

# 常柴牌

ZN490Q  
ZN490QA  
ZN490B

Changchai

Diesel Engines

Supplementary  
Service Instruction



CHANGCHAI BRAND



常柴股份有限公司

CHANGCHAI CO., LTD., CHINA

## FOREWORD

ZN490Q/ZN490QA/ZN490B Diesel are direct injection engines, developed by our company on the base of N485Q deisel engine. Their overall and mounting dimensions are completely the same as those of N485 diesel engine and most of their components and parts are common with N485Q diesel engine. They are suitable for powering farm vehicles and light duty trucks. It is recommended that the operators read in detail, both the operation manual for series N85Q diesel engines and the supplementary service instruction before putting the engine in service.

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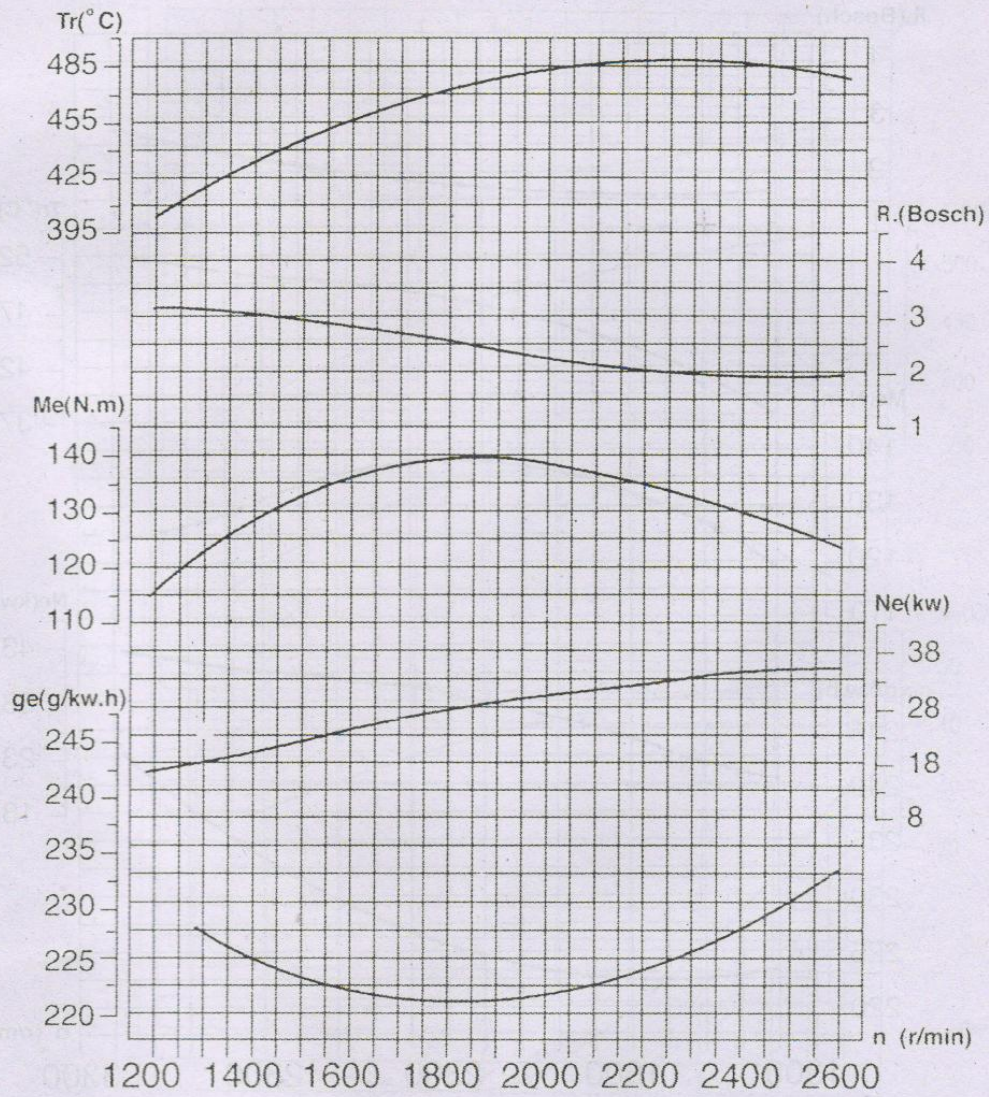
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C.Accessories

