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G G10D + M SCHOOL

Aug. - 1945 - Feb 1946

(10
46)

Memorandum on the proposed future planning at GCHQ

1. On 19th Feb. 1961, a number of letters from A.S.S. stated
 to the effect of suggesting the new edition and
 of planning a report on conditions for higher authority.

(a) On 19th Feb. 1961, A.S.S. member suggested visiting GCHQ
 and discussed training problems with Col. 1961. As a result of this
 meeting, A.S.S. suggested a personnel training to A.S.S. member
 at GCHQ. A.S.S. requested that orders should be given at a
 very high level to reduce the input into GCHQ and thereby give
 the training staff a chance of carrying out the duties which had
 been assigned to them.

(b) On 19th Feb. 1961, A.S.S. member has occasion to visit GCHQ in
 connection with the winding up of his own assignment.

(c) On 19th Feb. 1961, A.S.S. member visited GCHQ at 11.00 AM with a
 view to obtaining a copy of the approved training plan for GCHQ.
 A.S.S. member has to discuss the training plan with the subject of training
 GCHQ member proposed his plan to the GCHQ center which
 was approved for implementation.

(d) On 19th Feb. 1961, A.S.S. member visited GCHQ at 11.00 AM with a
 view to obtaining a copy of the approved training plan for GCHQ.
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 GCHQ member proposed his plan to the GCHQ center which
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 GCHQ member proposed his plan to the GCHQ center which
 was approved for implementation.

file 12
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The list of these decisions was embodied in a telegram which was dispatched to M.I.A. Room.

(b) On 17th Feb Lt-Col Mackay visited M.I.A. and discussed the report of these decisions with Lt-Col Hughes. The decisions were accepted as finding a most satisfactory solution to the problem and permission was requested to establish the camp at Gaflo, which is some twenty miles away from Gaflo. Col Hughes offered to make additional transport available for the transfer of personnel from Gaflo to Gaflo and directed that the Lt-Col staff should do all that was possible to establish the camp with the little money at his disposal.

(c) On 18th Feb these decisions were communicated to Col Mackay who offered to place the services of Major Ward at his disposal for the disposal of Lt-Col Mackay to assist in the organization of the camp and to supervise elementary training of the recruits in it. The Lt-Col Mackay approved of the location by M.I.A. All preliminary steps are being taken to prepare all that is necessary. It is understood from Col Mackay that he will arrange with the Ministry for the provision of all the essential Italian personnel required to administer the camp.

18-001 M.A.

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At-001 B.1.

1. - Si conferma la necessità di distaccare dalla Scuola della Motorizzazione la Scuola Meccanici ed Operai d'Artiglieria di Civitavecchia.
2. - Le due Scuole assumono la seguente denominazione:
Scuola Meccanici e Operai d'Artiglieria
Scuola Meccanici Specializzati per la Motorizzazione.-
3. - Tali denominazioni saranno impiegate d'ora innanzi nella discussione dei problemi inerenti a dette Scuole.

IL GENERALE ADDETTO

F.to Giorgio Liuzzi

XX

COMANDO SCUOLE CENTRALI MILITARI

= Ufficio Ordinamento =

N° 02/276/Ord.di prot.

Cesano di Roma, il 5 marzo 1946

AL COMANDO SCUOLA DI ARTIGLIERIA
AL COMANDO SCUOLA DELLA MOTORIZZAZIONE
AL COMANDO SCUOLA MECCANICI ED OPERAI D'ART.
e per conoscenza:

ALLO S.M.R.E. - Ufficio Operaz. e Addestr.
ALLO S.M.R.E. - Ufficio Ordinamento e Mob/ne
AL 12° B. I. U.

BRACCIANO
CECCHIGNOLA
CIVITAVECCHIA

R O M A
R O M A
B E D E

..... per norma.

La Scuola Meccanici ed Operai d'Artigl. continuerà a ~~funzionare~~ re la sua attuale ~~gestione~~ gestione ed organizzazione fino al termine del corso in atto (22 marzo) dopo di che tutta la parte relativa all'addestramento motoristico passerà alla Scuola della Motorizzazione con la denominazione di "Scuola Meccanici Specializzati per le Riparazioni", trasferendosi alla Cecchignola.

Riserva di ordini circa le modalità per il trasferimento del personale e mezzi.

La "Scuola Mecc. ed Op. d'Art.", sotto la data che verrà prescelta passerà invece a tutti gli effetti alle dipendenze della Scuola di Artiglieria che la includerà nei suoi orari.

IL GENERALE COMANDANTE

- ~~Ercole~~ Ronco -

[Signature]

UFFICIO GENERALE DI AMMINISTRAZIONE

Ufficio Ordinamento

n° 02/106/Ord. di prot.

Cesano di Roma, 9 marzo 1940

OGGETTO: Scuola Meccanici ed Operai d'artiglieria.

AL COMANDO CORPORA DI ARTIGLIERIA

CONSIGLIO DI AMMINISTRAZIONE

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

per conoscenza;

ATTORRE UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

UFFICIO ORDINAMENTO

Richiesta e seguito ottenuto 02/106/Ord. di prot.

3 marzo 1940. Il questo comma.

() E' necessario rilevare di cui ultimo capoverso relativo al riferito
la scuola meccanici ed operai d'artiglieria la parte re
lativa all'ordinamento (ordinamento) presso il dipartimento della
scuola di artiglieria e tutti gli uffici in data 1 marzo 1940.

() Resta stabilito che, alla fine del corso (21 marzo) la parte
relativa ai corsi meccanici e operai d'artiglieria presso la scuola della
la organizzazione trasferimenti alla scuola della.



[Signature]

COMANDO SCUOLE CENTRALI MILITARI
Ufficio Addestramento

N. 8478/Add.Auto di prot.

Cesano di Roma, 1 dicembre 1945

OGGETTO: caserma Cecchignola - lotto n. 9.-

AL COMANDO TERRITORIALE MILITARE DI R O M A
+ Ufficio Servizi -

e, per conoscenza:

AL COMANDO SCUOLA MOTORIZZAZIONE = CECCHIGNOLA =
ALL' "F" B.L.T.U. = CESANO =

Si porta a conoscenza che la dipendente scuola addestramento autieri ha pure preso possesso, come da autorizzazione verbale avuta a suo tempo da codesto comando, dei locali del lotto n. 9 della caserma della Cecchignola, per utilizzare le autorimesse ed i vani abitabili.-

Ciò nella consid-razione:

- a) che i locali del lotto n. 8 non sono sufficienti per le aumentate esigenze della scuola anzidetta;
- b) per evitare, anche, che gli impianti esistenti negli stabili in parola - rimasti senza sorveglianza - venissero manomessi.-

IL GENERALE COMANDANTE
F.to (Ercole Ronco)

p. c. c.

Si porta a conoscenza che la dipendente scuola addestramento autieri ha pure preso possesso, come da autorizzazione verbale avuta a suo tempo da codesto comando, dei locali del lotto n. 9 della caserma della Cecchignola, per utilizzare le autorimesse ed i vani abitabili.-

Ciò nella considerazione:

- a) che i locali del lotto n. 8 non sono sufficienti per le aumentate esigenze della scuola anzidetta;
- b) per evitare, anche, che gli impianti esistenti negli stabili in parola - rimasti senza sorveglianza - venissero manomessi.-

IL GENERALE COMANDANTE
F.to (Ercole Ronco)

P. C. C.

IL CAPO UFFICIO ADDESTRAMENTO
(Ten. Col. Ugo Sivo)



12	45	5	10
Seen by:			
Schools			
Inf.			
R.A.			
R.E.			
R.C.S.			
P.to			

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Ronco
Ugo Sivo
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RA/lu

COMANDO DIVISIONE "PICENO"
C.A.C.F.I.C.
Ufficio Addestramento

N. 8235/Add.Auto di prot. Cesano di Roma, 22 novembre 1945
OGGETTO: addestramento automobilistico e militari appartenenti alla
ITI-ITI.-

AL MINISTERO DELLA GUERRA - S.M.R.E.
Ufficio Servizi - Sezione Auto

= R O M A =

e, per conoscenza:

ALLO STATO MAGGIORE REGIO ESERCITO
Ufficio Operazioni e Addestramento

= R O M A =

ALL'F" B.L.T.M.

ALL'UFFICIO SERVIZI

= CESANO =

= S E D E =

Riferimento foglio 6/10952 del 10/11/1945 di codesto Sta-
to Maggiore, si comunica che la scuola addestramento autieri
si é già trasferita alla Cecchiagnola di Roma.-

Si prega pertanto la cortesia di codesto ufficio di voler
interessare la L.F.S.C. per l'assegnazione alla predetta scu-
la dei 20 autocarri di fabbricazione italiana.-

IL GENERALE COMANDANTE
F.to (Ercole Ronco)

p. c. c.
IL CAPG"UFFICIO ADDESTRAMENTO
(Ten.Col.Ugo Sivo)

Riferimento foglio 6/10952 del 10/11/1945 di codesto Sta-
to Maggiore, si comunica che la scuola addestramento autieri
si é già trasferita alla Cecchignola di Roma.

Si prega pertanto la cortesia di codesto ufficio di voler
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la dei 20 autocarri di fabbricazione italiana.

IL GENERALE COMANDANTE
F.to (Ercole Ronco)

p. c. c.
IL CAPO UFFICIO ADDESTRAMENTO
(Ten. Col. Ugo Sivo)



27.11.45	G 10
Seen by:	
Schools	
Inf.	
R.A.	
R.E.	
R.C.S.	
Pro	

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G 10.

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SI/af
CENTRO ADDESTRAMENTO COMPLEMENTI
FORSE ITALIANE DI COMBATTIMENTO
- Ufficio Addestramento -

Cesano di Roma, li 23.II.1945 -

N° 8247/Add. di prot.

OGGETTO: Costituzione Scuola della Motorizzazione.-

ALLO STATO MAGGIORE RECLIO ESERCITO
Ufficio Addestramento -

ALLO STATO MAGGIORE REGIO ESERCITO
Uff. Ordinamento e Mobilitazione -

AL COMANDO MILITARE TERRITORIALE DI

per conoscenza:

ALL' "M" B.S.T.U.

