TAC NEWS

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THE NUTS AND BOLTS OF LOGISTICS

(A Brief Look at German Combat Supply)

One aspect of World War II tables of organization and equipment often neglected by miniature enthusiasts and wargamers alike is the organization and composition of the maintenance and supply units, without which no army can function. As it turns out, none of the principal combatants in the war felt that they had given the problem of keeping their forces fully and efficiently supplied sufficient attention. The Germans, faced with supplying vast numbers of troops and aircraft from the frigid North Cape of Norway to the sizzling wastes of Libya, from the English Channel to the banks of the Volga, never really got a handle on the industrial and transportation requirements involved in getting the bullets, beans, bandages, and ten-thousand other items to the troops without which they simply could not function. Too often, administrative in-fighting and inter-service rivalries made an otherwise difficult problem virtually unsolvable. The more I study the nightmarish nature of the German supply effort, the more I am forced to grudgingly admire the accomplishments of individual German officers, NCOs, and common soldiers. With woefully inadequate resources, they managed not only to function, but to dominate the battlefield for much of the war, long after they should have collapsed from sheer exhaustion. I won't even pretend to be able to cover German logistic technique in so short a study, but I do hope that this brief overview will serve to introduce many of you to this fascinating aspect of military operations.

Development

Wehrmacht supply doctrine in WWII was in many ways an extension of techniques developed during WWI. In 1914, German troops were supplied primarily by railroad whenever possible, but from the point where the tracks ended, local transportation became a matter of horse-drawn wagons. If speed or distance considerations made this impractical, special motor vehicle units were employed. These were organized into 'ammunition columns and trains'. Some 40,000 trucks of varying types were produced during the war to provide for these 'trains'. Quickly, the relative efficiency of truck transport over horses became clear. World War One ended before motor-transport could be fully explored, but the seeds had been planted.

Even during the 'dark' days of the Weimar Republic the idea of motorization wasn't abandoned. In 1926 the *Reichswehr* began an ambitious motorization program, and when the *Wehrmacht* was officially established in 1935, the old Hannover Cavalry School was expanded to include transport and supply schools, each with a driver training squadron. In 1938, this became the Driving Troop School, with two driver training companies. However, driver training expanded at a much slower rate than other military skills training programs. The plan was to have one motor vehicle unit for every three peacetime combat infantry companies. This goal was never attained. When war broke out in 1939, the *Wehrmacht* field army contained 2,741,064 men supported by 191,088 supply and admin troops (6.9%). As the war progressed, and the theater of operations expanded, so did the *Wehrmacht's* supply arm. In December 1943, the total strength of the German field army stood at 4,270,000, while its supply service had grown to some 350,000 (8.2%). This was to be its peak strength.

Organization: Corps Level & Above

On 1 October, 1943 the *Wehrmacht* field army contained the following supply units (not including horse-drawn supply columns):

36	Standard Motor Vehicle Columns of ten medium and heavy trucks capable of transporting 30 Tons
26	Large Motor Vehicle Columns of twenty medium and heavy trucks capable of transporting 60 Tons
180	Divisional Supply Companies
54	Motor Vehicle Companies of 120 Tons Capacity
84	Motor Vehicle Companies of 90 Tons Capacity
6	Motor Vehicle Companies of 60 Tons Capacity
13	Fuel Columns
85	Driving Squadrons or Large Driving Columns
398	Standard Driving Columns
285	Light Driving Columns
13	Mountain Car Columns
2	Pack Animal Columns
157	Repair Shop Companies
22	Repair Shop Platoons
183	Divisional Food Supply Offices
173	Bakery Companies
10	Bakery Half-Companies
173	Butcher Companies
10	Butcher Half-Companies
166	Horse-Drawn Medical Companies
132	Motorized Medical Companies
2	Horse-Drawn Medical Half-Companies
302	Vehicle Repair Units (Kranken-Kraftwagenzüge)
176	Veterinary Companies
6	Veterinary Platoons (Echelons)
177	Motorized Field Police Troops

