

**Chapter 1 : Hydraulic Pump Shaft | eBay**

*This contact between the gear teeth and the pump housing results in wear on the pump STEP STEP Hydraulic Gear Pump and Motor Failure Analysis and.*

If you still think you might have an issue, or if you have a question, please refer to this page. In the following topics, we will help you troubleshoot any possible problems and provide helpful technical tips for our products. If you have purchased one of our products and have a question or encounter a problem not covered here, please email us at [info@performancedistributors.com](mailto:info@performancedistributors.com). This problem can be easily prevented if the proper precautions are used. Bottoming of the distributor usually occurs when engine work such as the block, heads and intake have been milled. This will allow the distributor to sit farther down in the engine. The best method for checking the distributor to find out if it is bottomed, drop the distributor in the engine with no gasket. Also, make sure the cap and rotor have been removed for this test. Firmly hold the distributor against the intake with one hand and with the other, pull on the top plate of the main shaft. Make sure you grab the top plate where the weights and center cam are riding. Do Not grab the reluctor the part the rotor attaches to because this part has up and down movement at all times. By grabbing the top plate you are checking for any up and down play in the shaft. If the shaft has up and down movement, you are now ready to install the distributor permanently by adding the gasket and installing your hold-down clamp. If there is no up and down movement in the shaft, then the distributor is bottomed on the oil pump. You will need to add a nylon distributor shim of correct thickness until the up and down play is achieved. Nylon distributor shims are available from Performance Distributors in thicknesses of .005, .010, .015, .020, .025, .030, .035, .040, .045, .050, .055, .060, .065, .070, .075, .080, .085, .090, .095, .100, .105, .110, .115, .120, .125, .130, .135, .140, .145, .150, .155, .160, .165, .170, .175, .180, .185, .190, .195, .200, .205, .210, .215, .220, .225, .230, .235, .240, .245, .250, .255, .260, .265, .270, .275, .280, .285, .290, .295, .300, .305, .310, .315, .320, .325, .330, .335, .340, .345, .350, .355, .360, .365, .370, .375, .380, .385, .390, .395, .400, .405, .410, .415, .420, .425, .430, .435, .440, .445, .450, .455, .460, .465, .470, .475, .480, .485, .490, .495, .500, .505, .510, .515, .520, .525, .530, .535, .540, .545, .550, .555, .560, .565, .570, .575, .580, .585, .590, .595, .600, .605, .610, .615, .620, .625, .630, .635, .640, .645, .650, .655, .660, .665, .670, .675, .680, .685, .690, .695, .700, .705, .710, .715, .720, .725, .730, .735, .740, .745, .750, .755, .760, .765, .770, .775, .780, .785, .790, .795, .800, .805, .810, .815, .820, .825, .830, .835, .840, .845, .850, .855, .860, .865, .870, .875, .880, .885, .890, .895, .900, .905, .910, .915, .920, .925, .930, .935, .940, .945, .950, .955, .960, .965, .970, .975, .980, .985, .990, .995, 