



XTRAC 303 SPORTS CAR IN-LINE GEARBOX



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XTRAC IN-LINE CUSTOMER SPORTSCAR GEARBOX

Xtrac has designed and manufactured a customer specification gearbox for use in GT and Sports Car Racing. The project involved the design, manufacture and assembly of a rear mounted, longitudinal gearbox.

A summary of the specification is as follows:-

- Drive is fed from the ratios through a pair of easily changeable drop gears into a non-hypoid spiral bevel Final Drive.
- Available as either sequential or H-shift gearchange with 6 dog flat top, non-synchromesh change gears. The sequential gearchange is engaged through a full length Barrel with the following sequence Rev, N, 1, 2, 3, 4, 5, 6 with full neutral detent (8 position barrel).
- 1st & 2nd gear are integral with the Layshaft, 3rd to 6th gears are separate, slide on gears. Gear teeth are straight cut on 89.48mm centres with 17.5 mm wide gears for 1st-6th. This cluster also incorporates an additional bearing support between 2nd and 3rd gears. Latest ratios lists are enclosed.
- An alternative cluster with 20 mm wide ratios is also available. 1st gear is integral with the Layshaft, 2nd to 6th gears are separate, slide on gears.
- Gear ground and super polished ratios (Xtrem Process) are available for 24 hour races if required.
- The gearbox castings are of one design. This means that the gearboxes have one set of mountings. The casing material is Magnesium L128/RZ5 and all castings have O'Rings.
- The standard differential is a plate type limited slip unit (LSD) with a choice of 4-5 standard ramp angles and a large number of plate settings, gearboxes are supplied with 50/60 ramps. A single stepped plate, 3 Bellville springs and a range of shims are available for pre-load adjustment.
- A Viscous Combined Plate (VCP) differential is available as an option. Standard setting (which gearboxes are supplied with) for this differential will be 50/60 Ramps and 110 Nm Viscous unit. The differential is also available with a choice 4-5 standard ramp angles.
- Drop Gears on 89.48mm centres. 18:22, 23:26, 20:21, 24:24, 24:23, 24:22, 24:21, 22:18, 27:21 are available as standard.
- Clutch shaft to suit customer engine and clutch is included.
- Reverse gear is a sliding constant mesh idler type.
- Hard cut Klingelberg bevel set. Ratio = 9:31 as standard fitment. A 10:31 ratio is available as an option.



- Tripode Output flanges are included. These are an Xtrac version of the GI87 type.
- Lubrication is via Single stage Eccentric Lobe lubrication pump
- An optional Alternator rear drive kit is available.
- All components are manufactured in Xtrac's own grade of steel (X36C). Bevel sets are manufactured in Xtrac's vacuum arc re-melted steel (XVAR1) using the post heat treatment hard cutting process for greater accuracy and longer life. Some components are shot peened. Titanium is not used.

Excluded Items

The design and manufacture of the following items is not included.

- Bellhousing/oil tank
The production of the bellhousing (layout, design, pattern, casting, machining and assembly) is not included, but Xtrac will quote for the complete or partial design and manufacturing of this once approximate details are known (i.e., length, size, oil tank needs, suspension mountings etc). The bellhousing assembly can also include the starter motor and clutch release.
- Driveshafts, CV joints, Tripodes, boots
- Clutch, flywheel, ring gear, starter or starter pinion
- Alternator and alternator drive
- Bolt on suspension mounts, wing mounts, airjack, studs etc
- Oil cooler, pipework and fittings
- In car gearchange
- Oil Temperature, Oil Pressure, Speed and Gear position sensors
- Assembly tooling
- Gearbox mock ups
- Reverse lock out cable support installation design. (To be Bellhousing mounted)



Gearbox Costings

The normal cost for fully assembled and rig tested gearboxes being ordered together and being produced in one batch, is as follows:

Production gearboxes	1-4 off	£TBA	Each
	5-6 off	£TBA	Each
	7-9 off	£TBA	Each
	10-11 off	£TBA	Each
	12-16 off	£TBA	Each

Pattern Work Modification

Should you require any modifications to the standard customer gearbox pattern equipment a cost will be advised when the extent of the changes are known.

VCP Differential

If ordered with and for delivery in the gearbox a supplement will be charged to fit a VCP Differential.

£TBA

Kit to convert the standard plate Differential into a VCP.

