SERVICE BULLETIN

FOR

Royal Enfield

MOTORCYCLES

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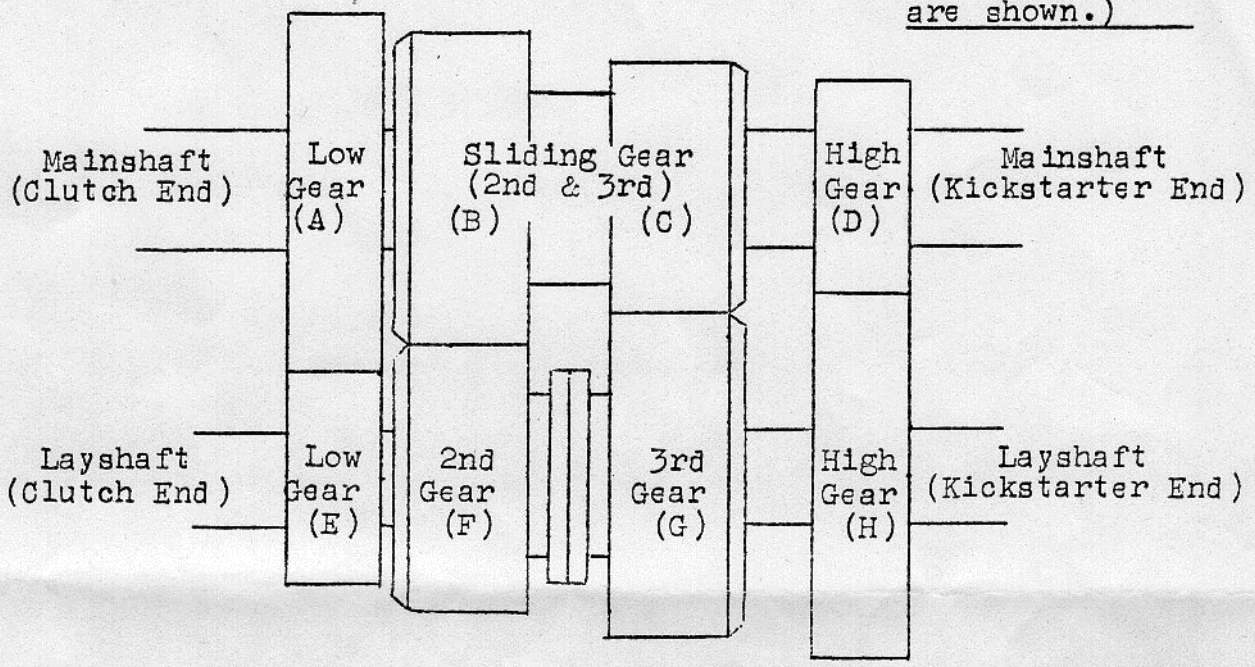
IDENTIFICATION CHART FOR ROYAL ENFIELD GEARBOX INTERNAL GEARS:

This chart lists the various gear sets used on all 4-speed Royal Enfield gearboxes from 1955 to date, 250cc and larger models. (Standard ratios are shown.)



1. "H" Series gears: (As used in 1955-early 1959 Indian 350cc,500cc & 700cc models - "fine pitch" gears.)

Ref.No:	Description:	Part No:	No.-Teeth:
"A"	M/S low gear	H12/30	30 T
"B"&"C"	M/S sliding gear	H11/25/21	25 x 21 T
"D"	M/S high gear	H9/18	18 T
"E"	L/S low gear	H17/18	18 T
"F"	L/S 2nd gear	H18/23	23 T
"G"	L/S 3rd gear	H19/27	27 T
"H"	L/S high gear(& K/S wheel)	H20/30	30 T

2. "HG" Series gears: (As used in later 1959 Indian models,and all 1960 and later Royal Enfield-"coarse pitch" gears; 350cc,500cc,700cc and 750cc models.)

