HELL ON WHEELS
Platoon Level Tank Tactics Game
(Version 2   Jim Wallman 1986)

Contents

Aim

The purpose of the game is to simulate the tactics and command and control problems facing individual tank troop/platoon commanders. Of necessity, such a game cannot expect to cover fully all aspects of tank combat at this level, and therefore I have chosen to gloss over the detail of the tank gun Vs armour battle, in favour of a more detailed communications and reactions system. Everything is very simple, but it is very difficult to do the simplest things.

Game Structure

The game requires a minimum of two participants, Control and Player. The Control determines a fixed (or semi-fixed) defence for the player to fight through. Since such actions are likely to be fast and furious, there is often plenty of opportunity for Player and Control to swap roles. The Player is the commander of a single tank troop/platoon of whatever type the scenario dictates. These rules are written with the European campaign, 1944 in mind, but the structure can be applied to almost any tank engagement, with some small modifications.

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With more players, there is scope for larger games of up to squadron level, preferably with different units with their own terrain model. The back-to-back, two sided game is also possible, but not recommended, since the detail necessary for correct interaction slows the game down considerably, and in my tests, the presence of a 'live' enemy made absolutely no difference to the players. It is recommended that when playing the higher level games, the ratio of 1:1 Player to Control is maintained if possible.

The use of models is, of course, optional. This game would lend itself to the 'perceived view' type of simulator, provided that control had the necessary skills and the inclination.

The rules are, however, written with models in mind.

Scales

These are at the choice of the participants. It is vital that the scale of the terrain is identical to that of the vehicle models used.

As a guide, ground/model scales would be:

> 1/300 scale = 1" to 8 metres or 12" to 100 metres.
> 1/200 scale = 1" to 5 metres or 20" to 100 metres.
> 1/76 scale = 1" to 2 metres or 50" to 100 metres.

Clearly the smaller scales are more practical, and the rules assume 1/300 models where appropriate.

Each move represents about 20-40 seconds.

Each player represents one platoon/troop commander.

Crew Characteristics

Each member of the crew of each tank has particular skills in their trade, which will contribute to the effectiveness of the tank, and hence the troop as a whole. A good commander should be able to make good use of these skills, or compensate for weaknesses.

These characteristics are summarised by function as follows:

Commander: He has an effectiveness rating on a scale of 2-5 which is used under four   circumstances:

> a. When the troop commander feels that this individual should take a sensible initiative, based on his circumstances.
>
> b. When the commander has to assimilate new orders from above, since not everyone understands what they are told on the first telling.
>
> c. When trying to find his way.
>
> d. When Control wishes to test his understanding of new events perceived in the course of the action, i.e. whether he chooses to report a sighting to the troop commander etc.

In every case above, the commander must roll 1d6 and score his rating or less to pass the test (and therefore make the right decision, or understand etc.). Failures are interpreted by Control according to the circumstances.

Gunner: He influences the tank's chances of hitting anything it fires at. This is a simple modifier on the hit die roll. To determine the start rating, roll 1d6: Score Skill

1	-2
2	-1
3-4	0
5	+1
6	+2

Loader: The loader's skill determines the number of rounds the gun can fire in a single move. This can be any number from 1-3. To determine at random, roll 1d6:

$$1 = 1 \text{ round}$$
$$2\text{-}5 = 2 \text{ rounds}$$
$$6 = 3 \text{ rounds}$$

Loaders for heavy guns, such as 17pdrs or 88mm, are reduced by one round in their ability, to a minimum of 1 round.
Light guns, such as 37mm or 2 pdr, can be shifted up one round in ability.

Driver: Like the commander, he has an effectiveness score in the range of 2-5. Whenever the tank is expected to cross an obstacle, or manoeuvre in a confined space, then roll 1d6 and score the driver's effectiveness or less to succeed. If the test fails, then the tank is halted on the obstacle (or stuck in the confined space) until the roll is successful. Deduct one from the driver's skill if the tank is reversing.

Co-Driver: As the Driver, but a co-driver can never be a better driver than the driver (otherwise he would be the driver!).

Radio Operator: He has an effectiveness rating on a scale of 3-6 (i.e. 1AvD+1), which is tested in the same way as commanders and drivers above. Whenever a message has to be sent or received, the radio must be 'netted on'. This is done by the receiving radio operator, who must pass his effectiveness test. If he fails then the order or communication is not received. Tanks remain netted on until they fire or become stuck on an obstacle (or are hit by fire).