= R O M A =

= R O M A =

= R O M A =

= B E D E =

Il colonnello aut. NICHI Giovanni designato quale comandante della costituenda Scuola della Motorizzazione, del G.20 C.M. avrà alle sue dipendenze, e tutti gli effetti, la Scuola Autieri e la Scuola Meccanici ed Operai di Artiglieria.-

Le due Scuole suddette conserveranno per ora la loro autonomia amministrativa.-

Il Comando della Scuola della Motorizzazione avrà sede, e si appoggerà, il Comando della Scuola Autieri (Caserma Cecchiagnola).

IL GENERALE COMANDANTE
- Ercole Ronco -

AL COMANDO MILITARE TERRITORIALE DI

per conoscenza:

ALL' "M" B.L.T.U.

= ROMA =

= S E D E =

Il colonnello aut. NIGRI Giovanni designato quale comandante della costituenda Scuola della Motorizzazione, dal 8.20 c.m. avrà alle sue dipendenze, a tutti gli effetti, la Scuola Autieri e la Scuola Meccanici ed Operai di Artiglieria.-

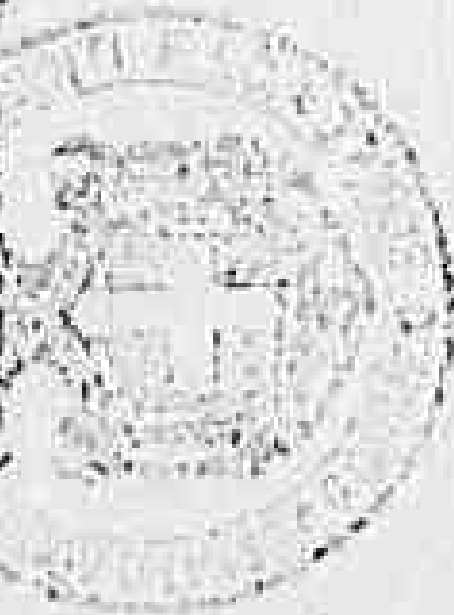
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Il Comando della Scuola della Motorizzazione avrà sede, e si appoggerà, il Comando della Scuola Autieri (Caserma Cecchiagnola).

IL GENERALE COMANDANTE

- Ercole Ronco -

P. C. C.
IL COMANDO MILITARE TERRITORIALE
(Gen. Col. Ugo Sivo)



AA & QMC	DA & QMG	SC - A - & - Q	LADSI	D & B / e	DADME
26.11.1945					

520.

Subject :- R.E.M.E. Training and Equipment.

"F" BRITISH LIAISON & TRG UNIT,
R.T.G. I.C.F.

Ref: G/410/694.

15 Nov 45.

To: Land Forces Sub Commission A.C.
(M.M.I. A.) ROME.

The following points have been raised by D.A.D.M.E. "F" H.L. & F.U. in view of the increased responsibilities of the Italians in the control of equipment and in view of the many British Establishments on which this centre has relied for maintenance, closing down.

1. Inspections and Condemnation of Ordnance.

At the moment this is being done by A.C.R.A. workshops CIVITAVECCHIA. When this unit closes it will be necessary to have competent Italian personnel capable of doing this work. At the moment the 150 Workshops has not the garages or the trained personnel to perform this work and the Mechanics School is not organised to produce the equivalent of the British Army Armament Artificer and Officers S.M.B.

2. Instrument and Telecom. Repairs.

At the moment all repairs for this centre are being carried out by British Workshops.

It is understood that previously much of this work in the Italian Army was a Genio responsibility.

It is also reported that the Combat Divisions are equipped with 'Z' Lorries but have no personnel trained to operate them.

It would be greatly appreciated if some guide as to the future policy in regard to the following queries could be given :-

- (i) Will these repairs be continued to be a British responsibility or will the Workshops and Mechanics School be enlarged so as to deal with repairs and training as it effects guns, and telecommunications?

1. Inspections and Confirmation of Ordinance.

At the moment this is being done by A.G.R.A. workshops CIVITAVECCHIA. When this unit closes it will be necessary to have competent Italian personnel capable of doing this work. At the moment the 155 Workshops has not the garages or the trained personnel to perform this work and the Mechanics School is not organized to produce the equivalent of the British Army Ammunition Artificer and Officers E.M.S.

2. Instrument and Telecom. Repairs.

At the moment all repairs for this centre are being carried out by British Workshops.

It is understood that previously much of this work in the Italian Army was a Genio responsibility.

It is also reported that the Combat Divisions are equipped with 12 Lorries but have no personnel trained to operate them.

It would be greatly appreciated if some guide as to the future policy in regard to the following queries could be given :-

(1) Will these repairs be continued to be a British responsibility or will the Workshops and Mechanics School be enlarged so as to deal with repairs and training as it effects guns, instruments and telecommunications?

(ii) In the case of these becoming an Italian responsibility who will undertake this work, there being no equivalent to R.S.M.S.

WLP/jti.

Internal.

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H. M. J. J.

Major, D.M.S.
Commanding,

"F" BRITISH LIAISON & TEL. UNIT, RVC. ICF.

- 970
1. The existing mechanics school, given sufficient instructors, has an organization which should be capable of training vehicle mechanics, drivers, mechanics, electricians, turners, armourers, and gun fitters. No provision has been made for the training of personnel equivalent to British army armament artificers and officers. . . . For example, on withdrawal of A.C.B.G. workshops who are to be responsible for the examination and condemnation of ordnance? Are ordnance gauges & are required as well as a competent officer to do the examination. Officers posted to 155 workshops so far, while having some previous engineering experience have not dealt with the equipment at present held by the Italian army. This places them at considerable disadvantage as workshop officers.
 2. Indenting for ordnance stores is still largely dependent on supervision by British personnel. Officers and warrant officers will have to be provided & trained to run stores sections. An establishment for such a stores section has been suggested by B.O.D. . . . but no action appears to have been taken. It is suggested that his matter receives attention as soon as the new system of obtaining ordnance has been clarified.
 3. All instrument & telecom. repairs are at present carried out by B.O.D. . . . Unless this is likely to be continued indefinitely Signals, . . . & artillery armaments will find themselves at a disadvantage for lack of an adequate repair organization. The Gruppi are understood to have excellent 2 lorries with a nobody to operate them. There must be sufficient personnel in Italy, already trained in wireless & to supply suitable mechanics and instructors.

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Instrument Days

Wf

No

SUBJECT: D & M School.

REF: BRITISH LIAISON AND TRAINING UNIT
R.F.C., I.C.F.

Ref: C/G.10/363.

15 October '45.

HQ, RUC ICM.

Officer i/c Training, RUC ICM

1. Unless this School produces a better course than it does at the moment it might as well be discontinued. The School has been observed carrying out driving instruction several times in the past few weeks. The following points have in each case been observed.

- (a) 15-20 men on each vehicle.
- (b) Students all dressed differently.
- (c) Vehicles dirty.
- (d) General lack of DT discipline.

It is realised that there may be some extenuating circumstances, vehicles off the road, shortage of petrol, but it is essential that the School be run properly otherwise it is better not to run the School at all.

2. The programme prepared as a suggested syllabus by Major ADAMS is excellent. (Copy attached). However, the means of achieving it will depend on the number of vehicles on the road. The important factor to realise is not the amount of time spent on driving instruction but the actual amount of time spent by the pupil at the wheel.

If 20 men go out in one vehicle for four hours, the actual time of driving instruction per man is less than a hour. It is essential that at the most only 6 men go out in a vehicle and that each man has individual instruction.

This can be done by adjusting the number of students to suit the number of efficient vehicles. This should be studied in connection with Major ADAMS' proposal. Alternatively some extra men can be taken in excess of the proportion if more space are found, the length of course increased and the amount of subjects, other than driving included in instruction. The success or otherwise of the course will depend on using the vehicles available to the best advantage, i.e. not having all men on driving instruction at the

- (b) Students all
- (c) Vehicles dirty.
- (d) General lack of MT discipline.

It is realised that there may be some extenuating circumstances, vehicles off the road, shortage of petrol, but it is essential that the School be run properly otherwise it is better not to run the School at all.

2. The programme prepared as a suggested syllabus by Major ANDREWS is excellent. (Copy attached). However, the means of achieving it will depend on the number of vehicles on the road. The important factor to realise is not the amount of time spent on driving instruction but the actual amount of time spent by the pupil at the wheel.

If 20 men go out in one vehicle for four hours, the actual time of driving instruction had by each man is less than a hour. It is essential that at the most only 6 men go out in a vehicle and that each man has individual instruction.

This can be done by adjusting the number of students to suit the number of efficient vehicles. This should be studied in connection with Major ANDREWS' pamphlet. Alternatively some extra men, more can be taken in excess of the proportion if more space are found, the length of course increased and the amount of subjects, other than driving increased in proportion. The success or otherwise of the course will depend on making the vehicles available to the best advantage, i.e. not having all men on driving instruction at the same time.

3. programme.

The following remarks, however, are made on Major ANDREWS' 37.

- (a) 2 hours of map-reading is hardly sufficient even. If further instruction is carried out on driving instruction. In this respect it would be a pleasure to see the students in the back of a vehicle doing map-reading instead of leaning out of the back, looking for pretty girls.
- (b) Vehicle recovery, unditching, towing etc., are not sufficiently stressed and a practical exercise should be included.
- (c) In general 'driving instruction' covers a great deal of ground and might have been developed more fully.

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3. (Continued).

(d) Driving Instruction must cover all types of road work - density of traffic etc becoming more difficult, and in this respect more than one convoy exercise might be included. Cross Country driving is at least as important as road driving and O.C. School should select various types of ground for particular lessons. Mud tracks, soft sand, steep hills, slippery concrete etc. Night drives across country and on roads must also be included with and without lights.

(e) Camouflage and harbouring of vehicles could be included.

