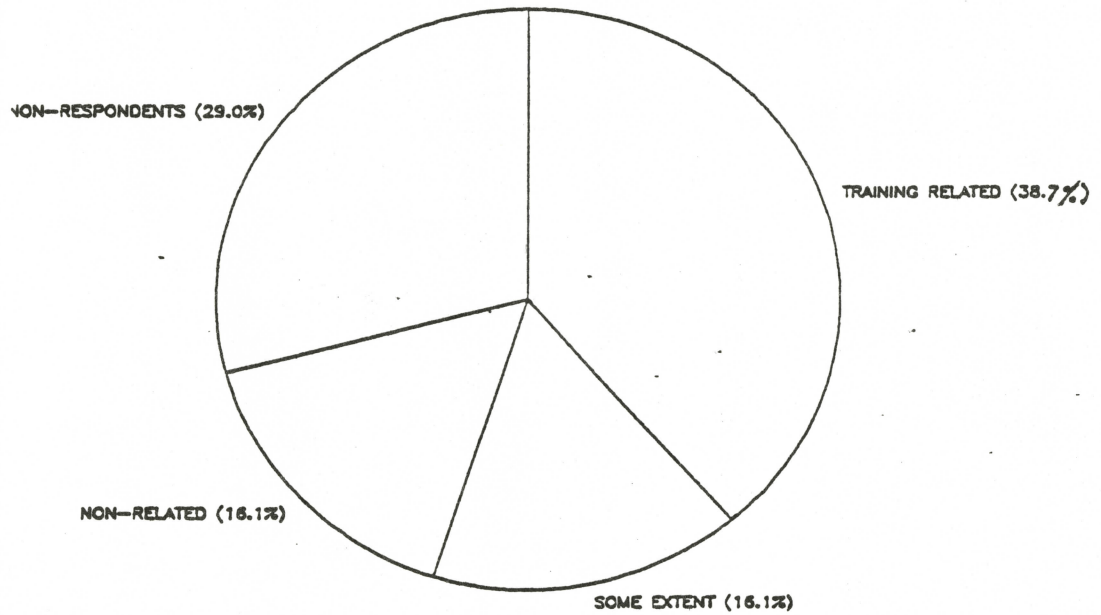
# HEAVY DUTY MECHANIC — APPRENTICES

## EMPLOYMENT IN RELATION TO TRAINING



# HEAVY DUTY MECHANICS — TRAC

## EMPLOYMENT IN RELATION TO TRAINING





respondents in jobs related to some extent to their training reported an average of \$3,673.00 per month (\$44,076.00 per annum), and one in a job unrelated to training reported \$2,100.00 per month (\$25,200.00 per annum).

Of the 22 former TRAC students, 12 reported working in training-related jobs at an average of \$2,479.00 per month (\$29,748.00 per annum), five were in jobs partly related to training, making an average of at \$2,940.00 per month (\$35,280.00 per annum), and six in jobs unrelated to training, earning an average of \$2,136.00 per month (\$25,632.00 per annum).

(For comparative earnings by graduates of other programs reviewed in the last three years, refer to APPENDIX B.)

### **Job Opportunities Projection:**

Statistics Canada's Job Futures: An Occupational Outlook to 1995 (1988-1989 Edition) indicates that according to the 1987 projections, employment of industrial, farm and construction machinery mechanics and repairers is expected to grow at an average rate in the next eight years, well into the mid-1990's. While approximately 49,500 jobs at the national level will become available, most of these vacancies will be replacement openings.

The British Columbia version of Job Futures (1989 Edition) shows that employment prospects have recently improved in the industrial, mining, and forest sectors, but mostly in northern areas of B.C. It projects slightly below average employment growth to 1995 for heavy duty mechanics as a group, which will produce about 1,540 new jobs, plus 1,870 to meet replacement needs. However, economic conditions affecting the B.C. forest and mining industries should always be considered when job opportunities are assessed as about 40% of industrial mechanics are employed in these industries.

### **Further Education Opportunities:**

Once they are indentured as apprentices, TRAC graduates are required to attend and successfully pass a five-week technical training module each year of their apprenticeship.

Apprentices and Journeymen also have the opportunity to attend updating/upgrading courses offered by regional colleges and product-specific courses offered by industry.