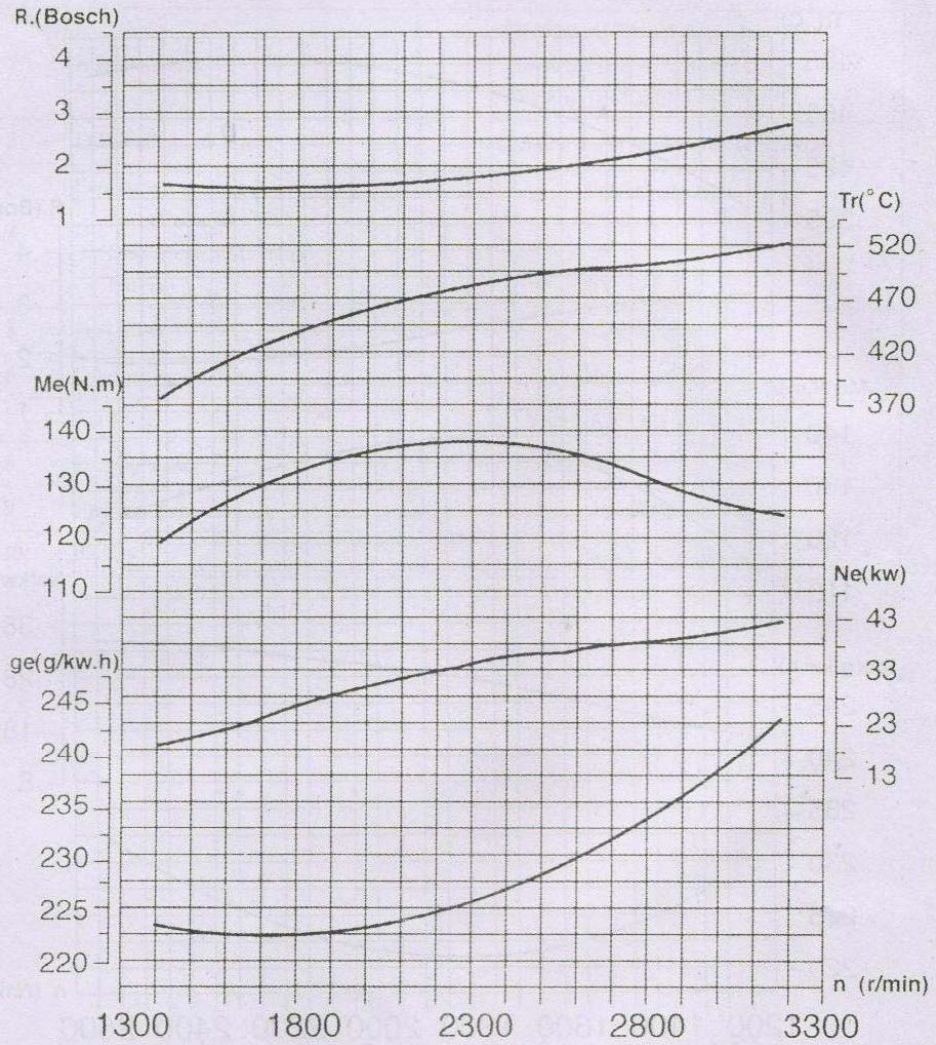
No.	Name of accessories	Model & type
1	Inject Nozzle couple	Model PF68S23 CN-DLLA155S255
2	Injector pump	ZN490Q:4123-8 left model 1300 ZN490QA:BH4Q75R8 ZN490B:BH4Q80R8
3	Lubricating oil pump	JZX1420 Inner and outer rotor type
4	Cooling water pump Speed(r/min) Displacement(L/min) Lift(m)	Centrifugal type 2600 70 6
5	Fuel filter	Model C0708A1
6	Lubricating oil filter	Model J0810A1
7	Air filter	Model KW1329 or K1317A
8	Starting motor	Model KW1329 or K1317A
9	charging generator	Model JF11A
10	Battery	Model 6-Q-135

