

# Camshaft Data for 650 Twins and Triples up to 1970

## Group 1 — High Performance (as numbered by Triumph)

Part Number	Code	Casting Number	Timing Detail	Running Clearance	Application
E3134		E3134	IO 34° BTDC - IC 55° ABDC - EO 55° BBDC - EC 34° ATDC	In. .002"	Inlet or exhaust
E4819	X	E3134	" " " "	Ex. .004"	Inlet
E5047	YCP	E5048	" " " "		Exhaust
E5162	XCP	E4602	" " " "		Inlet
E10040	XN	E10040	" " " "		Inlet
E10041	YN	E10041	" " " "		Exhaust
E4038	SG	E3838	" " " "		Inlet
E4039		E3838	" " " "		Exhaust
E4678		E4679	" " " "		Inlet
E5044	YCP	E5045	" " " "		Exhaust
E5047	Y*	"	" " " "		Exhaust
E5163	CP	E4679	" " " "		Inlet
E6965	Y	E6642	" " " "		Exhaust
E10043	N	E10043	" " " "		Inlet
E10047		E10050	" " " "		Exhaust
E11063	N	71-0040	" " " "		Inlet
E11064	N	71-0043	" " " "		Inlet
E9983	YN	70-9986	" " " "		Exhaust
E9984	YN	70-9987	" " " "		Exhaust
E9989	YN	70-9990	" " " "		Exhaust

Note: Take readings at .020" follower lift with "std" followers.

## Group 2 — High speed touring (as numbered by Triumph)

E3325		E3325	IO 27° BTDC - IC 48° ABDC - EO 48° BBDC - EC 27° ATDC	In. .002"	Inlet or exhaust
E4818	X	E4997	" " " "	Ex. .004"	Inlet
E4848	Y	E4560	" " " "		Exhaust
E4855	Y	E4561	" " " "		Exhaust
E4931	*	"	" " " "		Inlet
E4022	SG	E3838	" " " "		Inlet
E4023		E4679	" " " "		Exhaust
E4786	Y	E4679	" " " "		Exhaust
E10046	YN	E10049	" " " "		Exhaust

Note: Take readings at .020" follower lift with "std" followers.

## Group 3 — Ramp cam form (standard) (as numbered by Triumph)

E3275		E3265	IO 26.5° BTDC - IC 69.5° ABDC - EO 61.5° BBDC - EC 35.5° ATDC	In. .010"	Inlet or exhaust
E3838	SG	E3838	" " " "	Ex. .010"	Inlet
E3839		E3838	" " " "		Exhaust
E5341	Y	E5342	" " " "		Exhaust

Note: Take readings at .020" follower lift using "std" followers.

## Group 4 — Modified ramp form (racing) (as numbered by Triumph)

### Thrupton Bonneville

E4220		E4220	In 0.195/0.175"	In. .008"	
E6267		E4220	0.205/0.215"	In. .013"	
E6147	Y	E6146	0.165/0.175"	Ex. .013"	

Note: Valve timing taken in inches of VALVE lift when piston is at T.D.C. with valves set at nil clearance for checking.

E6267 and E6147 must be used with 3" radius cam followers and special guide blocks.

These cams were not very common here in the United States.

## Tri-Cor TT-Dragster & #15 (Kenny Harman's K.H. Cams)

CD324/TTB	X		IO 38° BTDC - IC 58° ABDC - EO 58° BBDC - EC 38° ATDC		Inlet or exhaust
CD330/TTB	Y		IO 38° BTDC - IC 58° ABDC - EO 58° BBDC - EC 38° ATDC		Exhaust
CD331 #15			IO 40° BTDC - IC 70° ABDC - EO 70° BBDC - EC 40° ATDC		Intake
CD535 #15 Y			IO 40° BTDC - IC 70° ABDC - EO 70° BBDC - EC 40° ATDC		Exhaust

Note: Take readings at .020" follower lift using "R" followers. These were sold by both the East and West coast Triumph distributors.