Some of the trades above are doubled up on some tanks, and there may be a conflict of priorities in certain circumstances. In the case of a non-player tank (NPT), combat tasks come first (i.e. a loader/radio operator would reload first, and tend the radio second).

The Player's Role

The player is the tank commander of the command tank. This is the only tank over which he has total and immediate control. The other tanks in the platoon/troop are

NPTs which are moved by Control, and act in accordance with a set of pre-programmed action priorities given later, as interpreted by Control.

At the start of the game, the player holds an Orders Group to issue orders to his NPTs. This can be very detailed, but I recommend that it simply details:

       a. Objectives and routes to the objectives.
       b. Actions on contact, and/or areas to cover.
       c. Rallying/regrouping instructions.

This would normally be noted down and passed to Control to assist with his movement of the NPTs. When the action starts, the player will also have a chart (Annex B) indicating the status of his tank, and his subordinate NPTs.
The player may only influence the actions of his NPTs by issuing orders (usually over the radio).
When orders have been issued (and noted down in the 'notes' box of the status sheet) the recipient commander must test for his comprehension of the communication. If the order is a particularly simple one, then he may increase his rating by 1 for that roll.
Note that the player must, when necessary, also give tactical orders to his own tank.

Orders

The player may make one of three basic types of orders:

       a. Instructions to his own crew.
       b. Orders to another specific tank in his troop.
       c. General orders to the troop as a whole.

In a move, he may issue two orders.

In detail, this means:

a. To Own Tank: These will generally be to individual crew members, for example:
       "Driver advance down road to junction."
       "Gunner engage Tiger on hill, 300m right front."
       "Load AP."
Each of these count as a single order, and more complex orders will count as more than one order, at the direction of Control.

b. To A Specific Tank: These are similar to the own tank order above, but are usually a little more general, and would probably fit into one of the following groups:

> i. "Fire at..." either a specific target or a terrain feature.
> ii. "Observe..." a designated feature, i.e. to cover a likely enemy position.
> iii. "Move to..." a given location. If this can be seen, then the tank will

do its best to follow the order, choosing the most convenient route. If the location is not obvious or immediately visible, then the commander may have to test to find his way.

c. General Orders to Troop: These will have to be simple and straightforward. They can either be an order to start a sequence of pre-determined orders (thus making warning orders a good idea), or more general, like "Troop advance to ridge line". The individual NPT commanders in the troop will still have to dice for comprehension.

Another type of general order is the formation order. Most tank platoons would be trained to adopt a number of standard formations which are intended to suit certain circumstances. These obviously vary from army to army, and period to period. Annex A contains some useful notes on 1944 practice.

Note that NPTs will follow their last order/reaction until it is completed, or a new order successfully issued. Don't forget to order a cease fire!

Movement

To reflect the difficulties inherent in moving tanks over even the most level ground, all movement has a random element. This is separate from the obstacle crossing rules given above.

For each tank on the move roll 2 AvD, and the score x10 in metres is the movement allowed that move. At top speed, or on metalled roads, add 30m to this.

If part of a formation, the tank can modify it's move by up to -10m to stay in formation. This applies equally to player and NP tanks.

Tables

The main rules needed to play the game are given in a summary of tables at the end of this booklet (*Annex C*). They can be amplified thus:

TURRET FACINGS: Unless specified in orders, each NPT rolls for its current turret facing on this table. For simplicity, more unusual facings (such as backwards) have been omitted. It takes « move to alter a turret facing.

OBSERVER: At the start of the action, unless specified otherwise in orders, dice for each NPT to see if the commander has closed down or not. Roll again at any time

that the tank comes under fire, and again whenever the tank has been closed down, and not under fire for 5 minutes.

TARGET LOCATION: This is, I think, self-explanatory. Un-prepared is any target newly arrived at a position of concealment. Prepared assumes that time was spent before the action to prepare proper camouflage. The duration of the average game is too short to permit proper preparation within the game.

ANTI-TANK SHOOTING: This determines the base chance of hitting. If you wish to go into detail on armour penetration, then consult the detailed weapons tables at Annex D, otherwise assume that all anti-tank hits can KO, and roll on the Damage Table.

REACTION TABLE: This is the most important part of the rules, in that it determines, largely, the actions of NPTs. The reactions are influenced by what they are doing, what the enemy is doing, what they can see, and what their orders are. Roll 1d6 when necessary (sometimes more than once a move). The results are in very general terms, since it is for Control to flesh them out to reflect sensibly the actual circumstances.