Wehrmacht Supply Services included more than just supply 'columns'. Rather, they provided the whole range of logistical support. Not only were they tasked with delivering ammunition, fuel, food, spare-parts, replacement equipment, etc., they also provided mobile repair facilities and workshops, a labor force for loading and unloading supply columns and trains, and administrative personnel to man dumps, depots, vehicle parks, and refueling points. Every German Combat Division, Corps, or Army had, as part of its staff, a 'Troop Leader of Supply Services', whose job was to co-ordinate the efforts of the various supply assets of that unit. These included the 'Supply Columns' responsible for delivering the various necessities, but they could also be tasked with transporting damaged weapons, captured materiel, or other equipment to rear area facilities, and in some cases, delivering wounded men to rear-area hospitals. They were organized into 'Small' and 'Large' columns.

Small Columns consisted of:

1 - 2 Cars
1 - 2 Motorcycles
2 Truck Groups, each capable of carrying 15 Tons, and a third 'admin' (*wirtschaftsgruppe*) group capable of carrying 3 Tons
These were manned by:
- 1 Officer (Leader)
- 1 Staff NCO (Deputy Leader)
- 3 NCOs (Group Leaders)
- 1-2 Car Drivers
- 1-2 Motorcycle Drivers
- 1 Driver and 1 Assistant Driver per truck (One aide served as unit cook, one as emergency medic.)

Large Columns consisted of:

2 Cars
2 Motorcycles
4 Truck Groups, each capable of carrying 15 Tons
1 'Admin' Truck Group with: 2 Fuel/Equipment Trucks of 3 Tons and 1 'Food/Baggage' Truck of 2 Tons
These were manned by:
- 1 Officer (Leader)
- 1 Staff NCO (Deputy Leader)
- 5 NCOs (Group Leaders)
- 1 NCO (Medic)
- 2 Car Drivers
- 2 Motorcycle Drivers
- 1 Driver/Supply Clerk
- 1 Driver and 1 Assistant Driver per truck (One aide served as unit cook.)

Clippity-Clop the Blitzkrieg Cometh

Despite a mountain of contrary evidence, many wargamers (and even a few history 'Buffs') continue to ignore the importance of horse-drawn transport in the overall German supply effort. When the *Wehrmacht* invaded the Soviet Union in 1941, it did so with the help of over one million horses! In fact, eighty percent of all German transport on the Eastern front was horse-drawn throughout the war. Horse-Drawn Supply Columns consisted of 40 one- or two-horse wagons with a total capacity of some 30 Tons. These were organized into Wagon 'Squadrons' with a total of 82 wagons, 203 horses, and around 210 men (more than double the manpower required by an equivalent truck column). Pack-animal columns were also used from time to time. A single Pack-Horse or Mule can carry 50 - 80 kg (depending on weather and terrain). Therefore, a column of 100 pack animals could be expected to transport somewhere between five and eight Tons. Horses and mules, however, consume ten times as much food (by weight) as a man per day, limiting their usefulness except under very specific conditions.

Organization: Division Level

1939 - 1941		1942 - 1945
	Infantry Division	
6 Small Vehicle Columns (30T)		1 - 3 Vehicle Company (90T)
1 Small Fuel Column (30T)		
1 Vehicle Repair Platoon		1 Vehicle Repair Platoon
1 - 2 Wagon Columns (30T)		1 - 3 Wagon Squadrons (60T)
2 Supply Platoons (Motorized)		2 Supply Platoons (Motorized)
1 Supply Platoon (Horse-Drawn)		1 Supply Platoon (Horse-Drawn)
1 Ammunition Command		1 Ammunition Command
	Motorized Division	
10 Small Vehicle Columns 30T		4 Vehicle Companies (90T - 120T)
2 Supply Platoons (Motorized)		2 Supply Platoons (Motorized)
	Mountain Division	
4 - 6 Small Vehicle Columns (30T)		2 Vehicle Columns (90 - 120T)
2 - 3 Mountain Vehicle Companies (30T)		4 Mountain Veh. Companies (30T)
1 Mountain Supply Company (Horse-Drawn)		1xMtn Supply Co (Horse-Drawn)
	Jäger Division	
3 - 4 Small Vehicle Columns (30T)		1 Vehicle Company (120T)
2 - 3 Vehicle Columns (30T)		3 Mountain Vehicle Columns (30T)
2 Supply Platoons (Motorized)		2 Supply Platoons (Motorized)
1 Supply Platoon (Horse-Drawn)		1 Supply Platoon (Horse Drawn)