Grind	Timing Detail	Running Clearance	Application
-------	---------------	-------------------	-------------

**T&M Motorcycle Sales 6 & 9**

#6 Grind	Pre-Unit only	IO 30° BTDC - IC 60° ABDC - EO 60° BBDC - EC 38° ATDC	.005"	Inlet or exhaust
#9 Grind	Pre-Unit only	IO 40° BTDC - IC 70° ABDC - EO 70° BBDC - EC 40° ATDC	.007"	Inlet or exhaust

Note: Take readings at .025" follower lift. Use "std" followers with #9 grind and "R" followers with #6 grind

**Harman & Collins -**

6534	Set	IO 30° BTDC - IC 60° ABDC - EO 60° BBDC - EC 30° ATDC	.005"	Inlet & exhaust
Note: Take readings at .020" follower lift with "std" followers. #6, street, track & scrambles.				
6739	Set	IO 40° BTDC - IC 68° ABDC - EO 68° BBDC - EC 40° ATDC	.007"	Inlet & exhaust
Note: Take readings at .020" follower lift with "std" followers. #9, TT, fast street & drag.				
7161	Set	IO 45° BTDC - IC 75° ABDC - EO 75° BBDC - EC 45° ATDC	.009"	Inlet & exhaust
Note: Take readings at .015" follower lift with "std" followers. #9 Magnum, super TT, track & drag.				
6877	Set	IO 49° BTDC - IC 79° ABDC - EO 79° BBDC - EC 49° ATDC	.008"	Inlet & exhaust
Note: Take readings at .020" follower lift with "std" followers. #77, super drag,, HI-RPM & Bonneville.				
7054	Set	IO 35° BTDC - IC 65° ABDC - EO 65° BBDC - EC 35° ATDC	.007"	Inlet & exhaust
Note: Take readings at .020" follower lift with "std" followers. Low Torque, desert & scrambles.				
7210	Set	IO 35° BTDC - IC 61° ABDC - EO 61° BBDC - EC 35° ATDC	.005"	Inlet & exhaust
Note: Take readings at .005" follower lift with "std" followers. Street, scrambles.				
7212	Set	IO 42° BTDC - IC 72° ABDC - EO 69° BBDC - EC 45° ATDC	.008"	Inlet & exhaust
Note: Take readings at .020" follower lift with "std" followers. TT, tracks, road racing.				
7229	Set	IO 45° BTDC - IC 82° ABDC - EO 82° BBDC - EC 45° ATDC	.007" in.	Inlet & exhaust
Note: Take readings at .020" follower lift with "std" followers. Street, drag, fast street.				
7040	Set (Roller Tappet)	IO 45° BTDC - IC 75° ABDC - EO 75° BBDC - EC 45° ATDC	.009"	
Note: Take readings at .020" follower lift with roller follower. Street & drag combination.				
7041	Set (Roller Tappet)	IO 51° BTDC - IC 81° ABDC - EO 81° BBDC - EC 51° ATDC	.008"	
Note: Take readings at .020" follower lift with roller follower. Super drag.				
7173	Set (Roller Tappet)	IO 45° BTDC - IC 75° ABDC - EO 75° BBDC - EC 45° ATDC	.009"	
Note: Take readings at .015" follower lift with roller tappet. Super TT, track, road racing.				

The above cam grinds were available for both the non-unit 650 twins up to 1962 (H&C model # 1201) or the unit twins from 1963 (H&C model #1203) on. K & H cams also manufactured 1959 and later 500 twin cams, Tiger Cub cams, BSA C15,, B40, 500 DBD Gold Star, A7 & A10 and A50 & A65 cams, and Norton 500, 650 & 750 twin cams. Information is available upon request to the club.

**Megacycle Cams - (currently in production \*)**

510-00	Set	"R" follower	IO 41° BTDC - IC 61° ABDC - EO 63° BBDC - EC 39° ATDC	.010"	Street/road
510-30	Set	"std" follower	IO 42° BTDC - IC 69° ABDC - EO 70° BBDC - EC 41° ATDC	.010"	750 short rod
510-60	Set	"R" follower	IO 45° BTDC - IC 67° ABDC - EO 72° BBDC - EC 43° ATDC	.010"	Street/road
510-70	Set	"std" follower	IO 61° BTDC - IC 85° ABDC - EO 88° BBDC - EC 58° ATDC	.008"	Racing only
510-80	Set	"R" follower	IO 51° BTDC - IC 84° ABDC - EO 84° BBDC - EC 51° ATDC	.010"	Drag - hot street
510-90	Set	"std" follower	IO 62° BTDC - IC 98° ABDC - EO 98° BBDC - EC 62° ATDC	.008 to .014	Full race
510-76	Set	"std" follower	IO 46° BTDC - IC 76° ABDC - EO 76° BBDC - EC 46° ATDC	.008 in. .010 ex.	Hi perf. street
510-N480	Set	"std" follower	IO 57° BTDC - IC 77° ABDC - EO 83° BBDC - EC 51° ATDC	.008 in. .010 ex.	Norris full race
510-15	Set	"R" follower	IO 43° BTDC - IC 74° ABDC - EO 74° BBDC - EC 43° ATDC	.007 in. .009 ex.	KH #15 grind

Note: Take readings at .020" follower lift with follower shown.

