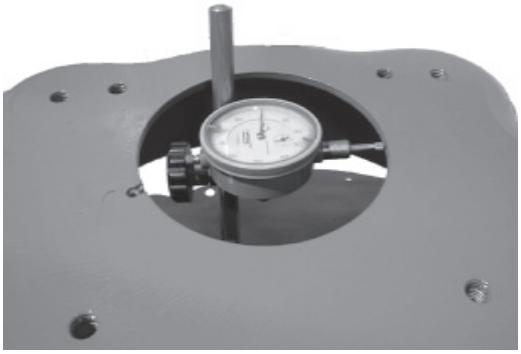
IMPORTANT

GENERAL BELLHOUSING ALIGNMENT INSTRUCTIONS

BELLHOUSING ALIGNMENT IS CRUCIAL FOR PROPER CLUTCH FUNCTION AND RELIABILITY OF THE RELATED COMPONENTS. DUE TO MANUFACTURING TOLERANCES OF ENGINE BLOCKS AND BELLHOUSINGS, IT IS POSSIBLE FOR THE TRANSMISSION CENTERLINE AND CRANKSHAFT CENTERLINE TO BE MISALIGNED. THE RESULT OF THIS MISALIGNMENT MAY BE HARD SHIFTING, PILOT BEARING WEAR, TRANSMISSION MAIN SHAFT BEARING WEAR AND FAILURE OF CLUTCH DISC HUB.



FIRST CHECK BELLHOUSING FOR BORE CONCENTRICITY. INSTALL MAGNETIC BASE TO FLYWHEEL OR PRESSURE PLATE, THEN INSTALL THE INDICATOR TO MEASURE THE BELLHOUSING BORE (SHOWN ABOVE). ROTATE THE CRANKSHAFT AND MARK DOWN THE INDICATOR READINGS (MARKING THE BELLHOUSING WORKS WELL). THE MAXIMUM OUT OF CONCENTRICITY IS .005".

NEXT, THE BELLHOUSING FACE SHOULD BE CHECKED FOR PARALLELISM TO THE BACK OF THE BLOCK. INSTALL THE INDICATOR (AS SHOWN ABOVE). ROTATE THE CRANKSHAFT AND MARK DOWN THE READINGS (BE SURE TO PUSH THE CRANKSHAFT AGAINST THRUST BEARING FOR ACCURATE MEASUREMENT). THE MAXIMUM OUT OF PARALLELISM IS .002"

NOTE: INSPECT BLOCK SURFACE AND BELLHOUSING FOR DENTS, BURRS, PAINT, DEBRIS, ETC. BEFORE INSTALLING AND CHECKING BELLHOUSING ALIGNMENT.

CENTERFORCE THE PERFORMANCE CLUTCH

CENTERFORCE DUAL FRICTION

"NOTE" Centerforce tip sheets are for general reference only. Please refer to your owners manual for vehicle specifications.

