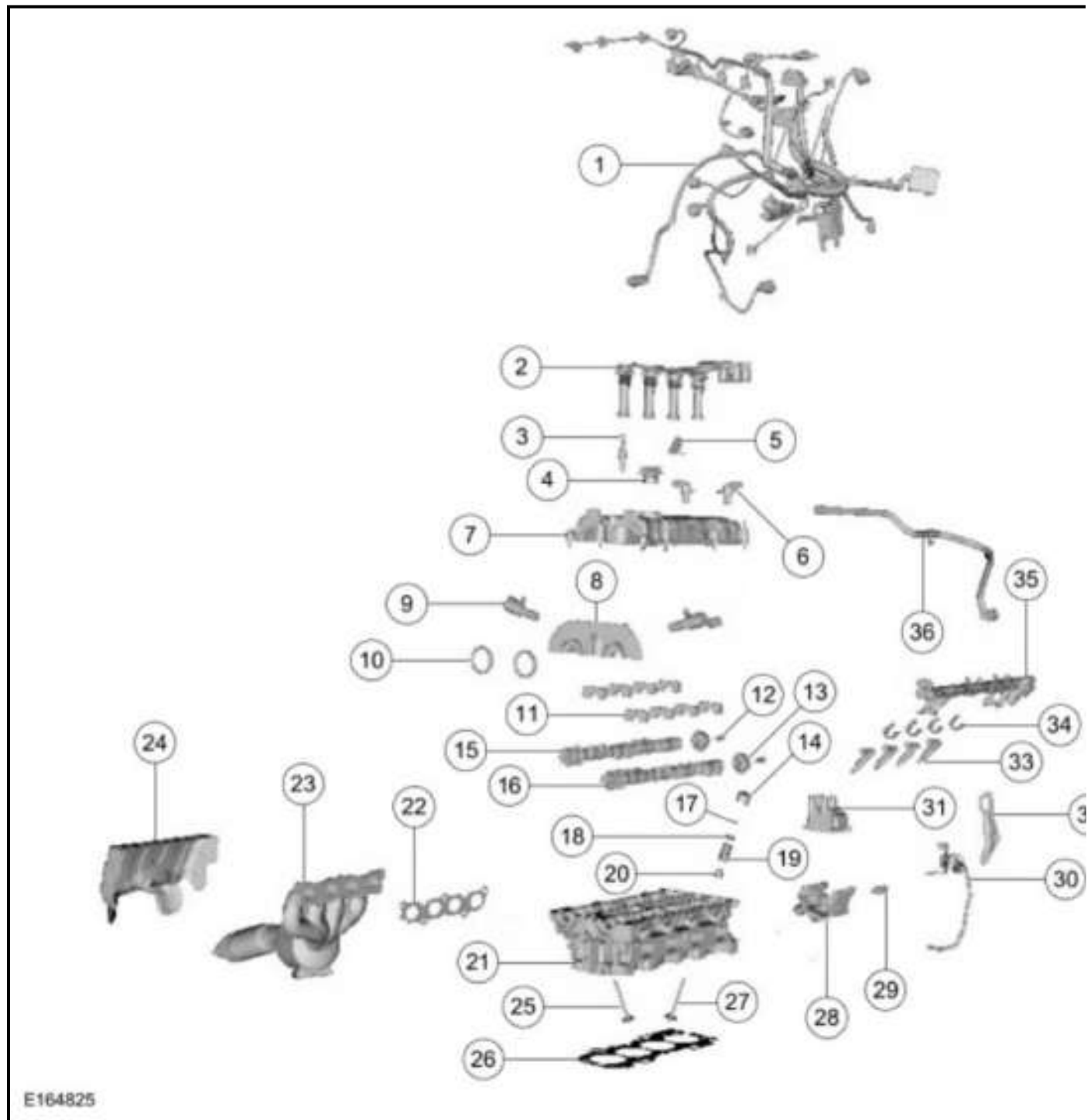


DESCRIPTION AND OPERATION

ENGINE COMPONENT VIEW

Upper Engine



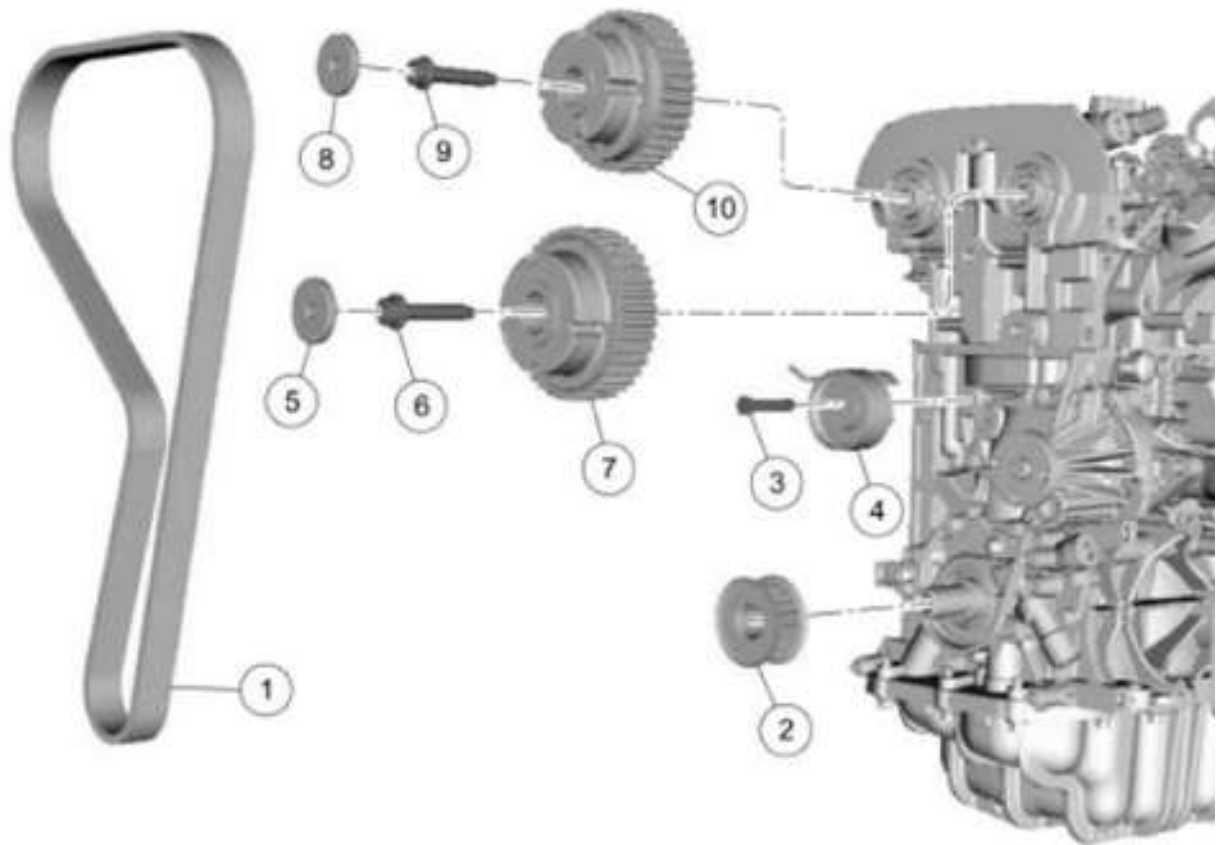
E164825

Item	Part Number	Description
1	12A581	Engine wiring harness
2	12259	Spark plug wire (4 required)

3	12405	Spark plug (4 required)
4	6766	Oil fill cap
5	14A163	Heated Oxygen Sensor (HO2S) connector bracket
6	12K073	Camshaft Position (CMP) sensor (2 required)
7	6M293	Valve cover
8	-	Variable camshaft timing (VCT) bridge (part of 6049)
9	6L713	VCT solenoid (2 required)
10	6K292	Camshaft seals (2 required)
11	-	Camshaft cap (8 required) (part of 6049)
12	W700279	Camshaft trigger wheel bolt (2 required) (part of 6250)
13	6M265	Camshaft trigger wheel (2 required) (part of 6250)
14	6500	Valve tappet (16 required)
15	6250	Exhaust camshaft
16	6250	Intake camshaft
17	6518	Valve collet (32 required)
18	6514	Valve spring retainer (16 required)
19	6513	Valve spring (16 required)
20	6571	Valve seal (16 required)
21	6049	Cylinder head
22	9448	Catalytic converter gasket
23	5G232	Catalytic converter
24	9A462	Catalytic converter heat shield
25	6505	Exhaust valve (8 required)
26	6051	Cylinder head gasket
27	6507	Intake valve (8 required)
28	8K556	Coolant outlet
29	12A648	Engine Coolant Temperature (ECT) sensor
30	9C047	Evaporative Emission (EVAP) tube
31	12029	Ignition coil
32	17A084	Lifting eye bracket
33	9F593	Fuel injector (4 required)
34	9C995	Fuel injector clip (4 required)
35	9D280	Fuel rail
36	6865	Engine vent hose

