

ROCK ISLAND ARSENAL

Rock Island, Ill.

November 3, 1919.

FROM: Lt. Col. D.D. Eisenhower.
TO: Chief Motor Transport Corps,
(Through Military Channels).
SUBJ Report on Trans-Continental Trip.

1. I was detailed for duty as observer on Trans-Continental Motor Truck Trip on the day that the train left its initial point, (Washington, D.C.), being impossible to join the train before evening of that date (July 7), nothing is known by me of the preliminary arrangements and plans for the trip, nor of the start from Washington. I joined the train at Frederick, Md., the first night's stop out of Washington.

2. I have not at any time been furnished by any authority with information concerning the nature of the report desired; therefore, for purposes of this report, the subject is divided into the following general heads:

- A - Materiel.
- B - Personnel and Administration.
- C - Roads.



REPORT



A - Material

1. The Trans-Continental Truck Train was composed of various types of light and heavy motor trucks, touring cars, special makes of observation cars, motorcycles, ambulances, trailers, tractor and machine shop unit. No attempt is made here to enumerate each one, nor to give specifications in detail, as this information is already in hands of Chief, Motor Transport Corps.

The vehicles were equipped with pneumatics, giant solids, dual solids and single solid tires. The Mack trucks represented the chain drive type, the F. W. D.'s and Militer represented the four wheel drive type, and various standard makes represented the two wheel, rear drive type.

Practically each of the above named types has its own most efficient speed rate, causing great difficulty in keeping the trucks properly closed in convoy formation.

2. Mechanical difficulties during the first part of the trip were slight, and easily overcome.

Reports of officers with the convoy indicated that the vehicles had not been properly tested and adjusted before starting the trip. This occasioned many short halts on the part of individual trucks, to adjust carburetors, clean spark plugs, adjust brake bands, to time motors and make minor repairs of this nature. It was evident though that many of these difficulties were caused by inefficient handling of the vehicle by the driver.

As the trip went on, it soon developed that difficulties arose much more frequently in some types than in others. The Garford trucks were particular offenders. While other makes and types had difficulties at times, so many repairs were necessary on the three Garford trucks as to justify the opinion that it is not so well constructed as other standard makes on this trip. One Garford was compelled to abandon trip entirely.

In heavy going, such as sand and stiff grades, the heavy types were always in difficulty. Chain drive trucks would simply not operate in sand, and practically all of the heavy trucks had to be pulled through sand stretches. In such places, the lighter types, (1 1/2 ton) usually went through without help. This was especially true of those mounted on pneumatic tires (ambulances). The heavy types also labored excessively of stiff grades. On a grade in California a Mack blew out a cylinder head, Travel on these grades necessitated constant work on the clutch assemblies of the heavy types. The heavies in these places slowed up the lighter and swifter light trucks; which type made all the grades easily. In this connection, I believe that the Riker (3 ton), and F.W.D., had less difficulty in negotiating stiff grades, and sand stretches, than any other type of heavy truck.

On the very best roads, such as in Maryland, Pennsylvania and California, the heavies were not capable of the speed that the lighter types

REPORT



A - Materiel
(Con'td)

could efficiently maintain; showing that in general the two types should not be mixed for transport work.

The Militor, equipped with power winch and spade in rear, did wonderful work in pulling vehicles out of holes, sand pits, etc. The 5-ton tractor was also very efficiently used for this purpose. On one occasion at least, the Militor came into camp at night towing four trucks, showing that its power plant was almost perfect.

In the lighter types, very little difficulty was encountered. The only Packard trucks on the trip were three of the $1\frac{1}{2}$ ton type. Mechanical difficulties in these were so few as to be negligible. A burned out wheel bearing, repaired at Garcon City, was caused by an error in placing same when tires had been changed at Salt Lake City. These trucks surmounted the stiffest grades with motors running quietly and easily, and trucks in good condition. One Packard truck was badly overloaded during the entire trip. Its load was partially distributed in latter part, but when weighed near end of trip, its gross weight was still 1,500 pounds in excess of that of any other type of $1\frac{1}{2}$ ton truck. The performance of these three trucks is considered remarkable.

