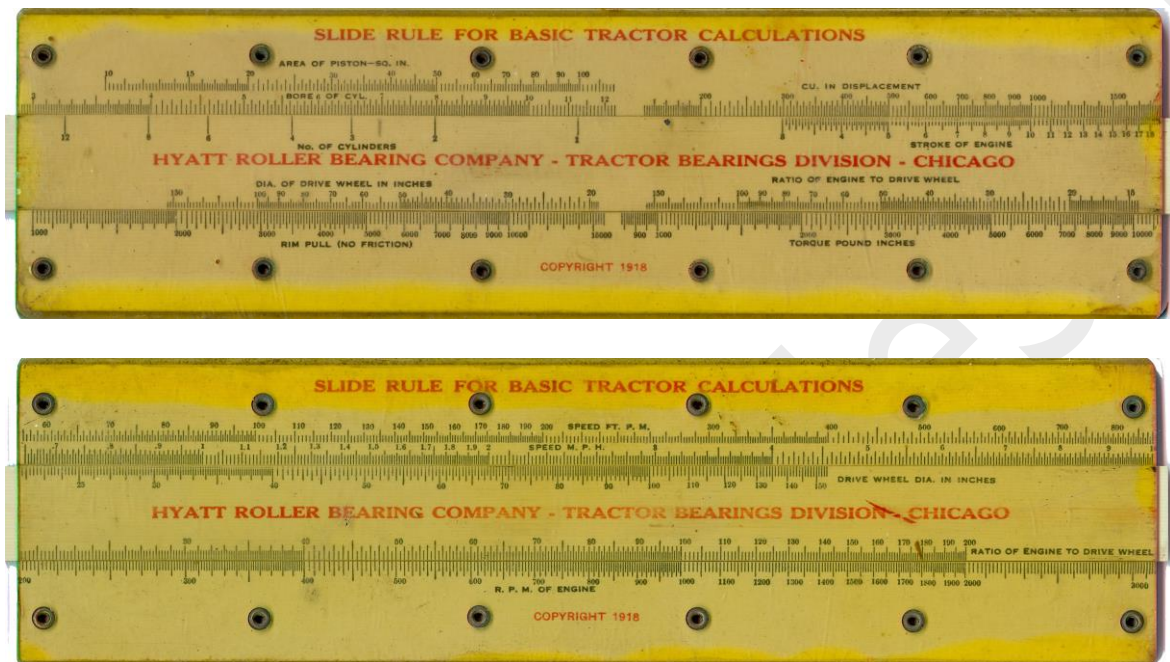


SLIDE RULE FOR BASIC TRACTOR CALCULATIONS

Owner: David G Rance

Pictures (front and back):



Purpose of the Slide Rule:

Speciality slide rules were made for many trades and professions. But perhaps because of a strong “hands-on” element, agricultural slide rules are singularly uncommon. A couple of rare examples for animal husbandry do spring to mind: (i) the cattle-breeding and pig-breeding rules from ARISTO and UTO respectfully and (ii) rules based on Richmond’s milk scale for the dairy industry. However, for land husbandry, apart from Forestry lumber rules, none existed.

Well, I was wrong, or at least, I think I was. Being always intrigued by slide rules with unusual or “whacky” scales, a 2009 eBay® offering of a “*Slide Rule for Basic Tractor Calculations*” caught my eye. For a given a size and type of tractor engine the rule calculates (?) the force on the bearing(s) when a tractor is driving and powering one of the many agricultural tractor attachments. For example, when using a tractor to plough or drill-seed a large acreage of farming land. The company name on the rule, *Hyatt Roller Bearing Company* of Chicago U.S.A., no longer exists – they were acquired by car manufacturing giant General Motors some time shortly after GM was formed in 1908.

Dimensions:

- **Base:** 210 mm x 56 mm x 4 mm.
- **Slide:** 260 mm x 17 mm x 1.5 mm
- **Cursor:** none or missing (probably not needed)

Material and construction:

The type of construction is best described as a hybrid between a slide rule and a slide chart. To avoid having any “tongue-and-groove” construction for the slide, the unknown maker choose to encapsulated three strips of white plastic with two translucent (possibly aged yellow with age) plastic sheets front and back. Six metal pop-rivets along the top and the bottom of the “stock” make sure everything stays in place and enables the middle strip to act as a conventional slide.

- **Base:** plastic “Astralon-like” white PVC strips and translucent (yellowed) plastic sheets
- **Slide:** plastic “Astralon-like” white PVC strip
- **Cursor:** “missing” or not needed.
- **Finishing:** the printing (in black and red) is a form of screen printing onto each of the PVC plastic strips.

Duplex layout and scales:

Unexpectedly all the scales are, at least in part, logarithmic and even more surprisingly, many of them are based on imperial units.

- **Front of “stock” above the slide:**
 - 10-119 **AREA OF PISTON – SQ.IN** logarithmic scale
 - 2.9-12.3 **BORE OF CYL.** and 156 - 1850 **CU. IN DISPLACEMENT** logarithmic scales
- **Front of the Slide:**
 - 12-1 **No. OF CYLINDERS** scale and 3-19 **STROKE OF ENGINE** logarithmic scales
 - 154-24 **DIA. OF DRIVE WHEEL IN INCHES** and 156-15.5 **RATIO OF ENGINE TO DRIVE WHEEL** logarithmic scales
 - a blind-stamped “F” top and bottom of the right- hand end
- **Front of “stock” below the slide:**
 - 1000-15800 **RIM PULL (NO FRICTION)** and 860-11200 **TORQUE POUND INCHES** logarithmic scales
- **Back of “stock” above the slide:**
 - 55-880 **SPEED FT. P.M.** logarithmic scale
 - 6.5-10 **SPEED M.P.H.** logarithmic scale
- **Back of the Slide:**
 - 2-55 **DRIVE WHEEL DIA. IN INCHES** logarithmic scale
 - 20.2-200 **RATIO OF ENGINE TO DRIVE WHEEL** logarithmic scale
- **Back of “stock” below the slide:**
 - 200-3160 **R.P.M.** logarithmic scale

Designer:

Apart from “**COPYRIGHT 1918**” printed on the front and back of the rule – nothing is known.

Manufacturer:

Unknown - although showing certain construction similarities to slide rules made by UK manufacturer Blundell Harling, retired Technical Director, Peter Soole, says it was not made by them.

Given the take-over of the company by GM and the copyright year “**1918**”, the year of manufacture is probably around 1920’s.

Final remarks:

It is not known if a user manual or an instruction leaflet ever existed as its novel agricultural use makes it particular hard to even speculate how it would have been used. However, a knowledgeable fellow collector, Gerard van Gelswijck, believes it can calculate (among other things) the overall pulling power (measured at the towing point) based on the tractor’s engine power, engine revolutions, gear ratio and wheel diameter.