£TBA



Xtrac Product Range

Xtrac would also be pleased to quote for the following standard or bespoke components and assemblies:

- Flywheels & Ring Gears
- Steering Racks & Components
- Driveshafts, Joints & Boots
- Starter Motor Systems & Components
- Gearlever Assemblies
- Hydraulic/Pneumatic Gearchange Systems
- Clutch Release Assemblies
- Bellhousings
- Suspension Components
- Engine Gears & Components



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Gearbox Type: 303

1st 2nd Combinations 164-42M-000*

(164-421-000* / 105-422-008A)
 / SK99-017A)

*= Order Code eg: 164-42M-000AA

	1 st			2 nd		
Code(*)	Input	Output	Ratio	Input	Output	Ratio
AA	14	36	2.571	16	33	2.063
AB	14	34	2.429	16	32	2.000

Collared 3rd 303-42M-3A

(303-421-003A / 126-422-008A)

Input	Output	Sum	Ratio
18	33	51	1.833
19	34	53	1.789
18	31	49	1.722
19	32	51	1.684
19	31	50	1.632
19	30	49	1.579
18	28	46	1.556

Drop Gears

Input	Output	Sum	Ratio
18	22	40	1.222
23	26	49	1.130
20	21	41	1.050
24	24	48	1.000
24	23	47	0.958
24	22	46	0.917
24	21	45	0.875
22	18	40	0.818
27	21	48	0.778

4-6th 126-42M-4A

(126-421-004A / 126-422-008A)

Input	Output	Sum	Ratio
17	28	45	1.647
18	29	47	1.611
19	30	49	1.579
18	28	46	1.556
19	29	48	1.526
20	30	50	1.500
17	25	42	1.471
20	29	49	1.450
19	27	46	1.421
21	29	50	1.381
20	27	47	1.350
19	25	44	1.316
20	26	46	1.300
22	28	50	1.273
21	26	47	1.238
23	28	51	1.217
21	25	46	1.190
23	27	50	1.174
19	22	41	1.158
21	24	45	1.143
25	28	53	1.120
21	23	44	1.095
26	28	54	1.077
19	20	39	1.053
26	27	53	1.038
24	24	48	1.000

Final Drive

Input	Output	Sum	Ratio
9	31	40	3.444
10	31	41	3.100

Dominic Smith	120-303-001	11/07/01	1
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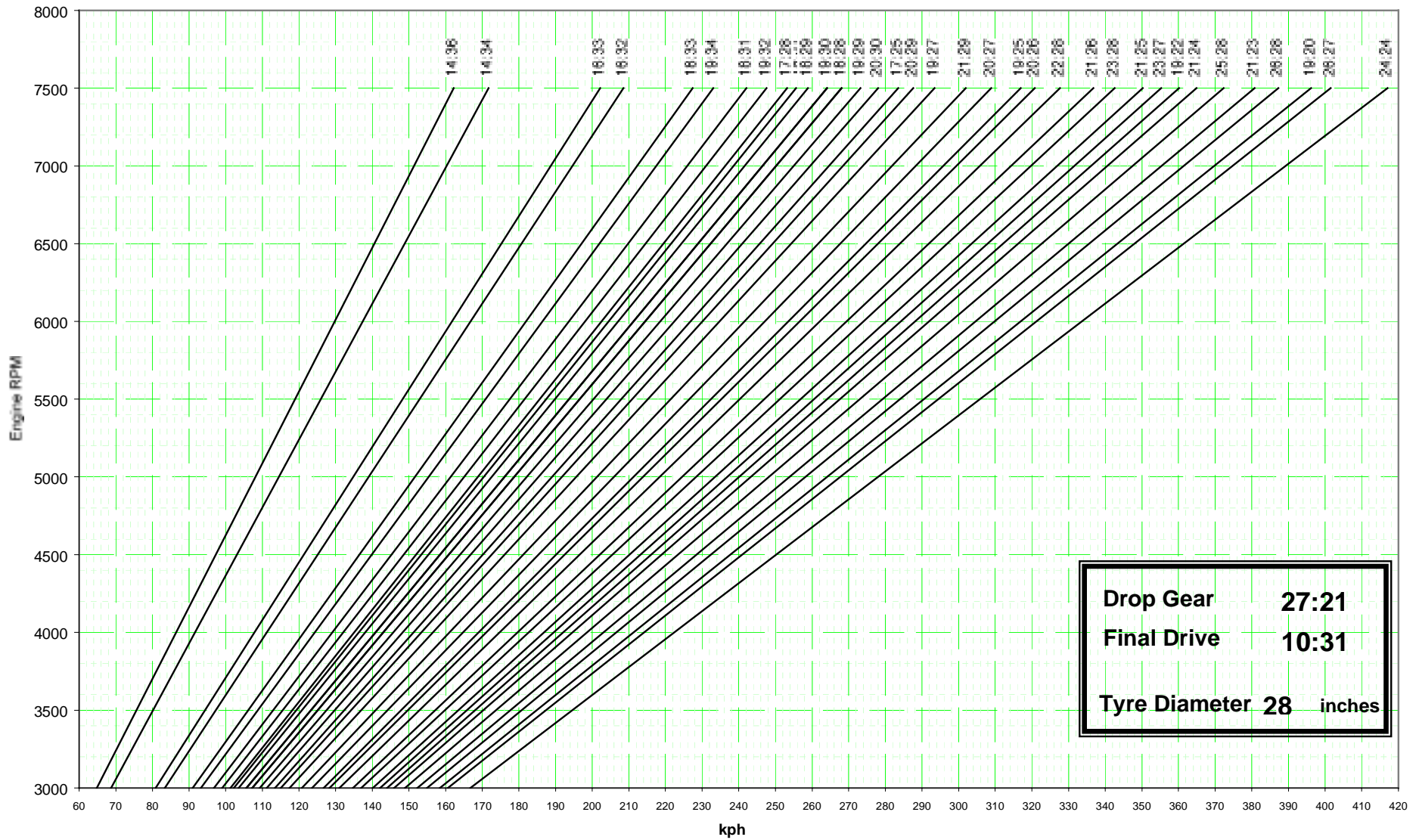
Alternative Ratios may be supplied on request.
 Xtrac reserve the right to change ratios without notice