### STRENGTHS OF THE PROGRAM

The following strengths may be identified in the Heavy Duty Mechanics Program:

1. The quality of instruction is very high. The survey responses indicate that due to their dedication and hard work, the instructors are able to overcome shortcomings in facilities and equipment to provide a program that is second to none in the province.
2. The cohesiveness of the instructional group, including the Chairman, is commendable. The level of communication and co-operation evidenced is most laudable.
3. The self-pace of the TRAC program is well received by students and faculty alike.
4. The program operates near capacity at all times, with regular waiting lists (see utilization figures, pp. 7-8).
5. The Advisory Committee is representative of interested parties and is responsive to input.

**AREAS WHICH CAN BE IMPROVED**  
**(WITH RECOMMENDATIONS)**

This section highlights areas of the Heavy Duty Mechanics Program which the data suggest can be improved. Recommendations are prioritized, with curriculum, workload and professional development time, facilities, equipment and tools, job placement, admissions, and liaison with industry being the main areas which the Program Evaluation Committee identifies for improvement.

**1. CURRICULUM:**

**A. Apprentice Modules:**

**i) Time Allotment**

At present the Ministry of Advanced Education, Training & Technology schedules the modules II - V for five weeks each. It has been previously noted (see trends section) that the students and the faculty find this time entirely inadequate. In addition, we note that while the Yukon Government formerly sent apprentices to Cariboo College for their training, it now sends them to Alberta, where they receive eight weeks of training per module, as opposed to B.C.'s five. Therefore the Committee recommends:

- a) that the Heavy Duty Mechanic Advisory Committee and the Vice-President, Instruction, make strong representations to the Ministry in support of the Provincial Trade Advisory Committee's request for an extension of the training time to six weeks per module.**

**ii) Course Content**

The present curriculum was set in 1979. Since that time advances in technology have made much of the material obsolete. In addition, there are areas in which heavy duty mechanics must work which are not included in the curriculum now, e.g. air conditioning. The instructors also note that the inter-provincial examination which must be written by apprentices at the end of their training covers material which is not included in the general curriculum. Therefore the Committee recommends:

- a) that, in conjunction with the representation above, the HDMECH Advisory Committee and the Vice-President, Instruction, urge the appropriate Ministry personnel that curriculum revision and update be made an immediate priority;**



- b) that, in the meantime, HDMECH Apprenticeship Program instructors endeavour to enrich the units on electrical and fuel injection in Module IV, and add material on air conditioning.

#### **B. TRAC Pre-apprentice**

- i) A number of students expressed dissatisfaction with the "Common Core" section of the program. The instructors too feel it would be better incorporated into appropriate spots in the Occupational and Speciality sections, and in fact report some progress towards that end. Therefore the Committee recommends:
  - a) that the Chairperson, Mechanical Trades, and the Dean, Trades and Industrial Training, ensure that the integration of the HDMECH Common Core into the other sections of the program be completed;
  - b) that the Dean, Trades and Industrial Training, arrange such release time as is required by the HDMECH TRAC instructor to accomplish this.
- ii) A number of employers and several students complained of a lack of "trouble shooting" skills among graduates of the program. As well, employers report that some TRAC students graduate with no sense of the realities of efficiency in the workplace. One reason for this may be the reduction, in 1983, of student contact hours from six to five per day, resulting in one hour less shop time. Instructors feel that the return of this hour could help alleviate the above complaints. In addition, employers requested some actual shop experience prior to graduation and more emphasis on the writing skills required for work orders and resume creation. Therefore the Committee recommends, in conjunction with the recommendations in #2 "Professional Development Time":
  - a) that, in the next contract negotiations, College Management and the Faculty Association address the possibility of re-instituting the six-hour instructional day for Trades and Industrial Training instructors;
  - b) that HDMECH faculty, in consultation with the Dean, Trades and Industrial Training, and the Advisory Committee, explore the feasibility of incorporating an optional two week work experience module into the pre-apprentice program;



- c) that the HDMECH TRAC instructor familiarize himself with the "Writing Across the Curriculum" initiative at Cariboo College, endeavour to give his students more practice in writing skills, and ensure that the unit on Job Search Techniques is included in the HDMECH TRAC syllabus;
- d) that the Williams Lake TRAC instructor arrange field trips to the Kamloops campus and industrial sites on a regular basis.