Ref.No:	Description:	Part No:	No.-Teeth:
"A"	M/S low gear	HG12/25	25 T
"B"&"C"	M/S sliding gear	HG11/21/18	21 x 18 T
"D"	M/S high gear	HG9/15	15 T
"E"	L/S low gear	HG17/15	15 T
"F"	L/S 2nd gear	HG18/19	19 T
"G"	L/S 3rd gear	HG19/22	22 T
"H"	L/S high gear (& K/S wheel)	HG20/25	25 T

NOTE: In some instances it may be found that the later, heavy-duty "HG" series gears have been previously fitted to an earlier gearbox. Individual gears are not interchangeable between the "H" series, and "HG" series gearboxes. Check before ordering replacement gears.

ROYAL ENFIELD GEARBOX CHART - Continued.....(4-speed)

3. "HJ" Series gears: (As used in 1955-1958 Indian 250cc "Fire Arrow" and "Hounds' Arrow" models-seperate gearbox, with frame plates between engine & gearbox.)

Ref.No:	Description:	Part No:	No.-Teeth:
"A"	M/S low gear	ST113	26 T
"B"&"C"	M/S sliding gear	ST112	21 x 18 T
"D"	M/S high gear	ST111	15 T
"E"	L/S low gear	ST121	16 T
"F"	L/S 2nd gear	ST122	21 T
"G"	L/S 3rd gear	ST123	24 T
"H"	L/S high gear (& K/S wheel)	ST124	27 T

4. "HJ" Series gears: (As used in 1959 Indian 250cc models, and 1960-1962 Royal Enfield "Hornet" models, based on unit-construction "Crusader" engine/gear unit.)

Ref.No:	Description;	Part No:	No.-Teeth:
"A"	M/S low gear	ST113	26 T
"B"&"C"	M/S sliding gear	HJ11/21/17	21 x 17 T
"D"	M/S high gear	ST111	15 T
"E"	L/S low gear	ST121	16 T
"F"	L/S 2nd gear	ST122	21 T
"G"	L/S 3rd gear	ST123	24 T
"H"	L/S high gear (& K/S wheel)	ST124	27 T

NOTE: To calculate the internal ratios of Royal Enfield 4-speed gearboxes, the following diagram can be used:

To find low gear: (A x H) divided by (D x E)
To find 2nd gear: (B x H) divided by (D x F)
To find 3rd gear: (C x H) divided by (D x G)
To find high gear: (D x H) divided by (D x H)

5. "M" Series gears: (As used in some 1959 Indian "Apache" models, and 1959-1961 Indian "Chief" models.)

Ref.No:	Description:	Part No:	No.-Teeth:
"A"	M/S low gear	M12/25	25 T
"B"&"C"	M/S sliding gear	M11/21/18	21 x 18 T
"D"	M/S high gear	M9/15	15 T
"E"	L/S low gear	M17/16	16 T
"F"	L/S 2nd gear	M18/21	21 T
"G"	L/S 3rd gear	M19/24	24 T
"H"	L/S high gear (& K/S wheel)	M20/27	27 T

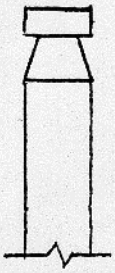
Service Department

IDENTIFICATION CHART FOR ROYAL ENFIELD ENGINE VALVES & GUIDES:

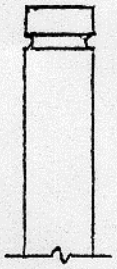
This chart lists the various engine valves and guides used on all Royal Enfield models, 1955 to date, 250cc, 350cc, 500cc, 700cc and 750cc models. Also Indian models made by Royal Enfield, 1955-59.

Keep in mind the differences between "A" type valves, and the later "B" type valve assemblies, as illustrated below:

(A) Earlier Type Stem:



(B) Later Type Stem:



(Bullock-type stem keepers)

Appropriate identification following part number:
(A) Valves using 10672 end caps, 11099 keepers, & steel top collars.
(B) Valves using no end caps, 42492 keepers, & alloy top collars.
(C) Cast-iron valve guides for cast-iron cylinder heads.
(D) Phosphor-bronze valve guides for alloy cylinder heads.