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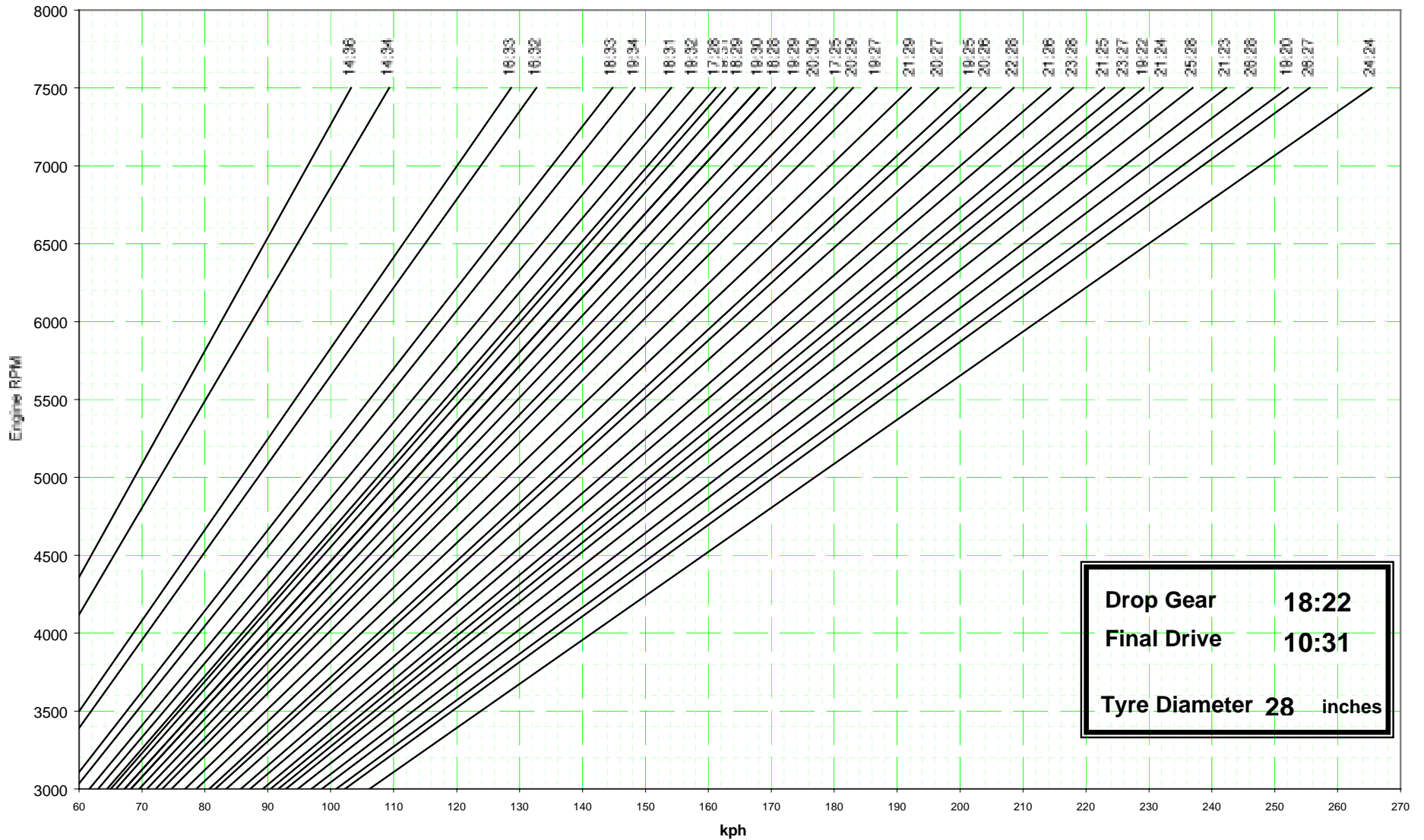
