

Parts Price List for Model DO-16-valve  
Cylinder Head

Part No.	Name	No. Required	Price Each
DO-201	Cylinder Head Casting, machined.....	1	\$175.00
DO-202	Chain Housing (upper).....	1	20.00
O-3	Chain Housing (lower).....	1	30.00
DO-203	Chain Housing Cover (upper).....	1	15.00
O-6	Chain Housing Cover (lower).....	1	15.00
DO-204	Camshaft Cover, R. H.....	1	20.00
DO-205	Camshaft Cover, L. H.....	1	20.00
DO-206	Camshaft and Sprocket Shaft Bearing Bracket.....	1	30.00
DO-207	Camshaft Bearing (center).....	2	6.00
DO-208	Camshaft Bearing, rear, R. H.....	1	6.00
DO-209	Camshaft Bearing, Rear L. H.....	1	6.00
DO-213	Camshaft (intake and exhaust).....	2	60.00
DO-215	Upper Sprocket Shaft.....	1	8.00
DO-216	Upper Sprocket.....	1	12.00
O-13	Lower Sprocket.....	1	12.00
O-14	Idler Sprocket.....	1	10.00
	Idler Assembly.....	1	30.00
O-33	Eccentric Body.....	1	10.00
O-34	Eccentric Body Nut.....	1	3.00
O-16	Ball Bearing.....	1	5.00
O-35	Eccentric Body Shaft.....	1	5.00
O-15	Lower Sprocket Shaft.....	1	10.00
O-15A	Lower Sprocket Shaft for double oil pump.....	1	12.00
O-11	Driving Chain (Diamond).....	1	15.00
	Driving Chain (Link-Belt).....	1	20.00
O-17	Water Outlet.....	1	3.00
DO-218	Valve (intake).....	8	2.50
DO-218	Valve (exhaust).....	8	3.00
DO-219	Valve Guides.....	16	1.00
DO-220	Valve Spring Cap and Tappet.....	16	1.50
X-13	Valve Spring (outer).....	16	.30
DO-225	Valve Spring (inner).....	16	.30
DO-221	Camshaft Gear.....	2	12.00
DO-222	Center Driving Gear.....	1	15.00
DO-224	Valve Tappet Lock Nut.....	16	.10
DO-227	Camshaft Front Bearing End Stud.....	4	.50
DO-228	Camshaft Bearing Cap Stud (short).....	4	.50
DO-229	Camshaft Bearing Hold Down Stud.....	6	.50
DO-230	Camshaft Bearing Cap Stud (long).....	6	.60
DO-231	Camshaft Cover Hold Down Stud.....	6	.50
DO-232	Chain Housing to Head Stud.....	2	.30
DO-233	Cylinder Head Stud.....	10	1.00
DO-234	Cylinder Head Stud Nut.....	10	.30
	Cylinder Head Stud Washer.....	10	.20
DO-235	Camshaft Bearing and Hold Down Cover Stud.....	4	.50
O-28	Chain Housing Cover Stud.....	18	.20
O-31	Lower Sprocket Nut.....	1	1.00
O-32	Lower Sprocket Washer.....	1	.30
O-16	Upper Sprocket Shaft Bearing No. 1304, used also on lower drive shaft.....	3	6.00
O-33	Lower Sprocket Shaft Key.....	1	.20
X-3	Cylinder Head Gasket.....	1	1.50
229-C	Intake Manifold, for single carburetor, vertical or inverted.....	1	40.00
232-B	Exhaust Manifold.....	1	40.00
229-E	Y Intake Manifold for two carburetors.....	2	20.00
	Zenith 1 3/4" carburetor.....	2	35.00
	Winfield 1 3/4" or 1 1/2" inverted carburetor.....	1	55.00
235-A	Special Camshaft Gear to fit Lower Sprocket Shaft.....	1	10.00

**TO REMEMBER WHEN ORDERING.**

When ordering, to avoid errors, give both part number and name, as shown in list of parts required. Specify method of shipment. Send 25% of purchase price with order, balance C. O. D. This will save time and delays.

A handling charge of 10% will be made on all merchandise returned for credit. Do not return any material without our consent.

**INSTRUCTION BOOK**

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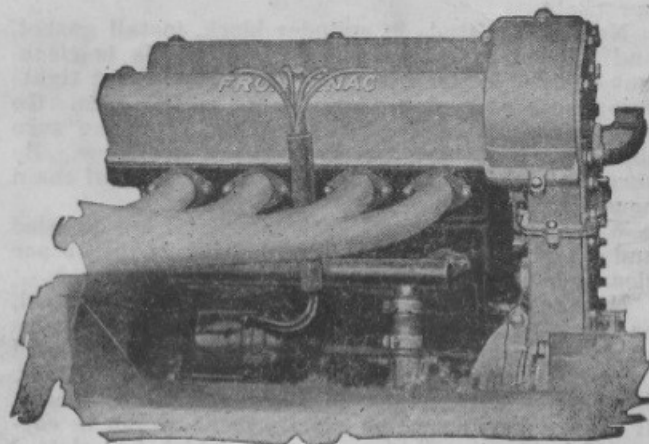
**PARTS PRICE LIST**

for the

**FRONTY MODEL D-O**

**Sixteen Valve**

**Double Overhead Camshaft Cylinder Head**



*For Ford Racing Cars*

APRIL 15, 1929

*Manufactured by*

**ARTHUR CHEVROLET  
AVIATION MOTORS CORPORATION  
410 West Tenth Street**

*Formerly*

**Chevrolet Bros. Mfg. Co.**  
INCORPORATED  
**INDIANAPOLIS, IND**

## INSTRUCTIONS FOR INSTALLING AND TAKING CARE OF DO-16-VALVE HEAD

First make sure that top face of cylinder block is clean and level and that there is no metal raised around bolt holes. Watch this on old blocks especially.