	Part No:	Valve:	Head Diameter	Overall Length	Model:
250cc Singles:	21063 (A) 21064 (A) 21322 (C)	Inlet Exhaust Guide, I&Ex	1-5/16" 1-5/16"	3-15/16" 4" 2-1/16"	1955/58 Indian 250 models, iron head & barrel, seperate gearbox (64mm-Bore)
	39156 (A) 35392 (A) 22641 (C) 21322 (C)	Inlet Exhaust Guide, inl. Guide, exh.	1-7/16" 1-3/8"	3-13/16" 3-13/16" 1-13/16" 2-1/16"	1959 Indian 250cc "Fire-Arrow" with iron cyl. head. (Crusader type)
	25524 (D) 44045 (D)	Guide, inl. Guide, exh.		1-13/16" 2-1/16"	As '59 above, but with alloy cyl. head (70mm-Bore)
	44765 (B) 44766 (B) 25524 (D) 44045 (D)	Inlet Exhaust Guide, inl. Guide, exh.	1-9/16" 1-3/8"	4" 3-31/32" 1-13/16" 2-1/16"	1959 Indian Hounds Arrow, 1960 & later R.E. "Hornet," "Fire ball" & "Super 5" mod
350cc Singles:	35391 (A) 35392 (A) 25524 (D)	Inlet Exhaust Guide, I&Ex	1-1/2" 1-3/8"	3-25/32" 3-13/16" 1-13/16"	1950-early 1955 350 "Bullet" with exh. pipe stub on cylinder head.
	40086 (A) 35392 (A) 25524 (D)	Inlet Exhaust Guide, I&Ex	1-9/16" 1-3/8"	3-25/32" 3-13/16" 1-13/16"	Late 1955-1959 350 "Bullet." Also Ind. Woodsman, '55/56.
	44765 (B) 44766 (B) 25524 (D)	Inlet Exhaust Guide, I&Ex	1-9/16" 1-3/8"	4" 3-31/32" 1-13/16"	1960/on 350 "Fury" also '57/59 350cc Indian Woodsman & Westerner.

Continued.....

ENGINE VALVES & GUIDES - Cont'd:

	Part No:	Valve:	Head Diameter	Overall Length	Model:
500cc Singles:	38094 (A) 38095 (A) XX3811VK(A) 25524 (D)	Inlet Exhaust 1/8"O/S inl. Guide,I & Ex	1-3/4" 1-5/8" 1-7/8"	3-13/16" 3-13/16" 3-13/16" 1-13/16"	1955/56 Indian "Woodsman." Also Enfield "500 Bullet."
	42663 (B) 42454 (B) 25524 (D)	Inlet Exhaust Guide,I & Ex	1-7/8" 1-5/8"	4-1/32" 4" 1-13/16"	1957/59 Ind."Woodsman,'57/58 Indian "Westerner"(small cylinder head.)
	43360 (B) 43361 (B) 43363 (D)	Inlet Exhaust Guide,I & Ex	1-15/16" 1-5/8"	4-5/8" 4-9/16" 2-1/32"	1959 Indian"Westerner,1960-on R.E. "500 Fury"(large cylinder head.)
500cc Twins:	40458 (A) 32545 (A) 34380 (D)	Inlet Exhaust Guide,I & Ex	1-5/16" 1-1/4"	4-3/32" 4-5/32" 2-5/16	1955 Indian"Tomahawk" 64mm-Bore engine.
	38664 (A) 32545 (A) 34380 (D)	Inlet Exhaust Guide,I & Ex	1-3/8" 1-1/4"	4-3/32" 4-5/32" 2-5/16"	1956/57 Indian "Tomahawk," 64mm-Bore engine.
	42661 (B) 43521 (B) 42660 (D)	Inlet Exhaust Guide,I & Ex	1-9/16" 1-3/8"	4-3/32" 4-1/8" 2-1/16"	1958/59 Indian "Tomahawk," 1963 R.E."500 Sp.Twin" 70mm-Bore engine.
700/750cc Twins:	41221 (A) 39529 (A) 38638 (D)	Inlet Exhaust Guide,I & Ex	1-9/16" 1-3/8"	3-15/16" 3-31/32" 2-1/16"	1955/57 Indian "Trailblazer."
	42661 (B) 43521 (B) 42660 (D)	Inlet Exhaust Guide,I & Ex	1-9/16" 1-3/8"	4-3/32" 4-1/8" 2-1/16"	1957 Indian"Apache" 1958-on Indian & Enfield 700cc Twins 1963-750cc Twins.

