Lecture-24

Aircraft Reciprocating Engine Inspection (Part-I)

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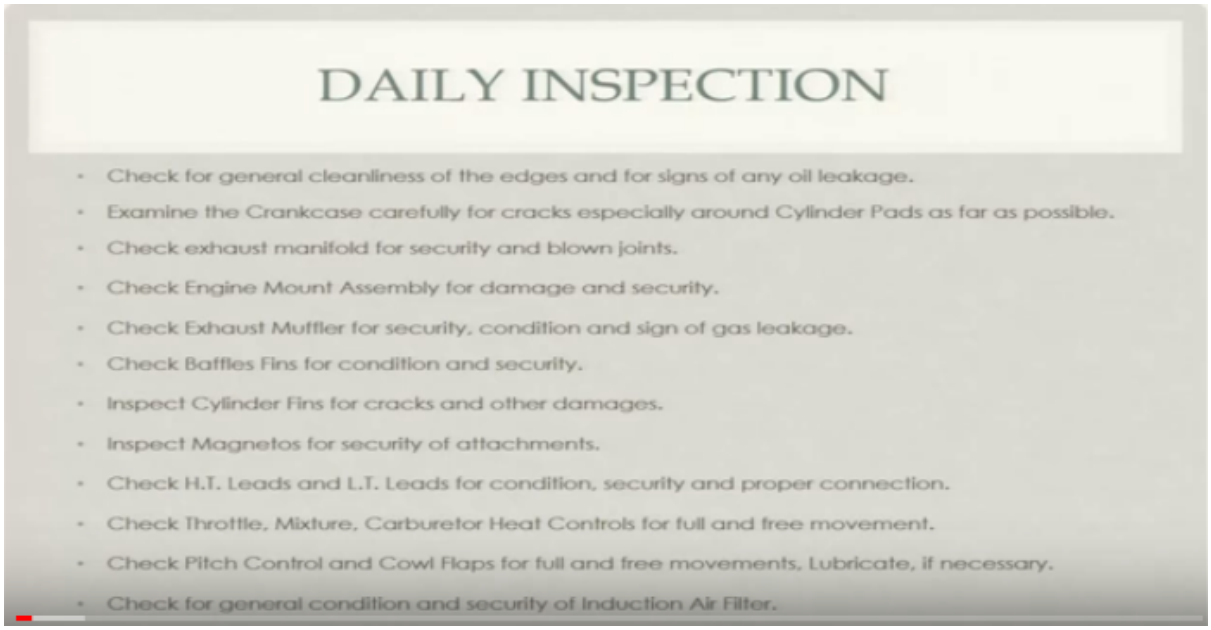

coming to the inspection part of the aircraft and the engine the complete maintenance is divided into various inspection schedules. Which we carry out daily or a pre-flight inspection. We carry out after certain hours say 50 hours, 100 hours, 200 hours or after some calendar period one year, two year. So, let us see what the inspections are we carry out at various intervals on an engine. We are first going to see the inspections here, and after, that we will see them on the aircraft. Physically on the aircraft. So, coming to the first inspection that is the daily inspection. Let us see what the inspections are to be performed daily on an engine. Check for general cleanliness of the edges and for signs of any oil leakage. So, we need to check general cleanliness and we also, need to check, that any oil is leaking or there are there is any symptom of seepage of oil. In case if we observe, that there is any oil leakage or there is any oil see page. We need to check the source of leakage and we need to take rectification action accordingly. Second is examine the crank case carefully for cracks especially around cylinder pads as far as possible. Next is the inspection of the exhaust manifold, for security and blown joints. We need to check that the exhaust system the exhaust tubes the exhaust manifolds they are secured properly there is no loose world no loose nuts the pins are in place the cotter pins are in place and there are no blown joints. Blown joints or there is no leakage around the joints. In case if there is any leakage around the joints it will be visible you can see that, there is discoloration around the joints in case if there is any leakage and we need to identify the source, and take appropriate rectification action, before we release the aircraft for flight. Another inspection will be the engine mount inspection. The engine mount assembly should we check for security and damage. We need to check the engine mount, that there are no cracks in the mount specially around the weld seals. So, the engine mount assembly should be checked for damage, for cracks, for cleanliness, and security. We need to see that the engine mounting bolts are secured properly the creep marks of the nuts, and bolts are in