4. Training Aids and facilities. It is not sufficient to have what is commonly called an 'Aid a Motore'. Several class rooms are necessary each showing only the part to be dealt with in the lesson, i.e. the clutch, chassis etc. Where men can sit down when the Instructor is explaining. In the same way other classrooms are required for lectures with tables, blackboards etc. Training films can also be used to advantage.

Traffic discipline can be taught on the sand model as in the Carabinieri School (this model however, is far too small, and is little too complicated). In the same way a short cut door driving circuit in the vicinity of the School can be constructed to teach traffic signs, sudden halting, reversing etc.

5. General. In any school there must be discipline, good treatment of men and of vehicles and enthusiasm. L.D.M. School is not just a place where a lot of vehicles go out every day with men learning to drive. This can be done in a Unit. This school can do much more in its organization of training programmes and its provision of training aids, when it moves to CIVITAVECCHIA proper classrooms, lectures and training materials should be organized. As regards the proposals of Major Rogers it is hoped we will be able to implement the establishment in the future but the training principles apply now.

If details of petrol allocations are forwarded as previously requested of Major WILKINSON shortages can be adjusted.

Overall for the school should be supplied forthwith by HQ, HQ INF.

It is hoped that a rapid improvement will take place in this school in the near future.

Training films can also be used to advantage.

Traffic discipline can be taught on the same model as in the Carabinieri School (this model however, is far too small, and a little too complicated). In the same way a short cut door driving circuit in the vicinity of the School can be constructed to teach traffic signs, sudden halting, reversing etc.

5. General. In any school there must be discipline, good turnout of men and of vehicles and enthusiasm. A D & M School is not just a place where a lot of vehicles go out every day with men learning to drive. This can be done in a Unit. This school can do much more in its organization of training programmes and its provision of training aids, when it moves to CIVITAVECCHIA proper classrooms, which are driving circuits should be organised. As regards the proposals of Major MURRAY it is hoped we will be able to implement the establishment in the future but the training principles apply now.

If details of patrol allocations are forwarded as previously requested of Major RAUCCI shortages can be adjusted.

Overall for the School should be supplied forthwith by HQ, RUC INF.

It is hoped that a rapid improvement will take place in this School in the near future.

WLP/raw

Internal.
File.
Flot.

Major GSO II,
Trg & Inf Trg,
1st Battalion London & Training
Unit RUC ICF.

36

Subject: Reorganization of D & M School.

'F' British Liaison & Training Unit
RTC ICF.

Ref. ST/1/140.

27 August 45.

Coord.

'F' B.L. & T.U.

Existing Organization.

1. Last proposed organization of 152 D & M School was designed to train 400 pupils as drivers i/c every 5 weeks.

2. This is the ideal ^{desired} arrived at and is dependent upon :-

- (a) Initially suitable trainee material.
- (b) Suitable and efficient training vehicles.
- (c) Adequate vehicle repair facilities.
- (d) Continuity of instruction.
- (e) Suitable accommodation.

3. The output ^{desired} arrived at has not been maintained because these essentials have, to a large degree, been lacking.

(a) Poor selection by units of personnel for attendance at the School has resulted in too many being "RTT'd" after the first week or 10 days of each course. This both wastes the instructors' time and also debars an equivalent number of more suitable personnel from training.

(b) The condition of vehicles when initially received has been such that approximately 50% are permanently VOR. To a certain extent this is due to the inherent lack of "vehicle sense" in the average Italian, but more particularly to the fact that :-

(c) At no time have there been adequate workshop facilities. If poor class V vehicles are to undergo the inevitable rough handling of budding drivers, facilities must be provided for a regular and rigorous system of workshop inspection and a rapid turn - round of workshop repairs.

(d) Instruction has suffered through lack of continuity in instruction due to the rapid and continuous change of officer and NCO personnel caused by demobilization. This can only be avoided by a 100% regular army training staff.

(e) Present accommodation is unsuitable for a permanent School due to (i) lack of space, (ii) lack of cover for vehicles, (iii) dust which largely nullifies vehicle lubrication and completely obliterates the results of cleaning, (iv) considered that the present location could

(e) Suitable accommodation.

3. The output ^{achieved} arrived at has not been maintained because these essentials have, to a large degree, been lacking.

(a) Poor selection by units of personnel for attendance at the School has resulted in too many being "left out" after the first week or 10 days of each course. This both wastes the instructors' time and also debars an equivalent number of more suitable personnel from training.

(b) The condition of vehicles when initially received has been such that approximately 50% are permanently VOR. To a certain extent this is due to the inherent lack of "vehicle sense" in the average Italian, but more particularly to the fact that :-

(c) At no time have there been adequate workshop facilities. If poor class V vehicles are to undergo the inevitable rough handling of budding drivers, facilities must be provided for a regular and rigorous system of workshop inspection and a rapid turn - round of workshop repairs.

(d) Instruction has suffered through lack of continuity in instruction due to the rapid and continuous change of officer and NCO personnel caused by demobilization. This can only be avoided by a 100% regular army training staff.

(e) Present accommodation is unsuitable for a permanent School due to (i) lack of space, (ii) lack of cover for vehicles, (iii) dust which largely nullifies vehicle lubrication and completely obliterates the results of cleaning, (iv) Bad road surfaces. It is not considered that the present location could be improved to the desired extent.

Proposals.

1. It is suggested that any proposed establishment be based on three distinct organizations :-

(a) A complete transport unit concerned solely with the efficient administration, operation, repair and maintenance of all training and domestic vehicles.

(b) An administrative H.Q. and staff for the documentation, welfare, and interior economy of the pupils and training staff.

(c) A training organization based on a small H.Q. and a staff of officer and NCO instructors.

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2. (a) The ideal organization for 1 (a) is, of course, a complete G.I. Company, self-contained with its own Company H.Q., transport platoons, and Mechanical Engineers Platoon. A normal 4 - platoon G.I. Company may be taken as an example. This will be concerned solely with the operation and maintenance of the school vehicles. The actual operational and administrative work necessarily performed by this unit would constitute a working demonstration of every possible aspect of a potential driver's training, and would be used as such by the training staff.

Such a unit would have

plus 10 spare	120
	12
	<u>132</u>
	three-ton truck vehicles for training purposes.

At six pupils to each of the 120 vehicles it is considered that 720 pupils could be taken at each course.

Such a unit would be capable of its own vehicle repairs and would thus be quite independent of outside workshop assistance.

(b) The Admin Staff would include clerks, cooks and general duties personnel solely for the pupils and training staff.

(c) The training staff could comprise a small chief - instructor's H.Q. plus a staff of instructors based on

For each	1 Officer (sub)	i.o.	24 Officers.
50 pupils	3 Senior NCOs		72 Senior NCOs.
	6 Junior NCOs		144 Junior NCOs.

plus training H.Q., etc. 15

Total Training Staff 255

(d) It is estimated that the complete school would total approximately 630 thus organized. A 4 - platoon G.I. Company has been arbitrarily taken as an example. It could be proportionately decreased or increased by the reduction or addition of one or more platoons.

3. Any such training organization must necessarily depend on the questions :-

- (a) What is the required maximum output of trained drivers a year?
 (b) What is the maximum number of vehicles likely to be made available for such a school?

These questions are closely interdependent, as also is the length of each

For each	1 Officer (sub)	i.e.	24 Officers.
30 pupils	3 Senior NCOs		72 Senior NCOs.
	6 Junior NCOs		144 Junior NCOs.
	plus training N.C.O., say, 15		
	Total Training Staff		255

(d) It is estimated that the complete school would total approximately 630 thus organized. A 4 - Platoon C.I. Company has been arbitrarily taken as an example. It could be proportionately decreased or increased by the deduction or addition of one or more platoons.

3. Any such training organization must necessarily depend on the questions :-

- (a) What is the required maximum output of trained drivers a year?
- (b) What is the maximum number of vehicles likely to be made available for such a school?

These questions are closely interdependent, as also is the length of each course.

4. If the function of the school is "advanced training", does this mean that pupils will have already had basic AT training, or solely basic mechanical training?

FVA/rsc

Internal

File 2501 TRG
Plant

Major RASC
DADST

1st Battalion Liaison & Training Unit.

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Appendix "A"M T W I N G .1. E & M SCHOOL.

Present WE for 240 pupils

HO and Holding Coy
Training Staff100
81
181

Suggested WE for 720 pupils

HO and Holding Coy
Training Staff110
243
3532. CARRIER WING.

To be absorbed into D & M School by the addition of a fifth platoon comprising 33 carriers (30 plus 10% spare):

Administrative and operational personnel (One G.T. Pl)	50
Training personnel for 90 pupils	30
3 Officers 9 Senior NCO's 18 Junior NCO's	5 85

Increase Workshop Pl from Serial III to Serial IV

S U M M A R Y

<u>Branch.</u>	<u>No. of Pupils.</u>	<u>Total Staff.</u>
D & M BRANCH	720	630
Co. (Carriers)	90	85
E & M BRANCH	<u>720</u>	<u>353</u>
Totals	<u>1530</u>	<u>1068</u>

Increase Workshop Fl from Serial III to Serial IV

S U M M A R Y

<u>Branch.</u>	<u>No. of Pupils.</u>	<u>Total Staff.</u>
D & M BRANCH	720	630
Co. (Carriers)	90	85
E & M BRANCH	<u>720</u>	<u>353</u>
Totals	<u>1530</u>	<u>1068</u>

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SUBJECT :- D & M Courses.

See
 'P' BRITISH LIAISON AND TRAINING UNIT
 R.T.C., I.C.P.

Ref : G/G.10/725.

27 Aug '45.

DADST 'P' British Liaison & Training Unit.

 Comando Scuola, CAC FIC.

Further to conversation Major ANDREWS - Major KING.

Herewith details of the suggested syllabus from U.M.I.

1. We do not propose to alter the existing training syllabus at present.

2. After reading through the attached, will you please make any necessary minor alterations or suggestions to your syllabus. Possible elaborations of existing detail will be all that is necessary.

3. Will you please return the attached to this office within a few days as it will then be forwarded to Comando Scuola for translation and eventual notification to D & M School Course for Battalion Commanders.