**Group 5 — Three cylinder models (as numbered by Triumph)**

Part Number	Code	Casting Number	Timing Detail	Running Clearance	Application
E8765	YN	70-8765	In 0.152"	In .006"	Exhaust
E8764	N	70-8765	Ex 0.146"	Ex .008"	Inlet

Note: set at nil clearance for checking timing.

Key to codes used:

X = Breather Y = Contact breaker N = Nitrided.  
 CP = Copper plated SG = Spiral gear (distributor).

The Triumph cam information was compiled by Roy Shilling, published February 1993 in *Nacelle* The magazine of the Triumph Owners Motorcycle Club in England. Additional U.S. information compiled from cam slips and catalogs supplied by Don Hutchinson, Hutchinson Cycle and John Healy.

The information listed here is for reference only and given to help builders recognize a cam. The timing information is as accurate as the information supplied. We cannot be held responsible for changes in specifications or the like. It is not the intention for this information to be the last word on the subject. The engine builder must use the information as a guide.

\* Megacycle Cams are available from your local dealer or Megacycle, 90 Mitchell Blvd., San Rafael, CA 94903 (415) 472-3195.

**T**he Triumph Come Home Rally was born, over year ago, in the minds of long time TIOC members Mike Benolken and David Gaylin. Avid rallyists, that travel all over the East Coast and Eastern Canada to attend numerous rallies, they thought it was time for Triumph to do what most of the rest of the British marques have done, organize their own rally. When David heard that the White Rose Motorcycle Club's facilities were available for a weekend in June a few phone calls were made and it was decided. David was the first to call it The Triumph Come Home Rally and the name stuck.

From the outset it was decided that this was not going to be another megga rally like Greater Atlanta British Motorcycle Association's British in the Blue Ridge, Jay Strait's Triumph Day or The British Meet Committee's annual gathering in Olney, MD. Just a small assembly of "real" Triumph nuts... I mean enthusiasts— celebrating what it was to be a member of the Triumph family. It was quickly decided, to seperate the dedecated from the interested, that we would have the rally "members and guests only" and attendance by pre-registration. It seemed to work, as the people attending seemed to share each others enthusiasm for Edward Turner's product.

This was to be a weekend to talk about Triumphs, to admire Triumphs, and to ride Triumphs. If you get bored after a few minutes of comparing the oddities of the Triumph Triple or the racing successes of the Triumph 500, The Triumph Come Home Rally was not the place for you to be. The atmosphere was relaxed and peacefull enough to hear the babble of the small brook that ran through the campsite. It was easy to lay back and grab a few Z's between engaging in a technical discussion or philosphical debate about... you guessed it, your Triumph.

The peaceful setting was disturbed by the occasional freight train... this is coal country. Noted were Dick Harris' eyes, which looked a bit unsynchronized Sunday morning. Dick, who has ridden to all of the TIOC National rallies, always searches for the right out-of-the-way campsite. He didn't notice that his "rural" digs were right next to the railroad right-of-way and late Saturday night thought that the train was going to go right through the middle of his his tent. Dick now has another rally tale to add to the roosters in Georgia and the 9,000 rpm Triumph chopper in Santa Barbara. He's got a new tale to spin now! Had a great time see you next year... same place, same time.

John H.

In the 1993-1 issue of VB we published a list of Triumph cams and specifications. The information below supplements that list.

#### K-H CAMS Triumph 650-750 Twin camshafts

**This information listed here is for reference only and given to help engine builders recognize a cam. Although this information was taken directly from K-H timing cards it, does not reflect any change in specifications made by Kenny Harmon over the years and should only be used as a guide.**

No.	Models	Cam Lift	Valve Lift	Timing Clearance	Running Clearance	In. Open	In. Closes	Ex. Open	Ex. Closes
TT	650	.313"	.344"	.020"	Both .005"	35°	61°	61°	35°
54*	650	.325"	.354"	.020"	Both .007"	35°	65°	65°	35°
15*	650	.360"	.390"	.020"	in.005" ex .007"	39°	69°	39°	69°
16	650	.352"	.386"	.015"	Both .007"	45°	75°	45°	75°
17	650/750		.392"	.020"	Both .008"	53°	83°	83°	53°
18	650/750		.392"	.020"	Both .007"	44°	74°	44°	74°

\*The #15 and #54 grind are currently in production by Megacycle Cams and are available through your local dealer. (Megacycle Cams, 90 Mitchell Blvd., San Rafael, CA 94903 (415) 472-3195 FAX (415) 472-1497). It is also interesting to note that Megacycle has started reproducing the Sifton's 460 camshaft for Triumph twins (Megacycle #510-X1).