In addition to the above allotments there were also:

1 Division Commissarit	(3 Trucks, 1 Car, 1 Cycle)
1 Bakery Company	(24 Trucks, 5 Cars, 6 Cycles)
1 Butcher Platoon	(6 trucks, 1 Car, 2 Cycles)
1 Medical Company (Horse-Drawn)	(1 Truck, 1 Car, 17 Wagons, 2 Cycles
1 Medical Company (Motorized)	(21 Trucks, 4 Cars, 6 Cycles)
1 Field Hospital	(11 Trucks, 6 Cars, 2 Cycles)
2 Ambulance Platoons	(@ 15 Ambulances, 2 Cars, 8 Cycles)
1 Veterinary Company	(9 Trucks, 1 Car, 21 Wagons, 3 Cycles)
1 Police Troop	(2 Trucks, 2 Cycles)
1 Post Office	(2 Trucks, 2 Cars)

Through 1943, Panzer and Motorized divisions were also assigned a 'Spare Parts' Echelon with a carrying capacity of some 75 Tons. By 1944 all this came to an end. Most divisions were forced to make due with one Motor Vehicle Company (120T), two Wagon Squadrons (30T), one Supply Column, and one Admin Company. The last divisions organized in 1945 had only one Motorized Column (30T), one Wagon Column (30T), and one Admin Company.

Organization: Tactical Level

At the very lowest organizational level, things actually get pretty simple. Each Battalion had what was called a 'Combat Train'. This consisted of those vehicles deemed necessary for the unit to function effectively. As a rule, each non-motorized infantry company contained one commissary wagon; each Horse-Drawn or mounted company had two commissary/fodder wagons; and each battalion had one truck. Motorized battalions would add one more truck for food transport, since they often operated too far away from their division's supply train to guarantee daily food deliveries.

A Few More Statistics

The supply and admin 'tail' of a typical German mobile division could take up more than forty kilometers of road when on the move. The various motor vehicle makes and models used by Germany ran to nearly two-thousand, making maintenance and spare-parts deliveries an endless nightmare. By 1943 some simplification was achieved in the number of makes, but nothing could be done to reduce the number of models. During the ten years the Wehrmacht was in business, Germany produced some 429,000 trucks of all types for military use, augmented whenever possible by vehicles captured or requisitioned from other countries' stocks. The total number in use probably exceeded 600,000, but reliable figures may never be available to substantiate this claim.

Accurate figures for 1937, however, are available (321,000) and give a good idea of the most common makes in use.

Büssing-NAG	17,013	**Daimler-Benz**	30,495
Hansa	39,804	**Henschel**	3,531
Krupp	9,309	**Magirus**	11,235
MAN	6,420	**Opel**	117,165
Pha'nomen	5,457	**Tempo**	6,420
Ford	53,928	**Others**	8,316

Of these, 103,420 had load capacities of from 2 - 7.5 Tons and were therefore usable by the army, most of these based on American designs. Overall, this meant that trucks designed or manufactured by Ford, GMC, and other American firms made up a substantial chunk of the German motor pool.