4. Copies of the Italian translation will be sent to you for the information of your School Commandant.

5. It is understood from DET in one of their recent letters that U.M.I. will be sending us further recommendations in due course.

W. M. King
 Major GSO II
 Training

Further to conversation Major ANDREWS - Major KING.

Herewith details of the suggested syllabus from U.M.I.

We do not propose to alter the existing training syllabus at present.

3. After reading through the attached, will you please make any necessary minor alterations or suggestions to your syllabus. Possible elaborations of existing detail will be all that is necessary.

4. Will you please return the attached to this office within a few days as it will then be forwarded to Comando Scuola for translation and eventual notification to D & M School Course for Battalion Commanders.

5. Copies of the Italian translation will be sent to you for the information of your School Commandant.

6. It is understood from IMT in one of their recent letters that U.M.I. will be sending us further recommendations in due course.

LMK/raw

Internal.

File.
Float.

W. M. King
Major GSO II
Training
'P' British Liaison &
Training Unit RTC ICF

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UNIT OFFICERS H.T. COURSE
ORGANISATION MAINTENANCE
AND INSPECTION

- A. Outline of Course Sheet 1.
- B. Organisation Lecture Syllabus Appendix 'A'.
- C. Guide for Unit Officers Inspecting Maintenance Appendix A/1.
- D. Theory and Maintenance Lecture Syllabus Appendix 'B'.
- E. Suggested Course Plan Appendix 'C'.
- F. Notes on Theory and Maintenance Appendix 'D'.
- G. List of Equipment required Appendix 'E'.

NOTE:

It is recommended that for this Officers Lecture Squads should not exceed 15 men and practical Squads should not exceed 4 men.

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NOTE: It is recommended that for this course Lecture Squads should not exceed 15 men and practical Squads should not exceed 4 men.

UNIT OFFICERS M.T. CONFER ORGANIZATION MAINTENANCE AND INSPECTION

ORGANIZATION - M.T. In the Unit.

1. C.O.'s Responsibilities.
2. Function of:-
 - (a) M.T.O.
 - (b) M.T. H.C.O's.
 - (c) Fitters.
 - (d) Drivers i/o.
3. Unit M.T. Standing Orders.

MAINTENANCE.

1. Tank System.
 - (a) Reason for and Scope.
 - (b) Detailed Theoretical Explanation and practical application.
2. Daily and Periodical Maintenance Points.
3. Documentation.
 - (a) A3. 412 - M. 406 - 402 3513 - 45 3675
Defect Book.
 - (b) Unit Petrol Accounting.
 - (c) M.T. Stores.
General Procedure for Indents.
Parts Lists and Catalogues.

INSPECTION.

1. Purpose.
2. Spot checks Inspection according to Tank System by C.O. M.T.O. and M.T. H.C.O.
3. 406 Inspection - Practical Application.

NOTES.

1. Classification and Repair.
2. 952 Inspections by Workshops.

- (a) M. 412 - M. 412
- (b) Defect Book.
- (c) Unit Repair Accounting.
- (d) M. 412 Stores.
- (e) General Procedure for Indents.
- (f) Parts Lists and Catalogues.

INSPECTION.

1. Purpose.
2. Spot check inspection according to that system by C.O., M.T.O., and M.T. N.S.O.
3. L.O. Inspection - Practical Application.

WORKSHOPS.

1. Classification and Repair.
2. 932 Instructions by Workshops.

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APPENDIX (A)

UNIT OFFICERS U.S. COURSE ORIENTATION INSPECTION AND
MAINTENANCE OF VEHICLES LECTURE SYLLABUS.Lecture 01. - Time 1 hour. Reason for and scope of course.

Present Condition of Army Transport
Present world shortage of transport,
Supplies and accessories.
Need for knowledge appreciation and discipline.
Unit Commanders responsibilities (GMO. 345/44).

Lecture 02. - Time 2 hours. Outline Unit M.C. Organization.

C.O.'s Delegation of Authority
M.C. Duties taking over vehicles for Unit.
Assignment to suitable Drivers
Preparation of work and Maintenance programmes
Supervision of Maintenance
Spot checks
Regular inspections - AS 406
Indenting for supplies and spares
Recording I.C.I. Issues
General Administration of M.C. personnel
To assist M.C. and act during absence

U.S. M.C.'s

Drivers whose
allowed by Unit
M.C.
To effect such repairs and adjustments for which
they are capable.
Assist checking Drivers Maintenance.

Drivers

Selection and Unit Training
Qualities required
Disadvantages of unsuitable personnel.
Responsibilities of Driver taking vehicle on charge
Responsibility for stores, tools and maintenance.

Unit M.C. Standing. Specimen copy and explanation.
Orders.

Lecture 03. - Time 1 hour. Army Maintenance of Wheeled Vehicles.Daily
Periodical.

Daily before proceeding
during journeys. On return.
Periodical oil changes etc.

The 16 Task
System

General explanation and reference to Hand Book
'Inspection Care & Maintenance of Army Vehicles'.

Inventory for supplies and spares

According to E.O. 12065

General Administration of M.I. personnel
to maintain M.I. and act during absence

M.I. E.O. 12065

Picture where
allowed by Unit

W.B.

To collect and repairs and adjustments for which
they are capable.

Assist checking Driver's Maintenance.

Drivers

Selection and Unit Training
Qualities required

Disadvantages of unsuitable personnel.

Responsibility of Driver taking vehicle on change
Responsibility for stores, tools and maintenance.Unit M.I. Standing. Specimen copy and explanation.
Orders.Lecture 05. - Time 1 hour. Army Maintenance of Wheeled Vehicles.~~Periodic~~ Daily
Periodical.Daily before proceeding
during journeys. On return.
Periodical oil changes etc.The 16 Task
SystemGeneral explanation and reference to hand book
'Inspection Care & Maintenance of Army Vehicles'.Lecture 06. - Time 1 hour. Documentation.

AB 412. AB 412 M. Explanation - Maintenance.

A.P.O. 3518.

Explanation ✓

AB. 406.

Explanation ✓

AP. 3678.

Accident procedure ✓

Defect Book.

Specimen - explanation. ✓

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APPENDIX A.
Sheet 2

Lecture 05. - Time 2 hours. Workshops classification and repair.

Workshops.

Entry of vehicle for repair

Class I. 1st section Unit or LAB.

Class II. Repair major assembly

Class III. Repair two major assemblies.

Class IV. Complete overhaul

Class V. Vehicles after repair to be used only in base areas.

Class VI. Vehicle beyond repair consigned to vehicle park.

Effect of Unit Maintenance on Workshops

and effects of stripping spares cannibalising.

Lecture 06. - Time 1 hour. P.O.L.

Petrol.

Conservation and economy

Use of Target Figure in A's 442.

List of Target Figures.

Storage.

Lubricants.

Lubricants in use

Oil changes

Chassis Lubrication

Storage.

Indenting.

P.O.L.

P.O.L. accounting.

Lecture 07. - Time 1 hour. P.T. Stores Parts Lists and Indenting.

Responsibility
of supply. **C**ontrol
of supply. **M**ethod
of indenting.

Quintance Services General.

Introduction to actual indent forms

Parts lists and catalogues

Necessity for re-indenting

Action taken on V/A voucher.

Status of unserviceable parts.

Lecture 08. - Time 1 hour. Spot Inspections for Unit Officers.

How often? see Appendix A/1.

Various nomenclatures &
distinctive markings.

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List of target figures.
Storage.

Lubricants. Lubricants in use -
(All changes)
Chassis Lubrication
Storage.

Indenting. P.C.L.
P.C.B. accounting.

Lecture 07. - Time 1 hour. M.H. Stores Parts Lists and Indenting.

Responsibility Ordnance Services general.
of supply. C. Main Introduction to actual indent forms
of supply. M. Parts Lists and catalogues
of indenting. Necessity for re-indenting
Action taken on R/A voucher.
Return of unserviceable parts.

Lecture 08. - Time 1 hour. Spot Inspections for Unit Officers.

Reason for Park System For method see Appendix A.4.
Check.

Lecture 09. - Time 1 hour. A.S. 406 Inspection.

Purpose. Prevention of avoidable mechanical defects.
Anticipation of necessary repairs i.e. spares
required etc.
O.C.'s guide to vehicle state.

Explanation of Inspection Drivers preparation
Carrying out Inspection
Completion of Part 4
Completion of Action Report
Relation to unit defect book
Reference to previous inspections.

Various nomenclatures &
distinctive markings.

APPENDIX

-0-0-0-0-0-0-0-

GUIDE FOR UNIT OFFICERS MAINTAINING VEHICLE MAINTENANCE.(1) CAB.

Require inside of cab for cleanliness of windows, floors, seats etc. See if everything is in order, no tools, bits or dirty waste, magazines, etc. lying around in cab. - Task 11.

Inspect A.B. 412 for :-

- (a) - Officers' signatures in appropriate places.
- (b) - Oil changes.
- (c) - Oil & Petrol receipts shown.
- (d) - Accumulated mileage shown (if speedo u/s approx. mileage).

This casual inspection will give a good idea of the driver's character and habits. A good driver will keep his cab neat and clean.

(2) FRONT SPRINGS & SHOCK ABSORBERS.

(a) Check for proper lubrication. (Clean Fresh C.500 oil should show around spring shackles). (All chassis lubrication fittings should be clean and should always be wiped off before and after lubrication). See that shackle bolts, U bolts and spring clips are tight and that the springs have not sagged on their mountings. Springs break much more easily when the U bolts are allowed to become loose. - Task 13.

(b) Check front shock absorber linkage for lubrication. - Task 13.

(3) FRONT AXLE ASSEMBLY.

(a) Check for oil leaks at wheels, steering ends and differentials. Steering and knuckle joints should be kept shiny, free from rust, dirt etc. - Task 12.

(b) Check front tyres for excessive wear, cuts, pressures etc. If badly worn, check driver for improper use of four-wheeled drive or misalignment of steering. Note - Tyre damage due to improper use of four-wheel drive is appalling. Four wheel drive should only be used when negotiating very bad terrain which cannot be traversed in two-wheel drive. On approaching bad conditions, engage the front wheels immediately. Do not under any circumstances use four-wheeled drive on hard

(2) FRONT SPRINGS & SHOCK DISORDERS.