Sequence Of Action

1. Player writes communications to be issued (if any)

2. Roll for radio net and NPT commander's comprehension (if necessary)

3. Move the models, dicing for movement distance, and obstacle crossing as necessary.

4. Test for any target location by Player/NPTs.

5. Place on any enemy elements located by the player only:
   > Dice to see if NPTs that have located the enemy report the fact.

6. Assess effect of incoming enemy fire:
   > a. On Player's tanks KOd
   > b. On NPT reactions to fire

7. Player updates his records, and notes NPT reactions for next move.

Infantry and Anti-Tank Guns

Despite the concentration on tanks, there is no escaping the presence of infantry and Atk guns as an integral part of the opposition. In fact, a tank troop is much more likely to encounter these than enemy tanks.
For the purposes of the game, they are usually regarded as static elements, pre-positioned by Control, to make interesting problems. A standard scenario might have

one or two ATk guns per troop engaged (depending upon the area covered, and the terrain involved).

Small arms fire from infantry can kill or wound a tank commander if his tank is 'open' for observation purposes, otherwise he is personally invulnerable. Roll a 1 on 1d6 for a hit if vulnerable. Incoming small arms fire also counts as being under fire for reaction table purposes. NB: This might not be the case for early war scenarios, where the presence of infantry was less of a direct and worrying threat.

Infantry groups and ATk guns are always KOd by a hit from MGs or HE shell (I accept that this is a gross oversimplification, but you can imagine it as suppression if you prefer). A hit from AP shot can cause temporary suppression, roll 5 or 6 on 1d6 for suppression for 1d6 moves.

Ammunition

The grid of boxes on the status sheet are for recording ready-use ammunition only. They should be marked up at the start of the action with the numbers of the main types of ammo as required. More ammo is generally available from storage bins, but these will take both the gunner and loader 4 moves to recover.

Damage

A hit from any weapon capable of KOing the tank will require a damage roll as follows: Roll 1d6:

Score	
1	Negligible damage
2	Immobilised
3	Gun damage
4	Radio damage
5-6	Crew compartment hit

ALL such hits cause the crew to bale out. If the tank is still functional (negligible damage) and the commander passes his ability test, then they will return to the tank after 1d6 moves of cowering under cover of the tank.

If the crew compartment is hit, roll again, 1d6 per crew member:

Hit from Inf Atk (HEAT) : 4+ to survive
Hit from ATk (KE)   : 3+ to survive

The baled out crew will attempt to return to their own lines by the safest known route. Players baled out may reoccupy another tank of their own troop if there is one available and they can get to it. Squadron commanders may occupy any other tank in the squadron if necessary.

Tanks under mortar fire: The commanders count as being under small arms fire. Roll 2d6 for damage caused:

2 = Radio out of action, tank stunned for 1d6 moves.
3 = Fire in camo-netting etc.,   ditto.

4 = Commander's observation blocks cracked, -1 from closed down
          observation, tank stunned for 1d6 moves.
5-12 = No effect.

Higher Command

"No tank is an island, complete unto itself."

At some stage in the action, the player will be influenced or interfered with by a
higher HQ.
In order to give Control a guide as to how often a higher HQ will try and
communicate downwards, use the following rules.

a. Roll 1d6 x 5 for the number of moves between communications from the next
higher HQ. The player should not know when this is. When the higher HQ is due to
communicate, it must roll to net on in the usual way.

b. The HQ will send a message, the details of which are to be determined by control
in accordance with the circumstances of the scenario. The general subject might be
determined on the following table: Roll 2d6

Score: 2 =   Unit is to slow down its advance.
        3 =   Unit is warned of the possibility of enemy forces to the rear.
        4-5 =   Unit is to speed up its advance.
        6 =   Unit warned of possible enemy units on its right flank.
        7-9 =   Unit ordered to send a situation report (sitrep) to the higher
        HQ, if it has not done so since the last communication.
        10-11 = Unit warned of possible enemy to the left flank.

Lower Command

War is a risky business, and there may be occasions when the player, as commander
of the command tank, is killed (or even out of contact with the rest of the troop).
Under these circumstances, there is a possibility that the troop 2iC may take
command. For convenience, unless otherwise noted, the 2iC is the commander of the
next highest numbered tank in the troop.

Roll against the 2iCs effectiveness score to see if he understands the situation and
takes action. This is rolled every move until he does understand.