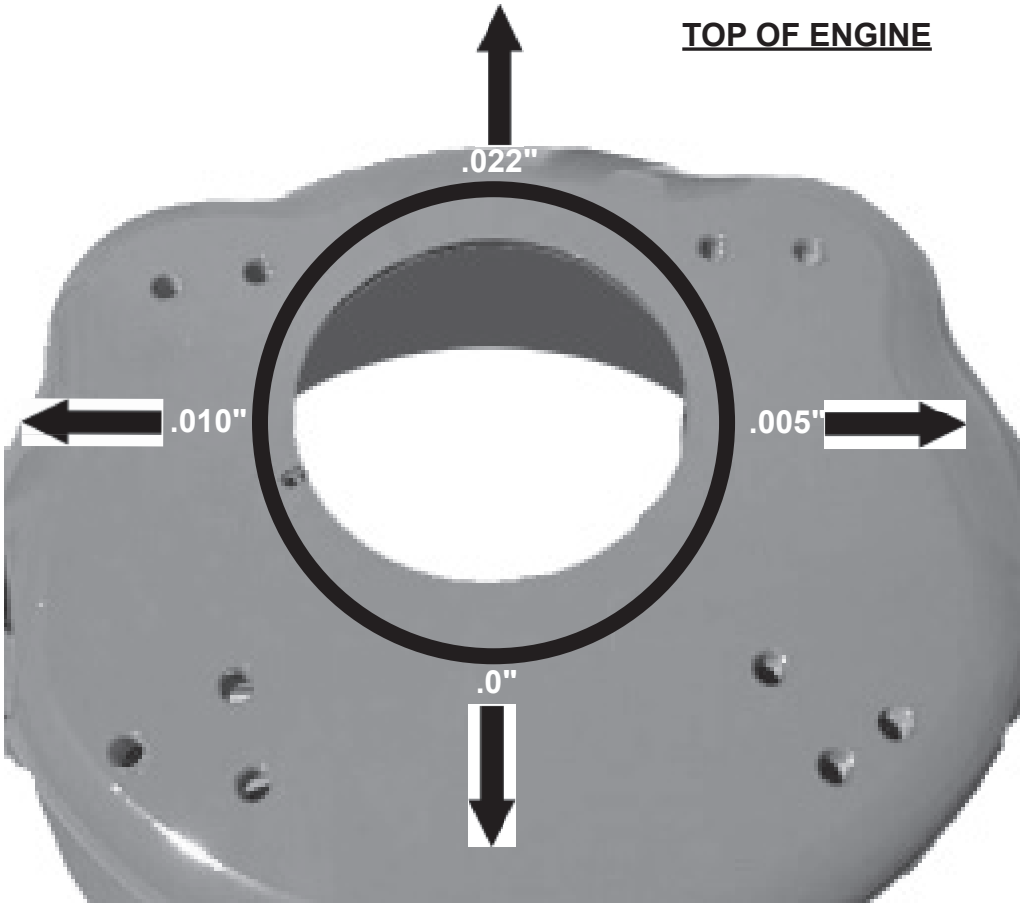
CONTINUED ON THE BACK SIDE

CONTINUED

TO CORRECT OFF-CENTER CONDITION, SELECT THE OFFSET DOWEL PIN PAIR THAT IS CLOSEST TO ONE-HALF OF THE INDICATOR READING (I.E., IF READING IS .016", 1/2R=.008" USE .007" DOWELS. IF READING IS .024", 1/2R=.012" USE .014 DOWELS).

EXAMPLE

THE BELLHOUSING WAS OFFSET TOWARD TOP OF ENGINE AND SLIGHTLY TO THE LEFT (AS VIEWED FROM BEHIND). TO ALIGN THE BELLHOUSING, INSTALL TWO .014" OFFSET DOWEL PINS WITH THE MAXIMUM OFFSET POSITIONED ROUGHLY AT THE 5 O'CLOCK POSITION.



OFFSET DOWEL PIN CHART

TOTAL INDICATOR READING	ONE HALF TOTAL INDICATOR READING	SIZE DOWEL TO BE USED
.012" TO .020"	.006" TO .010"	.007"
.022" TO .034"	.011" TO .017"	.014"
.036" TO .052"	.018" TO .026"	.021"

	GM			FORD/CHRYSLER
	LAKEWOOD	MOROSO	TAVIA	LAKEWOOD
.007	15920	37934	02701	15950
.014	15930	37936	02702	15960
.021	15940	37938	02703	15970

IMPORTANT

FOR ALL GENERAL MOTORS APPLICATIONS UTILIZING STAMPED STEEL THROW OUT BEARING ARMS (FORKS).

THE FORK SPRING CLIPS MUST BE INSTALLED BETWEEN THE THROWOUT BEARING COLLAR FLANGES. IF THE CLIPS ARE INSTALLED ABOVE THE TOP FLANGE AS SHOWN BELOW, PROPER ADJUSTMENT CANNOT BE MADE.

WE RECOMMEND THAT OUR THROW OUT BEARING PART NUMBER N1716 BE USED WHICH IS A SELF ALIGNING TYPE BEARING

NOTE: SELF ALIGNING TYPE THROWOUT BEARINGS WHEN REMOVED FROM THE BOX MAY APPEAR TO BE OFF CENTER, HOWEVER, THEY ARE NOT DEFECTIVE AND WILL PROPERLY ALIGN DURING USE.

CAUTION: IF YOUR VEHICLE IS EQUIPPED WITH A CAST IRON THROWOUT BEARING ARM, N1716 MAY WORK IF IT HAS A FORK GROOVE OF 0.503". IF THE GROOVE IS UNDERSIZED YOU WILL REQUIRE CENTERFORCE THROWOUT BEARING N1430.

CORRECT

INCORRECT

CENTERFORCE® THE PERFORMANCE CLUTCH®

CENTERFORCE DUAL FRICTION®

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IMPORTANT

IMPORTANT

Customers requiring 24-month SFI activation.