# CAM CENTER LINE MODIFICATIONS

Data from notes collected by Bill Milburn

Text by John Healy

## Why do we change camshaft lobe center?

The effect of changing a camshaft's intake and exhaust lobe centers have long been known by engine designers, builders and tuners. Lobe center is the mid-point of the camshaft lobe's lift and is shown in degrees relative to the piston at Top Dead Center (TDC). A Triumph cam with an Intake lobe center of 105° would have the Intake valve at max. opening 105° after TDC on the intake stroke. While the exhaust cam with a lobe center of 102° would have the exhaust valve at max. opening at 102° Before Top Dead Center (BTDC) on the exhaust stroke.

By advancing or retarding the intake and exhaust camshaft a tuner can alter the power characteristics of a motor. Triumph motorcycles, with their separate intake and exhaust camshaft are perfect for learning the effects produced by changes in cam lobe centers. Although some changes can be made by advancing or retarding Norton and BSAs, with their single cam, changes in the relationship between the intake and exhaust lobes must be made by the cam manufacturer.

Tuners have used this to build motors to suit various conditions. Short, tight twisty tracks require a wide power band with good mid-range power, while long, straight, high speed tracks require all out hi-rpm horsepower. A racer on a budget could easily have one set of cams and vary the cam's lobe centers to enable him to be competitive in both conditions.

The changes to the lobe centers would also have to take into consideration other factors that effect where an engine produces its power. Timing, intake length, carb size, exhaust pipe diameter and design, etc. also play an important part how a given motor will perform and where it will produce its power.

Even though the following list of cam timing info. might look like a bunch of numbers you should be able to see one thing if you study it. No matter what camshaft you have, if you install it with intake and exhaust lobe centers set at 102 to 103° the bike should run. That means that if you pick up an unmarked camshaft you should be able to install it without knowing the manufacturer's specifications for opening and closing figures or lobe center.

## Basic Lobe Center Changes

### Intake camshaft:

**Retarding** (turning camshaft in direction of rotation): The increased cam angle relative to TDC will produce increased performance at higher engine speed with a loss of torque and mid-range performance.

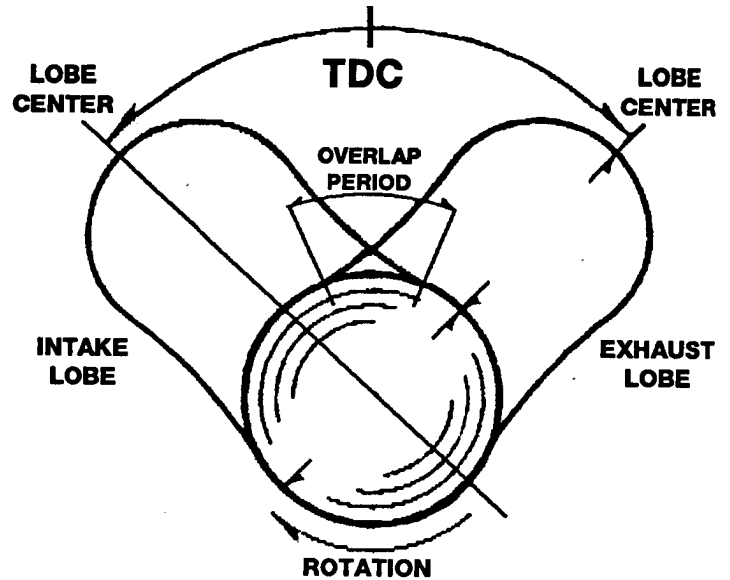
**Advancing** (turning camshaft opposite direction of rotation): The decreased cam angle relative to TDC will produce a decrease in performance at higher engine speed and additional torque and mid-range performance.

### Exhaust camshaft:

Changing the exhaust lobe center will have a smaller effect on overall performance. In most cases changes to the exhaust lobe center (centerline) will have the opposite effect as changes made to the intake.