place. The we need to check, that the bolts the nuts have not slipped. So, the engine mount assembly is properly secured. Check exhaust muffler for security condition and signs of gas leakage. This we have covered in the previous point, that the exhaust muffler should also, be checked for security, condition and signs of gas leakage. This should be checked for the complete exhaust system, for security for signs of leakage gas leakage and the condition and also proper cleanliness. Check baffle spins for condition and security. Inspect cylinder fins for cracks and other damages. So, all the cylinders should be inspected for cracks. The cylinder fins should be inspected for cracks, and other damages. Inspect Magneto's for security of attachments. Check throttle mixture carburettor heater controls for full and free movement. So, all the controls the engine controls you need to check that they have the full movement, and the free movement there is no binding in the movement of the controls. The throttle control, the mixture control, the propeller control, the carburettor heater control, all these controls there should be secured properly, the cotter pins should be in place there is full movement all the stops attaching, and there is no binding in the movement of the controls it has a free movement. Check pitch control, and cowl flaps, for full and free movement lubricate if necessary. So, we need to check the cowl flaps, we need to check the pitch control, for free movement pitch control, that is the propeller pitch control, for free movement and also need to lubricate in case if it is required. Check for general condition and security of induction air filter. The induction air filter should be checked that it is properly secured, and the general condition is proper. So, these are some of the inspections, which are required to be carried out daily before the aircraft is released for flights, they are all in general visual inspections in general we are checking the security the cleanliness and free movement of the controls. Now, we will see this we will see the inspection, the daily inspection on the engine part on the aircraft physically. So, we have just now, seen the daily inspection, that now, we will see the daily inspection of the aircraft physically, the first point was check for general cleanliness, of the surface and for signs of any oil leakage. Now, we will see the general cleanliness. You can see here the general cleanliness of the engine, we have to observe, that there shouldn't be any leaks in the system. We can see that there are no leaks, no sea page around the crack in case around the mating parts. So, we have to observe, that there shouldn't be any leaks. We can see them there are no leaks, then this is your oil filter here. This white unit this is your oil filter here. We will also, see that there shouldn't be any signs of oil leakage around the oil filter or just below it. So, we can see that there are no signs of leakage. So, this point we have to see all over the engine. We will see it we have seen it on the right side and, then now, we will see it on the other side of the engine. You can see here, that there are no signs of leakage. Everything is fine. The engine is okay on both the sides. Now, the second point was examined the crankcase carefully, for cracks especially around the cylinder beds as far as possible. So, we have to check the crankcase, that it should be free of cracks there should be any cracks especially around the cylinder base. So, let us see this is your crankcase here. You can see this this portion this is your crankcase here, and all around the crankcase we will observe minutely, that there shouldn't be any cracks. Similarly, the crankcase should be examined on the other side also you

can see, that there shouldn’t be any cracks in the crankcase, and especially around the cylinder parts. So, we have seen the crankcase from the bottom and also, we are seeing it around the cylinder points, that there shouldn't be any leakage. Similarly, we have to check the crank case, that it is free of cracks there shouldn't be any cracks on the crankcase, and also on the areas adjacent to the cylinders. So, we have seen, we have observed, that there there are no cracks. Similarly, in the same way you will have to inspect the other side of the engine. Next point is check exhaust manifold for security and blown joints. So, this is your exhaust here, you can see this is your exhaust. Here we have read about the exhaust system earlier also, in our earlier lecture, you can see the exhaust system here. We will see, that the exhaust manifold is secured. We will see, that all the screws and fasteners they are properly secured all you can see all the nuts everything is properly secured on all the sides. We will inspect all the points, and we have to inspect the manifold. This is your manifold here. The manifold should be okay. It should be secured. It should be free of any gas leakages. So, I cannot see any gas leakage here. We have read in our lecture, that in case if there is a gas leakage there will be discoloration around the joints. So, you cannot see any discoloration here. So, there are no gas leakages also. Plus, your exhaust muffler is secured all the linkages all the fasteners they are properly secured. So, your exhaust muffler is okay. Your exhaust system is okay. Similarly, in the same way you have to inspect the exhaust on the other side on the right side of the engine also. Next is your baffle fence for condition and security. Now, we have read about the baffles also earlier. These are your baffles, and these are your baffle seals here. So, we have to inspect as part of the daily inspection, that the baffles are secured they are properly secured, there shouldn't be any cracks all the fasteners are intact, all the seals the rubber parts, they are all properly sealing. We have to see, that there are no cuts in the sealing part. So, all along the the rubber seals, we will inspect we will inspect the metallic baffles al so on all the sides. So, these are your metallic baffles, and they are properly secured, there is no crack, they are not loose, and they are firmly in place. So, this is on one side similarly on the other side. On the other side also, the baffles are perfectly fine, they are secured, the rubber seals, that also perfectly okay. So, we will check the baffles also, as part of our daily inspection. Next point is inspect cylinder fins, for cracks and other damages. You can see the cylinders here. Three cylinders this is your portside the left side of the engine. So, you can see these cylinders. This is cylinder number two; this is cylinder number four; and this is cylinder number six; and we have three cylinders on the right side, the which are cylinder numbers one, three and five since this is a six cylinder engine. So, we will have to inspect all the six cylinders. We will have to inspect all the fins, that they are free of cracks, there are no broken Fins and the cylinder is secured plus there shouldn’t be any gas leakages, there shouldn't be any leakage from the cylinder base. So, you can see here, the cylinder base, you can see the fins here, and We have read about the fins also, in our earlier lecture. So, you can see all the fins We have to inspect, that they are free of cracks. Then it is it has a daily inspection schedule, and they are all visual checks we are inspecting it visually, that fins are free of cracks. Similarly, we will inspect the other three cylinders also, for the fins which should be free of cracks and other damages.