## 2. PROFESSIONAL DEVELOPMENT TIME:

When contact time was cut to five hours, it was intended that the sixth hour be devoted to preparation, administrative duties, student counselling, and professional and curriculum development. Instructors are also allowed three weeks of PD time per year. In these limited spans of time the instructors are expected to:

- 1. do all of the above;
- 2. maintain and upgrade training aids;
- 3. maintain currency in their field;
- 4. familiarize themselves with new equipment and maintain the old;
- 5. maintain contacts with industry.

Clearly, this is an impossible task. The instructors indicate that the main problem is lack of block PD time. The present three weeks is eroded by College in-service days (two per year) as well as divisional retreats (usually one per year). This drops block PD time to just over two weeks. Maintaining currency alone requires more than three weeks per year, leaving none for other designated activities. As a result, contact with employers suffers. Faculty have no time to solicit feedback about the program, check job opportunities for their graduates, or canvass for equipment. Updating of instructional aids (videos, films, manuals) also goes by the wayside, and lesson preparation is skimpy and irregular. Therefore the Committee recommends:

- a) that College Administration and the Faculty Association broach the possibility re-instituting the six-hour instructional day for Trades and Industrial instructors (as per 1.B.(ii)(a) above), and provide them with an additional four to five weeks of block professional development time per year.

### **3. FACILITIES:**

#### **A. Shop Area**

Over the past few years the floor space in the HDMECH shop area has been eroded by the construction of offices and classrooms and by the re-siting of the toolroom. At the same time the number of students using the area is increasing, especially with the addition of the Commercial Transport Apprentice Program this year. Access to the bays is in some cases quite restricted and movement in the shop area is becoming dangerous. In general the design of the shop is poor. Therefore the Committee recommends:

- a) that the Dean, Trades and Industrial Training, the HDMECH faculty, and the Director, Information and Facilities Services, address the immediate floor space problem by planning the extension of the current number of HDMECH bays by two;
- b) that the above personnel collaborate in the development of a mid to long-range plan for the construction of a new Trades and Industrial Training facility, to be ready in blueprint form by 1993/94.

#### **B. Toolroom**

The Committee noted student complaints about the slow service in both the Kamloops and Williams Lake facility toolrooms. The Committee endorses the HDMECH Program's request for an additional toolroom attendant on the Kamloops campus, to be shared with the Welding Program: this may relieve some of the pressure.

Upon examination, the inefficient design of the room is obvious: ill-sited walls and posts obstruct movement and reduce storage space, and it is difficult to store heavy items on and retrieve them from the second floor. Removal of the toolroom from the main shop floor would create more working space.

As well, the Committee recognizes the frustration experienced by Williams Lake students when the toolroom attendant (who doubles as a general maintenance person) is not available at peak periods. Therefore the Committee recommends:

- a) that the Dean, Trades and Industrial Training, the Chairperson, Mechanical Trades, and the Director, Information and Facilities Services, plan a more suitable toolroom facility that does not intrude onto shop floor space;



- b) that the Chairperson, Mechanical Trades, ensure that the Williams Lake toolroom attendant is always on duty in the toolroom between 10:00 and 14:00.

#### **C. Learning Resource Centre**

At present there are 12 seats in the Learning Resource Centre for the use of a student population of 60 or more. Many students complained of the lack of room to study. The Committee was informed of plans to expand the Learning Resource Centre into B100, currently the Apprentice Program's classroom. Thus more classroom space is required. Therefore the Committee:

- a) supports the plan to expand the LRC to B100;
- b) recommends that the Dean Trades and Industrial Training and the Director Information and Facilities Services explore the possibility of dedicating B101 and/or B105 as classroom space for the HDMECH Program.

#### **D. Williams Lake Facility**

One of the few problems noted by students here was the unavailability of the instructor for consultation outside of class. Discussion revealed that this could in part be because the instructor's office is far removed from the shop area. Therefore the Committee recommends:

- a) that the Director, Information and Facilities Services, investigate the possibility of relocating the Williams Lake HDMECH instructor's office nearer the HDMECH/Automotive shop.