The White $1\frac{1}{2}$ ton trucks were also very good, and difficulties encountered with them were trifling. This also applies to G. M. C. type.

Among the touring and observation cars very little difficulty was encountered. One Cadillac touring car required a timing chain, and in the mountains carburettors needed adjusting.

One White observation car (truck chassis) had frequent difficulty of a minor nature, due to stoppages in oil line. The same car burned out a wheel bearing and lost a rear wheel in Wyoming, necessitating the replacing of the whole rear end.

Kitchen trailers were of the two and four wheel type. The only one to finish the trip was one of the two wheel type (Liberty). The trail-mobiles, four wheel type, were constantly in trouble. Officers of M.T.C. maintained that these troubles were the result of improper trailer connections; proper ones not being provided. In my opinion neither type is suitable for transport work, and a better one must be devised.

Motorcycles had much trouble after getting in the sandy districts. Except for scouting purposes, it is believed a small Ford roadster would be better suited to convoy work than motorcycle and side car.

As tires, the Giant solids gave better service than duals, and pneumatics were very successful. The Giant pneumatic is practically puncture-proof, admits of more speed than the solid, and prevents excessive vibration due to rough roads, etc.

The lessons drawn from observation of materiel are that the heavy area type is entirely unsuited for front transit work. A smaller type, not exceeding 2 tons, mounted on either solids or pneumatic tires, is essential.

REPORT

A - Material
(Con'td)



If deemed essential, these could be provided with folding seats for transporting personnel, accommodating twenty men. For such work, the light truck is so far superior to the heavy as to admit of no comparison. The heavy should be confined to rear areas, in supply depots and the like, on hard surfaced roads; and in general on short hauls.

Further, for any type of work, the two types should not be mixed in one train, as this impairs the efficiency of the lighter faster type.

B - Personnel and Administration.

1. The truck train was composed of two truck companies, a repair unit, engineer unit and medical unit. Officers stated that many men in the two truck companies were raw recruits, of no experience.

At the beginning of the trip, discipline among the enlisted personnel of the M. T. C. was almost unknown. This condition was probably the worst in the S. P. O. 595. This lack of discipline was largely due to inexperience, and poor type of officers. It resulted in excessive speeding of trucks; unauthorized halts; unseemly conduct, and poor handling of truck in the convoy.

These conditions were vastly better in engineer and medical units.

The Commanding Officer stated that he had no opportunity of drilling and disciplining the men before starting, nor of choosing officers. He bettered conditions gradually, but was confronted with the problem of accomplishing this while maintaining a pre-arranged schedule of travel daily. In this connection, special mention should be made of a Lieut. Martin, who commanded one M. T. C. Company. He was an exception to the general rule, worked hard and was of vast assistance to the Commanding Officer.

It is not believed that the enlisted men were inferior in type to any other body of soldiers, but they lacked training and good officers.

2. In conducting this trip, two scouts were mounted on motorcycles who reconnoitered roads and placarded same for guidance of train. The engineer unit was charged with making bridges, culverts, etc., passable.

During the latter part of the trip an engineer truck was kept twenty-four hours ahead of train to perform this work, and this arrangement avoided many unnecessary delays.

3. The schedule of travel was easily ~~maintained~~ maintained up as far as Omaha, Nebraska. A total delay of four days was accumulated after this point was passed, but all were unavoidable. It is believed the Commanding Officer would have been unwise in pushing on at any of the points where he delayed to make minor repairs and rest his men.

REPORT

B - Personnel and Administration. (Con'td)

4. Lessons from observation of personnel are that officers and men should be thoroughly trained as soldiers before entrusting to them the valuable equipment of a motor train. This will prevent much unnecessary expense, due to breakage, speeding, etc., as well as preserve the standard of conduct essential to a good soldier.