(a) Check for proper lubrication. (Clean fresh 0.500 oil should show around spring shackles). (All chassis lubrication fittings should be clean and should always be filled off before and after lubrication). See that shackle bolts, U bolts and spring clips are tight and that the springs have not shifted on their mountings. Springs break down more easily when the U bolts are allowed to become loose. - Task 12.

(b) Check front shock absorber linkage for lubrication. - Task 13.

(3) FRONT AXLE ASSEMBLY.

(a) Check for oil leaks at wheels, steering ends and differential. Steering and knuckle joints should be kept shiny, free from rust, dirt etc. - Task 14.

(b) Check front tyres for excessive wear, cuts, pressures etc. If badly cupped, check driver for improper use of four-wheeled drive or misalignment of steering. Note - Tyre damage due to improper use of four-wheel drive is spreading. Four wheel drive should only be used when negotiating very bad terrain which cannot be traversed in two-wheel drive. On approaching bad conditions, engage the front wheels immediately. Do not under any circumstances use four-wheeled drive on hard ground, roads or highways. No vehicle should be driven faster than 6 to 8 M.P.H. in four-wheeled drive except in an emergency. - Task 15.

(4) STEERING.

(a) Check tie rod for bends and proper lubrication. A bent tie rod causes faulty steering and excessive tyre wear.

(b) Have the driver move the steering wheel backwards and forwards. See that the steering box is not loose where it fits to the frame. Check tie connecting linkage for looseness and proper lubrication.

(c) Check flexible tubes leading to the front brakes for chafing and ensure that they are held clear of any metal contact, by the retaining springs. - Task 16.

(5) ENGINE

(a) Check for general cleanliness of engine.

- 2 -

- (b) spark plug wires and porcelain free of oil and dirt. } Tasks
 (c) All visible wiring connections tight and clean. } 627.
 (d) Check oil bath air cleaner to see that oil is clean and at the proper level. (Very important under dusty conditions). Task - 5.
 (e) Check fan belt tension. The correct tension being 1" free movement midway between the pulleys, using the thumb and first finger. - Task 2.
 (f) Check cooling fluid level in radiator, all hose connections and radiator assembly for leaks. If this inspection is made during the winter months, check anti-freeze to determine if it is sufficiently strong to resist freezing. The strength varies according to the locality. - Task 2.
 (g) Have driver start motor and check for any irregularities, such as knocks, uneven running, etc. - Task 1 & 4.
 (h) Check engine oil level. - Task 2.
 (i) Check last oil change in L.B. 442. - Task 2.
 (j) Check joints and pipes for leaks. - Task 2.

(6) WHEELS.

- (a) Check assembly for tightness.
 (b) Check foot pedal for clearance.
 (c) Check hand brakes for correct adjustment.
 (d) Check Master Cylinder level. Task 15.
 (e) Check Master Cylinder for leaks.
 (f) Check pipes and unions for leaks.
 (g) Check shafts and linkage for lubrication.

(7) TRANSMISSION - CLUTCH, GEARBOX, TRANSMISSION CASE, TRANSMISSION SHAFTS & JOINTS.

(j) Check joints and pipes for leaks.

(6) WIPES.

- (a) Check assembly for tightness.
- (b) Check foot pedal for clearance.
- (c) Check hand brakes for correct adjustment.
- (d) Check Master Cylinder level. Task 15.
- (e) Check Master Cylinder for leaks.
- (f) Check pipes and unions for leaks.
- (g) Check shafts and linkage for lubrication.

(7) TRANSMISSION - CLUTCH, GEARBOX, TRANSFER CASE, TRANSMISSION SHAFTS & JOINTS.

- (a) Check clutch assembly and mounting for tightness.
- (b) Check clutch pedal for movement. (1" travel)
- (c) Check gearbox and transfer case assembly and mounting for tightness.
- (d) Check gearbox and transfer case joints for leaks.
- (e) Check gearbox, transfer case bearings for leaks and wear. Task 11.
- (f) Check gearbox, transfer case oil levels. - Task 11.
- (g) Check transmission shafts and joints for wear and lubrication.
- (h) Check nuts and bolts on universal couplings.
- (i) Check universal joints for lubrication (less rubber mounted couplings)

(8) INSTRUMENTS, WARNERS etc.

- (a) Check windshield wiper operation. - Task 14.
- (b) Check fuel gauge, oil gauge, temperature gauge, ammeter or

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- 3 -

battery indicator gauge. - Task 10.

(c) Check horn operation. - Task 10.

(a) Stop motor, check all lights, directing the driver manipulate switches at your order. - Task 10.

(e) Check battery for general cleanliness. See that the terminals are clean and tight and smeared with vasoline or lanoline, or kept dry to prevent corrosion. Remove cell caps and check level of electrolyte. (should be approx 1" above plates.) Task 2.

(f) Check battery hold down clamp to see the battery is held secure in its mountings. - Task 2.

(9) REAR AXLES, SHOCK SETTINGS AND SHOCK ASSEMBLIES.

(a) Check rear springs for proper lubrication, also see that U bolts, shackles and spring clips are tight. - Task 13.

(b) Check rear shock absorber linkage for lubrication. - Task 13.

(c) Check rear differential for leaks. - Task 12.

(d) Check rear tires for cuts, and proper pressure. - Task 16.

(10) MISCELLANEOUS. - These items to be checked at opportune moments during the inspection.

(a) Check tool compartment for neatness and condition of tools. Task 16.

(b) Check general cleanliness of exterior of vehicle.

(c) Check tarpaulins for tears and superstructure for breaks. Task 16.

(d) Check underneath vehicle for leaks from fuel lines etc. Task 12 & 4.

(e) Check door catches, striker plates, dove tails, hinges etc. for tightness, operating efficiency and lubrication. - Task 11.

- (c) Check rear differential for leaks. - Task 12.
- (d) Check rear tyres for cuts, and proper pressure. - Task 16.

(10) MISCELLANEOUS. - These items to be checked at opportune moments during the inspection.

- (a) Check tool compartment for neatness and condition of tools. Task 16.
- (b) Check general cleanliness of exterior of vehicle.
- (c) Check tyrevalins for tears and superstructure for breaks. Task 16.
- (d) Check underneath vehicle for leaks from fuel lines etc. Task 12 & 14.
- (e) Check door catches, striker plates, door tails, hinges etc. for tightness, operating efficiency and lubrication. - Task 14.

APPENDIX 'E'THEORY AND MAINTENANCE INSTRUCTION

Demonstration Part or
Model Used

LECTURE No. 1.

Opening address by O i/c Training explaining the reasons and seriousness of the course.
Reasons for Task System.
A brief survey of what to look for when taking over a vehicle, i.e. responsibility for tools etc.

LECTURE No. 1 A - DRIVER RESPONSIBILITIES.

Maintenance Reason for Maintenance
Daily and Periodical Maintenance.
The 16 Task System General Explanation and Reference to Hand Book
"Inspection Maintenance & Care of Army Vehicles".
Documentation: A.B. 442
A.B. 3548
A.P. 3676
A.B. 406.

LECTURE No. 2 - ENGINE (1)

Definition of I.C. engine.
Component Groups
(a) Piston and cylinder block.
(b) Cylinder head and gasket.
(c) Connecting rod and crank-shaft.
(d) Valve operating gear.

Sectionized engine.

Crank-case.

Sectionized engine.

LECTURE No. 3 - NOISE (11)

Principle of Otto Cycle.
Intake and exhaust manifolds.
Engine mountings.
A & B Sections of Task No. 1.

Sectionized engine.

LECTURE No. 4 - LUBRICATION.

Types of oil and where used.
Recognition of oils by colour and containers.
Engine lubrication - explaining where and how much oil to put in.
A brief description of how it is circulated. How and where and
and dirt get into the oil - the importance of keeping it out.
Oil cleaners - how, when and why. Task No. 2.

LECTURE NO. 2 - ENGINE (1)

Definition of I.C. engine.

Component Groups

- (a) Piston and cylinder block.
- (b) Cylinder head and gasket.
- (c) Connecting rod and crank-shaft.
- (d) Valve operating gear.

Crank-Case.

LECTURE NO. 3 - ENGINE (11)

Sectionized engine.

Principle of Otto Cycle.
 Induction and exhaust manifolds.
 Engine mountings.
 A & B Sections of Task No. 1.

LECTURE NO. 4 - LUBRICATION

Sectionized engine.

Types of oil and where used.
 Recognition of oils by colour and containers.
 Engine lubrication - explaining where and how much oil to put in.
 A brief description of how it is circulated. How and where sand
 and dirt get into the oil - the importance of keeping it out.
 Oil cleaners - how, when and why. Task No. 2.

LECTURE NO. 5 - ENGINE COOLING

Sectionized engine.

Reasons for cooling system.
 Correct running temperature.
 Radiator and mountings. Defects and remedies.
 Hose connections.
 Causes of over-heating.
 Condensers.
 Task No. 3
 Precautions.

LECTURE NO. 6 - FUEL SUPPLY, THEORY.

Sectionized pump.

Petrol Tank. Pipe lines. Filters.
 Reasons for fuel pump.
 Explanation of pump. Defects.
 Fault finding by process of elimination.

LECTURE NO. 7 - CARBURETTOR, THEORYComplete carburettors,
1 Carter, 1 Ford.

Why fitted.
 Briefly - how it works.

...../Cont.

LECTURE No. 8 - CARBURETOR, TRIMMING & REPAIRING

Troubles, i.e. flooding, blocked jets, etc.
Remedies for same. Use of choke, cleaning
of filters.
Task No. 5.

Complete carb.
1 Carter, 1 Ford.

With vehicle.

LECTURE No. 9 - FUEL SUPPLY, PRACTICAL.

Fault finding by trainees.
Defects and remedies.
Task No. 4.

Ignition Circuit
on table.

LECTURE No. 10 - COIL IGNITION, THEORY

Explanation of simple electrical circuit.
Reason for coil ignition.
Explanation of I.T. and H.T. circuits by diagram.
Fault finding by means of elimination.