Thank you for purchasing clutch components certified by Centerforce to SFI Specification 1.1. Some competition sanctioning bodies require clutch components to be SFI certified every 24 months. The enclosed clutch component(s) contain the official SFI decal and corresponding serial number etched into the part. Please note that the component SFI ACTIVATION DATE is also etched near the SFI serial number. SFI 24-month certification STARTS from this SFI ACTIVATION DATE. Centerforce clutch components have an indefinite shelf life, however, due to the chain of commerce, the enclosed components may arrive to customers beyond this initial SFI ACTIVATION DATE. If you need full 24 months SFI certification to conform to competition rules, Centerforce can issue a new SFI serial number and SFI ACTIVATION DATE free of charge. To request a fresh SFI ACTIVATION DATE from Centerforce, you MUST contact Centerforce prior to installation and supply a copy of your proof of purchase. This request MUST be submitted within 30 days of purchase. If you require this service, please completely fill out the enclosed SFI activation form and return to Centerforce with a copy of your proof of purchase. Forms and receipts can be sent via Mail, Fax, or Email. If needed, SFI activation forms can also be obtained from our website: www.centerforce.com. Should you have questions or if you require further information please contact Centerforce customer service at (800) 932-5882. Information specifically about SFI certification can be found at www.sfifoundation.com (Reference SFI Clutch/Flywheel Specification 1.1).

IMPORTANT! This activation service is ONLY applicable to new components within 30 days of purchase. Centerforce components that have been SFI certified and used in competition MAY be eligible for re-certification but ONLY after the component(s) have been returned to Centerforce for inspection. Please obtain a Return Merchandise Authorization (RMA) number for inspection and re-certifications. Fee for this service may vary.

If you are NOT competing under specific sanctioning body rules, then the SFI activation date is not relevant to your application or your vehicle use. In this case feel free to use your Centerforce product regardless of the SFI activation date.

Ph: (800) 932-5882
Fax: (928) 771-8322
Email: sales@centerforce.com

EMAIL FORM

Centerforce Clutches
2266 Crosswind Dr.
Prescott, AZ 86301

Email Addres: _____

Full Name: _____ Date Purchased: _____

Street Address: _____ Part #: _____

City: _____ Current SFI #: _____

State: _____

Zip: _____

Country: _____

Phone: _____

Note: A copy of your receipt/proof of purchase is required to obtain an updated SFI Activation Date and SFI Number.

Please do not write below this line, completed by Centerforce!

New SFI #: _____

Date Certified: _____

Certifed By: _____

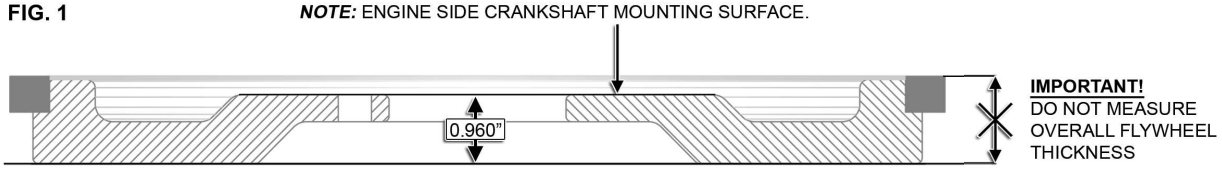
Keep this for your records once the SFI Label is affixed.

IMPORTANT

CHEVROLET, PONTIAC, OLDSMOBILE & BUICK V-8 ENGINES WITH MECHANICAL CLUTCH LINKAGE

To help achieve proper mechanical clutch linkage geometry, you will need to measure your flywheel deck height (distance from the flywheel crankshaft flange surface to the clutch friction surface) as shown in FIG. 1. Aftermarket flywheel variances and/or flywheel resurfacing may have reduced your flywheel deck height from the Original Equipment (O.E.) flywheel measurement of 0.960".

FIG. 1



1. SET THE FLYWHEEL ON A FLAT SURFACE OR BENCH TOP WITH THE FRICTION SURFACE DOWN.
2. MEASURE DOWN THROUGH ONE OF THE CRANKSHAFT BOLT HOLES TO THE BENCH TOP.
3. RECORD AND SAVE THE FLYWHEEL DECK HEIGHT DIMENSION.

FIG 2 shows the O.E. clutch fork pivot ball height of 4.750" as measured from the engine block side of the Bellhousing plate (block saver) to the flat of the clutch fork pivot ball. If your flywheel deck height measures between 0.910" and 0.960", be sure your clutch fork pivot ball height is 4.750". If your flywheel deck height is less than 0.910" you will need to adjust the clutch fork pivot ball height to accommodate the thinner flywheel as follows:

Enter your flywheel Deck Height measurement here:_____ and SUBTRACT from 0.960" (O.E. standard flywheel deck height) = "Pivot ball adjustment distance".