Next inspection is inspect Magneto's for security of attachments. As, you know that we have two Magneto's on the engine. One on the left side, and one on the right side. You can see this black unit. This is your magneto here. This is your Magneto; we will check the magneto is secured you can see one holding nut here. So, this magneto is firmly placed. We can see that it is secured. We have to inspect the magneto. The both the Magneto's, that all the leads on the magneto should be in place, they should be secured. Now, you can see the the wires coming out, of the Magneto's you need to ensure, that these wires are secured. They are not loose, and they are firmly in place. So, apart from the magneto mounting we also, need to check the electrical connections from the magneto. So, for both the Magneto's we will do this inspection. So, this is part of your daily inspection. After this Magneto's we also need to check, the leads, the ignition leads for condition, security, and proper connection. So, you need see, that we have seen in our chapter of ignition, you see this is your ignition harness, this is your ignition harness, and this ignition harness is being routed to the respective spark plugs. So, you see this ignition harness here. So, we need to inspect the ignition harness. We need to inspect these leads going to each sparkplug. We need to inspect, that they are firmly in place, they are properly routed, there is no breakage on the ignition harness, there is no chafing on the harness, and the harness is properly secured. So, on the complete engine on both sides, we need to inspect this harness for proper routing, for proper security, and breakage. So, the complete harness is to be checked. Next comes your check total mixture carburettor heat controls, for full and free movement. You know, that these are your controls here. This is one control you have, then you have another control here. This is your throttle control, then the mixture control and we will move these controls and see, that these controls have full and free movement. So, as part of a daily inspection we will also, inspect these controls. So, our next inspection is inspection of the controls. So, here is your throttle linkage. You can see here the throttle linkage. We will move the control from the cockpit and see, that it is freely moving there is no binding in the movement, that stops at the controls they are touching each other, and we will see the movement. So, now, we will show you how the throttle is moving. Move the throttle. Now, you can see the throttle control is moved, and it is on one extreme and now, it will be on the other extreme and it has touched a stop on one extreme and now, it will go to the other extreme. So, see it is going on the other extreme it has touched this stop also. We can see, that the throttle movement. It is perfectly fine. There is no move there is no binding and it is free to move. all the we also, need to check the security of the controls. See all the nuts all the cotter pins here. they are all in place. We need to be very sure about the cotter pins they are very essential. So, these cotter pins all these cotter pins are in place though the control is firmly in place. At the same time a very important part of the inspection. We also, need to see, that the control is properly lubricated. You can see the grease here. It is there the controls are properly lubricated also. So, this was your throttle control. On the other side if you see there. There is another control here. which is the mixture control. Now, we will show you how the mixture control is moving. this is your mixture control. Now, this mixture control will be moved. See the mixture control is moving here it is very freely moving, and it