1.000, 1.005, 1.010, 1.015, 1.020, 1.025, 1.030, 1.035, 1.040, 1.045, 1.050, 1.055, 1.060, 1.065, 1.070, 1.075, 1.080, 1.085, 1.090, 1.095, 1.100, 1.105, 1.110, 1.115, 1.120, 1.125, 1.130, 1.135, 1.140, 1.145, 1.150, 1.155, 1.160, 1.165, 1.170, 1.175, 1.180, 1.185, 1.190, 1.195, 1.200, 1.205, 1.210, 1.215, 1.220, 1.225, 1.230, 1.235, 1.240, 1.245, 1.250, 1.255, 1.260, 1.265, 1.270, 1.275, 1.280, 1.285, 1.290, 1.295, 1.300, 1.305, 1.310, 1.315, 1.320, 1.325, 1.330, 1.335, 1.340, 1.345, 1.350, 1.355, 1.360, 1.365, 1.370, 1.375, 1.380, 1.385, 1.390, 1.395, 1.400, 1.405, 1.410, 1.415, 1.420, 1.425, 1.430, 1.435, 1.440, 1.445, 1.450, 1.455, 1.460, 1.465, 1.470, 1.475, 1.480, 1.485, 1.490, 1.495, 1.500, 1.505, 1.510, 1.515, 1.520, 1.525, 1.530, 1.535, 1.540, 1.545, 1.550, 1.555, 1.560, 1.565, 1.570, 1.575, 1.580, 1.585, 1.590, 1.595, 1.600, 1.605, 1.610, 1.615, 1.620, 1.625, 1.630, 1.635, 1.640, 1.645, 1.650, 1.655, 1.660, 1.665, 1.670, 1.675, 1.680, 1.685, 1.690, 1.695, 1.700, 1.705, 1.710, 1.715, 1.720, 1.725, 1.730, 1.735, 1.740, 1.745, 1.750, 1.755, 1.760, 1.765, 1.770, 1.775, 1.780, 1.785, 1.790, 1.795, 1.800, 1.805, 1.810, 1.815, 1.820, 1.825, 1.830, 1.835, 1.840, 1.845, 1.850, 1.855, 1.860, 1.865, 1.870, 1.875, 1.880, 1.885, 1.890, 1.895, 1.900, 1.905, 1.910, 1.915, 1.920, 1.925, 1.930, 1.935, 1.940, 1.945, 1.950, 1.955, 1.960, 1.965, 1.970, 1.975, 1.980, 1.985, 1.990, 1.995, 2.000, 2.005, 2.010, 2.015, 2.020, 2.025, 2.030, 2.035, 2.040, 2.045, 2.050, 2.055, 2.060, 2.065, 2.070, 2.075, 2.080, 2.085, 2.090, 2.095, 2.100, 2.105, 2.110, 2.115, 2.120, 2.125, 2.130, 2.135, 2.140, 2.145, 2.150, 2.155, 2.160, 2.165, 2.170, 2.175, 2.180, 2.185, 2.190, 2.195, 2.200, 2.205, 2.210, 2.215, 2.220, 2.225, 2.230, 2.235, 2.240, 2.245, 2.250, 2.255, 2.260, 2.265, 2.270, 2.275, 2.280, 2.285, 2.290, 2.295, 2.300, 2.305, 2.310, 2.315, 2.320, 2.325, 2.330, 2.335, 2.340, 2.345, 2.350, 2.355, 2.360, 2.365, 2.370, 2.375, 2.380, 2.385, 2.390, 2.395, 2.400, 2.405, 2.410, 2.415, 2.420, 2.425, 2.430, 2.435, 2.440, 2.445, 2.450, 2.455, 2.460, 2.465, 2.470, 2.475, 2.480, 2.485, 2.490, 2.495, 2.500, 2.505, 2.510, 2.515, 2.520, 2.525, 2.530, 2.535, 2.540, 2.545, 2.550, 2.555, 2.560, 2.565, 2.570, 2.575, 2.580, 2.585, 2.590, 2.595, 2.600, 2.605, 2.610, 2.615, 2.620, 2.625, 2.630, 2.635, 2.640, 2.645, 2.650, 2.655, 2.660, 2.665, 2.670, 2.675, 2.680, 2.685, 2.690, 2.695, 2.700, 2.705, 2.710, 2.715, 2.720, 2.725, 2.730, 2.735, 2.740, 2.745, 2.750, 2.755, 2.760, 2.765, 2.770, 2.775, 2.780, 2.785, 2.790, 2.795, 2.800, 2.805, 2.810, 2.815, 2.820, 2.825, 2.830, 2.835, 2.840, 2.845, 2.850, 2.855, 2.860, 2.865, 2.870, 2.875, 2.880, 2.885, 2.890, 2.895, 2.900, 2.905, 2.910, 2.915, 2.920, 2.925, 2.930, 2.935, 2.940, 2.945, 2.950, 2.955, 2.960, 2.965, 2.970, 2.975, 2.980, 2.985, 2.990, 2.995, 3.000, 3.005, 3.010, 3.015, 3.020, 3.025, 3.030, 3.035, 3.040, 3.045, 3.050, 3.055, 3.060, 3.065, 3.070, 3.075, 3.080, 3.085, 3.090, 3.095, 3.100, 3.105, 3.110, 3.115, 3.120, 3.125, 3.130, 3.135, 3.140, 3.145, 3.150, 3.155, 3.160, 3.165, 3.170, 