Then: SUBTRACT "Pivot ball adjustment distance" from 4.750" (O.E. standard pivot ball height) to find the correct clutch fork pivot ball height.

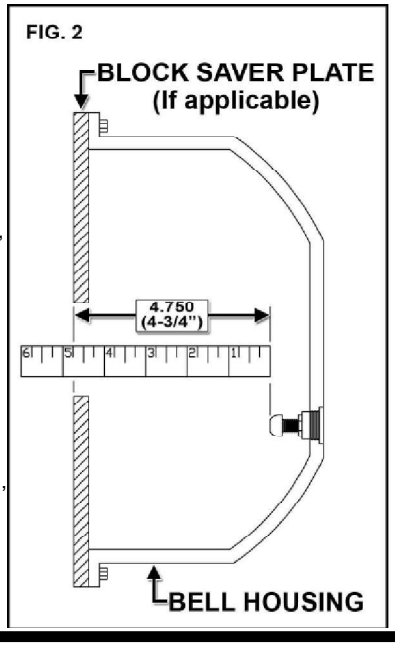
EXAMPLE: a flywheel deck height of 0.850" SUBTRACT from 0.960" = 0.110"

Use an aftermarket adjustable pivot ball to move the clutch fork pivot ball 0.110" CLOSER to the engine:

0.110" SUBTRACT from 4.750" = 4.640" (adjust the clutch fork pivot ball height to 4.640" in this example.)

These dimensions are for mechanical clutch release systems using Centerforce P/N: N1716 release (O.E. type) bearing. For use with other release bearings and/or if you have questions, please contact or Technical Department at: (928) 771-8422.

FIG. 2



Notes:

1) If your flywheel deck height thickness is significantly below the O.E. specification, the clutch disc springs may contact the flywheel crankshaft bolts resulting in improper or failed clutch operation.

2) Centerforce DOES NOT recommend any shims/spacers or aftermarket balance plates to be used between the crankshaft and the flywheel.

PIVOT BALL REFERENCE INFORMATION

NON ADJUSTABLE	ADJUSTABLE PIVOT BALLS
GENERAL MOTORS	LAKEWOOD P/N: 15501
P/N 3790556 LONG 1.680"	MR GASKET P/N: 3855
P/N 3729000 SHORT 1.380"	McLEOD P/N: 16908