will move to the other extreme now. See the control, it has moved freely, it has touched its extreme stops also, and the cotter pins and the cotter pins on the control, you can see here they are all in place. So, again the the mixture control is also, free to move it is firmly in place, it is secured, all the cotter pins are in place, and it is properly lubricated also. So, we have seen the throttle control, we have seen the mixture control. Now, we will see the propeller control. It is there at the governor, which is there in the front portion. We will show you on this engine. Now, see this is your propeller control, this is the governor here, and this is the control. We will see, that the governor control, the propeller control, is free to move. It is touching the extremes it is sick secured. Here you see we you will see the move control moving and you can see the control moving here. It is cut it is being moved, and it is now, coming to the other extreme, and it is touching the stops also. Now, you can see, that it has a free movement the pins are in place, the cotter pins are in place the nuts are in place, the control is firmly secured, and it is properly lubricated also, it is free to move. So, all the controls we have seen it on the engine, they are moving they are touching their stops. We will also ensure, that these controls are free to move while we feel feel their movement, in the cockpit. So, these are your controls. This is your throttle control this is your propeller control, this is the mixture control in the cockpit, and we have checked the controls on the engine. They were free to move. They were secured, and they were touching their extreme stops. Apart from that we are also, going to feel the movement here. That it does Smooth. There is no problem here. You can see I am moving the throttle and it is very freely moving. So, there is no binding in the movement. This is your this was your throttle control. Now, this is your propeller control. I will move the propeller control like this, and I can see that the propeller control is also, free to move, and similarly this is your mixture control. I will move the mixture control and feel the movement and it is very smooth in operation. So, my controls are perfectly fine. Another control, we you have the cowl flap control from here. You can see the movement of the cowl flaps. Now, they are closed. This is your cowl flap control. it is closed, and now, it is in the open condition. So, I can feel, that it is free to move, and there is no binding in the movement. So, this was your cowl flap control in the cockpit. I show you from outside also. So, these are your cowl flaps, and we have seen in our videos earlier. The purpose of these cowl flaps, you have just now seen the control in the cockpit. The cowl flap control in the cockpit, and I'm again going to move the control from the cockpit, and see the movement of this flap, and see, whether, it is flush, and the flap itself is properly secured, or not. So, now, we are going to move the cowl flap the cowl flap, you see the cowl flap is moved, and it has gone up. It has looked, and it is flush. There are no issues here. So, one cowl flap on this side, another cowl flap on the right side. It is perfectly fine. Now, this is called flap closed condition. We are going to open the cowl flaps. See the cowl flaps are being opened now, and it is completely opened. Apart from this, we also see the security of the cowl flaps. You can see the linkage here this side you can see the linkage inside. If you see that this is your linkage here, and the linkage is also, perfectly fine. That is secured and there are no issues in it. So, this was your cowl flap inspection. Then our next inspection is inspection of the induction air filter. Next next inspection is

inspection of the induction air filter. It has a visual check. We will check, that the filter is fine. There are no contaminants as such, and it is secured, firmly secured. Apart from the filter We will also check. So, this is your alternate air door, and we also need to ensure, that the alternate air door is opening and closing, and it is not loose also. So, apart from these inspections, we will do a general inspection, general visual inspection of the complete engine to see, that there are no loose linkages, everything is secured. There are no cracks as such, and this completes our daily inspection of the engine.

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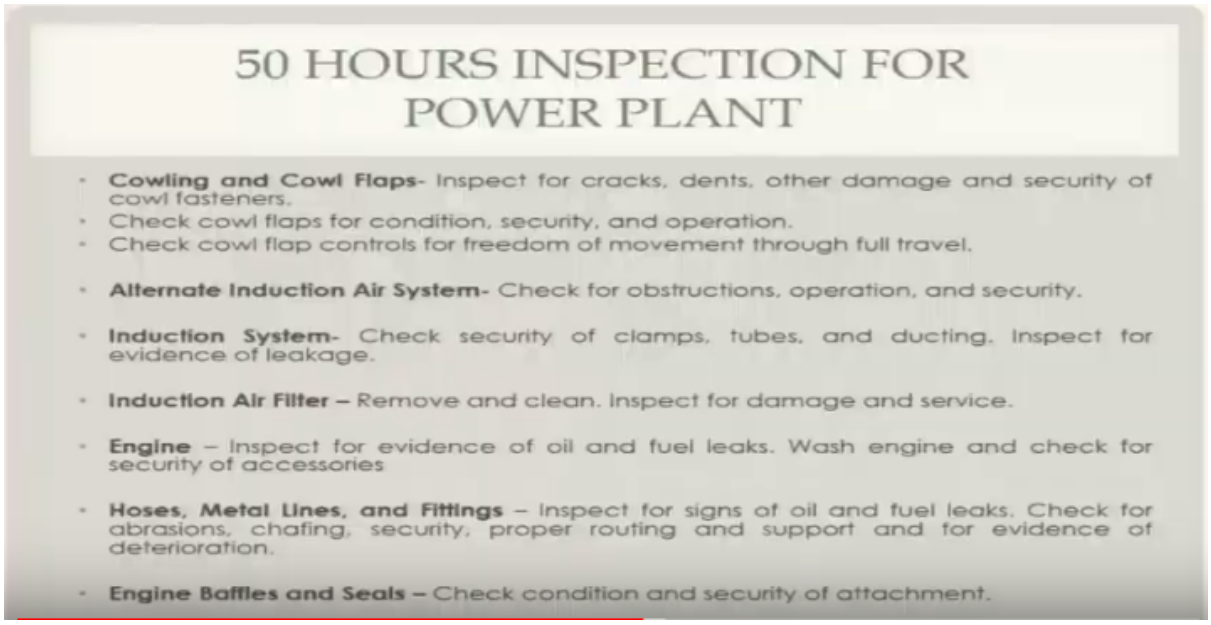