If the 2iC 'decides' to take over command of the troop, he must take one further
effectiveness test.

If he passes, he will continue with the troop's mission, otherwise he will hold where
he is, and ask for orders from a higher HQ.

In either case, the new commander will also communicate with his remaining subordinates, to inform them of the new situation.

If he attempts to continue the mission, the player may take over as his own 2iC if he has been killed. If simply out of contact, then Control 'plays' his troop until the player can rectify the situation.

ANNEX A: COMMON FORMATIONS

4-Tank Units

a. One Up   *b. Two Up*
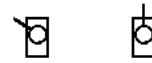
c. Box   *d. Diamond*
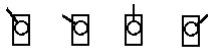
e. Line   *f. Line Ahead*

*g. Double Line
Ahead*

5-Tank Units

h. Echelon Left   *i. Echelon Right*

j. Arrow Head

All formations depend upon ground and can apply to troop, squadron or even
regimental level.

The leading troop should never have less than 20 metres between tanks, and as far as
possible tanks within the troop should be within sight of each other at all times.

ANNEX B : PLAYER'S ORDER / RECORD SHEET

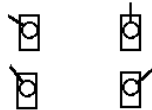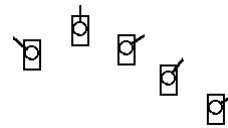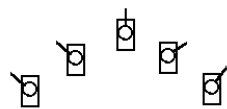| TANK 0 Command Tank Gunner = Loader = Co-driver = Radio Op =	Ammo ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○	**Damage**	**Current Action**	**Current Orders**	**RADIO** ON NET OFF NET **Turret Open** **Turret Closed** **Turret Facing** ● **Loaded Round:** AP / HE / Smoke
TANK 1 Command = Gunner = Loader = Co-driver = Radio Op =	**Ammo** ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○	**Damage**	**Current Action**	**Current Orders**	**RADIO** ON NET OFF NET **Turret Open** **Turret Closed** **Turret Facing** m **Loaded Round:** AP / HE / Smoke
TANK 2 Command = Gunner = Loader = Co-driver = Radio Op =	**Ammo** ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○	**Damage**	**Current Action**	**Current Orders**	**RADIO** ON NET OFF NET **Turret Open** **Turret Closed** **Turret Facing** ● **Loaded Round:** AP / HE / Smoke
TANK 3 Command = Gunner = Loader = Co-driver = Radio Op =	**Ammo** ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○	**Damage**	**Current Action**	**Current Orders**	**RADIO** ON NET OFF NET **Turret Open** **Turret Closed** **Turret Facing** ● **Loaded Round:** AP / HE / Smoke
TANK 4 Command = Gunner = Loader = Co-driver = Radio Op =	**Ammo** ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○ ○○○○○	**Damage**	**Current Action**	**Current Orders**	**RADIO** ON NET OFF NET **Turret Open** **Turret Closed** **Turret Facing** ● **Loaded Round:** AP / HE / Smoke

ANNEX C : HELL ON WHEELS PLAYSHEET

TARGET LOCATION   1d6

LOCATION FACTORS

	Firing		Not firing			
Circs:	Unprep	Prepared	Unprep	Prepared	<=250m	+1
Target	--------	----------	---------	----------	>1000m	-1
					>1500m	-2
Gun	2	4	5	7	Target moving	+2
Vehicle	1	3	4	6	Observer moving	-2
Infantry	3	4	5	6	Observer closed	-2

ANTI-TANK SHOOTING   1d6

Range	50m	100m	150m	200m	300m	500m
To Hit:	4	5	6	7	8	9

DAMAGE ROLL	SHOOTING FACTORS	
1 = negliable	Aiming	+1
2 = immobilised	Subsequent rounds at same	+1
3 = gun damaged	Firer moving	-2
4 = radio damage	Target moving	-1
5-6 = crew comp.	Target in cover	-1

CHOICE OF RELOAD ROUND   TURRET FACING   OBSERVER

Unseen Enemy:	1-3 = AP	1-2 = Forward	1 = closed
	4-6 = HE	3-4 = Right	2-6 = open
Seen Inf/Atk:	1 = AP	5-6 = Left	-3 under fire
	2-6 = HE		
Seen AFV:	1-5 = AP		
	6 = HE		

Key To Codes opposite:
Ev = evasive action   *ES* = 'Ev' with smoke dischargers   *Ob* = Observe (aim).
C = Comply with orders   *En* = Engage available targets.   *Sm* = fire smoke at targets
       Sp = speculative fire.   *CS* = 'C' with smoke dischargers.