Put in regular Ford front camshaft bearing in place. Put special cam gear on driving shaft and put this in place.

Next install lower chain housing on front face of cylinder block, holes in this housing will match holes in block. Be sure to put a gasket for oil tight joint. Also put gasket and bolts on lower edge to crankcase.

Next put driving sprocket on driving shaft with key in place, put on washer and nut and tighten securely. Next put chain on over driving and idler sprockets.

Next screw studs in cylinder block, install gasket, and put on cylinder head. Be sure this is clean. Put on special thick washers and nuts. Start tightening nuts on center, working out to the ends. Go over each nut at least three times, to make sure that nuts are tight and gasket will not blow. Be sure that gaskets are in place on upper edge of chain housing.

When head is shipped, both camshafts are doweled and set in proper relation to each other at the proper clearance of .030 between heel of cam and tappet.

Now set the motor at 10 degrees, fly wheel travel, or  $\frac{1}{8}$  piston travel before top center, then turn camshafts, (clockwise when in front of motor), until intake valve just open, put chain over upper sprocket, then set idler to right tension for chain. If timing does not come exactly right, it can be corrected by moving upper sprocket, which has slotted holes, back or forward as necessary. When everything is tight, turn motor back about  $\frac{1}{4}$  turn, then turn ahead slowly and watch intake opening which should be 10 degrees fly wheel travel or  $\frac{1}{8}$  piston travel before top center. Then turn a little further and watch exhaust closing, which should be 10 degrees to 12 degrees fly wheel travel, or  $\frac{1}{8}$  to  $\frac{1}{4}$  piston travel past center.

### Ignition Timing

All of this checking should be done on No. 1 cylinder, and while motor is in position, magneto should be set to be firing on No. 4 cylinder.

The best setting for the magneto is 32 degrees fly wheel travel, or  $\frac{1}{8}$  piston travel, at full advance position. This is all that is necessary. Any more spark advance than this will work against motor, making it heat up, breaking crankshafts, breaking rear axle gears, blowing out cylinder head gaskets, etc. Firing order is 1, 2, 4, 3.

After motor is timed correctly, go over cylinder head studs again to make sure they are tight, put on cam covers, chain housing covers and bolt everything tight, making sure that all gaskets are in place. Mount oil pump on lower chain cover. Make oil connections from main feed line to idler and oil connection from gauge line to cylinder head, and from cylinder head (at back end) to pressure gauge.

NOTE:—A couple of guns full of oil should be put in the head and camshafts, to make sure that

camshafts will be lubricated as soon as motor starts. We recommend that nothing be used except pure Castor Oil for successful operation of this cylinder head.

### Grinding of Valves and Clearance Adjustments

When it becomes necessary to regrind the valves in the head and perhaps reface the seats, proceed as follows:

Take off oil pump, take off chain housing covers, loosen idler lock nut, slip chain over upper sprocket, take off camshaft covers. Take off cylinder head stud nuts, loosen them all about one turn then loosen them entirely. Take off head. Take off camshafts. Then take valves out by using a large screw driver, which should fit the slot in valve tight, and an open end wrench to hold tappet. Be sure, however, to loosen lock nuts before trying to take valves out. In order to loosen the lock nuts, you must have a good thin lock nut wrench, such as Snap-On or Bonney, and pry between the valve springs with a screw driver, then slip wrench in on nut and loosen while holding tappet.

When taking valves out, get a board with holes in for the valves and nails for springs and tappets so they will not get mixed up.

Then reface valve seats, if necessary. Do not take any more material than necessary, and grind valves in the usual manner. When valves are all ground, put on one camshaft and put valve in place, screw tappet on end of valve, tight, and while holding valve firmly in place, check the clearance between tappet and heel of cam. This should be .030. If less than this, take off valve and tappet, and grind or file enough off the end of the valve to get the right clearance of .030. After grinding or filing end of valve stem, be sure to break the corners enough to allow tappet to come to bottom on valve stem. **THE ABOVE IS VERY IMPORTANT.**

Should too much be taken off the end of valve stem, getting too much clearance, put shims in bottom of tappet. **DO NOT TRY TO ADJUST CLEARANCE BY MOVING TAPPET UP OR DOWN, IT MUST BOTTOM ON VALVE STEM OTHERWISE IT WILL COME LOOSE WHILE RUNNING,** letting valve fall in motor, breaking piston or cylinder head.

After all valves have been adjusted, take off camshafts, put valves in, put on lock nuts, as far as possible, put on springs and screw tappets on tight, lock the lock nuts tight. Then reassemble head as per instructions.

When motor is first started, it should be run slowly for about 15 minutes, then camshaft covers should be taken off and cylinder head studs tightened to prevent cylinder head gasket from blowing out.

All racing motors should be warmed up for about 15 or 20 minutes before attempting any speed, this allows the oil to warm up and circulate and will prevent any burned out bearings, stuck pistons, scored cylinders, etc.

### Carburetion

The mixture in a racing motor should be rich enough to keep the exhaust, spark plugs and combustion chamber almost black. Too lean a mixture may accelerate faster than a rich mixture, but it is liable to warp the valves, or crack the head and burn holes in the pistons, also cause pre-ignition. It is better to keep on the rich side, as, although it may not accelerate as fast as a lean mixture, it will give higher top speed and be much safer.