Service Department

SERVICE BULLETIN
#3

ROYAL ENFIELD GEAR RATIO CHART:

The following gear ratios are based on standard heavy-duty "HG" series gears for 350cc,500cc,700cc and 750cc models - 1960 on:

CHART #1:

STANDARD SPROCKETS:

Engine	25-T
Clutch	56-T
Rear Wheel	46-T

(As 500cc "Fury" model)
(20-T engine sprocket used on 350cc "Fury" model.)

Geqrbox Sprocket	4th 1.00	3rd 1.36	2nd 1.84	1st 2.78
14-T	7.36	10.01	13.54	20.46
15-T	6.87	9.34	12.64	19.10
16-T	6.44	8.76	11.85	17.90
17-T (A)	6.06	8.24	11.15	16.85
18-T (B)	5.72	7.78	10.52	15.90
19-T	5.42	7.37	9.97	15.07
20-T	5.15	7.00	9.48	14.32
21-T (C)	4.91	6.68	9.03	13.65
22-T	4.68	6.36	8.61	13.01

(A) Standard 500cc competition "Fury" model single.
(B) Standard 500cc sidecar gearing (single-cylinder).
(C) Standard 500cc road gearing for "Fury" single.

CHART #2:

STANDARD SPROCKETS:

Engine	29-T
Clutch	56-T
Rear Wheel	46-T

(All late-model twins)

Gearbox Sprocket	4th 1.00	3rd 1.36	2nd 1.84	1st 2.78
14-T	6.34	8.62	11.67	17.63
15-T	5.92	8.05	10.89	16.46
16-T	5.55	7.55	10.21	15.43
17-T (A)	5.23	7.11	9.62	14.54
18-T (D)	4.93	6.70	9.07	13.71
19-T (E)	4.68	6.36	8.61	13.01
20-T (B)	4.44	6.04	8.17	12.35
21-T (C)	4.23	5.75	7.78	11.76
22-T	4.04	5.49	7.43	11.23

(A) Standard '60/62 700cc "Interceptor" models with lights.Competition "TT" model without lighting had 54-T rear wheel sprocket.
(B) Standard 700cc twin road gearing.
(C) Standard 750cc twin road gearing (1962/63).
(D) Standard 700cc twin sidecar gearing.
(E) Standard 500cc Sport Twin (1963) gearing - 17" wheels.

Service Department

ROYAL ENFIELD 500cc, 700cc and 750cc TWIN-CYLINDER ENGINE
CONNECTING-ROD and CRANKSHAFT JOURNAL IDENTIFICATION CHART:

I. 700cc Twins:(70mm bore, 90mm stroke)
A. 1955-1956 (Indian "Trailblazer"):
1. No inserts used. Con-rods direct on crankshaft. Con-rods available STD,.010" and .020" u/s.
2. Crankpin diameter: 1.8750/1.8745"
3. Con-rod B.E. internal diameter: 1.8760/1.8755"
4. Con-rod part no: (Width at B.E: 1") 38646*
5. Stamping no. on con-rod: W34054/5
*Suffix /10 or /20 for undersize con-rod assemblies.