3.175, 3.180, 3.185, 3.190, 3.195, 3.200, 3.205, 3.210, 3.215, 3.220, 3.225, 3.230, 3.235, 3.240, 3.245, 3.250, 3.255, 3.260, 3.265, 3.270, 3.275, 3.280, 3.285, 3.290, 3.295, 3.300, 3.305, 3.310, 3.315, 3.320, 3.325, 3.330, 3.335, 3.340, 3.345, 3.350, 3.355, 3.360, 3.365, 3.370, 3.375, 3.380, 3.385, 3.390, 3.395, 3.400, 3.405, 3.410, 3.415, 3.420, 3.425, 3.430, 3.435, 3.440, 3.445, 3.450, 3.455, 3.460, 3.465, 3.470, 3.475, 3.480, 3.485, 3.490, 3.495, 3.500, 3.505, 3.510, 3.515, 3.520, 3.525, 3.530, 3.535, 3.540, 3.545, 3.550, 3.555, 3.560, 3.565, 3.570, 3.575, 3.580, 3.585, 3.590, 3.595, 3.600, 3.605, 3.610, 3.615, 3.620, 3.625, 3.630, 3.635, 3.640, 3.645, 3.650, 3.655, 3.660, 3.665, 3.670, 3.675, 3.680, 3.685, 3.690, 3.695, 3.700, 3.705, 3.710, 3.715, 3.720, 3.725, 3.730, 3.735, 3.740, 3.745, 3.750, 3.755, 3.760, 3.765, 3.770, 3.775, 3.780, 3.785, 3.790, 3.795, 3.800, 3.805, 3.810, 3.815, 3.820, 3.825, 3.830, 3.835, 3.840, 3.845, 3.850, 3.855, 3.860, 3.865, 3.870, 3.875, 3.880, 3.885, 3.890, 3.895, 3.900, 3.905, 3.910, 3.915, 3.920, 3.925, 3.930, 3.935, 3.940, 3.945, 3.950, 3.955, 3.960, 3.965, 3.970, 3.975, 3.980, 3.985, 3.990, 3.995, 4.000, 4.005, 4.010, 4.015, 4.020, 4.025, 4.030, 4.035, 4.040, 4.045, 4.050, 4.055, 4.060, 4.065, 4.070, 4.075, 4.080, 4.085, 4.090, 4.095, 4.100, 4.105, 4.110, 4.115, 4.120, 4.125, 4.130, 4.135, 4.140, 4.145, 4.150, 4.155, 4.160, 4.165, 4.170, 4.175, 4.180, 4.185, 4.190, 4.195, 4.200, 4.205, 4.210, 4.215, 4.220, 4.225, 4.230, 4.235, 4.240, 4.245, 4.250, 4.255, 4.260, 4.265, 4.270, 4.275, 4.280, 4.285, 4.290, 4.295, 4.300, 4.305, 4.310, 4.315, 4.320, 4.325, 4.330, 4.335, 4.340, 4.345, 4.350, 4.355, 4.360, 4.365, 4.370, 4.375, 4.380, 4.385, 4.390, 4.395, 4.400, 4.405, 4.410, 4.415, 4.420, 4.425, 4.430, 4.435, 4.440, 4.445, 4.450, 4.455, 4.460, 4.465, 4.470, 4.475, 4.480, 4.485, 4.490, 4.495, 4.500, 4.505, 4.510, 4.515, 4.520, 4.525, 4.530, 4.535, 4.540, 4.545, 4.550, 4.555, 4.560, 4.565, 4.570, 4.575, 4.580, 4.585, 4.590, 4.595, 4.600, 4.605, 4.610, 4.615, 4.620, 4.625, 4.630, 4.635, 4.640, 4.645, 4.650, 4.655, 4.660, 4.665, 4.670, 4.675, 4.680, 4.685, 4.690, 4.695, 4.700, 4.705, 4.710, 4.715, 4.720, 4.725, 4.730, 4.735, 4.740, 4.745, 4.750, 4.755, 4.760, 4.765, 4.770, 4.775, 4.780, 4.785, 4.790, 4.795, 4.800, 4.805, 4.810, 4.815, 4.820, 4.825, 4.830, 4.835, 4.840, 4.845, 4.850, 4.855, 4.860, 4.865, 4.870, 4.875, 4.880, 4.885, 4.890, 4.895, 4.900, 4.905, 4.910, 4.915, 4.920, 4.925, 4.930, 4.935, 4.940, 4.945, 4.950, 4.955, 4.960, 4.965, 4.970, 4.975, 4.980, 4.985, 4.990, 4.995, 5.000, 5.005, 5.010, 5.015, 5.020, 5.025, 5.030, 5.035, 5.040, 5.045, 5.050, 5.055, 5.060, 5.065, 5.070, 5.075, 5.080, 5.085, 5.090, 5.095, 5.100, 5.105, 5.110, 5.115, 5.120, 5.125, 5.130, 5.135, 5.140, 5.145, 5.150, 5.155, 5.160, 5.165, 5.170, 5.175, 5.180, 5.185, 5.190, 5.195, 5.200, 5.205, 5.210, 5.215, 5.220, 5.225, 5.230, 5.235, 5.240, 5.245, 5.250, 5.255, 5.260, 5.265, 5.270, 5.275, 5.280, 5.285, 5.290, 5.295, 5.300, 5.305, 5.310, 5.315, 5.320, 5.325, 5.330, 5.335, 5.340, 5.345, 5.350, 5.355, 5.360, 5.365, 5.370, 