Front Engine

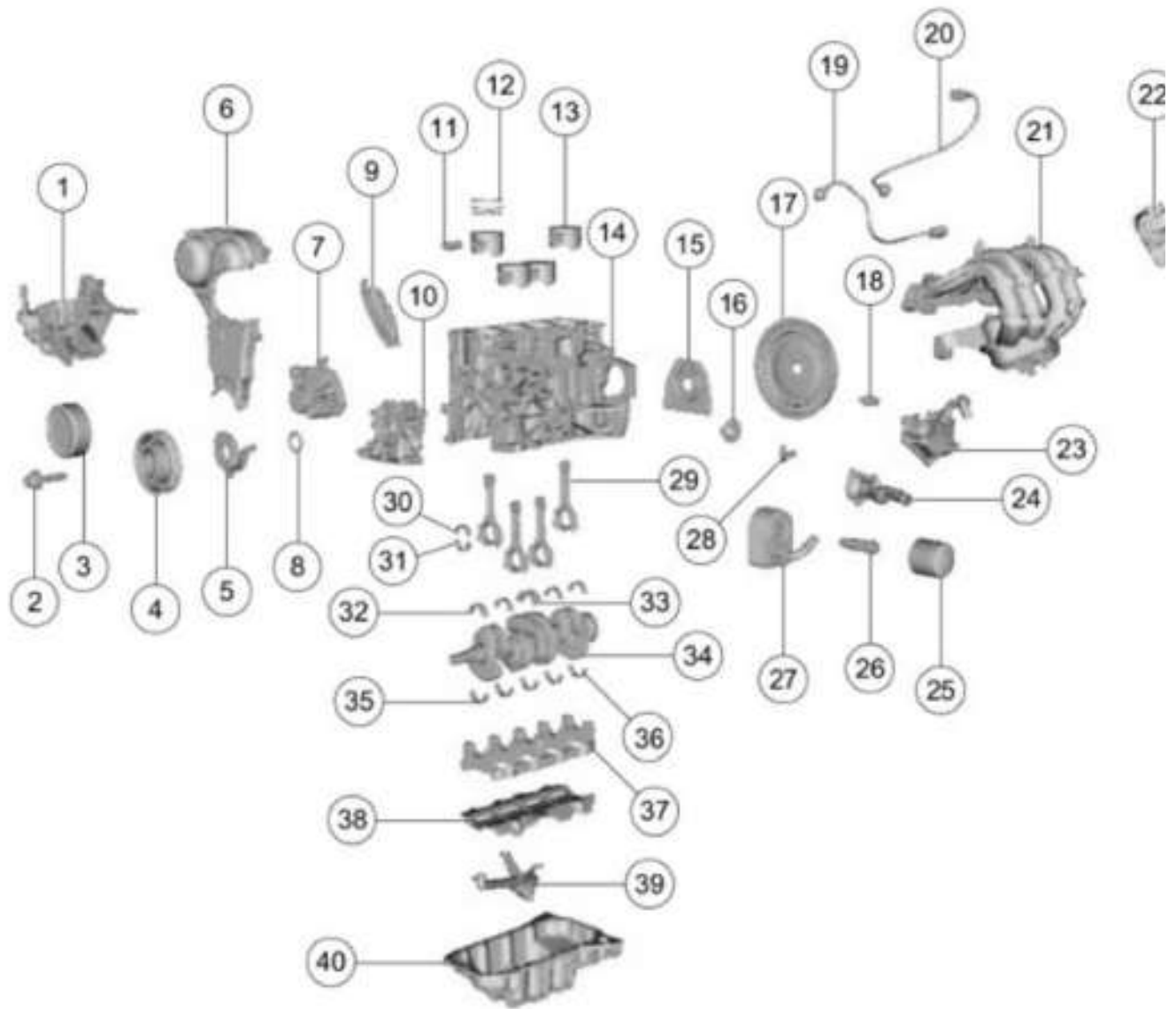




E164860

Item	Part Number	Description
1	6K288	Timing belt
2	6306	Crankshaft sprocket gear
3	6K340	Timing belt tensioner bolt
4	6K254	Timing belt tensioner
5	W710954	Intake phaser and sprocket plug and seal
6	6M282	Intake camshaft phaser and sprocket bolt
7	6256	Intake camshaft phaser and sprocket
8	W710954	Exhaust phaser and sprocket plug and seal
9	6M282	Exhaust camshaft phaser and sprocket bolt
10	6256	Exhaust camshaft phaser and sprocket