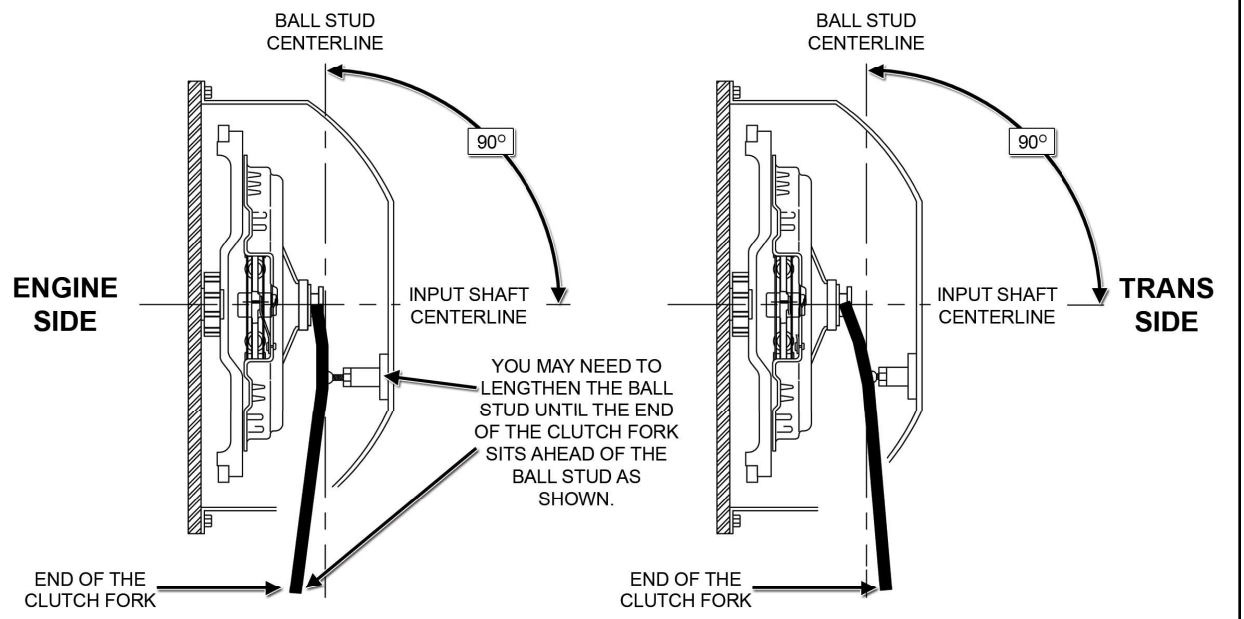
CONTINUED ON THE BACK SIDE

IMPORTANT

MECHANICAL CLUTCH LINKAGE GEOMETRY FINAL CHECK

Once the clutch assembly, release bearing, clutch fork and Bellhousing are bolted in place you can visually ensure the clutch fork ball stud is adjusted properly. Do not connect the remainder of the clutch linkage at this point. Move the clutch fork by hand until the release bearing contacts the clutch fingers. The outer end of the clutch fork should point towards the engine, ahead of the ball stud centerline as shown in FIG 3. If the outer end of the clutch fork is behind the ball stud centerline (pointing towards the transmission), your clutch linkage geometry is incorrect. Please re-visit the clutch fork pivot ball adjustment instructions or call the Centerforce Tech line at (928) 771-8422 for further assistance. Once the geometry is correct, connect the remainder of the clutch linkage and then adjust to where the clutch engagement point is approximately half-way up the pedal travel. Small adjustments can be made to suit individual driving preferences. Lastly, fully retract the release bearing away from the clutch fingers and visually check to ensure that you have at least 1/4" clutch wear allowance gap between the release bearing and the clutch fingers. Throughout the service life of your clutch, be sure to periodically check the wear allowance gap and adjust as needed. Caution! If the clutch engagement point is at or near the top of your clutch pedal travel – your clutch may be pre-loaded (release bearing too close or touching the clutch fingers). Continued operation with the clutch in a pre-loaded condition will void the warranty and cause poor performance as well as significant damage.

FIG. 3



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IMPORTANT

Please follow these instructions in regards to the installation and use of your new Centerforce DFX

Flywheels: Be sure to install your new Centerforce DFX clutch on a clean and properly resurfaced or brand new flywheel. Centerforce recommends DFX to be used in conjunction with an aftermarket Billet Steel or Billet Aluminum (with steel insert) flywheel. Nodular Cast Iron OE flywheels are also approved. Gray Cast Iron OE flywheels are NOT recommended for use with Centerforce DFX (If you are unsure of what type of cast flywheel you have please call the tech office).

Break-In: The Centerforce DFX series clutch will perform best after a minimum 100-mile break-in period. Stop and go type driving is best for this procedure. Please do not apply full engine power or excessively slip the clutch during the break-in period. This period is required to properly seat the disc with the pressure plate and flywheel friction surfaces.

Centrifugal Weight System: If your new Centerforce DFX clutch is equipped with the patented Centerforce centrifugal weight system, do not remove the ring, weights or retaining spring wire that attaches the weight system to the clutch diaphragm fingers. If your Centerforce DFX clutch does not include the centrifugal weight system, it is because there is not sufficient clearance for Centerforce to safely and effectively install the centrifugal weight system for your application. In these cases Centerforce has made other, internal modifications to improve the clutch holding capacity.

Aftermarket Hydraulic Release Bearings: When using an aftermarket hydraulic release bearing it is important to check for proper clearance between the bearing and the centrifugal weight system. Some aftermarket hydraulic bearings have an anti-rotator pin that may come into contact with the centrifugal weight system.

Due to its positive engagement characteristics, the Centerforce DFX clutch is designed primarily for competition use. However, DFX can also be used in high-powered street or dual-purpose vehicles with excellent results. Please be advised that the increased holding capacity of this clutch can contribute to clutch chatter and/or cause an audible noise during operation.

Failure to follow the above procedures will void your warranty and may result in decreased performance and/or premature wear!

CENTERFORCE® THE PERFORMANCE CLUTCH®

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Ph: (800) 932-5882
Fax: (928) 771-8322
Email: sales@centerforce.com

EMAIL FORM

Centerforce Clutches
2266 Crosswind Dr.
Prescott, AZ 86301

Email Addres: _____

Full Name: _____ Date Purchased: _____

Street Address: _____ Part #: _____

City: _____ Current SFI #: _____

State: _____

Zip: _____

Country: _____

Phone: _____

Note: A copy of your receipt/proof of purchase is required to obtain an updated SFI Activation Date and SFI Number.