#### **4. EQUIPMENT AND TOOLS:**

The Committee noted many student comments about old, worn and outdated equipment. The instructors also mentioned that considerable time is required to maintain and upgrade training aids. Both they and the Advisory Committee expressed concern about the currency of equipment: some of the larger items are 1960's vintage, and the bulldozer at Williams Lake dates back to 1952. The reduction of capital funding from close to 4% of annual operating budget in the early 1980's to under 2% at present is having a serious impact on the maintenance of a viable HDMECH Program. Therefore the Committee recommends:



- a) that the College Administration, the Board, the Bursar, and the Dean, Trades and Industrial Training, endeavour to provide the HDMECH Program with sufficient funds for purchase of up-to-date capital equipment on a regular basis.

The Committee also endorses the Trades and Industrial Training Division's 1990/91 Capital Equipment Request for the HDMECH Program (see APPENDIX C).

The Committee's attention was drawn to problems experienced by the HDMECH Program with College Policy CCPM 9037 (Disposal of Assets). It was suggested that the policy is restrictive in that it inhibits the exchange or part-exchange of obsolete equipment for more up-to-date items available through the private sector. However, on examining the policy, the Committee was of the opinion that Paragraph 2 explicitly encourages departments to make every effort to obtain a reasonable trade-in allowance on old equipment if new equipment is being purchased. Therefore, the Committee recommends:

- b) that the HDMECH faculty and the Chairperson, Mechanical Trades, avail themselves of the latitude afforded by Paragraph 2 of the "Disposal of Assets" policy, which allows for the trading of obsolete equipment to the advantage of all programs and the College;
- c) that the Chairperson, Mechanical Trades, and the Dean, Trades and Industrial Training, maintain close contact with the Cariboo College Foundation with a view to acquiring capital equipment by gift or donation.

##### 5. JOB PLACEMENT CENTRE:

The Committee noted a number of concerns which could be reduced by the implementation of a Job Placement Centre:

- i) TRAC students, past and present, gave a low rating of 2.87-3.39 on a scale of 5.00 to "...sense of availability of job opportunities upon graduation";
- ii) instructors rated the item, "There are satisfactory job market analyses done for the program" at only 2.75 on a scale of 5.00;
- iii) responses from former TRAC students indicate that just under 2/5 of them are actually working as heavy duty mechanics, while another 1/3 are working in areas unrelated to their training;

- iv) the Committee notes a lack of understanding among employers of the TRAC program and the training it provides. In fact the reputation of the TRAC program throughout the province is not high. (This is not uniquely a Cariboo College problem.);
- v) some employers mentioned the problems in selecting employment candidates on the basis of their transcripts. This is partly due to (iv), but also to a lack of information on the College's transcript about the grading system, student's pace through the program, etc. The Placement Centre could act as an information service in this regard.

In light of the above, the Committee endorses the Trades and Industrial Training Division's initiative for the development of a Job Placement Centre and recommends:

- a) that, as an aid to employers, the results of the comprehensive or "cap-stone" examination written by TRAC pre-apprentice students on completion of their program be included on their transcripts;
- b) that employers be made aware of the nature and availability of the "Employability Skills Checklist" which is maintained on each student (See also 7. LIAISON below).

#### 6. ADMISSIONS POLICY:

The present admissions policy of the program is "first come, first served". As a result, the program attracts several students per year who are unsuited because of lack of mechanical aptitude and/or interest. Moreover, when these students seek jobs, their poor work habits and dubious skills spoil the market for more competent students from the program. Therefore the Committee recommends:

- a) that the Chairperson, Mechanical Trades, consider introducing a screening process for applicants which could include some or all of the following: i) a mechanical aptitude test; ii) an interest inventory; iii) an interview.

#### 7. LIAISON WITH INDUSTRY:

As mentioned in item 5 above, the Committee noted a lack of information among employers about the programs in the College. Many have made contact with individual faculty members, but this has become increasingly difficult as instructors are pressed for time. The Committee feels that a Job Placement Centre would serve



as a contact point to some extent (See 5. above), and that extended professional development for instructors would also make for more interaction between the College and employers (See 2. above). However, it further recommends:

- a) that, as part of their campaign to keep employers informed about College programs, the Chairperson, Mechanical Trades, and the HDMECH instructors, with the assistance of the Public Relations Office, distribute a newsletter on a bi-monthly (every two months) basis;
- b) that the Chairperson, Mechanical Trades and the Dean, Trades and Industrial Training, encourage the HDMECH Advisory Committee to become more actively involved in promotion of the program within their industry.