Stripped Chassis

LECTURE No. 11 - CLUTCH & GEAR BOXES

Clutch Why fitted
Brief explanation of how it works.
Importance of correct pedal adjustment.

Gear Box Why it is fitted.
Type of oil used. How put in
Changing of oil.

Transfer Case. Why it is fitted.
Oil changes, etc.

Task No. 11.

With vehicle.

LECTURE No. 12 - IGNITION, PRACTICAL

Fault finding by trainees.
Location of missing plugs.
Task Nos. 6 & 7.

Stripped Chassis.

LECTURE No. 13 - STARTING

How it works - lubrication.
Explanation of Task No. 8. In detail.

Gear Box Why it is fitted. How put in
Type of oil used. How put in
Changing of oil.

Transfer Case. Why it is fitted.
Oil changes, etc.

Task No. 11.

LECTURE NO. 12 - IGNITION, PRACTICAL

Fault finding by trainees.
Location of missing plugs.
Task Nos. 6 & 7.

LECTURE NO. 13 - SPRINGING

How it works - Lubrication.
Explanation of Task No. 8. In detail.

LECTURE NO. 14 - BRAKES

Hydraulic How they work
Importance of keeping level
of fluid correct.

Serve

Briefly how it works
Maintenance.
Importance of keeping air cleaner
of Serve cylinder clean.
Explain Task No. 15 in detail.

LECTURE NO. 15 - TRANSMISSION

Lubrication of universal joints and splines.
Lubrication of front and rear axles.
Explain Task No. 12 with vehicle.
Tyres. Explain shortage of rubber.
Importance of correct pressures.
Task No. 16 (relating to tyre).
Tyre pump. How it works (briefly) it's defects
and remedies. Demonstrate with samples tyre failure due to
lack of non technical tyre maintenance. as laid down in
Cat 41 GRC. 5-6/24.

...../Cont.

With vehicle.

Stripped Chassis.

Stripped Chassis.
Rear cylinder
& piston

Wheel cylinder
complete.

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Stripped Chassis.

Tyre Failure
Sectional
Samples.

LECTURE No. 16 - CHASSIS, SPRINGS, FRAME & BODY FITTINGS.

With vehicle.

Chassis and Springs.
Lubrication. Faults and remedies.
Task No. 13.
Frame and body fittings.
General maintenance.
Task No. 14.

LECTURE No. 17 - BATTERY & CHARGING SYSTEM.

Battery.

Battery. Its job.
Maintenance in detail.
Dynamo or generator.
Where fitted. How driven. Why fitted.
Importance of "cut out"
Explain Task No. 9.

With vehicle.

LECTURE No. 18 - STARTER MOTOR & LIGHTS.

Starter Motor. Its job. Maintenance.
Freeing of jammed starter
Lights.
Position of fuse or fuses.
Maintenance of lighting circuits.
Task No. 10.

With Vehicle.

LECTURE No. 19 - INSPECTION.

Preparations by driver i/c of vehicle for inspection.
A.B. 402.
Platoon inspections.

Position of fuses or fuses.
Maintenance of lighting circuits.
Task No. 10.

LECTURE No. 19 - INSPECTION

With Vehicle.

Preparations by driver i/c of vehicle for inspection.

A.B. 406.

Platoon inspections.

APPENDIX VIII.

	A	B	C	D	E
	1 hour period	2 hour period	1 hour period	1 hour period	2 hour period
D 1	Lecture 01	Lecture 02	Lecture 03	Lecture 04	Driving Test.
D 2	" 17.2	Driver's posture	" 17.3	" 17.5	Practical Task 1
D 3	" 17.4	Check oil	" 17.6	" 17.7	"
D 4	" 17.5	Task 2: Obstacles	" 17.8	" 17.8	Task 3
D 5	" 17.6	Lecture 05	" 17.9	" 17.9	Task 4
D 6	" 17.7	Task 3: Parking	" 17.10	" 17.10	"
D 7	" 17.8	Task 4: Fuel	" 17.11	" 17.11	Task 11
D 8	" 17.9	Task 5: Maintenance	" 17.12	" 17.12	"
D 9	" 17.10	Task 6: 6 & 7	" 17.13	" 17.13	Task 12 & 16
D 10	" 17.11	Task 7	" 17.14	" 17.14	Task 13
D 11	" 17.12	Task 8: 13 & 14	" 17.15	" 17.15	"
D 12	" 17.13	Task 9	" 17.16	" 17.16	"
	Lecture 06	Task 10	Lecture 07	Lecture 08	Practical Spot checks
	Oral Tests	Practical	" 17.17	Practical A.B. 1036	Written Tests
		Oral Tests	" 17.18	Practical Tests	

Notes:

1. It is assumed that Officers attending the Course will be capable of driving R.D. Vehicles and to check their ability a driving test should be carried out on the first day of Course. D 1 period 3.
For those Officers whose require further instruction period 3 where recent should be used for this purpose. Otherwise this period should be used for revision.
2. The Theory and Maintenance Lectures and also the Practical Task Syllabus is identical for Officer and Driver's Course.
3. For Officers a further nine lectures are included to cover R.D. Organisation and Inspection.

Notes:

1. It is assumed that Officers attending the Course will be capable of driving M.D. Vehicles and to check their ability a driving test should be carried out on First Day of Course 5-1 period B.
For those Officers whose require further instruction period 2 where vacant should be used for this purpose. Otherwise this period should be used for revision.
2. The Theory and Maintenance Lectures and also the Practical Task Syllabus is identical for Officer and Driver 1/c Courses.
3. For Officers a further nine lectures are included to cover U.T. Organisation and Inspection.

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APPENDIX 'D'.NOTES ON THEORY & MAINTENANCE

- Note (1) - Duration of each lecture one hour.
- " (2) - Stress should be laid on maintenance during each lecture. For more advanced courses instructors can go into far more detail in each lecture.
- " (3) - Seminars should be limited to a maximum of 15 trainees.
- " (4) - Actual components should be used during lectures. Sectioned parts are a great asset.
- " (5) - Blackboard diagrams are necessary but should not be used without showing the actual component they represent.
- " (6) - List of equipment required (models and parts, etc.) at Appendix 'E'. Also one vehicle of current type is required, per squad under instruction, for practical demonstration of maintenance tasks.

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Appendix 'B'. Also one vehicle of current type is required, per squad under instruction, for practical demonstration of maintenance tasks.

APPENDIX 'E'.LIST OF EQUIPMENT REQUIRED FOR M.T. VEHICLES.

1. Sectionised engine (working model) - 660L Chevrolet or 660L Ford, complete with sectionised petrol pump and carburettor, plugs, clutch, gear box and transfer case, radiator, water pump fan, fan belt, dynamo, starter, coil distributor.
- 1 Petrol pump complete - 660L Chevrolet or 660L Ford.
- 1 Filter unit complete (petrol) - 660L Chevrolet or 660L Ford.
- 1 Ford carburettor - current type.
- 1 Carter carburettor - Chevrolet.

Working coil ignition model on table, comprising:-

- 1 Coil - Delco-Remy current type.
- 1 Distributor (complete) - Chev. or Ford current type.
- 1 Dynamo or small electric motor (to drive distributor on ignition table)
- 2 Batteries (for above)
- 6 Spark plugs.
- R.M. Wire.
- L.M. Wire.
- 1 Ignition switch.

- 1 Tool kit - (standard type), per squads of pupils.
- 1 Master cylinder c/w piston (Delco).
- 1 Brake flange plate c/w wheel cylinder, shoes etc.
- 1 Service cylinder c/w piston, valve gear and air filter.
- AM's 406, AB's 442, Remitticks, Accident Reports.
- Blackboard and chalk.
- Handbooks for current vehicles.
- 2 Batteries for driving engine.
- 1 Electric motor for driving engine (a dynamo can be modified to do this).
- 1 External oil filter (Chevrolet).
- 1 Distributor complete (Chev. or Ford current type).
- 2 Running engines for fault finding.
- 1 Stripped chassis (Ford, Chev. or Dodge).

The following parts which have been made unserviceable due to bad driver maintenance should be available and shown in conjunction with the same parts serviceable and in good condition.

1. Cylinder block with scored walls.
2. Connecting rod with big-end rim.
3. Distributor with badly worn shaft.
4. Water pump with worn bearing.
5. Dynamo (Chevrolet) with worn bearing.
6. Dirty oil filter (Cartridge type).

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- 1 Tool kit - (standard type), per squads of pupils.
- 1 Master cylinder o/w piston (Delco).
- 1 Brake flange plate o/w wheel cylinder, shoes etc.
- 1 Valve cylinder o/w piston, valve gear and air filter.
- 13's 106, 11's 142, Warlike's, Accident Reports.
- 1 Blackboard and Chalk.
- 1 Handbooks for current vehicles.
- 2 Batteries for driving engine.
- 1 Electric motor for driving engine
(a dynamo can be modified to do this).
- 1 External oil filter (Chevrolet).
- 1 Distributor complete (Chev. or Ford current type).
- 2 Running engines for fault finding.
- 1 Stripped chassis (Ford, Chev. or Dodge).

The following parts which have been made unworkable due to bad driver maintenance should be available and shown in conjunction with the spare parts serviceable and in good condition.

1. Cylinder block with scored walls.
2. Connecting rod with big-end run.
3. Distributor with badly worn shaft.
4. Water pump with worn bearing.
5. Dynamo (Chevrolet) with worn bearing.
6. Dirty oil filter (Bartbridge type).
7. Petrol pump with stripped belt.
8. Worn king-pin.
9. Complete front axle with worn steering assembly.
10. Worn shockie pin.
11. Spring with main leaf broken in centre.
12. Spring with broken centre bolt.
13. Burned out clutch.
14. Propeller shaft with stripped universal joint.
15. Propeller shaft with lack of lubrication.
16. Seized differential.
17. Burnt oil seal on half shaft.
18. Cracked brake drum.
19. Brake shoes, oiled and burnt out.
20. Tyres.
21. Batteries.
22. Overlightened petrol unions.
23. Locknuts.
24. Castor nuts.
25. Bolt with stripped thread.
26. Badly used tools.