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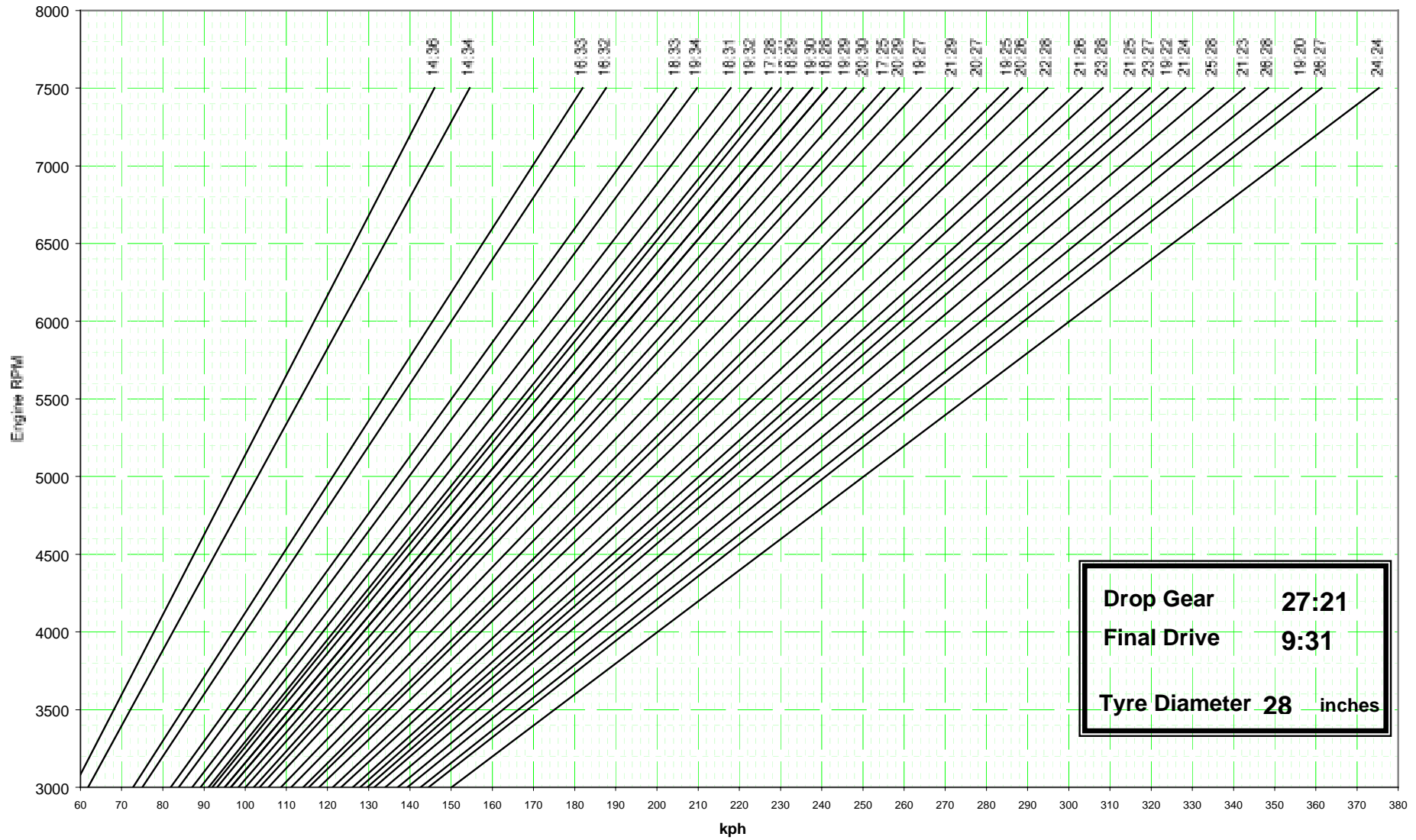
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