Please do not write below this line, completed by Centerforce!

New SFI #: _____

Date Certified: _____

Certifed By: _____

Keep this for your records once the SFI Label is affixed.

IMPORTANT

FOR ALL GENERAL MOTORS APPLICATIONS UTILIZING STAMPED STEEL THROW OUT BEARING ARMS (FORKS).

THE FORK SPRING CLIPS MUST BE INSTALLED BETWEEN THE THROWOUT BEARING COLLAR FLANGES. IF THE CLIPS ARE INSTALLED ABOVE THE TOP FLANGE AS SHOWN BELOW, PROPER ADJUSTMENT CANNOT BE MADE.

WE RECOMMEND THAT OUR THROW OUT BEARING PART NUMBER N1716 BE USED WHICH IS A SELF ALIGNING TYPE BEARING

NOTE: SELF ALIGNING TYPE THROWOUT BEARINGS WHEN REMOVED FROM THE BOX MAY APPEAR TO BE OFF CENTER, HOWEVER, THEY ARE NOT DEFECTIVE AND WILL PROPERLY ALIGN DURING USE.

CAUTION: IF YOUR VEHICLE IS EQUIPPED WITH A CAST IRON THROWOUT BEARING ARM, N1716 MAY WORK IF IT HAS A FORK GROOVE OF 0.503". IF THE GROOVE IS UNDERSIZED YOU WILL REQUIRE CENTERFORCE THROWOUT BEARING N1430.

CORRECT

INCORRECT

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CENTERFORCE DUAL FRICTION®

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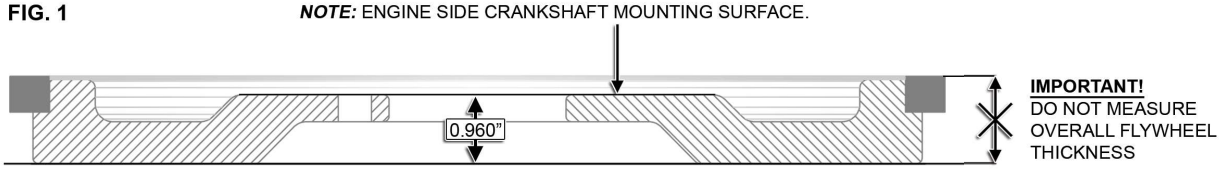
CHEVROLET, PONTIAC, OLDSMOBILE & BUICK V-8 ENGINES WITH MECHANICAL CLUTCH LINKAGE

To help achieve proper mechanical clutch linkage geometry, you will need to measure your flywheel deck height (distance from the flywheel crankshaft flange surface to the clutch friction surface) as shown in FIG. 1. Aftermarket flywheel variances and/or flywheel resurfacing may have reduced your flywheel deck height from the Original Equipment (O.E.) flywheel measurement of 0.960".

FIG. 1



1. SET THE FLYWHEEL ON A FLAT SURFACE OR BENCH TOP WITH THE FRICTION SURFACE DOWN.
2. MEASURE DOWN THROUGH ONE OF THE CRANKSHAFT BOLT HOLES TO THE BENCH TOP.
3. RECORD AND SAVE THE FLYWHEEL DECK HEIGHT DIMENSION.

FIG 2 shows the O.E. clutch fork pivot ball height of 4.750" as measured from the engine block side of the Bellhousing plate (block saver) to the flat of the clutch fork pivot ball. If your flywheel deck height measures between 0.910" and 0.960", be sure your clutch fork pivot ball height is 4.750". If your flywheel deck height is less than 0.910" you will need to adjust the clutch fork pivot ball height to accommodate the thinner flywheel as follows:

Enter your flywheel Deck Height measurement here:_____ and SUBTRACT from 0.960" (O.E. standard flywheel deck height) = "Pivot ball adjustment distance".

Then: SUBTRACT "Pivot ball adjustment distance" from 4.750" (O.E. standard pivot ball height) to find the correct clutch fork pivot ball height.