5.375, 5.380, 5.385, 5.390, 5.395, 5.400, 5.405, 5.410, 5.415, 5.420, 5.425, 5.430, 5.435, 5.440, 5.445, 5.450, 5.455, 5.460, 5.465, 5.470, 5.475, 5.480, 5.485, 5.490, 5.495, 5.500, 5.505, 5.510, 5.515, 5.520, 5.525, 5.530, 5.535, 5.540, 5.545, 5.550, 5.555, 5.560, 5.565, 5.570, 5.575, 5.580, 5.585, 5.590, 5.595, 5.600, 5.605, 5.610, 5.615, 5.620, 5.625, 5.630, 5.635, 5.640, 5.645, 5.650, 5.655, 5.660, 5.665, 5.670, 5.675, 5.680, 5.685, 5.690, 5.695, 5.700, 5.705, 5.710, 5.715, 5.720, 5.725, 5.730, 5.735, 5.740, 5.745, 5.750, 5.755, 5.760, 5.765, 5.770, 5.775, 5.780, 5.785, 5.790, 5.795, 5.800, 5.805, 5.810, 5.815, 5.820, 5.825, 5.830, 5.835, 5.840, 5.845, 5.850, 5.855, 5.860, 5.865, 5.870, 5.875, 5.880, 5.885, 5.890, 5.895, 5.900, 5.905, 5.910, 5.915, 5.920, 5.925, 5.930, 5.935, 5.940, 5.945, 5.950, 5.955, 5.960, 5.965, 5.970, 5.975, 5.980, 5.985, 5.990, 5.995, 6.000, 6.005, 6.010, 6.015, 6.020, 6.025, 6.030, 6.035, 6.040, 6.045, 6.050, 6.055, 6.060, 6.065, 6.070, 6.075, 6.080, 6.085, 6.090, 6.095, 6.100, 6.105, 6.110, 6.115, 6.120, 6.125, 6.130, 6.135, 6.140, 6.145, 6.150, 6.155, 6.160, 6.165, 6.170, 6.175, 6.180, 6.185, 6.190, 6.195, 6.200, 6.205, 6.210, 6.215, 6.220, 6.225, 6.230, 6.235, 6.240, 6.245, 6.250, 6.255, 6.260, 6.265, 6.270, 6.275, 6.280, 6.285, 6.290, 6.295, 6.300, 6.305, 6.310, 6.315, 6.320, 6.325, 6.330, 6.335, 6.340, 6.345, 6.350, 6.355, 6.360, 6.365, 6.370, 6.375, 6.380, 6.385, 6.390, 6.395, 6.400, 6.405, 6.410, 6.415, 6.420, 6.425, 6.430, 6.435, 6.440, 6.445, 6.450, 6.455, 6.460, 6.465, 6.470, 6.475, 6.480, 6.485, 6.490, 6.495, 6.500, 6.505, 6.510, 6.515, 6.520, 6.525, 6.530, 6.535, 6.540, 6.545, 6.550, 6.555, 6.560, 6.565, 6.570, 6.575, 6.580, 6.585, 6.590, 6.595, 6.600, 6.605, 6.610, 6.615, 6.620, 6.625, 6.630, 6.635, 6.640, 6.645, 6.650, 6.655, 6.660, 6.665, 6.670, 6.675, 6.680, 6.685, 6.690, 6.695, 6.700, 6.705, 6.710, 6.715, 6.720, 6.725, 6.730, 6.735, 6.740, 6.745, 6.750, 6.755, 6.760, 6.765, 6.770, 6.775, 6.780, 6.785, 6.790, 6.795, 6.800, 6.805, 6.810, 6.815, 6.820, 6.825, 6.830, 6.835, 6.840, 6.845, 6.850, 6.855, 6.860, 6.865, 6.870, 6.875, 6.880, 6.885, 6.890, 6.895, 6.900, 6.905, 6.910, 6.915, 6.920, 6.925, 6.930, 6.935, 6.940, 6.945, 6.950, 6.955, 6.960, 6.965, 6.970, 6.975, 6.980, 6.985, 6.990, 6.995, 7.000, 7.005, 7.010, 7.015, 7.020, 7.025, 7.030, 7.035, 7.040, 7.045, 7.050, 7.055, 7.060, 7.065, 7.070, 7.075, 7.080, 7.085, 7.090, 7.095, 7.100, 7.105, 7.110, 7.115, 7.120, 7.125, 7.130, 7.135, 7.140, 7.145, 7.150, 7.155, 7.160, 7.165, 7.170, 7.175, 7.180, 7.185, 7.190, 7.195, 7.200, 7.205, 7.210, 7.215, 7.220, 7.225, 7.230, 7.235, 7.240, 7.245, 7.250, 7.255, 7.260, 7.265, 7.270, 7.275, 7.280, 7.285, 7.290, 7.295, 7.300, 7.305, 7.310, 7.315, 7.320, 7.325, 7.330, 7.335, 7.340, 7.345, 7.350, 7.355, 7.360, 7.365, 7.370, 7.375, 7.380, 7.385, 7.390, 7.395, 7.400, 7.405, 7.410, 7.415, 7.420, 7.425, 7.430, 7.435, 7.440, 7.445, 7.450, 7.455, 7.460, 7.465, 7.470, 7.475, 7.480, 7.485, 7.490, 7.495, 7.500, 7.505, 7.510, 7.515, 7.520, 7.525, 7.530, 7.535, 7.540, 7.545, 7.550, 7.555, 7.560, 7.565, 