Next inspection is 50 hours inspection for power plant and as I had said, that the inspections are divided in various frequencies. we have seen the daily inspection now. Let us see what the inspections are to be carried out after 50 hours of operation versus the cowling and cowl flaps inspect for cracks dents other damage and security of cowl fasteners. So, the cowlings we need to check, that the cowl fasteners are in place There is no crack, no dents, no damage, and they are properly cleaned. We need to check the cowl flaps for condition security and operation. The cowl flaps they should operate properly, they should open properly, they should close properly. It has free movement, and they are properly secured, and the general condition is proper. Cowl flap controls for freedom of movement through fold travel. So, the cowl flaps the free movement of the control, properly secured, general condition proper, general condition of the cowlings, should be proper, no cracks, no dents, no damage, and the cowl flash fasteners should be able to secure the cowling properly. So, these are the inspections on cowlings and cowl flaps. We carry out at 50 hours of inspection. Mostly the visual inspection in we also, need to check alternate induction air system. During the 50 hours of inspection. This is check for obstructions, operation and security. So, the alternate induction air system we need to check for obstructions, operation and security. Next system required to be checked in 50 hours is

induction system. Check security of clamps, tubes and ducting inspect for evidence of leakage. So, in the induction system, all the clamps should be checked for security. All the tubes and ducting should be checked for security, and we also, need to inspect for evidence of leakages. Mostly the visual inspections and in case if anything is found loose, or anything damaged, then that should be either tightened, or replaced as the case may be. Next inspection in 50 hours is on the induction air filter. We need to remove it, and clean, inspect it for damage, and in case if it is damaged, we need to replace it. Otherwise we need to clean it and install it back. In general, the induction air filters the periodicity, given by the manufacturers is one year of operation. So, after one year we need to replace the induction air filter with a new one. Even if your induction air filter is in a proper condition. Even that then after one year of operation if the manufacturer has specified its life for one year, it has to be replaced. In general, in 50 years we need to check the engine for evidence of oil leak, or fuel leak, wash engine and check for security of accessories. We need to check whether the oil is leaking, the fuel is leaking, and we need to wash the engine and check for security of accessories. The hoses, metal lines and fittings should be checked for any leaks any signs of oil leaks fuel leaks. We need to check for abrasions, chafing security, proper routing and support and for evidence of deterioration. So, all the metal lines, all the fittings, all the hoses, they need to be checked, they need to be inspected, for signs of leakage of oil or fuel. We also, need to check them for abrasions. We need to check, that they are properly secured, they are properly routed, they are properly supported and if there is any evidence of deterioration in that case, we need to take the rectification action accordingly. Engine baffles and seals check condition and security of attachment. So, baffles and seals should also be checked for condition and security of attachment.