## APPENDIX A

### METHODOLOGY

The methodology was fivefold:

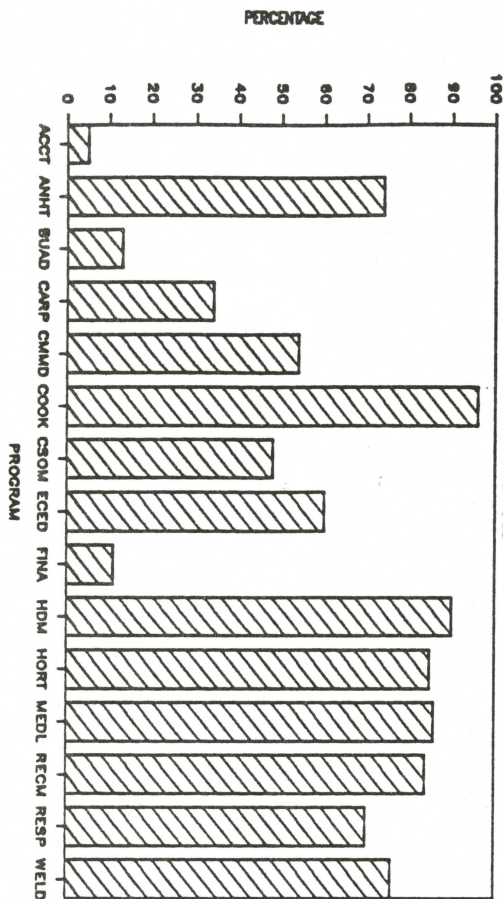
- 1) Standard questionnaires were administered to HDMECH former TRAC and Apprenticeship students, advisory committee members, employers, faculty, and current TRAC and Apprenticeship students. All data were processed with an SPSSX software program to achieve mean responses. Verbal comments for each group were recorded separately and anonymously.
- 2) "Descriptive Data" on the Heavy Duty Mechanics Program's history, description, objectives, budget, etc., were solicited from Earl Bloor, Dean of Trades & Industrial Training, via the standard "Data Required from Dean/Chairperson/Program Co-ordinator" form, along with course outlines.
- 3) Statistical data on annual headcounts, attrition rates, graduation rates, and grade distribution were provided by the Office of Institutional Research.
- 4) Several discussions were conducted with Les Batchelor, Chairperson, Mechanical Trades, Earl Bloor, Dean, Trades & Industrial Training, and the HDMECH faculty during the design of the questionnaires and collection of the data.
- 5) The Program Evaluation Committee interviewed the following faculty associated with the program:

Art Meger, Instructor, Heavy Duty Mechanics  
Steve Palmer, Instructor, Heavy Duty Mechanics  
Joe Strumecki, Instructor, Heavy Duty Mechanics;

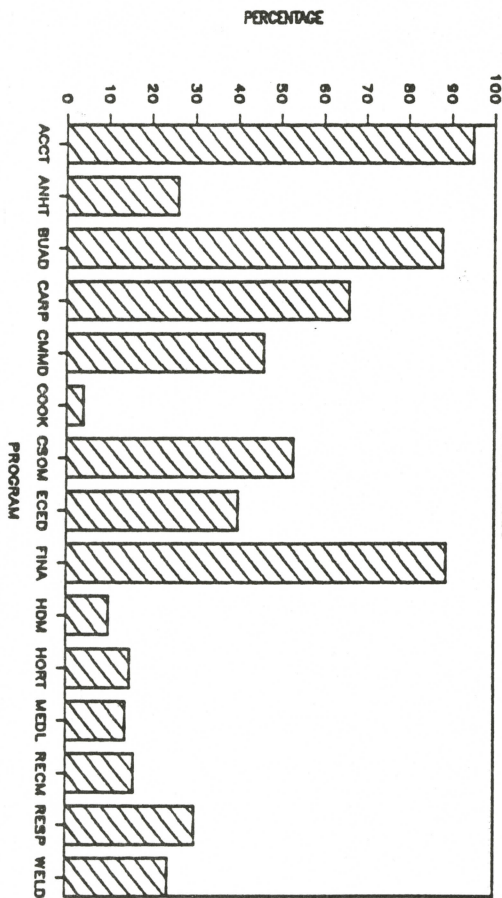
and teleconferenced with

David Schalm, Instructor, Automotive/Heavy Duty Mechanics,  
Williams Lake.