Roads must always be reconnoitered and repaired far enough in advance of main body so that delays will be obviated.



C - Roads.

The Lincoln Highway was almost constantly followed after meeting same at Gettysburg, Pennsylvania. The road through Maryland was of concrete, and excellent in all ways, except that it is a little narrow for convoy work. Ten miles of dirt road from Emmitsburg, Maryland, to Gettysburg, Pennsylvania, had several old, low covered wooden bridges. They were too low to admit passage of high topped vehicles.

Road through Pennsylvania was almost entirely tarvia, and very good, though at some points, poorly graded.

Through Ohio and Indiana a great portion was paved and macadamized. In Illinois train started on dirt roads, and practically no more pavement was encountered until reaching California.

The dirt roads of Iowa are well graded and are good in dry weather; but would be impossible in wet weather. In Nebraska, the first real sand was encountered, and two days were lost in western part of this state due to bad, sandy roads. Wyoming roads west of Cheyenne are poor dirt ones, with weak culverts and bridges. In one day - 14 of these were counted, broken through by the train. The desert roads in the southwest portion of this state are very poor.

In western Utah, on the Salt Lake Desert, the road becomes almost impassable to heavy vehicles. From Orr's Ranch, Utah, to Carson City, Nevada, the road is one succession of dust, ruts, pits, and holes. This stretch was not improved in any way, and consisted only of a track across the desert. At many points on the road, water is twenty miles distant, and parts of the road are ninety miles from the nearest railroad.

REPORT

C - Roads.
(Con'td)

There exists at the present time a controversy between the Lincoln Highway Association and some of the people in the section west of Salt Lake City as to the best location for the Trans-Continental Road across this part of the United States. Many citizens informed members of the convoy that there existed across the northern part of the states of Utah and Nevada a good location for such a road. They state this route is free from grades and summits, is close to water and railroads, and is through a more thickly populated section.

At least, the Lincoln Highway over this portion of the country is so poor as to warrant a thorough investigation, of possible routes for building a road, before any government money should be expended on such a project.

The roads in California were excellent paved ones. No trouble in roads was experienced after surmounting the first grade of the Coast Range of mountains in California.

In observing the effect of the different types of road in progress of the train, it was noted that the trucks operated very efficiently and easily on the smooth, level types, but that on rough roads, sandy ones, or on steep grades the truck train would have practically no value as a cargo carrier. The train operated so slowly in such places, that in certain instances it was noted that portions of the train did not move for two hours.

It was further observed that some of the good roads are too narrow. This compels many vehicles to run one side off the pavement in meeting other vehicles, shipping the tire, the edge of the pavement and causing difficulty in again mounting the pavement. This is especially true in a narrow concrete road, it causes fast deterioration of the road.

It was further observed that in many places excellent roads were installed some years ago that have since received no attention whatever. Absence of any effort at maintenance has resulted in roads of such rough nature as to be very difficult of negotiating. In such cases it seems evident that a very small amount of money spent at the proper time would have kept the road in good condition.



GENERAL SUMMARY.

The truck train was well received at all points along the route. It seemed that there was a great deal of sentiment for the improving of highways, and, from the standpoint of promoting this sentiment, the trip was an undoubted success.

As stated before in this paper, it is believed the N. T. C. staff should pay more attention to disciplinary drills for officers and men, and that all

REPORT

General Summary.
(Con'td)

should be intelligent, snappy soldiers before giving them the responsibility of operating trucks.

Extended trips by trucks through the middle western part of the United States are impracticable until roads are improved, and then only a light truck should be used on long hauls.

Through the eastern part of the United States the truck can be efficiently used in the Military Service, especially in problems involving a haul of approximately a hundred miles, which could be negotiated by light trucks in one day.



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