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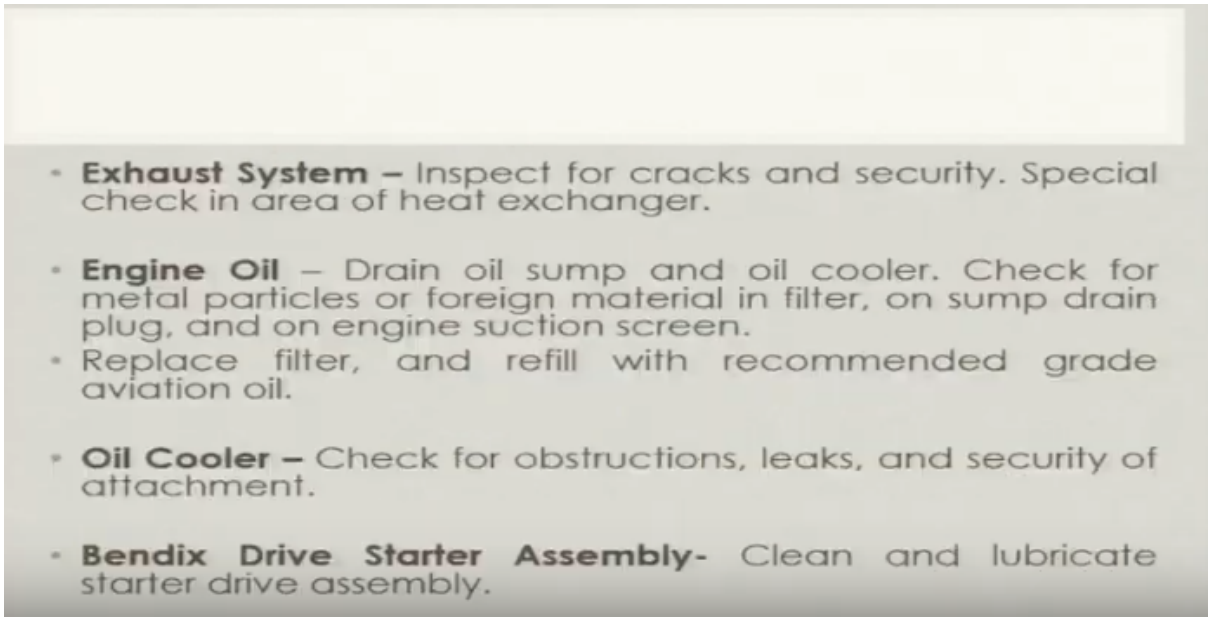

The exhaust system we need to check for cracks and security, special check in the area of heat exchanger. So, the exhaust system should also, be checked for cracks, security, gas leakage and

special e checks are required in the area of heat exchanger. The engine oil as we have mentioned earlier, that in general the periodicity of oil replacement is 50 hours of operation or four months whichever is earlier. So, the we need to drain the oil sump and the oil cooler check for metal particles or foreign material in filter on some drain plug and on engine suction screen. So, we need to change the engine oil. We need to change the oil filter. We need to check whether there is any foreign material in the filter on some drain plug and on engine suction stream and we need to refill the system with the recommended grade aviation oil. In the 50 hours of inspection another important thing is the oil cooler check for obstructions leaks and security of attachment. So, the oil cooler should also, be checked for obstructions leaks and security of attachment. the starter drive assembly we need to clean and lubricate the starter drive assembly. So, these are some of the inspections, which are required.

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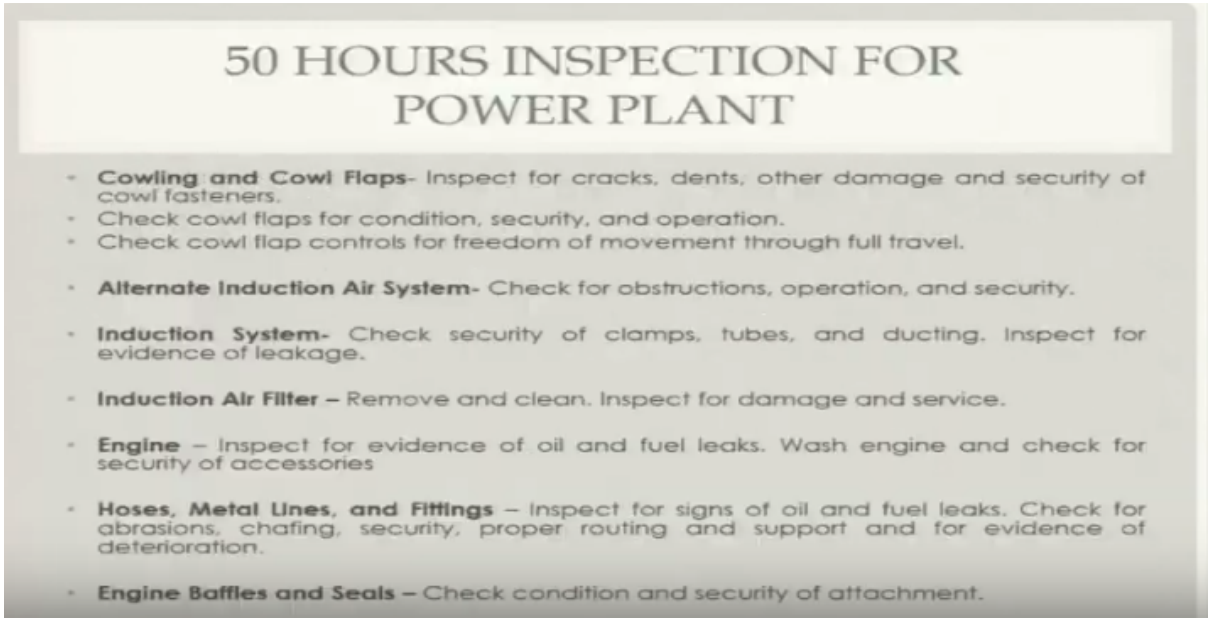

In the 50 hours of operation to sum up there are inspections or cowlings and cowl flaps, alternate induction air system, induction system, induction air filter, engine in general hoses, metal lines, and fittings, engine baffles and seals.