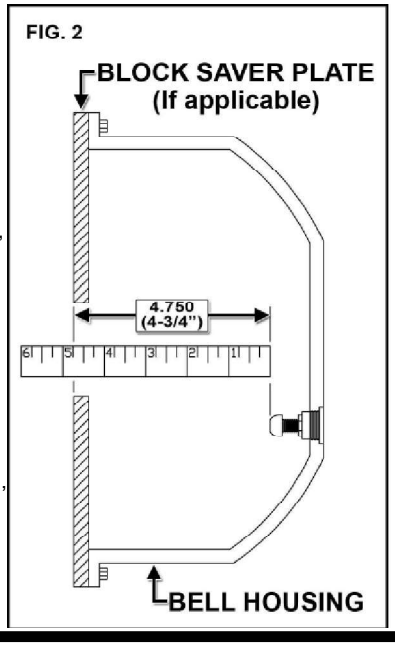
EXAMPLE: a flywheel deck height of 0.850" SUBTRACT from 0.960" = 0.110"

Use an aftermarket adjustable pivot ball to move the clutch fork pivot ball 0.110" CLOSER to the engine:

0.110" SUBTRACT from 4.750" = 4.640" (adjust the clutch fork pivot ball height to 4.640" in this example.)

These dimensions are for mechanical clutch release systems using Centerforce P/N: N1716 release (O.E. type) bearing. For use with other release bearings and/or if you have questions, please contact or Technical Department at: (928) 771-8422.

FIG. 2



Notes:

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PIVOT BALL REFERENCE INFORMATION

NON ADJUSTABLE	ADJUSTABLE PIVOT BALLS
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CONTINUED ON THE BACK SIDE

IMPORTANT

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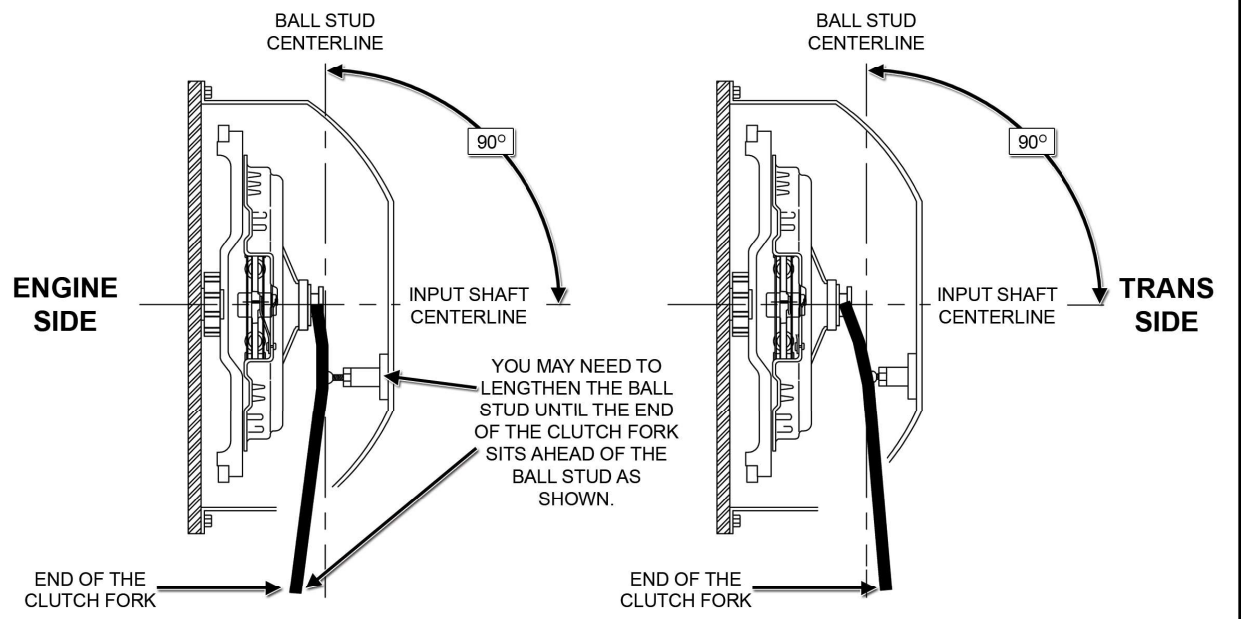
FIG. 3



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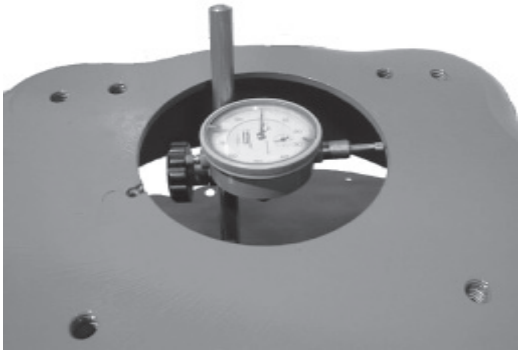