7.570, 7.575, 7.580, 7.585, 7.590, 7.595, 7.600, 7.605, 7.610, 7.615, 7.620, 7.625, 7.630, 7.635, 7.640, 7.645, 7.650, 7.655, 7.660, 7.665, 7.670, 7.675, 7.680, 7.685, 7.690, 7.695, 7.700, 7.705, 7.710, 7.715, 7.720, 7.725, 7.730, 7.735, 7.740, 7.745, 7.750, 7.755, 7.760, 7.765, 7.770, 7.775, 7.780, 7.785, 7.790, 7.795, 7.800, 7.805, 7.810, 7.815, 7.820, 7.825, 7.830, 7.835, 7.840, 7.845, 7.850, 7.855, 7.860, 7.865, 7.870, 7.875, 7.880, 7.885, 7.890, 7.895, 7.900, 7.905, 7.910, 7.915, 7.920, 7.925, 7.930, 7.935, 7.940, 7.945, 7.950, 7.955, 7.960, 7.965, 7.970, 7.975, 7.980, 7.985, 7.990, 7.995, 8.000, 8.005, 8.010, 8.015, 8.020, 8.025, 8.030, 8.035, 8.040, 8.045, 8.050, 8.055, 8.060, 8.065, 8.070, 8.075, 8.080, 8.085, 8.090, 8.095, 8.100, 8.105, 8.110, 8.115, 8.120, 8.125, 8.130, 8.135, 8.140, 8.145, 8.150, 8.155, 8.160, 8.165, 8.170, 8.175, 8.180, 8.185, 8.190, 8.195, 8.200, 8.205, 8.210, 8.215, 8.220, 8.225, 8.230, 8.235, 8.240, 8.245, 8.250, 8.255, 8.260, 8.265, 8.270, 8.275, 8.280, 8.285, 8.290, 8.295, 8.300, 8.305, 8.310, 8.315, 8.320, 8.325, 8.330, 8.335, 8.340, 8.345, 8.350, 8.355, 8.360, 8.365, 8.370, 8.375, 8.380, 8.385, 8.390, 8.395, 8.400, 8.405, 8.410, 8.415, 8.420, 8.425, 8.430, 8.435, 8.440, 8.445, 8.450, 8.455, 8.460, 8.465, 8.470, 8.475, 8.480, 8.485, 8.490, 8.495, 8.500, 8.505, 8.510, 8.515, 8.520, 8.525, 8.530, 8.535, 8.540, 8.545, 8.550, 8.555, 8.560, 8.565, 8.570, 8.575, 8.580, 8.585, 8.590, 8.595, 8.600, 8.605, 8.610, 8.615, 8.620, 8.625, 8.630, 8.635, 8.640, 8.645, 8.650, 8.655, 8.660, 8.665, 8.670, 8.675, 8.680, 8.685, 8.690, 8.695, 8.700, 8.705, 8.710, 8.715, 8.720, 8.725, 8.730, 8.735, 8.740, 8.74

to the distributor. A bad ground can keep the distributor from firing as well. The distributor grounds itself to the engine when installed. Make sure your ground to the engine block is secure. To ensure a good ground, a secondary ground wire can be attached to the distributor by connecting a wire anywhere on the housing and running it to the chassis, body or negative side of the battery. If you suspect an electronic part to be defective, the following steps will allow you to test the coil inside the cap and the magnetic pick up coil. To test the resistance of the coil, loosen the 3 screws 2 screws on 6 cyl. Remove cover to expose the coil and you will see a red and yellow wire. Using the multi-meter on the ohms setting, touch the positive lead to the red wire terminal and the negative lead to the yellow wire terminal. The primary resistance value should be 0. To check the secondary resistance, remove the 4 screws that hold the coil in the cap. Pull the coil out of the cap and turn it upside down. Touch the negative meter lead to the ring terminal on the black wire between the red and yellow and touch the positive lead to the bottom of the coil where the rotor bushing makes contact. Your secondary reading should be 6. Click thumbnails for larger image. Primary Test Secondary Test 5. If the resistance checks on the coil are within spec, the next test would be to test the magnetic pick up coil. The pick up is