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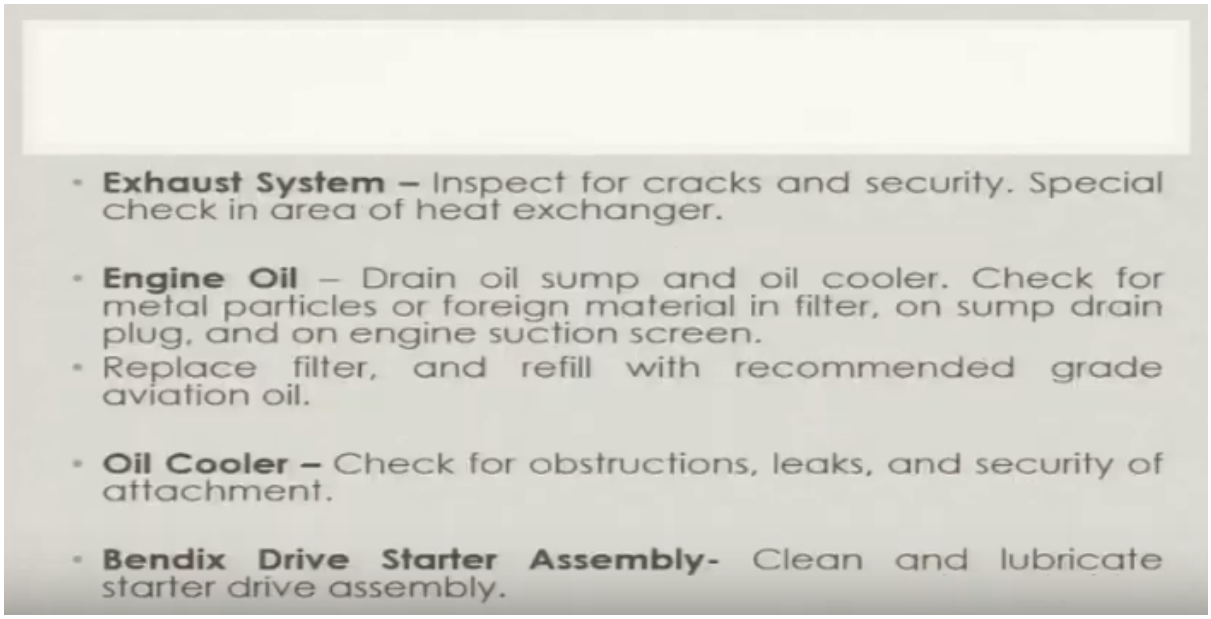

exhaust system, engine oil replacement, engine oil filter replacement, oil cooler inspection, and starter drive assembly, lubrication. Apart from these visual checks, apart from these maintenance actions at every 50 hours of operation we also, need to lubricate various parts. We need to lubricate the controls as per the manufacturer's recommendation. As per the manufacturer's guidelines in the service bulletins in the maintenance manuals. So, this was about the 50 hours of inspection. Now, we will physically check it on the aircraft. How to inspect this area.