Lower Engine



E164826

Item	Part Number	Description
1	6F001	Engine mount bracket
2	6K340	Crankshaft pulley bolt
3	8509	Coolant pump pulley
4	6312	Crankshaft pulley
5	6L070	Lower timing belt cover
6	6P073	Upper timing belt cover
7	8501	Coolant pump
8	6700	Crankshaft front seal
9	-	Timing belt cover side hatch (part of 6P073)

10	6600	Oil pump
11	6135	Piston pin (4 required)
12	6148	Piston ring set (5 required)
13	6108	Piston (4 required)
14	6010	Engine block
15	6K301	Crankshaft rear oil seal and retainer plate
16	8575	Thermostat
17	6375	Flexplate/Flywheel
18	9278	Oil pressure switch
19	12A699	RH Knock Sensor (KS)
20	12A699	LH KS
21	9424	Intake manifold
22	9E926	Throttle Body (TB)
23	6A785	Crankcase vent oil separator
24	8592	Thermostat housing
25	6731	Oil filter
26	6L626	Oil cooler mounting bolt
27	6A642	Oil cooler
28	6C315	Crankshaft Position (CKP) sensor
29	6200	Connecting rod (4 required)
30	6211	Upper connecting rod bearing (4 required)
31	6211	Lower connecting rod bearing (4 required)
32	6333	Upper main bearing (4 required)
33	6337	Upper main bearing with thrust bearing
34	6303	Crankshaft
35	6333	Wider lower main bearing
36	6333	Lower main bearing (4 required)
37	-	Lower crankshaft main bearing beam (part of 6010)
38	6687	Windage tray
39	6K621	Oil pump screen and pickup tube
40	6675	Oil pan

ENGINE

Overview

The 1.6L 4-cylinder engine has the following features:

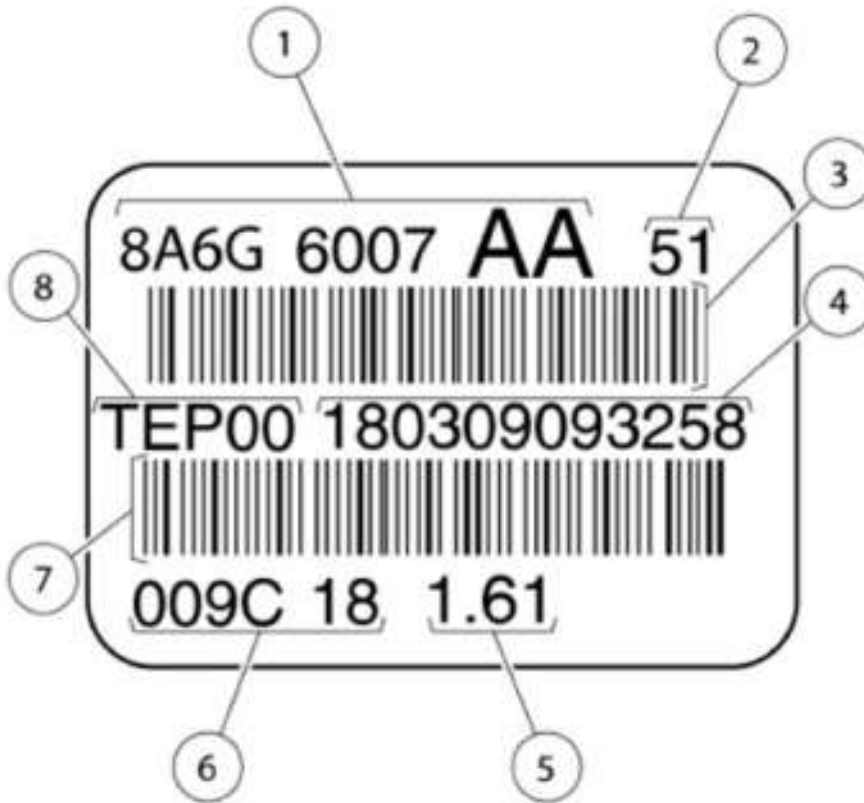
- Dual overhead camshafts
- Four valves per cylinder
- **SFI**
- Composite intake manifold
- Aluminum cylinder head
- Aluminum cylinder block
- Twin independent variable cam timing (Ti-VCT)

Engine Identification

Always refer to these labels when installation of new parts is necessary or when checking engine calibrations. The engine parts often differ within a CID family. Verification of the identification codes will make sure the correct parts are obtained. These codes contain all the pertinent information relating to the dates, optional equipment and revisions.