B. 1957-1959 (Indian "Trailblazer,""Apache" and "Chief"):
1960-1962 (Royal Enfield "Constellation,""Super Meteor," "Interceptor" and "Galaxy"):
1. Con-rod inserts used. Inserts available STD,.010" and .020" u/s.
2. Crankpin diameter: 1.8750/1.8745"
3. Con-rod B.E. internal diameter: 2.0190/2.0185"
4. Con-rod insert internal diameter: 1.8760/1.8755"
5. Con-rod part no:(Width at B.E: 1")41719,41719A or 41719B
6. Stamping no. on con-rod: W41720/A
7. Con-rod insert part no: (Width: 13/16") 41722*
*Suffix /10 or /20 for undersize con-rod inserts.

II. 750cc Twins:(71mm bore, 93mm stroke)
1963 (Royal Enfield "Interceptor" and "Constellation.")
1. Same crankpin sizes and con-rod data as 1957 & later 700cc engines listed immediately above.
2. Standard con-rod is part no. 41719B.

III. 500cc Twins:
A. 1955-1957 (Indian "Tomahawk," 64mm bore, 77mm stroke):
1. Con-rod inserts used. Inserts available STD,.010" and .020" u/s.
2. Crankpin diameter: 1.7500/1.7495"
3. Con-rod B.E. internal diameter: 1.8540/1.8535"
4. Con-rod insert internal diameter: 1.7515/1.7505"
5. Con-rod part no: (Width at B.E: 7/8") 38018
6. Stamping no. on con-rod: W34054/5
7. Con-rod insert part no: (Width: 5/8") 38016*
*Suffix /10 or /20 for undersize con-rod inserts.

B. 1958-1959 (Indian "Tomahawk," 70mm bore, 64.5mm stroke):
1. Con-rod inserts used. Inserts available STD,.010" and .020" u/s.
2. Crankpin diameter: 1.7715/1.7710"
3. Con-rod B.E. internal diameter: 1.8760/1.8755"
4. Con-rod insert internal diameter: 1.7730/1.7720"
5. Con-rod part no: (Width at B.E: 1") 42597
6. Stamping no. on con-rod: W34054/5
7. Con-rod insert part no: (Width: 3/4") 42596*
*Suffix /10 or /20 for undersize con-rod inserts.

C. 1963 (Royal Enfield "500 Sports Twin): Same con-rods,crankpin sizes as 1957 & later 700cc and 750cc engines.

ROYAL ENFIELD TWIN-CYLINDER ENGINE CRANKSHAFT DATA, 500cc, 700cc and 750cc models, 1949 to 1963.....

500cc CRANKSHAFTS:

#34323 — First 500cc crankshaft, frame #T101-#T150. Direct-on-shaft con-rods (no inserts) #34151, with #34056 rod bolts, #14691 washers, #35130 "castle" nuts and #30779 cotter keys. Replace with #38665-MODIFIED.

#35734 — Fitted from frame #T151-#T2150. Breather in mainshaft, direct-on-shaft con-rods as above. Replace with #38665-MODIFIED.

#37779 — Fitted from frame #T2151-#T4650. No breather in mainshaft & using insert-type con-rods. Original con-rod #36150, later changed to #38018 con-rod. Bearing insert part no. 38016, insert width 5/8", crank journal diameter 1.7500". Used in 1955 Indian "Tomahawk" model with Lucas magdyno ignition & D.C. generator. Replace with #38665.

#38665 — Fitted to all remaining 64mm bore, 77mm stroke 500cc twin engines (as 1956-57 Indian "Tomahawk"). Similiar to crankshaft #37779, but with slot in mainshaft for alternator adaptor sleeve. Con-rod #38018 used, etc.