located underneath the top plate of the shaft and has a green and white wire coming from it that plugs into the module. Remove the green and white wires from the module and touch the positive meter lead to the terminal on the green wire and the negative lead to the terminal on the white wire. The normal reading should be 10 ohms. Click thumbnail for larger image Pick Up Coil Test 6. The remaining electronic part that would keep the distributor from firing is the Dyna-Module. The Dyna- Mod is located inside the distributor and has the green and white wires from the pick up attached on one end and a terminal block on the other. Unfortunately there is no test that can be performed with an ohm meter on this part. You will need to remove it and take it to an auto parts store that has a module tester. Have them test the module 3 or 5 times as the module may not show to be bad until it develops some heat. After you have conducted all of the testing procedures and you are still having a problem with the distributor, please call our tech line at during the hours of 9 am to 5 pm Central Time. Oil In Top Of Distributor Oil in the top of the distributor housing around the pick up coil and module is caused by too much crankcase pressure. The distributor does not suck oil up into itself. The shaft and gear only rotate, they do not force oil upward into the housing. The crankcase pressure forces the oil up into the distributor. The best way to eliminate the oil problem is to vent both sides of the engine. Moroso and Canton Racing Products both make a crossover tube with two breathers that allow you to breathe both sides of the engine. This crossover tube will not allow oil to splash out on the right side of the engine. Another procedure to help alleviate the oil problem is to drill two oil relief holes in the distributor housing. First, remove the roll pin from the gear and remove the gear from the shaft. Be careful not to lose the shims and tang washer that are between the gear and housing. With the cap and rotor off, remove the shaft from the housing. Do not drill all the way through, just to the center and back out. Make sure you drill above the two rings at the bottom of the housing. These are oil bosses and you do not want to drill into them. Again, do not drill through to the other side, just to the center and then back out. These two holes will allow the oil to drain back down into the engine and will not hurt the strength of the housing. One last procedure we recommend that is very effective and probably the easiest to perform is to fill four of the five slots around the bottom bushing with RTV silicone. Leaving one of the slots open will allow the bushing to receive enough oil to prevent any damage to the shaft or bushing itself. To perform this procedure you will need to remove the distributor gear by knocking out the roll pin. Once you remove the gear, keep all of the shims and tang washer together. Remove the main shaft. Use an RTV silicone available at any auto parts store to fill in four of the 5 slots around the bushing.