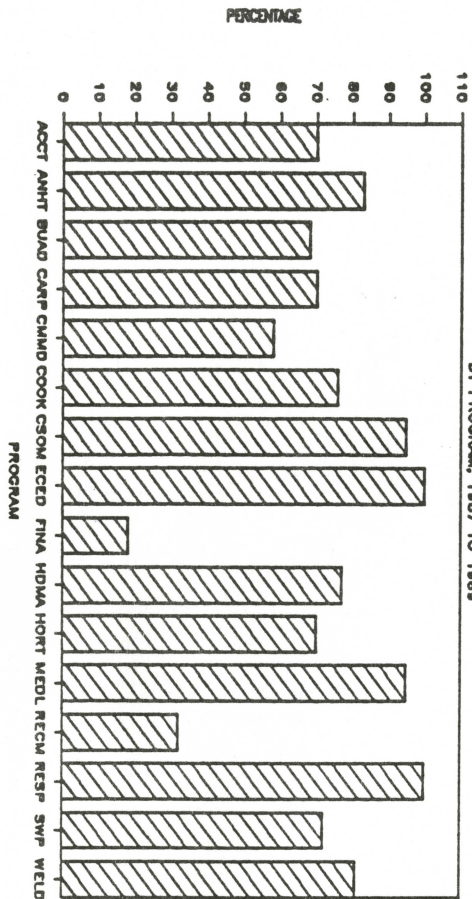
PERCENTAGE OF PROGRAM COMPLETION  
1986 TO 1989



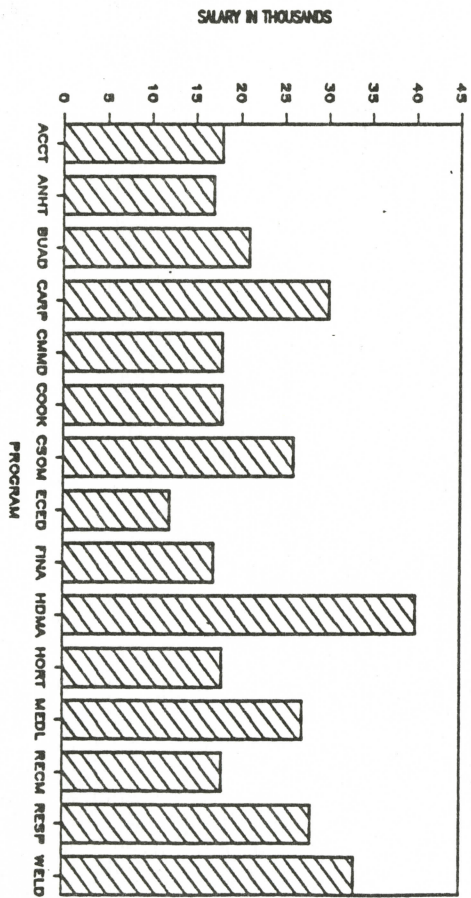
PERCENTAGE OF NON-COMPLETION OF PROGRAM  
1986 TO 1989



TRAINING RELATED PLACEMENT OF GRADS  
BY PROGRAM, 1987 TO 1989



AVERAGE ANNUAL EARNINGS BY PROGRAM





TRADES AND INDUSTRIAL TRAINING DIVISION  
CAPITAL EQUIPMENT REQUIREMENTS - 1990/91

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M E C H A N I C A L   T R A D E S

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Much of the equipment still in use in the Mechanical Department has been in service since the programs began almost two decades ago. It is well used and, as such, presents students with less than desirable learning aids and, in some cases, potentially dangerous situations. As well, the technologies in the mechanical trades have been advancing; students need to be trained on these emergent technologies. Capital equipment requests therefore fall under three categories:

- (1) Replacement of obsolete/worn out equipment;
- (2) Acquisition of required safety-related equipment; and
- (3) Acquisition of technological current equipment.