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NEXT, THE BELLHOUSING FACE SHOULD BE CHECKED FOR PARALLELISM TO THE BACK OF THE BLOCK. INSTALL THE INDICATOR (AS SHOWN ABOVE). ROTATE THE CRANKSHAFT AND MARK DOWN THE READINGS (BE SURE TO PUSH THE CRANKSHAFT AGAINST THRUST BEARING FOR ACCURATE MEASUREMENT). THE MAXIMUM OUT OF PARALLELISM IS .002"

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CONTINUED ON THE BACK SIDE

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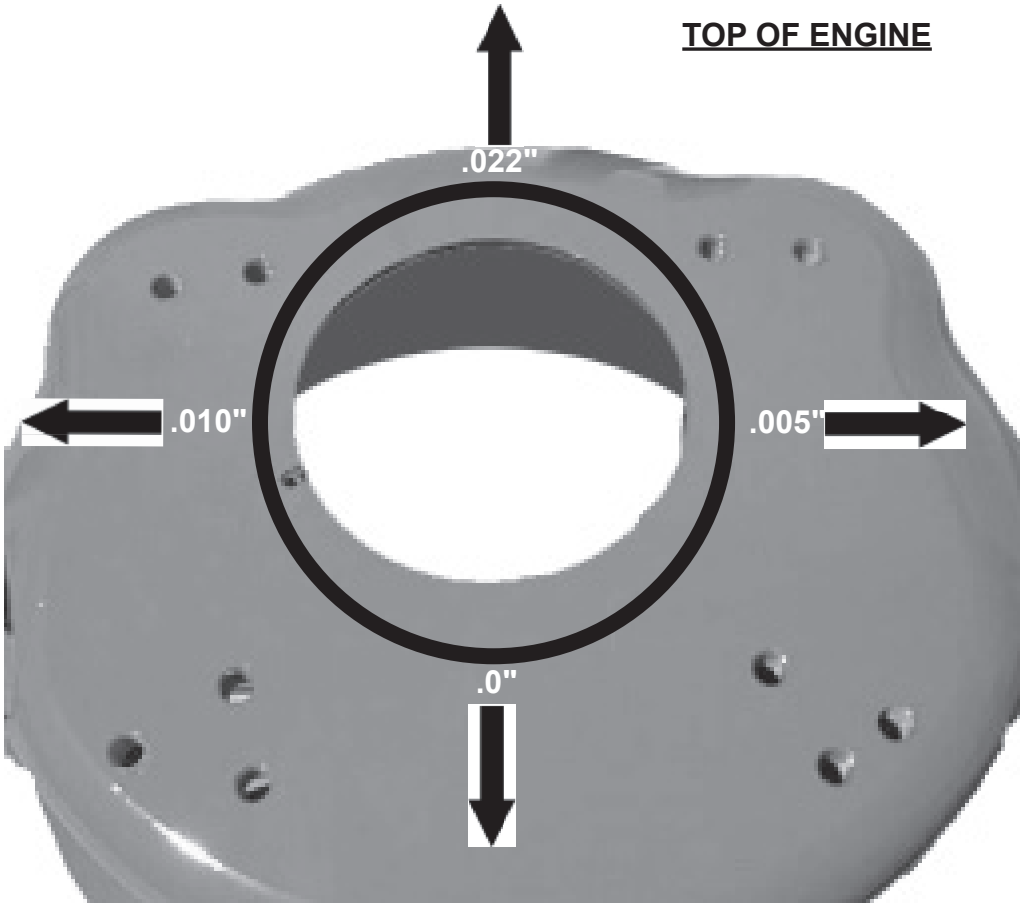
EXAMPLE

THE BELLHOUSING WAS OFFSET TOWARD TOP OF ENGINE AND SLIGHTLY TO THE LEFT (AS VIEWED FROM BEHIND). TO ALIGN THE BELLHOUSING, INSTALL TWO .014" OFFSET DOWEL PINS WITH THE MAXIMUM OFFSET POSITIONED ROUGHLY AT THE 5 O'CLOCK POSITION.



OFFSET DOWEL PIN CHART

TOTAL INDICATOR READING	ONE HALF TOTAL INDICATOR READING	SIZE DOWEL TO BE USED
.012" TO .020"	.006" TO .010"	.007"
.022" TO .034"	.011" TO .017"	.014"
.036" TO .052"	.018" TO .026"	.021"

	GM			FORD/CHRYSLER
	LAKEWOOD	MOROSO	TAVIA	LAKEWOOD
.007	15920	37934	02701	15950
.014	15930	37936	02702	15960
.021	15940	37938	02703	15970