Vintage Bike page 16

## VALVE TIMING EVENT



### Example: Triumph's Jomo #15

Out of the box timing figures:

Intake opens 39° btdc closes 69° abdc 105° lobe center

Exhaust opens 69° bbdc closes 39° atdc 105° lobe center

### For a Hard track with definite groove\*:

open and close intake early — open and close exhaust late.

The aim is to improve torque.

We are going to advance the intake lobe center 2° and retard the exhaust lobe center 2°:

Intake opens 37° btdc closes 71° abdc 107° lobe center

Exhaust opens 67° bbdc closes 41° atdc 103° lobe center

### For a fast Soft track with cushion\*:

open and close intake late — The aim is to improve high RPM horsepower.

Intake opens 42° btdc closes 66° abdc 102° lobe center

Exhaust opens 69° bbdc closes 39° atdc 105° lobe center

\* Lobe centers shown are for demonstration and actual figures obtained in practice will vary depending upon many other engine factors.

### Bill Milburn asked how would you set up a Triumph for 1/2 mile dirt track racing:

Jack Hatley recommended — 102° intake, 103° exhaust.

Danny Macias recommended — 105°

Gary Robinson recommended — 100°

### Calculating Lobe Center

#### Intake:

Add the opening figure, plus the closing figure, plus 180. Divide the results by 2 and subtract the opening figure.

example:  $40 + 70 + 180 = 290 / 2 = 145 - 40 = 105^\circ$  lobe center.

#### Exhaust:

Add the opening figure, plus the closing figure, plus 180. Divide the results by 2 and subtract the closing figure.

example  $70 + 40 + 180 = 290 / 2 = 145 - 40 = 105^\circ$  lobe center.

### Standard and "R" racing tappets:

Triumph has supplied the public two types of tappets. The standard with a 3/4" and the "R" with an 1 1/8" radius. It is important to follow **cam manufacturer's recommendations** when selecting which radius to use. Although the standard tappet can be used with any cam the "R", because of its higher loads at low cam lift, is to be used only when the cam manufacturer recommends it. Sifton recommended the "R" radius tappet for most of his Triumph applications. The "R" tappet can easily destroy a camshaft if the cam was not designed to use it. The "R" tappet increase the length of time the valve is kept open.

### Triumph rocker arm ratios:

On Triumph 650- 750 twins multiply the cam lift by 1.11 to calculate valve lift

#### Triumph cams

##### E3325 / E4855 "Sports"

27°— 48° 48° — 27° measured at .020 in. tappet lift  
running clearance .002 in. intake—.004 in. exhaust  
cam lift: 296 in.  
256° duration — 100° lobe center

##### E3134/ E4819 racing "Q"

34°—58° 58° — 34° measured at .020 in. tappet lift  
running clearance .002 in. intake—.004 in. exhaust  
cam lift: .310 in. valve lift: .350 in.  
269° duration — 102.5° lobe center

##### Stock 750 short rod

Intake: 26.5°— 69.5° 111.5° lobe center  
Exhaust: 61.5° — 35.5° 103° lobe center  
measured at .020 in tappet lift  
running clearance .010 in. intake and exhaust  
valve lift: 350 in. 278° duration

### JOMO Cams

#### JOMO TT (JCTT-B)

Using "Standard" 3/4 in. radius tappets (70-3059):

intake 35° — 61° exhaust 61° — 35°  
measured @ .020 in tappet lift  
running clearance .005 in. intake and exhaust  
lift: .313 cam / .344 valve  
276° duration — 103° lobe center

Using "R" 1 1/8 in. radius tappets (70-3059R):

intake 37° — 63° exhaust 63° — 37° measured at  
.020 in. tappet lift  
running clearance .005 in. intake and exhaust  
lift: .313 in. cam / .344 in. valve  
280° duration — 103° lobe center

#### JOMO #15 (JC15-B)

Using "Standard" 3/4 in. radius tappets (70-3059):

intake 39° — 69° exhaust 69° — 39°  
measured @ .020 in tappet lift  
running clearance .008 in. intake and exhaust  
lift: .356 in. cam / .390 in. valve  
288° duration — 103° lobe center

Using "R" 1 1/8 in. radius tappets (70-3059R):

intake 41° — 71° exhaust 71° — 41°  
measured @ .020 in. tappet lift

running clearance .008 in. intake and exhaust  
lift: .356 in. cam / .390 in. valve  
292° duration — 103° lobe center

### TRI-COR Cams

#### E3134 - E4819 "Racing" "Q" - for 650 models

intake 34° — 55° or used as exhaust 55° — 34°  
measured @ .020 in. lift  
running clearance .002 in. intake, .004 in. exhaust  
standard tappets (if R tappets used time at 100.5° L.C.)  
.314 in. cam lift  
269° duration — 100.5 lobe center