Engine Code Information Label

The engine code information label, located on the front side of the timing cover, contains the following:



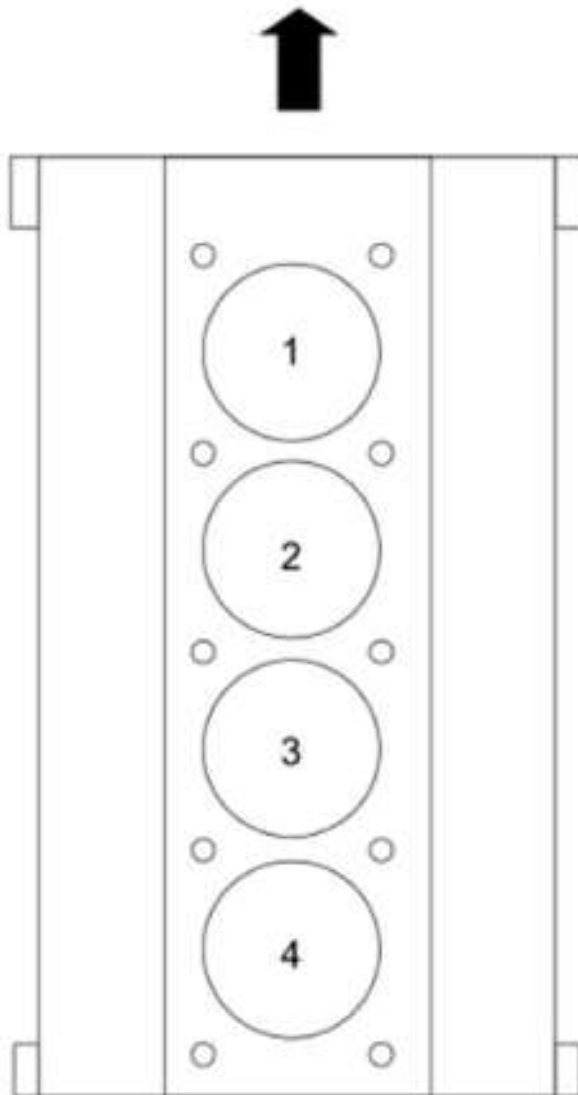
E165170

Fig. 1: Identifying Engine Code Information Label
Courtesy of FORD MOTOR CO.

Item	Description
1	Engine part number
2	Derivative of build
3	Bar code
4	Engine build date and time
5	Engine displacement
6	Engine build date (YYMMDD)

7	Bar code
8	Plant code (Taubate)

Engine Cylinder Identification



E148703

Fig. 2: Identifying Engine Cylinder Sequence
Courtesy of FORD MOTOR CO.

System Operation

Lubrication System

The engine lubrication system operates as follows:

- Oil is drawn into the oil pump through the oil pump screen cover and tube in the sump of the oil pan.
- Oil is pumped through the oil filter on the left side of the cylinder block and is cooled by an oil cooler.

- Oil enters the main gallery where it is distributed to the crankshaft main journals and to the cylinder head.
- From the main journals, the oil is routed through cross-drilled passages in the crankshaft to lubricate the connecting rod bearings. Controlled leakage through the crankshaft main bearings and connecting rod bearings is slung radially outward to cool and lubricate the cylinder walls as well as the entire connecting rod, piston and piston ring assembly.

Valve Train

The valve train uses direct acting mechanical buckets (DAMB). The camshaft lobes are positioned directly above mechanical buckets which are positioned on top of the valves.

Twin Independent Variable Cam Timing (Ti-VCT)

The Ti-VCT system allows variable control of the valves which optimizes combustion at full load providing improved power and low speed torque (broadening the torque curve) which enables variable valve overlap which provides better fuel economy and emissions and provides optimized cold start operation with improved exhaust emissions.