AUTOMOTIVE

1. Brake dust vacuum or wash equipment to control asbestos dust. \$ 1,000.00

This item is required for safety reasons (the dangers of asbestos are well-documented). It may be combined with the larger vacuum needed for the commercial transport and heavy duty vehicles if such a versatile vacuum exists.

2. One Ford Ranger from I.C.B.C. (this vehicle is here now on loan from ICBC). 1,700.00

This vehicle has been written off by ICBC and will be put up for auction. It is a late model vehicle which, although never capable of road-worthiness, is a valuable training aid.

3. One Sioux valve grinding machine - \$6,000.00 less 500.00 for trade in. 5,500.00

The mechanical programs require three -- 1 is new (purchased in 1988) and other two are original equipment and are simply worn out and, at best, marginally useful.

4. Update equipment for existing computer system scan tool (OTC 2000). 3,500.00

The OTC hand-held device is the most economical automotive computer analysis system. Acquisition of updated equipment will help this program remain abreast of current computer analysis systems.

5. One late model front wheel drive vehicle from I.C.B.C. (domestic or foreign). 2,000.00

A much needed training aid.

6. Computer 4-wheel alignment equipment. 24,000.00

An expensive item, but nevertheless one which will give



students in the program valuable job-related training and experience.

Total \$ 37,700.00

#### HEAVY DUTY ENTRY LEVEL AND APPRENTICE

1. Rod alignment tool \* Lisle \$ 1,500.00

A precision instrument in common use in industry which the program does not have.

2. Liner puller - 1,000.00

The program has been using a gerry-rigged device; a manufacturer's model is required for precision work.

3. (Two) - 10 ton floor jacks 3,000.00

The two in current use are original equipment (20 years old), are worn out and dangerous!

4. L - 10 Cummins (Electronics) 13,000.00

This diesel engine will complement the recently purchased (1988) Detroit diesel. (It has different electronics.)

5. Air/over hydraulic jack - 20 ton 1,000.00

6. Pallet lift jack 900.00

7. Universal type engine stand (H.D.) 5,000.00

The program does not possess a stand capable of supporting a HD engine.

8. Used 6,000 lb. fork lift 8,500.00

The present fork lift will not reach the storage area over the tool room. Also, it is a 1954 model which was donated by BCIT when the program began. Its engine has been rebuilt 2 times and the steering is uncertain/dangerous!

Total \$ 34,000.00

#### MARINE

1. Specialty tools (wrenches, jigs, etc. for specific manufacturer models)

Total \$ 1,000.00

#### COMMERCIAL TRANSPORT

1. Transmission jack for trucks \$ 2,000.00

2. Brake dust vacuum truck model 2,500.00

A safety item (see Automotive list)

3. (Eight) 5 ton jack stands	600.00
4. Trailer light tester	700.00
Total	\$ 5,800.00

#### PARTSPERSON PROGRAM

1. NCR 455-0713 Ford ultrafiche reader	\$ 1,100.00
2. Three Laser XT computers @ \$1,158.00	
- 40 mb 40 ms hard drive	
- 1 - 360 floppy	3,500.00
- 3 chairs	500.00

These computers will be used in part to implement writing across the curriculum and to produce students' resumes.

3. Three digital lan cards @ \$300.00 each	900.00
4. Two roland-raven printer @ \$560.00	1,100.00
5. Two only microfiche machines @ \$750.00	1,500.00
Total	\$ 8,600.00

#### WILLIAMS LAKE MECHANICAL PROGRAMS

1. Crawler dozer with p/shift transmission	\$ 20,000.00
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Existing dozer is simply worn out.

2. Brake dust vacuum for asbestos	2,500.00
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Safety item, with heavy duty capability (see Automotive above).

3. High lift transmission auto. jack	1,250.00
4. Welder	1,500.00
5. OTC 2000	1,250.00

Hand-held electronic engine tester (identical to basic unit used in the Kamloops program).

Total	\$ 26,500.00
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REPORT ON THE PROGRAM REVIEW OF