D. Performance curves of ZN490Q/ZN490QA /ZN490B Engines

1. Performance curves of ZN490Q Engine



### 2. Performance Curves of ZN490QA Engine





**SECTION II LIST OF PARTS OF ZN490Q/ZN490QA ENGINES  
NOT COMMON WITH THOSE OF N485Q ENGINE**

**A.List of Parts of ZN490Q Engine Not Common with Those of N485Q Engine**

No.	Name of part	Part No. of ZN490Q	Part No. of N485Q
1	Name plate	ZN490Q-01009E	N485Q-01009
2	Intake pipe packing	ZN490QA-02005	N485Q-02005
3	Cylinder head	ZN490QA-02108	N485-02108
4	Injector insert	CZ475Q-021005	Nil
5	Cylinder liner water seal ring	N90-03002	N85-03002
6	Cylinder liner	N90-03003	N85-03003
7	Main bearing shell(lower)	ZN85QA-03006	N85-03006
8	Main bearing shell(upper)	ZN85QA-03008	N85-03008
9	Cylinder head gasket	ZN490QA-03013	N485-03013
10	Cylinder block	ZN490QA-03101	N485-03101
11	Main bearing cap	ZN90QA-03104	N85-03104
12	Main bearing cap bolt	N90-03106	N85-03106
13	Rear main bearing cap	ZN90QA-03107	N85-03107
14	Piston	ZN90Q-05001	N85-05001
15	First piston ring	ZN90QA-05002	N85-05002
16	Second piston ring	N90-05003	N85-05003
17	Oil scraper ring	N90-05100	N85-05100
18	Connecting rod bearing shell	ZN85QA-05005	N85-05005
19	Intake pipe	ZN490QA-09001	N85-09001
20	High pressure fuel pipe	ZN485QA-14100	N485-14100
			N485-14200
			N485-14300
			N485-14400
21	Fuel injection pump	Pump No. I Model 4I23-8 left 1300	N485-18001 Model 4I23-6.5 left 1300
22	Fuel injector	ZN490QA-25000	N85-25000
		Model PF68S23	Model P662
		Nozzle couple DLLA155S255	
23	Heating plug	Nil	N85-02009
24	Heating plug wire connecting plate	Nil	N85-02010
25	Injector clamping plate	Nil	N85-02011
26	Swirl combustion chamber insert	Nil	N85-02103

**B.List of Parts of ZN490QA Engine Not Common with Those of N485Q Engine**

No.	Name of part	Part No.of ZN490QA	Part No.of N485Q
1	Name plate	ZN490Q-01009E	N485Q-01009
2	Intake pipe packing	ZN490QA-02005	N485Q-02005
3	Cylinder head	ZN490QA-02108	N485-02108
4	Injector insert	CZ475Q-021005	Nil
5	Cylinder liner water seal ring	N90-03002	N85-03002
6	Cylinder head	N90-03003	N85-03003
7	Main bearing shell(lower)	ZN85QA-03006	N85-03006
8	Main bearing shell(upper)	ZN85QA-03008	N85-03008
9	Cylinder head gasket	ZN490QA-03013	N485-03013
10	Cylinder head gasket	ZN490QA-03101	N485-03101
11	Main bearing cap	ZN90QA-03104	N85-03104
12	Main bearing cap bolt	N90-03106	N85-03106
13	Rear main bearing cap	ZN90QA-03107	N85-03107
14	Piston	ZN90QA-05001(A)	N85-05001
15	First piston ring	ZN90QA-05002	N85-05002
16	Second piston ring	N90-05003	N85-05003
17	Oil scraper ring	N90-05100	N85-05100
18	Connecting rod bearing shell	ZN85QA-05005	N85-05005
19	Intake pipe	ZN490QA-09001	N85-09001
20	Advancer	ZN85QA-12005(A)	N85Q-12005(A)
21	High pressure fuel pipe	ZN485QA-14100	N485-14100 N485-14300 N485-14200 N485-14400
22	Fuel returning pipe	N485-15100-1(C)	N485-15100-1
23	Fuel injection pump	ZN490QA-18001 Model BH4Q75R8	N485-198001 Model 4I23-6.5 left 1300
24	Advance	ZN485QA-18005	Nil
25	Fuel injector	ZN490QA-25000 Model PF68S23 Nozzle couple CN-DLLA155S255	N85-25000 Model 662
26	Oil seal	DL85×110×12F	DL85×110×12(Acrylic ester975)
27	Oil seal	DR52×72×12(Acrylic ester)	DR52×72×12(Nitril rubber)
28	Valve stem seal ring	QC8×13×13(Fluoroelatomer)	QC8×13×13(Nitril rubber)
29	Heating plug	Nil	N85-02009
30	Heating plug wire connecting plate	Nil	N485-02010
31	Injector clamping plate	Nil	N85-02011
32	Swirl combustion chamber insert	Nil	N85-02103
33	Injection pump timing gear adapter	Nil	N85-18005