#### E5047 "Racing" "Q" unit model exhaust — (used with E4819

intake cam for 650 unit models).  
exhaust 55° — 34° @ .020 in. lift  
running clearance .002 in. intake, .004 in. exhaust  
.314 in. cam lift  
296° duration — 100.5 lobe center

#### E4931 "Sports" - non-unit in. or ex. or in. on unit 650 models

intake 27° — 48° or used as exhaust 48° — 27°  
measured @ .020 in. lift  
standard tappets (if R tappets used time at 100.5° L.C.)  
.296 in. cam lift - 255° duration - 100.5 lobe center

#### E4855 Sports - exhaust on 650 unit models

exhaust 48° — 27° @ .020 in.  
running clearance .002 in. intake, .004 in. exhaust  
.296 in. cam lift - 255° duration - 100.5 lobe center

#### CD324 "TT" Dragster

intake 38° — 58° exhaust 58° — 38° @ .020 in. lift  
running clearance  
"R" tappets  
276° duration — 100° lobe center

#### CD331 #15

intake 40° — 70° exhaust 70° — 40° @ .020 in. lift  
running clearance  
"R" tappets  
290° duration — 105° lobe center

### T&M Cams

#### #6

intake 30° — 60° exhaust 60° — 30° @ .025 in. lift  
running clearance .005 in.  
"R" tappets  
270° duration — 105° lobe center

#### #9

intake 40° — 70° exhaust 70° — 40° @ .030 in. lift  
running clearance .007 in.  
Standard tappets  
290° duration — 105° lobe center

### Connelly Cams

#### CS1X

intake 38° — 62° exhaust 62° — 38° @ .020 in lift  
running clearance .010 in.  
Standard tappets  
280° duration — 102 lobe center

## Harmon & Collins Cams

- 6534 — #6  
intake 30° — 60° exhaust 60° — 30° @ .020 in. lift  
valve lift .364 in. — running clearance .005 in.  
270° duration — 103° lobe center
- 7210 — Scrambles  
intake 35° — 61° exhaust 61° — 35° @ .020 in. lift  
valve lift .339 in. — running clearance .005 in.  
276° duration — 103 lobe center
- 7054 — Torque  
intake 35° — 65° exhaust 65° — 35° @ .020 in. lift  
valve lift .354 in — running clearance .007 in.  
280° duration — 105° lobe center
- 6739 — #9  
intake 40° — 68° exhaust 68° — 40° @ .020 in. lift  
valve lift .392 in. — running clearance .007 in.  
288° duration — 104° lobe center
- 7212 — TT  
intake 42° — 72° exhaust 69° - 45° @ .020 in. lift  
valve lift .361 in. — running clearance .008 in.  
294° duration — 105° lobe center
- 7161 — #9 Magnum  
intake 45° — 75° exhaust 75° — 45° @ .015 in. lift  
valve lift .386 in. — running clearance .009 in.  
300° duration — 105° lobe center
- 7040 — Roller Drag  
intake 45° — 75° exhaust 75° — 45° @ .020 in. lift  
valve lift .416 in. — running clearance .009 in.  
300° duration — 105° lobe center
- 7173 — Roller Super TT  
intake 45° — 75° exhaust 75° — 45° @ .015 in. lift  
valve lift .376 in. — running clearance .009 in.  
300° duration — 105° lobe center
- 7229 — Drag  
intake 45° — 82° exhaust 82° — 45° @ .020 in. lift  
valve lift .340 in. run. clearance .007 in. in. - .009 in. ex.  
307° duration — 108.5 lobe center
- 7041 — Roller Super Drag  
intake 51° — 81° exhaust 81° — 51° @ .020 in. lift  
valve lift .414 in. — running clearance .008 in.  
312° duration — 105° lobe center
- 6877 — Super Drag (#77 Clark White Special)  
intake 49° — 79° exhaust 79° — 49° @ .020 in. lift  
valve lift .392 in. — running clearance .008 in.  
316° duration — 105° lobe center

Gary Robinson says Triumph cams work best advanced 5° — for example changing Harmon & Collins specified 105° lobe center to 100° (the intake valve would open and close sooner. The spec's for the H&C 7161 — #9 Magnum would look like:  
intake 50° — 70° with a 100° lobe center  
exhaust 75° — 45° with a 105° lobe center  
lift and duration figures do not change

Harmon & Collins made cams for both Tri-Cor in the east and Jomo in the west. The H&C #9 is the same cam sold as #15s and the H&C Scrambles is the same as the Jomo TT and Tri-Cor TT Dragster.