Modifiers (roll 1d6):
Green unit -1   Veteran unit +1   Out of ammo -2   Commander grade 5   +1 at choice.

'Non-Player Tank' REACTION TABLE

Position	Situation	Threat	Orders	<1	1	2	3	4	5	6	>6
In Cover	Under fire (1st priority)	Known source	Advance	ES	Ev	En	En	Ob	C	C	C
			Hold	ES	Ev	Ob	Ob	En	En	En	En
			Retreat	C	C	C	CS	Ob	Ob	En	En
		Unknown source	Advance	ES	Ev	Sp	Sp	Ob	Ob	C	C
			Hold	ES	Ev	Ob	Ob	Ob	Sp	Sp	Sp
			Retreat	CS	C	C	Ob	Ob	Ob	Sp	Sp
	Friends under fire (2nd priority)	Known source	Advance	Ob	Ob	En	En	Sm	C	C	C
			Hold	Ob	Ob	Sm	En	En	En	En	En
			Retreat	C	C	C	C	Ob	Sm	En	En
		Unknown source	Advance	Ob	Ob	Ob	Ob	Sp	Sp	C	C
			Hold	Ob	Ob	Ob	Ob	Ob	Ob	Ob	Sp
			Retreat	C	C	C	C	C	Ob	Ob	Sp
	Not under fire	Threat Seen	Advance	Ob	Ob	Sm	En	En	C	C	C
			Hold	Ev	Ob	Ob	Ob	Ob	Ob	En	En
			Retreat	CS	C	C	Ob	Ob	Sm	En	En
		No threat	Any	Ob	Ob	C	C	C	C	C	Sp
In Open	Under fire (1st priority)	Known source	Advance	ES	ES	Ev	Ev	Sm	En	C	C
			Hold	ES	ES	ES	Sm	En	En	En	En
			Retreat	CS	ES	ES	Ev	Ev	Sm	En	En
		Unknown source	Advance	ES	ES	ES	Ev	Ev	C	C	Sp
			Hold	ES	ES	Ev	Ev	Ob	Ob	Sp	Sp
			Retreat	CS	ES	Ev	Ev	Ev	Ev	Ob	Sp
	Friends under fire (2nd priority)	Known source	Advance	Ob	Ob	Sm	En	C	C	C	C
			Hold	Ob	Ob	Ob	Sm	Sm	En	En	En
			Retreat	C	C	C	C	C	Ob	Sm	En
		Unknown source	Advance	Ob	Ob	Ob	Sp	Sp	Sp	C	C
			Hold	Ob	Ob	Ob	Ob	Sp	Sp	Sp	Sp
			Retreat	C	C	C	C	C	C	C	Sp
	Not under fire	Threat Seen	Advance	Ob	Ob	Sm	En	C	C	C	C
			Hold	Ev	Ob	Ob	Ob	Ob	Ob	En	En
			Retreat	Ev	C	C	C	C	C	En	En
		No threat	Any	Ob	C	C	C	C	C	C	Sp

ANNEX D : WEAPONS TABLES

Close Range Armour Penetration

Most actions using Hell on Wheels will be at ranges well within 500m. Most of the time, most ATk weapons can penetrate virtually all armour types in 1944. Should you wish to use different or special mixes of opponant, the following tables might be useful:

Weapon	Types of Ammo	Rangein Metres				
		100	**200**	**300**	**400**	**500**
		Armour Penetration in mm				
US & British						
17pdr / 77mm	AP HE Smoke	150	148	145	140	140
90mm M3	AP HE Smoke	122	120	118	113	110
76mm M1A2	AP HE Smoke	110	108	103	100	98
75mm M3	AP HE Smoke	75	72	70	70	68
6pdr / 57mm	AP HE	92	90	88	85	82
QF 75mm	AP HE Smoke	82	80	78	76	75
37mm	AP	65	60	55	51	49
German Tank guns						
88mm L/71	AP HE Smoke	198	192	188	182	180
75mm L/70	AP HE Smoke	137	132	130	128	126
88mm L/56	AP HE Smoke	118	115	111	110	109
75mm L/48	AP HE Smoke	98	97	95	94	93
75mm L/43	AP HE Smoke	94	93	91	90	88
75mm L/24	AP HE Smoke	100	92	87	82	78
50mm L/60	AP	62	60	59	58	56
50mm L/42	AP	53	51	49	46	44
German ATk guns						
PaK 43 88mm L/71	AP	223	220	216	210	206
FlaK 36 88mm	AP HE	110	105	102	100	98
PaK 40 75mm L/46	AP	125	118	112	108	102
PaK 38 50mm L/60	AP	92	89	83	80	77
PaK 36 37mm L/45	AP	70	64	59	52	49
Russian						
100mm	AP HE	173	170	165	160	155
85mm	AP HE	120	115	112	110	108
76mm	AP HE	84	81	80	77	75