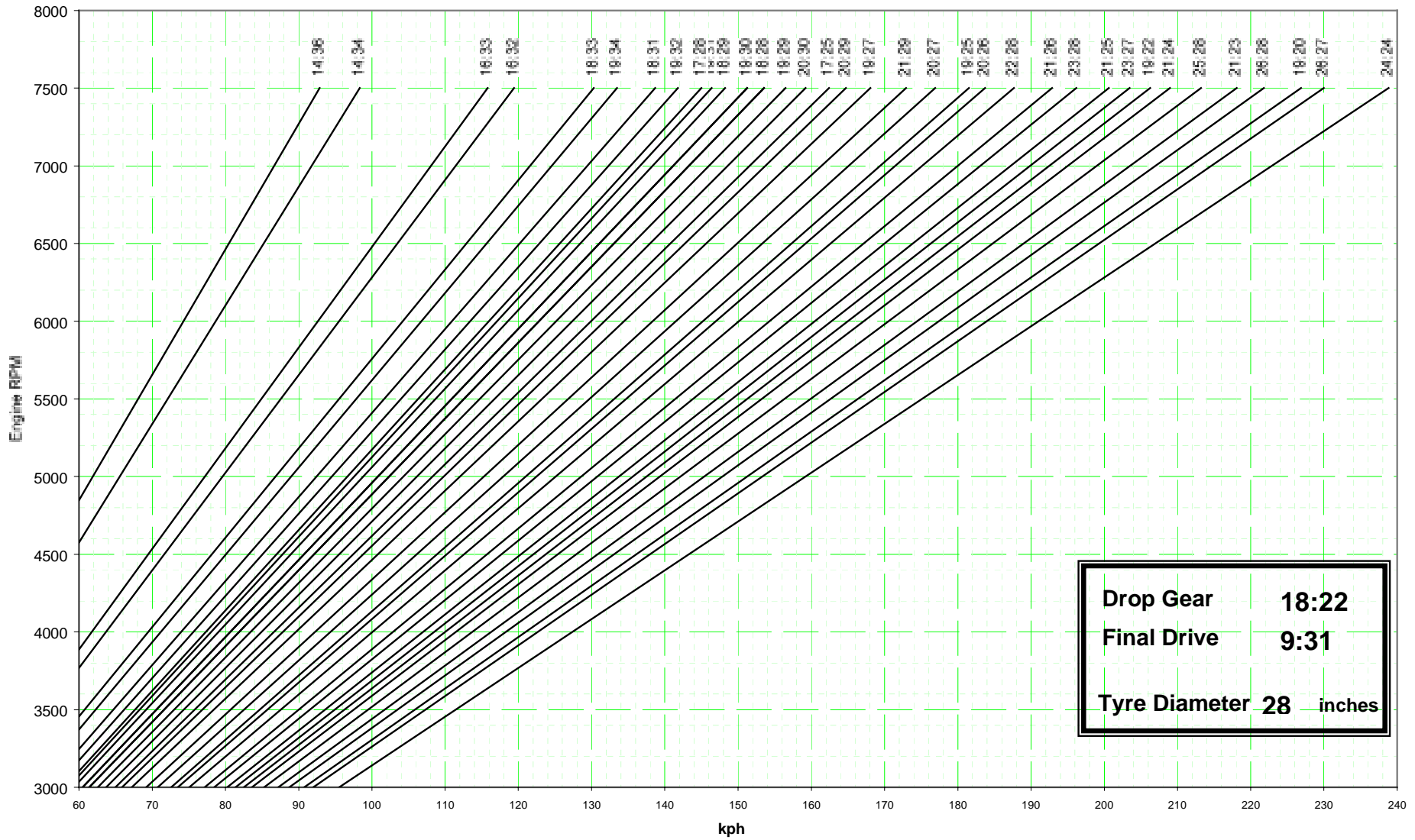
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