DRIVING AND MAINTENANCE
COURSE FOR DRIVERS WITH LIMITED OR NO
PREVIOUS DRIVING EXPERIENCE

4. DRIVING:

1. Detailed Driving Instruction Syllabus, Appendix 'A'.

5. M.T. THEORY AND PRACTICAL MAINTENANCE:

1. Detailed M.T. and Maintenance Theory, Appendix 'B'.
2. Detailed Practical Maintenance - Column 'C' Course Plan, Appendix 'C'.
3. Notes on Theory and Maintenance, Appendix 'D'.
4. List of Equipment required, Appendix 'E'.

NOTE:

It is recommended that for this Course Lecture Sounds should not exceed 15 men and practical Sounds should not exceed 4 men.

APPENDIX "A"

DRIVING INSTRUCTION SYLLABUS.PHASE One. Initial Instruction (Time 8 hours). 2 hours Driving per Pupil.

- A. (1) Lay-out of controls (pupil to report in order).
 (2) Explain use of controls and correct method of use.
 (3) How to engage bottom gear - explain speed and method of moving off - clutch, brake, accelerator.
 (4) Correct method of holding steering wheel.
 (5) Correct method of slowing in vehicle, disengaging clutch.
 (6) Repeat (1), (2), (3), (4), (5), with pupil at controls.
 (7) (a) With stationary vehicle - explain method of double declutching, pupil to practice.
 (8) (b) With vehicle in motion - pupil to practice double declutching from first to second gear. When proficient, pupil to practice from start to 1, 2, 3 & top gear.
 (9) Demonstrate and explain method of changing down from top to third, double declutching and using accelerator. Demonstrate and explain change from third to second, second to bottom - speed of vehicle and when to change. Pupil to practice above.
 (10) Demonstrate left and right reversing of vehicle. Pupil to practice stopping and starting at fixed points.

PHASE Two. Road Practising (On Road Lesson Course). (Time 12 hours) 3 hours Driving per Pupil

- A. (1) Teach pupil road signals and use of driving mirror. Pupil to repeat and practice signals with stationary vehicle.
 (2) Explain to pupil at what distance to give signals for safety before stopping or turning. Explain the importance of keeping a close watch for other traffic.
 (3) With vehicle in motion, give pupils orders to stop, turn left, turn right etc., giving correct signal.
 (4) Explain recognition of cross-roads, pedestrian crossings, etc. How to approach them and what to look for to prevent accidents.
 (5) Pupil to drive on road on lay-out, beginning with slow speeds.
 (6) Put pupil into different types of vehicles, explaining with each vehicle, the position of switches, controls, etc. and the markings on different rear boxes.

PHASE Three. General Practising & Driving on Roads. (Time 20 hours) 5 hours Driving per Pupil

A.

- (1) Explain procedure of taking over vehicle.
 (2) Explain preparation for duty.
 (3) Let pupil estimate the distance of a stationary vehicle, placing vehicle at 20 - 40 - 100 or more yards distance from pupil. This will give him some idea of what the vehicle ahead

PHASE TWO. Road Disciplina (On Road) Course) (Time 12 hours) 5 hours Driving per Pupil

- A.
- (1) Teach pupil road signals and use of driving mirror. Pupil to repeat and practise signals with stationary vehicle.
 - (2) Explain to pupil at what distance to give signals for safety before stopping or turning. Explain the importance of keeping a close watch for other traffic.
 - (3) With vehicle in motion, give pupils orders to stop, turn left, turn right etc., giving correct signal.
 - (4) Explain recognition of cross-roads, pedestrian crossings, etc. How to approach them and what to look for to prevent accidents.
 - (5) Pupil to drive on neck-up lay-out, beginning with slow speeds.
 - (6) Put pupil into different types of vehicles, explaining with each vehicle, the position of switches, controls, etc. and the markings on different rear boxes.

PHASE THREE. Convoy Discipline & Driving on Roads. (Time 20 hours) 5 hours Driving per Pupil

- A.
- (1) Explain procedure of taking over vehicle.
 - (2) Explain preparation for duty.
 - (3) Let pupil estimate the distance of a stationary vehicle, placing vehicle at 30 - 40 - 100 or more yards distance from pupil. This will give him some idea of what the vehicle ahead will look in a convoy.
 - (4) Explain reasons for keeping correct distance in convoy.
 - (5) Explain difference in gear work on loaded vehicle, also feel of steering. Explain necessity for early change down on inclines.
 - (6) Explain why vehicle should be evenly loaded, also the results of uneven loading and overloading.
 - (7) Explain action as regards breakdown or accident and messages for help.
 - (8) Explain fire precautions and action in case of fire.
 - (9) Explain action on returning from duty.

PHASE FOUR. Cross Country Driving (Time 8 hours) 2 hours Driving per Pupil

- A.
- (1) Explain the difference between ordinary drive and four-wheel drive.
 - (2) Demonstrate how and when to use Transfer Box on soft ground. Pupil to practise.
 - (3) Demonstrate where to fit tow chains - how to move off and speed at which to tow a vehicle. Pupils to practise under supervision of D.I's. in towed and towing vehicles.
 - (4) Demonstrate where to dig and how to make use of local material, (stones, scrub, canvas, etc.) in getting a vehicle out of bad patches of ground without sand-channels.

(Phase five /over)

APPENDIX "A"

- 2 -

Phase Five: Driving in Traffic & Built Up Areas. (Time 24 hours) 6 hours Driving per Pupil

- A.
- (1) Explain how to act in an emergency, i.e., traffic lights, oncoming, etc.
 - (2) Explain use of rear box with brakes on set on greasy roads, also method of correcting a skid.
 - (3) Let pupil drive, first in low and then in higher gears, to get him confident in driving at night on roads and built-up area.
 - (4) Explain the safe way and on which side of the road to park a vehicle.

Phase Six: Night Driving (Time 2 hours) 2 hours Driving per Pupil

- A.
- (1) Explain action to be taken if dazzled by the lights of approaching vehicles.
 - (2) Estimation of distance at night - explain and let pupil see differential light at a distance of 10 - 20 or more yards.

Phase Seven: Time 20 hours - 20 hours Driving per Pupil.PRACTISE CONVOY.

Recommended after Driving Course is concluded, a convoy to be run over a distance of 150 miles - including 20 hours driving - i.e., a 'Tough Training Convoy'. Suggested time table:-

<u>1st. Day.</u>	0600-1200 - Driving.
	1200-1300 - Break for meal.
	1300-1700 - Driving.
	1700-2000 - Break (meal and maintenance).
	2000-0200 - Driving.
<u>2nd. Day.</u>	0600-1300 - Driving.
	1300-1500 - Break for meal.
	1500-1700 - Driving.

APPENDIX 'B'THEORY AND MAINTENANCE TRAINING TOPIC

Designation Part or
Model Used

LECTURE No. 1. H

Opening address by O i/o Training explaining the reasons and seriousness of the course.
Resumes for Task System.
A brief survey of what to look for when taking over a vehicle, i.e. responsibility for tools etc.

LECTURE No. 1 A - DRIVER'S RESPONSIBILITIES.

Maintenance Reason for Maintenance
Daily and Periodical Maintenance.
The 15 Task System General Explanation and Reference to Hand Book
"Inspection Maintenance & Care of Army Vehicles".
Documentation: A.S. 412
APG. 3743
AP. 3676
A.B. 405.

LECTURE No. 2 - ENGINE (1)

Definition of I.C. Engine.

Component Groups

- (a) Piston and cylinder block.
- (b) Cylinder head and gasket.
- (c) Connecting rod and crank-shaft.
- (d) Valve operating gear.

Crank-Case.

Sectionized engine.

LECTURE No. 3 - ENGINE (ii)

Principle of Otto Cycle.

Induction and exhaust manifolds.

Engine mountings.

A & B Sections of Task No. 1.

Sectionized engine.

LECTURE No. 4 - LUBRICATION.

Types of oil and where used.

Recognition of oils by colour and containers.

(Engine lubrication) - explaining where and how much oil to put in.
A brief description of how it is circulated. How and where mud and dirt get into the oil - the importance of keeping it out.

Oil changes - how, when and why. Task No. 2.

Sectionized engine.

LECTURE No. 5 - ENGINE COOLING

Sectionized engine.

Definition of I.C. engine.Component groups

- (a) Piston and cylinder block.
- (b) Cylinder head and gasket.
- (c) Connecting rod and crank-shaft.
- (d) Valve operating gear.

Crank-Case.

Sectionized engine.

LECTURE No. 3 - FUEL (II)Principle of Otto Cycle.Induction and exhaust manifolds.Engine mountings.A & B Sections of Tank No. 1.

Sectionized engine.

LECTURE No. 4 - LUBRICATION.Types of oil and where used.Recognition of oils by colour and containers.(Engine lubrication) - explaining where and how much oil to put in.A brief description of how it is circulated. How and where sand and dirt get into the oil - the importance of keeping it out.Oil changes - how, when and why. Tank No. 2.

Sectionized engine.

LECTURE No. 5 - ENGINE COOLINGReasons for cooling system.Correct running temperature.Radiator and mountings. Defects and remedies.Water correction.Causes of over-heating.Condensers.Tank No. 3(Frost precautions)

Sectionized pump.

LECTURE No. 6 - FUEL SUPPLY, THEORY.Petrol tanks. Pipe lines. Filters.Reasons for fuel pump.Explanation of pump. Defects.Fault finding by process of elimination.Tank 4LECTURE No. 7 - CARBURETTOR, THEORYWhy fitted.Briefly - how it works.Complete carburettors,
1 Carter, 1 Ford.

...../Cont.

15
10

LECTURE No. 2 - CAMBER, TRAIL, & STEERING

Troubles, i.e. flooding, blocked jets, etc.
Remedies for same. Use of choke, cleaning
of filter.
Task No. 3.

Complete car.
1 Carter, 1 Ford.

LECTURE No. 2 - FUEL SYSTEM, PRACTICAL.