Infantry Anti-Tank weapons such as PIAT, Panzerfaust etc will penetrate around 200mm if they hit and go off.

Armour Thicknesses

The following are illustrative thicknesses, giving maximum and minmum for each side. As a simple test, roll 1d6, 1 or 2 means a hit on an area of minimum thickness, 4-6 is a his on an area of maximum thickness (since they were usually in the areas most likely to be hit).

Vehicle	Front Max/Min	Side Max/Min	Rear Max/Min
	Armour thicknesses in mm		
Sherman 100 / 65	65 / 38	51 / 38	
M36	53 / 53	27 / 19	20 / 19
M3	13 / 13	7 / 6	6 / 6
Stuart	40 / 25	25 / 25	15 / 15
Churchill	152 / 93	76 / 76	76 / 50
Firefly	100 / 65	65 / 38	65 / 38
PzKwIII f-g	35 / 31	33 / 30	31 / 30
PzKwIII h	64 / 35	33 / 30	61 / 31
PzKwIII j	53 / 35	33 / 30	54 / 31
PzKwIV a-e	31 / 31	22 / 20	21 / 20
PzKwIV f1-g	75 / 51	40 / 33	31 / 22
PzKwIV h-j	82 / 56	36 / 30	31 / 22
Panther	140 / 112	58 / 40	31 / 22
Tiger I	110 / 102	80 / 60	83 / 80
StuG III D	54 / 51	40 / 30	42 / 34
StuG III G	127 / 82	40 / 40	51 / 31
SdKfz 234	43 / 43	43 / 31	37 / 31
SdKfz 251	58 / 10	10 / 10	10 / 10
T34/76	96 / 80	75 / 47	64 / 54
T34/85	110 / 90	78 / 47	64 / 54
SU 85	59 / 51	52 / 45	59 / 47
SU 100	102 / 90	52 / 45	59 / 47
KV1	137 / 101	101 / 76	79 / 73

ANNEX E : TANK CONFIGURATIONS

Tank / Vehicle	Gun	MGs	Ammo	Crew mix
Sherman M4A4	75mm	2	85	Commander:gunner:loader/radio op:driver:co-driver/hull gunner
Sherman M4A4E8	76mm	2	69	As above.
Churchill Mk3	6 pdr	2	84	As above
Churchill Mk4	75mmM3	2	60	As above
Sherman Firefly	17 pdr	2	78	As above
Stuart	37mm	2	147	Commander:gunner:Loader:co-driver:driver
Cromwell	75mm	2		Commander:gunner:loader:driver:hull gunner/co-driver
Challenger	17pdr	1	60	As above
PzKw III f-h	50mm L/42	2	99	Commander:gunner:loader/radio-op:driver:hull gunner
PzKw III j	50mm L/60	2	78	As above
PzKw IV a-f1	75mm L/24	2	80	As above
PzKw IV f2-g	75mm L/43	2	87	As above
PzKw IV h-k	75mm L/48	2	87	As above
Panther	75mm L/70	2	97	As above
Tiger I	88mm L/56	2	98	As above
StuG III D	75mm L/24	1	54	Commander:gunner:loader/radio op:driver
StuG III G	75mm L/48	1	78	As above.
SdKfz 234/2	50mm L/60	1	67	Commander:loader:gunner:driver
SdKfz 234/3	75mm L/24	0	55	Commander:loader:gunner:driver:radio operator
SdKfz 234/4	75mm L/48	0	55	As above
T34/76	76mm	2	87	Commander:gunner:driver:hull gunner
T34/85	85mm	2	56	Commander:gunner:loader:driver:hull gunner
SU 85	85mm	1	54	Commander:gunner:loader:driver
SU 100	100mm	1	34	As above
KV 1	76mm	2	111	Commander:gunner:loader:driver:hull gunner