EXAMPLES ILLUSTRATING THE USE OF THE CALCULATOR

SPECIFICATIONS OF TRUCKS USED IN EXAMPLES :

	A (STANDARD)	B (OPTIONAL GEAR RATIO)	C (OPTIONAL ENGINE)
Tyres (34 x 7)	17.6″ radius	17.6″ radius	17.6″ radius
Engine Torque	180 lb./ft.	180 lb./ft.	150 lb./ft.
Rear Axle Gear Ratio (Bevel Drive)	7.4 to 1	6.5 to 1	7.4 to 1
Engine Revolutions at Max. H.P.	2800 R.P.M.	2800 R.P.M.	2800 R.P.M.
,, ,, *at Max. Torque*	1300 R.P.M.	1300 R.P.M.	1300 R.P.M.

EXAMPLE	INFORMATION REQUIRED	SETTING OF CALCULATOR	ANSWER
1	A truck as per specification A is operated with 20,000 lb. GVW on good roads in a hilly district ; why is its performance unsatisfactory ?	Set outer disc to 20,000 lb. GVW and the remaining scales to the appropriate " For Ability " arrows in the sequence Gear Ratio 7.4, Torque 180, Tyre Radius 17.6.	Read 4.1% Gross Ability. (Compare with 5.2% G.A. required for good/hilly road conditions.)
2	What GVW would enable the truck in Example 1 to perform satisfactorily ?	Set " For Ability " arrows in sequence to Gross Ability 5.2%, Tyre Radius 17.6, Torque 180, Gear Ratio 7.4.	Read 15,800 lb. (say, 16,000 lb.) on GVW scale.
3	If the truck in Example 1 were transferred to an " average/flat " district, what GVW could then be applied ?	Set "For Ability" arrows in sequence to Gross Ability 4.2%, Tyre Radius 17.6, Torque 180, Gear Ratio 7.4	Read 19,500 lb. (say, 20,000 lb.) on GVW scale.
4	A truck is required for an " average/flat " district where the GVW is restricted to 16,000 lb. ; what combination(s) of Engine Torque and Gear Ratio would be suitable ?	Set " For Ability " arrows to Gross Ability 4.2%, Tyre Radius 18″ (estimated for 16,000 GVW) and outer disc to 16,000 lb. GVW.	Any combination of Torque and Gear Ratio obtained by revolving Gear Ratio disc subject to checking when actual tyre radius is known, e.g., Torque 180 and GR 6.2, or Torque 150 and GR 7.45.
5	As specifications B and C would be tentative selections for Example 4, what maximum road speed would be attainable in each case ?	(B) Set " For Speed " arrows to " Speed Zero " on centre disc, Tyre Radius 17.6, RPM 2800, gear Ratio 6.5. (C) As for (B) except for substituting Gear Ratio 7.4.	(B) Read 45 miles per hour on Road Speed scale. (C) Read 39.6 miles per hour on Road Speed scale. (Note : Maximum speed attainable on level roads.)
6	If a truck to specification B were selected to meet the requirements of Example 4, what would be its Grade Ability ?	Set outer disc to 16,000 lb. GVW, and remaining scales against " For Ability " arrows in the sequence Gear Ratio 6.5, Torque 180, Tyre Radius 17.6.	Read 4.5% on Gross Ability scale and deduct 2.2% for resistance of average surface. The truck would negotiate a 2.3% gradient in direct drive with a GVW of 16,000 lb.
7	At what speed would the truck in Example 6 negotiate a 2.3% gradient ?	Set " For Speed " arrows to " Speed Zero " on centre disc, Tyre Radius 17.6, RPM 1300, Gear Ratio 6.5.	Read 21 miles per hour on Road Speed scale. (i.e., the MPH at engine RPM at which maximum torque is developed and grade ability calculated).
8	The full specification of the truck in Example 6 shows that the total reduction in low gear is 40 to 1 ; what would be the maximum gradient it could negotiate and what would be the road speed on the gradient ?	(a) Set as in Example 6, except for substituting Gear Ratio 40 in place of 6.5. (b) Set as in Example 7, except for substituting Gear Ratio 40 in place of 6.5. (Note : For Gear Ratio 40 to 1 use 4.0 on scale).	(a) Read 2.7 on scale as 27% Gross Ability and deduct 2.2% for resistance of " average " surface. (b) Read 34 on scale as 3.4 miles per hour.