**Chapter 2 : PH Series Gear Pump**

*Diesel Engine Maintenance Training Manual Item Preview Schutte and Koerting gear pump 37 Worn gear pump shafts 37 4-3. Tuthill reversible fuel pump*

Turbine wheel with damaged blade 14 Roots type blowers 16 Roots type blower for G. Checking backlash of rotor gears 18 Scored blower lobes 18 Checking clearances of Roots type blower lobes 19 Shaft oil seals 20 Failed serrated shaft 21 Hamilton-Whitfield blower 21 Air intake manifold 22 Schematic drawing of an oil separator 23 Effect of a worn bearing on oil leakage 24 Flame primer as used on the G. Cross section of manifold metal 27 Formation of scale in water jacket 28 Improper installation of wet type muffler 29 Use of pipe bend to prevent backflow of water 29 Use of three-way proportioning valve to regulate water flow to muffler 30 Use of throttling valve to control flow of water to muffler 30 Dry type muffler 31 Force produced in exhaust piping by thermal expansion 32 Use of flexible expansion joint to absorb thermal expansion 32 Illustration of pressure drop in exhaust piping and muffler 33 Types of bends used in exhaust lines 33 Water trapped due to sagging of elbow 34 Exhaust stack showing evidence of corrosion 34 3- Revision of stack design to eliminate corrosion 34 4- 1. Schutte and Koerting gear pump 37 Tuthill reversible fuel pump 38 Packing clamps improperly tightened, cocked 39 Cover plate of pump shown in Figure , showing uneven wear of bushing 39 Vane type fuel oil pumps 40 Worn and damaged seal on G. Bosch fuel supply pumps with hand prime feature. Excello fuel transfer pump 41 Schematic diagram of Bosch supply pumps 41 Sectional views of Bosch type pumps: Pumping principle, one-plunger stroke 44 Metering principle 44 Types of plungers 44 5. Plunger rotating mechanism 45 Good and bad plungers 45 APF pump sight window 48 Typical Bosch spray nozzle 51 Sectional views of nozzles 51 Nozzle and nozzle holder 52 American Bosch nozzle tester in operation 53 Variations in nozzle holder connections and adjustments 54 Throttling type pintle nozzle 56 Good spray from throttling nozzles 56 Spray patterns from standard pintle nozzles 56 Types of General Motors injectors 59 Injection and metering principle 60 Injector test stand 60 Sealing surfaces 62 Type A Excello fuel injection pump 67 Excello fuel pump drive unit, hydraulic unit, and safety filter 68 Excello fuel injection nozzle 71 Exploded view of nozzle tip 72 Use of special tools to assemble and disassemble nozzle 73 Cummins fuel system 74 Cummins fuel injector 75 Worn and scored distributor disk and cover 76 4 Worn and eroded injector cup tip 79 New injector cup tip 79 Pressure regulating valve 79 Atlas fuel system 80 Spray valve and actuating mechanism 81 Cutaway view of fuel oil pump 84 Lapping the plunger and barrel 86 4 Lapping the discharge valve and seat 86 Square lapping the relief valve seat 86 Fuel injector 87 Cutaway view of fuel injector 88 Lapping the lower valve seat and stem 89 Sectional view of fuel injection nozzle 90 Recommended methods for elimination of pipe breakage at root of threads 91 Duplex system standard practice 93 Duplex fuel filter 93 Plugging filter for washing 94 Schematic drawing of a fuel system 95 Strainer elements 96 4- Tank sampling device for diesel fuel 97 5- 1. Elementary governor mechanisms 99 Governor control mechanism Pierce mechanical governor Operating principle of hydraulic governor Marquette hydraulic governor Woodward type SI governor 5- 8. Simple overspeed trip mechanism 6- 1 Use of the centrifugal pump to clean heat exchangers Use of hand pumps and plungers to clean heat exchangers Repairing a strut tube leak. Both ends of tube require scaling Zinc electrode, before and after use Line valves Distortion of valve seat due to excess threads on pipe. Damaged gate valve, caused by throttling Tubing splice Simplex lube oil strainer 6- Michiana lube oil filter 7- 1. Heat exchangers

**Chapter 3 : Professional Tips - Performance Distributors Performance Distributors**

*Before considering the repair of a worn gear pump, it is necessary to determine whether the pump can be restored to a reasonably good performance (60 - 80% of new pump performance).*

**Chapter 4 : Shaft & Gear pump Drive | eBay**

## DOWNLOAD PDF 4-2. WORN GEAR PUMP SHAFTS 37

*3 - 15 GPM. Shaft Type - 3/4" Straight Keyed. Aluminium Body and Mounting Flange. Mounting Flange - SAE A-2 Bolts. Hydraulic Gear Pump Cu In/Rev. Outlet Port - SAE*