## Kenny Harmon Cams

- 411 — Scrambles (TT)  
intake 35° — 61° exhaust 61° — 35° @ .020 in. lift  
.312 cam and .344 in. valve lift run. clearance .005 in.  
276° duration — 103° lobe center
- 410 — Dessert (54)  
intake 35° — 65° exhaust 65° — 35° @ .020 in. lift  
.325 in. cam - .354 in. valve lift — run. clear. .007 in.  
280° duration — 105° lobe center
- 412 — TT (#15)  
intake 39° — 69° exhaust 69° — 39° @ .020 in. lift  
.360 in. cam - .390 in. valve lift — run. cl. .005 in. /  
.007 in. ex.  
298° duration — 105° lobe center
- 413 — Track (#16)  
intake 45° — 75° exhaust 75° — 45° @ .015 in. lift  
.352 in. cam - .386 in. valve lift — running clearance  
.008 in.  
300° duration — 105° lobe center
- #17  
intake 53° — 83° exhaust 83° — 53° @ .020 in. lift  
.392 valve lift — running clearance .008 in.  
316° duration — 105° lobe center
- #18  
intake 44° — 74° exhaust 74° — 44° @ .020 in. lift  
.392 valve lift — running clearance .007 in.  
298° duration 105° lobe center

## Norris Cams

(not much info available at press time)

- 1555 — Triumph 650 models 341 grind Scrambles - Desert  
288° duration — 380 in valve lift
- 1555A T650 350 grind Street - Touring  
300° duration — .400 in valve lift
- 1555E — T650 "R" grind Competition TT, Hot Street, Flat tracker  
(groove track)  
308° duration — .419 in valve lift
- 1555D — T650 "D" grind Super Drag, Land Speed Record  
314° duration — .435 in valve lift
- 1555DR — T650 "D" grind intake and "R" grind exhaust  
intake 57° — 77° exhaust 74° — 54° @ .020 in. lift  
.435 in. intake — .419 in. exhaust valve lift  
running clearance .009 in.  
intake — 314° duration — 100° lobe center  
exhaust — 308° duration — 100° lobe center
- 1555C — T650 "T" grind Track, Drag, Hillclimb  
intake 60° — 80° exhaust 80° — 60° @ .020 in. lift  
using "R" tappets  
.356 tappet - .395 valve lift — running clearance .012 in.  
320° duration — 100° lobe center
- 1555G — T650 #470 Flat Track (1/2 & 1 mile)  
318° duration — 468 in valve lift  
— T650 TR  
intake 60° — 80° exhaust 79° — 34° @ .020 in lift  
lift: in. .356 in. tapp. - .395 in. valve -ex. .370 in.  
tapp. - .407 in. valve  
running clearance intake .012 in - exhaust .009 in.  
intake 320° duration — 100° lobe center  
exhaust 293° duration — 112.5 ° lobe center

CD4026 Jomo Flat Tracker by Norris

intake 60° — 80° exhaust 75° — 55° @ .020 in lift  
lift: in. 380 in. tapp. - .418 in valve -  
ex. .370 in tapp. .407 in valve  
running clearance .010 in.  
intake 320° duration — 100° lobe center  
exhaust 310 ° duration — 100° lobe center

**Web-Cam**

- 19 Street-Touring  
intake 37° — 60° exhaust 61° — 36° @ .050 in. lift  
.377 valve lift — running clearance .006 in.  
300 duraiton — lobe center: in. 101.5 — ex. 102.5
- 18B Hot Street  
intake 48° — 70° exhaust 71° — 47° @ .050 in.  
.390 valve lift — running clearance .006 in.  
315 duration — lobe center: 101° intake — 102° exhaust
- 30 Racing  
intake 48° — 70° exhaust 71° — 47° @ .050 in.  
.410 valve lift — running clearance .006 in  
316 duration — lobe center: 101° intake — 102° exhaust