**C.List of Parts of ZN490B Engine Not Common With Those of N485Q Engine**

No.	Name of part	Part No. of ZN490B	Part No. of N485Q
1	Name plate	ZN490Q-01009E	N485Q-01009E
2	Intake manifold gasket	ZN490QA-02005	N480Q-02005
3	Cylinder head	ZN490QA-02108	N485-02108
4	Injector insert	CZ475Q-021005	NO
5	Water seal ring	N90-03002	N85-03002
6	Cylinder liner	N90-03003	N85-03003
7	Lower main bearing shell	ZN85QA-03006	N85-03006
8	Upper main bearing shell	ZN85QA-03008	N85-03008
9	Cylinder head gasket	ZN490QA-03013	N485-03013
10	Cylinder block	ZN490QA-03101	N485-03101
11	Main shaft cover	ZN490QA-03104	N85-03104
12	Main shaft cover blot	N90-03106	N85-05003
13	Rear shaft cover	ZN490QA-03107	N85-03107
14	Piston	ZN490B-05001	N85-05001
15	First piston ring	ZN490QA-05002	N85-05002
16	Second piston ring	N90-05003	N85-05003
17	connecting rod bearing shell	ZN85QA-05005	N85-05005
18	Oil ring	N90-05100	N85-05100
19	Crankshaft	ZN490B-06004-1	N485-06004
20	Intake manifold	ZN490QA-09001	N485-09001(A)
21	Advancer cover	ZN85QA-12005(A)	N85-12005(A)
22	High pressure fuel pipe	ZN485QA-14100	N485-14100,N485-14200 N485-14300,N485-14400
23	Injector fuel return pipe	N485-15100-1(C)	N485-15100-1
24	Fuel injection pump	ZN490QA-18001 Model: B114Q80R8	N485-18001 Model: 4I23-6.5 left1300
25	Advancer	ZN485QA-18005	Nil
26	Fuel injector	ZN490QA-25000 Model: PF68S23 Nozzle comple: CN-DLLA155S255	N85-25000 Model: P662
27	Starting motor	N485Q-30000(B) QD139(12V,3kW)	N485-30000(A) QD138(12V,2.5kW)
28	Oil seal	DL85×110×12F	DL85×110×12(Rubber third975)
29	Oil seal	DR52×72×12(Acrylic acid)	DR52×72×12(Rubber fourth)
30	Valve rod seal ring	QC8×13×13(Fluoride rubber)	QC8×13×13(Nitrile rubber)
31	Heating plug	Nil	N85-02009
32	Heating plug wire connecting plate	Nil	N485-02010
33	Injector retainer	Nil	N85-02011
34	Gear case	Nil	N85-18005
35	Injection pump liming gear adapter	Nil	N85-18005

### Packing List of the Engine

No.	Items	Unit	Quantity	Notes
1	Diesle engine	Set	1	According to model
2	Engine front support	Set	1	
3	Tools supplied with the engine	Set	1	
4	Spare parts supplied with the engine	Set	1	
5	List of engine packing and tools supplied with the engine	Copy	1	
6	Operation manual	Copy	2	One copy of supplementary service instruction for ZN490Q/ZN490QA/ZN490B diesel engine,one copy of operation manual for series N85Q diesel engine
7	Product certificate	Copy	1	Attached to the engine

### List of Tools Supplied with the Engine

No.	Designation	Quantity	Notes
1	Valve lapping tool	1	
2	Lapping past(140#)	1	
3	Feeler gauge(N85-24220)	1	
4	Screw driver(8")	1	Self-provided by end users
5	Torque wrench(300N·mm)	1	Self-provided by end users
6	Socket head 10	1	Self-provided by end users
7	Socket head 13	1	Self-provided by end users
8	Socket head 14	1	Self-provided by end users
9	Socket head 16	1	Self-provided by end users
10	Socket head 17	1	Self-provided by end users
11	Socket head 18	1	Self-provided by end users
12	Double head wrench 10×13	1	Self-provided by end users
13	Double head wrench 13×16	1	Self-provided by end users
14	Double head wrench 16×18	1	Self-provided by end users
15	Double head wrench 17×19	1	Self-provided by end users

**List of Spare Parts Supplied with ZN490Q/ZN490QA/ZN490B Engine**

No.	Part No.	Name of spare parts	Quantity	Notes
1	ZN490QA-03013	Cylinder head gasket	1	
2	N85-02003(1)	Outer valve spring	1	
3	N85-02003(2)	Inner valve spring	1	
4	N85-02002	Valve collet	2	
5	ZN85QA-05005	Connecting rod bearing shell	2	
6	ZN85QA-03006	Lower main bearing shell	2	
7	ZN85QA-03008	Upper main bearing shell	2	
8	ZN90QA-05002	First piston ring	2	
9	N90-05003	Second piston ring	2	
10	N90-05100	Oil scraping ring	2	
11		Injector nozzle couple CN-DLLA155S255	2	
12	DR52×72×12	Oil seal(Nitrile rubber)	1	
13	DL85×110×12	Oil seal(acrylic ester 975)	1	



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