Wargaming Applications

Many wargames and wargamers simply ignore the effect of supply on battlefield tactics. While I certainly don't have any problem with that, I can't help but think including supply effects in miniatures games can add additional interest to the action. Of course, since this article is coming to you from GHQ, their own rules set 'WWII Micro Armour - The Game', this is the game system I'll be covering.

I suggest adding a number of supply/Maintenance vehicles to each player's forces in a game. The actual number of these may be calculated as follows:

Take the total number of weapons points in the force deployed on the map, including transport, but not modified for Cohesion. Divide this number by fifty (50). The resulting number is the amount of Cargo Capacity needed to keep the force at peak efficiency. This is the command's 'train'. That's all you really have to do, but if you're like me, you'll want to dress up the effort. I like doing at least one vehicle up as a field ambulance. Wreckers are also nice, and don't forget fuel trucks and the like.
Example: A German force of 2810 points is going to be used in a game. 2810/50 = 56.2. Therefore the unit would require transport vehicles with a combined cargo capacity of no less than 56.2 points. Four heavy trucks and a kubelwagen would cover it (60 points). Any reasonable combination of wheeled or tracked motor vehicles or wagons can be used. Be reasonable though. In the example above, fifteen kubelwagens could be used, but that would look pretty silly.

Effects: Every vehicle in the train must be maneuvered so that it lies within ten inches (10") of the force GHQ at the end of any turn. If a player fails to do this, the Base Cohesion Level of his drops by one (1) on the next turn for every 20% of his minimum supply requirement left unfulfilled.
Example: A player deploys the force above with a Base Cohesion of 14 . Through an unfortunate oversight, he allows one truck in the force's supply train to end up eleven (11) inches from its GHQ stand at the end of turn three. Therefore, his Force Cohesion for turn 4 is reduced to 13 because he has lost the use of 25% of his supply train (25% rounds to 20%). If he moves his GHQ during turn 4, allowing two trucks to end up outside a 10" radius of his GHQ stand, his Base Cohesion drops to 12 (28/56.2 = 49.8% - rnds to 40%).

The same effect holds true if one or more vehicles in the train is lost due to enemy action. Two trucks destroyed by enemy fire would reduce his Cohesion to 12 as well, except that this condition would automatically last for the rest of the game since it cannot be rectified.

Another Example: A Soviet Infantry force worth 1254 points and a Cohesion of 13 would require 25.08 points of cargo capacity to be in full supply. Four Medium Trucks or Wagons would provide this. One Medium Truck lost would reduce his Cohesion to 11 (8/25.08 = 31.8%, which rounds to 40% not 20%)

You can make this as simple or complicated as you like. Supply vehicles don't have to be paid for in points when purchasing other forces, but you can do it if you like. This is especially cool in campaign games where the cost of replacing supply trucks and wagons becomes part of the burden of keeping your forces up to strength.

Other Ideas

Scenarios can be designed around raids on supply convoys. Using the organizational information above, you can build a Small or Large Column, provide it with an escort, and send a raiding force to attack it. Allow the attacker 'X' number of victory points for each supply vehicle destroyed and the defender 'Y' points for each vehicle that escapes off the board or otherwise survives the action. Compare the two totals after ten or so turns. Higher total wins.

The use of supply trains also makes light 'recon' type units much more useful. A few MG jeeps, slipped around an enemy flank to shoot up his rear area supply dumps can be devastating to his overall effort, reducing his Force Cohesion Level at a crucial moment in the battle. The only way to prevent this is to leave a reserve in his rear to avoid this, costing him combat power elsewhere.

Finally, the intelligent use of indirect-fire artillery and tactical air support become an even greater threat than before, capable of dealing the enemy a mortal blow without even touching his main combat forces.

Summing Up

Logistics and supply considerations don't have to complicate things in miniatures games. They can be added as lightly or as heavily as you like. However, don't sell supply rules short. The point is, creativity and originality are always in order. Anything that adds to your and your friends' enjoyment should be given a chance, whatever rules system you use.

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