**Megacycle Cams**

- 51000 #1000 Low-midrange 2500 - 7000 rpm  
intake 41° — 61° exhaust 63° — 39° @ .020 in. lift  
.348 cam lift —running clearance .010 in  
"R" 1 1/8 in radius tappets  
intake 100° lobe center — exhaust 102° lobe center  
282° duration
- 51030 #1030 Mid- Top End — 750 short rod TT Road Race  
intake 42° — 69° exhaust 70° — 41° @ .020 in. lift  
.346 in. cam lift — running clearance .010 in  
Standard 3/4 in. radius tappets  
intake 103.5 lobe center exhaust 104.5 lobe center  
291° duration
- 51060 #1060 Mid-range Top End TT  
intake 45° — 67° exhaust 72° — 43° @ .020 in lift  
.355 in cam lift — running clearance .010 in.  
"R" 1 1/8 in radius tappets  
lobe center: intake 101° — exhaust 104.5  
292° duration
- 51070 #1010 Racing use only - engine mod's required  
intake 61° — 85° exhaust 88° — 58° @ .020 in. lift  
.400 Cam lift — running clearance .010 in.  
standard 3/4 in. radius tappets  
lobe center: ,102° intake 105° exhaust  
326° duration
- 51080 #1080 Hot street-drag w/ 11:1+ compression  
intake 51° — 84° exhaust 84° — 51°  
.352 in. cam lift running clearance .010 in.  
"R" 1 1/8 in. radius tappets  
lobe center: 106.5° intake & exhaust  
315° duration
- 51090 #1090 Full race only. All racing components required  
intake 62° — 98 exhaust 98° — 62° @ .020 in. lift  
.400 valve lift running clearance .008 - .014 in.  
standard 3/4 in. radius tappets  
340° duration — lobe center: 108° intake & exhaust

510-15 KH - Jomo #15

intake 43° — 74° exhaust 74° — 43° @ .020 in. lift  
.355 in cam lift — run. clear. .007 in. in. .009 in. ex.  
"R" 1 1/8 in. radius tappets  
297° duration — lobe center: 105.5 intake & exhaust

510-76 High Performance Street

intake 46° — 76° exhaust 76° — 46° @ .020 in. lift  
.360 in. cam lift — run. clear. .008 in in. .010 in. ex.  
standard 3/4 in. radius tappets  
302° duration — lobe center: 105° intake & exhaust

510-N480 Norris TT Road Race

intake 57° — 77° exhaust 83° — 51° @ .020 in. lift  
.440 valve lift — running clearance .010 in  
standard 3/4 in. radius tappets  
lobe center: intake 100° — exhaust 106°  
314° duration

51080 Hot Street - Drag (hi-rpm)

intake 51\* — 84° exhaust 84° — 51° @ .020 in.  
.352 cam lift — running clearance .010 in.  
"R" 1 1/8 in. radius tappets  
315° duration — 106.5 lobe center

51070 #1070 Mid-range & Hi rpm

intake 61° — 85° exhaust 85° — 51° @ .020 in. lift  
.400 in. cam lift — running clearance .008 in.  
standard 3/4 in. radius tappets  
362° duration — 102° lobe center

51090 Hi rpm - Drag Race

intake 62° — 98° exhaust 98° — 62° @ .020 in lift  
.400 cam lift — running clearance .008 in.  
standard 3/4 in. radius tappets  
340° duration — 108° lobe center

**Sifton Cams**

390 Road TT Flat Track Tri 650

intake 9° — 37° exhaust 40° — 7° @ .113 in. lift  
.390 valve lift — running clearance .010 in.  
"R" 1 1/8 in. radius tappets  
intake 226° duration — 104° lobe center  
exhaust 227° duration 106.5 lobe center

391 Road - TT - Flat Track - Tri 750

intake 13° — 42° exhaust 47° — 8° @ .113 in lift  
.390 valve lift — .010 in. running clearance  
"R" 1 1/8 in. radius tappets  
intake 235° duration — 104.5 lobe center  
exhaust 235° duration — 109.5 lobe center

460 Competition only Tri 750 4500 - 8000 rpm power band

intake 13° — 37° exhaust 39° — 13° @ .113 in. lift  
valve lift: .460 in. — run. cl. .008 in in. .010 in. ex.  
5TA "std" radius tappets  
intake 230° duration — 102° lobe center  
exhaust 232° duraton — 103° lobe center

Hi Turnover Flat Track

intake 21° — 50° exhaust 56° — 7° @ .113 in. lift  
Valve lift: .403 in. intake — .394 in. exhaust  
running clearance .010 in. — "R" 1 1/8 in. radius tappets  
intake 251° duration — 104.5 lobe center  
exhaust 243° duration — 114.5 lobe center

**Note: This is a work in process. Every effort has been made to verify these figures, but manufacturers changed specifications ove rthe years. And yes, we make mistakes!!!**