#42519 — First "short-stroke" crankshaft for 500cc twin (70mm bore, 64.5mm stroke), as 1958-59 "Meteor Minor" and Indian "Tomahawk" models. Insert-type con-rods used, con-rod part no. 42597, bearing insert part no. 42596, insert width 3/4". Crank journal diameter 1.7715", con-rod width at B.E: 1".

#43379 — 1960 & later short-stroke (70mm bore, 64.5mm stroke) 500cc crankshaft. Crank journal diameter 1.8750", insert-type con-rods used. Con-rod part no. 41719 (earlier) and 41719A (later), as '57 & later 700cc and 750cc twin con-rods. Breather bolt #45403 used, as 1959 & later 700cc "Super Meteor," 1960 & later 700cc & 750cc "Constellation," "Interceptor", etc., engines.

700cc CRANKSHAFTS:

#36499 — First 700cc (70mm bore, 90mm stroke) crankshaft, 1953-55 "Meteor" engines. Crankpin diameter 1.7500", insert-type con-rods used, con-rod #38018, con-rod insert #38016. Con-rod width at B.E: 7/8" and insert width 5/8". All "Meteor" models were fitted with either Lucas generator & distributor units, or a "magdyno" unit. Earlier engines incorporated an oil release valve with housing, spring and 1/4" ball in R/H crank throw. Later engines did not use this oil release valve assembly.

700cc CRANKSHAFTS: (Cont'd)

#38631	First "Super Meteor" crankshaft, also fitted to 1955-1956 Indian "Trailblazer." Crank journal diameter-1.8750", with con-rods running direct on crankshaft. Con-rod part number 38646, width at B.E: 1". Lucas alternator system used, with rotor adaptor slot in mainshaft. This crankshaft fitted up to engine number SM2693, then changed to #43350 which uses con-rods #42597, with crank journal diameter 1.7715".
#42392	Modified oilways, but otherwise identical to #38631 crankshaft. Fitted to 1957-58 "Super Meteor," and 1957-58 Indian "Trailblazer." Con-rods #38646 used to engine #SM2790, then changed to rod assembly #41719 with inserts, from engine #SM2791.
#42501	Nodular crankshaft, fitted to 1957-59 Indian "Apache" and 1958-59 Enfield "Constellation" models. Crankpin diameter 1.8750", con-rod #41719 with inserts. Insert part #41722, con-rod width at B.E: 1" and insert width 13/16". Lucas RM14 alternator used, etc.
#43350	Replacement crankshaft for #38631 and #42392 crankshafts using "direct-on-shaft" con-rods. Crank journal diameter 1.7715", con-rods #42597 (as 1958/59 500cc twins) used, with inserts #42596. Thus larger-throw improved crankshaft can be fitted to 1955/56 Indian "Trailblazer" models that used smaller crankcases than later 700cc engines. Alloy crank throw end plugs #44510 fitted, plus RM14 Lucas alternator system, etc.
#43350A	Also available is "triangular" shaped nodular crankshaft, similiar in all respects to #43415 crankshaft, but with 1.7715" crank journal diameter, using #45403 breather bolt assembly, and later Lucas RM15 alternator unit can be used. Other details as #43350 above.
#43403	Interchangeable with #42501.
#45374	Interchangeable with #42501. Use con-rods 41719, 41719A or 41719B.
#43415 or #43415A	Fitted to 1959 & later "Super Meteor," and 1960 & later "Constellation" and "Interceptor" engines. Crank journal diameter 1.8750", con-rods used, 41719 (earlier) and 41719A (later). Con-rod inserts #41722, insert width 13/16" and con-rod width at B.E: 1". Nodular crankshaft, using #45403 breather bolt, Lucas RM15 alternator system, #44510 crank throw alloy end plugs fitted, etc. "Triangular" shaped crankshaft.

750cc CRANKSHAFT:

#46153	Interchangeable with no other; 71mm bore, 93mm stroke. Identical in all respects except stroke, to #43415 above. Standard con-rod assembly is #41719B.