Fault finding by trainees.
Defects and remedies.
Task No. 4.

With vehicle.

LECTURE No. 10 - COIL IGNITION, THEORY

Explanation of simple electrical circuit.
Reason for coil ignition.
Explanation of I.T. and V.T. circuits by diagram.
Fault finding by means of elimination.

Ignition circuit
on table.

LECTURE No. 11 - CLUTCH & GEAR BOXES

Clutch
1 Why fitted
2 Brief explanation of how it works.
3 Importance of correct pedal adjustment.

Stripped chassis

Gear Box

1 Why it is fitted.
2 Type of oil used. How put in.
3 Changing of oil.

Transfer Case. 1 Why it is fitted.
2 Oil changes, etc.

Task No. 11.

LECTURE No. 12 - IGNITION, PRACTICAL

Fault finding by trainees.
Location of missing plugs.
Task Nos. 6 & 7.

With vehicle.

LECTURE No. 13 - STEERING.

How AS works - Identification.
Explanation of Task No. 8. In detail.

Stripped chassis.

LECTURE No. 14 - BRAKES

Hydraulic - How they work

Stripped chassis.

Gear Box : Why it is fitted.

- 1. Type of oil used. How put in & how full.
- 2. Changing of oil.

Transfer Case. Why it is fitted.

- 1. Oil changes, etc.

Task No. 11.

LECTURE No. 12 - FUEL SYSTEM. PRACTICAL

Fault finding by trainees.

Location of missing plugs.

Task Nos. 6 & 7.

LECTURE No. 13 - STEERING.

How it works - Identification.

Explanation of Task No. 8. in detail.

LECTURE No. 14 - BRAKESHydraulic

How they work

Importance of keeping level of fluid correct.

Servo

Briefly how it works

Maintenance.

Importance of keeping air cleaner or Servo cylinder clean.

Explain Task No. 15 in detail.

LECTURE No. 15 - TRANSMISSION.

Lubrication of universal joints and axles.

Lubrication of front and rear axles.

Explain Task No. 12 with vehicle.

Tyres. Explain shortage of rubber.

Importance of correct pressures.

Task No. 16 (relating to tyre).

Tyre pump. How it works (briefly) its defects

and remedies. Demonstrate with samples tyre failures due to lack of non technical tyre maintenance, as laid down in detail GRC. 545/44

.....Cont.

With vehicle.

Stripped Chassis.

Stripped Chassis.

Master cylinder & piston

Wheel cylinder complete.

15

Stripped Chassis.

Tyre Failure
Sectional
Samples.

LECTURE No. 16 - CHASSIS, SPRINGS, SHAFTS & BODY FITTINGS.

Chassis and Springs.
 Identification. Faults and remedies.
 Task No. 13.
 Frame and body fittings.
 General maintenance.
 Task No. 14.

With vehicle.

LECTURE No. 17 - BATTERY & CHARGING SYSTEM.

Battery. Its job.
 Maintenance in detail.
 Dynamo or generator.
 Where fitted. How driven. Why fitted.
 Importance of maintenance.
 Main task No. 9.

Battery.

LECTURE No. 18 - STARTER MOTOR & LIGHTS.

Starter Motor. Its job. Maintenance.
 Freeing of jammed starter.
 Lights.
 Position of fuse or fuses.
 Maintenance of lighting circuits.
 Task No. 10.

With vehicle.

LECTURE No. 19 - INSPECTIONS.

Preparations by driver i/c of vehicle for inspection.
 A.D. 406.
 Platoon inspections.

With vehicle.

APPENDIX 'C'

A		B		C		D	
2 hour Period Driving Instruction		1 hour Period Lecture & Maintenance Theory		2 hour Period Maintenance Practical		2 hour Period Driving Instruction	
D 1	Phase 1.	M.T. 1.		Lecture MT 1 (A)	Phase 1.		
D 2		M.T. 2.		Four Daily Checks			
D 3	Phase 2.	M.T. 3 & Task 1		Task 1	Phase 2.		
D 4		M.T. 4 & Task 2		Task 2 & Oil Changes			
D 5		M.T. 5 & Task 3		Task 3			
D 6	Phase 3.	M.T. 6		Oral Test	Phase 3.		
D 7		M.T. 7 Task 5		Task 5			
D 8		M.T. 8 Faults		Fuel Fault Finding			
D 9		M.T. 9 Task 4		Task 4			
D 10		M.T. 10 Faults		Ignition Fault Finding			
D 11	Phase 4.	M.T. 11 Task 14		Oral Test - TASK II	Phase 4.		
D 12		M.T. 12 Task 4 & 7		Task 6 & 7			
D 13	Phase 5.	M.T. 13 Task 8		Task 8	Phase 5.		
D 14		M.T. 14 Task 15		Task 15			
D 15		M.T. 15 Task 12 & 16		Task 12 & 16			
D 16		M.T. 16 Task 13 & 14		Task 13 & 14			
D 17		M.T. 17 Task 9		Task 9			
D 18		M.T. 18 Task 10		Task 10			
D 19	Phase 6.	M.T. 19 A.E. 406		Preparation for 406	Phase 6.		
D 20		Oral Test		Written Test			
D 21	Phase 7.	C O N V O Y		C O N V O Y			
D 22							

- NOTES: 1. Instruction Periods "A" & "B" as outlined in Appendix "A"
2. Instruction Periods "C" & "D" as outlined in Appendix "B" with Hand Book: 'Inspection Care & Maintenance of Army Vehicle.'
3. Each pupil should have a copy of the Hand Book: 'Inspection Care & Maintenance of Army Vehicles'.
4. Instruction Periods "E"
5. It is recommended that for periods C, D & E working space should not consist of more than four men.
- Maintenance should be carried out on as many different types of vehicles as possible.

APPENDIX 'D'.NOTES ON THEORY & MAINTENANCE

- Note (1) - Duration of each lecture one hour.
- " (2) - Stress should be laid on maintenance during each lecture. For more advanced courses, instructors can go into far more detail in each lecture.
- " (3) - Sources should be limited to a maximum of 15 business.
- " (4) - Actual components should be used during lectures. Sectioned parts are a great asset.
- " (5) - Blockboard diagrams are necessary but should not be used without showing the actual component they represent.
- " (6) - List of equipment required (models and parts, etc.) at Appendix 'E'. Also one vehicle of current type is required, per agreed upon instruction, for practical demonstration of maintenance tasks.

APPENDIX 'M'.LIST OF EQUIPMENT REQUIRED FOR M.T. INSTRUCTORS.

1. Sectionized engine (working model) - 360L Chevrolet or F60L Ford, complete with sectionized petrol pump and carburettor, plugs, clutch, gear box and transfer case, radiator, water pump fan, fan belt, dynamo, starter, coil distributor.
- 1 Petrol pump complete - 360L Chevrolet or F60L Ford.
- 1 Filter unit complete (petrol) - 360L Chevrolet or F60L Ford.
- 1 Ford carburettor - current type.
- 1 Carter carburettor - Chevrolet.

Working coil ignition model on table, comprising:-

- 1 Coil - Delco-Remy current type.
- 1 Distributor (complete) - Chev. or Ford current type.
- 1 Dynamo or small electric motor (to drive distributor on ignition table)
- 2 Batteries (for above)
- 2 Spark plugs.
- 1 H.T. Wire.
- 1 L.T. Wire.
- 1 Ignition switch.

- 1 Tool kit - (standard type), per square of pupils.
- 1 Master cylinder c/w piston (Delco).
- 1 Brake flange plate c/w wheel cylinder, shoes etc.
- 1 Servo cylinder c/w piston, valve gear and air filter.
- AB's 406, AB's 412, Worktickets, Accident Reports.
- Blackboard and Chalk.
- Handbooks for current vehicles.
- 2 Batteries for driving engine.
- 1 Electric motor for driving engine (a dynamo can be modified to do this).
- 1 External oil filter (Chevrolet).
- 1 Distributor complete (Chev. or Ford current type).
- 2 Running engines for fault finding.
- 1 Stripped chassis (Ford, Chev. or Dodge).

The following parts which have been made unserviceable due to bad driver maintenance should be available and shown in conjunction with the same parts serviceable and in good condition.

1. Cylinder block with scored walls.
2. Connecting rod with big-end run.
3. Distributor with badly worn shaft.
4. Water pump with worn bearing.
5. Piston (Chevrolet) with worn bearing.

- 1 Tool kit - (standard type), per squads of pupils.
- 1 Master cylinder o/w piston (Delco).
- 1 Brake flange plate o/w wheel cylinder, shoes etc.
- 1 Servo cylinder o/w piston, valve gear and air filter.
- 13's 40's, 41's 412, Workbooks, Accident Reports, Blackboard and Chalk.
- Handbooks for current vehicles.
- 2 Batteries for driving engine.
- 1 Electric motor for driving engine
(a dynamo can be modified to do this).
- 1 External oil filter (Chevrolet).
- 1 Distributor complete (Chev. or Ford current type).
- 2 Running engines for fault finding.
- 1 Stripped chassis (Ford, Chev. or Dodge).

The following parts which have been made unserviceable due to bad driver maintenance should be available and shown in conjunction with the same parts serviceable and in good condition.

1. Cylinder block with scored walls.
2. Connecting rod with big-end run.
3. Distributor with badly worn shaft.
4. Water pump with worn bearing.
5. Dynamo (Chevrolet) with worn bearing.
6. Dirty oil filter (Cartridge type).
7. Petrol pump with stripped belt.
8. Worn king-pin.
9. Complete front axle with worn steering assembly.
10. Worn shackles pin.
11. Spring with main leaf broken in centre.
12. Spring with broken centre bolt.
13. Stuffed out clutch.
14. Propeller shaft with stripped universal joint.
15. Propeller shaft with lock of lubrication.
16. Seized differential.
17. Burst oil seal on half shaft.
18. Cracked brake drums.
19. Brake shoes, oiled and burst out.
20. Tyres.
21. Batteries.
22. Overtightened petrol unions.
23. Locknuts.
24. Castellated nuts.
25. Bolt with stripped thread.
26. Badly used tools.

1 6 9 1