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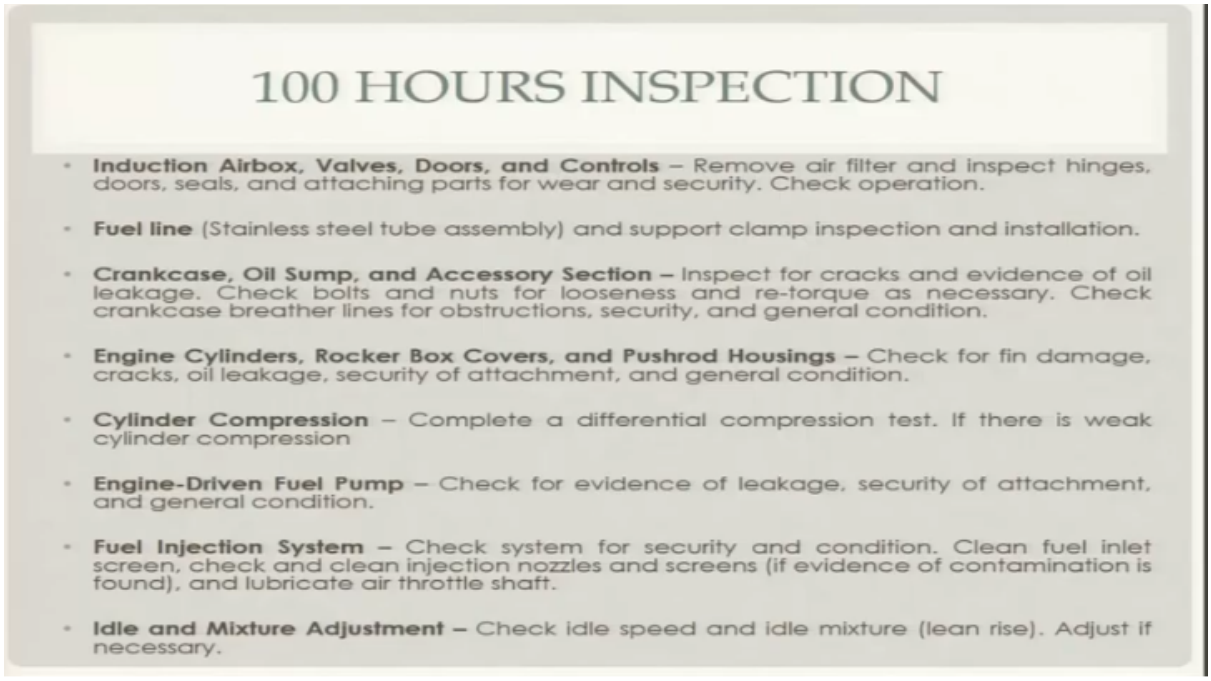

Next inspection is hundred hours of inspection 100 hours of operation. After 100 hours of operation what are the inspections we carried out on the engine. The first area is the induction air box, walls doors and controls. In this we need to remove the air filter and inspect hinges, doors, seals and

attaching parts for wear and security check operation. So, we need to remove the air filter we will clean it replace it in case if it is required if it is found damaged, or if it is due for replacement, we will replace it. Otherwise We'll clean it. We need to inspect the hinges, doors, seals and attaching parts for wear and security and we also need to check the operation of the doors and controls. Next is the fuel line stainless steel tube assembly and support clamp inspections and installation. During the hundred hours of inspection, there is a very important service bulletins issued by the manufacturer regarding the inspection on the stainless-steel tube assemblies it is a lycoming as we in case of lycoming engines. It is lycoming as be number three hundred and fort two. Which calls for inspection of the fuel lines and its support clamps and we need to inspect it every hundred hours and take appropriate rectification action in case if any damage deterioration is from. Next inspection is crankcase, oil sump and accessory section. Inspect for cracks and evidence of oil leakage. We need to check for cracks. We need to check the crankcase for cracks. We need to check, whether there is any oil leakage. Check bolts and nuts for looseness and re-torque as necessary We also, need to check all the bolts and nuts in the crankcase all the bolts all the nuts for looseness and re-torque them as necessary. Next is your engine cylinders, rocker box covers and push rod housings. Check for fin damaged, cracks oil leakage security of attachment and general condition. So, all the cylinders, rocker box covers, the pushrod housings we need to check check the fins for damage. We need to check for cracks. We need need to check, whether there is oil leakage from the rocker box colours or the push rod housings. We need to check, that all these spots the cylinders, the rocker box covers they are securely attached and in general the condition is satisfactory very important part of the hundred dollars inspection is the cylinder compression. We need to check the compression of the engine. We need to check the compression of each cylinder by using differential compression tester and We will need to ensure, that the compression test is satisfactory. We will see how the cylinder compression test is carried out and we will see it physically on the aircraft. next is the engine driven fuel pump. The inspection on the engine driven fuel pump check for evidence of leakage, security of attachment and general condition. Next is your fuel injection system check system for security and condition. We need to check that the injector and the complete injection system it is securely attached in general the condition is satisfactory, clean, fuel, Inlet screen the inlet screen the fuel Inlet screen should be cleaned all the injection nozzles should be checked and cleaned and screens if it ends of contamination is found and lubricate air throttle shaft. So, in the fuel injection system you need to check the fuel injector you will need to check the fuel injection nozzles, you need to check the flow divider and we need to check the fuel Inlet screen on the injector and in case if any evidence of contamination is found we need to take the necessary rectification actions and the air throttle shaft should be lubricated. The idle speed and the mixture adjustment should be checked and in case if any adjustment is required, they should be adjusted if necessary.

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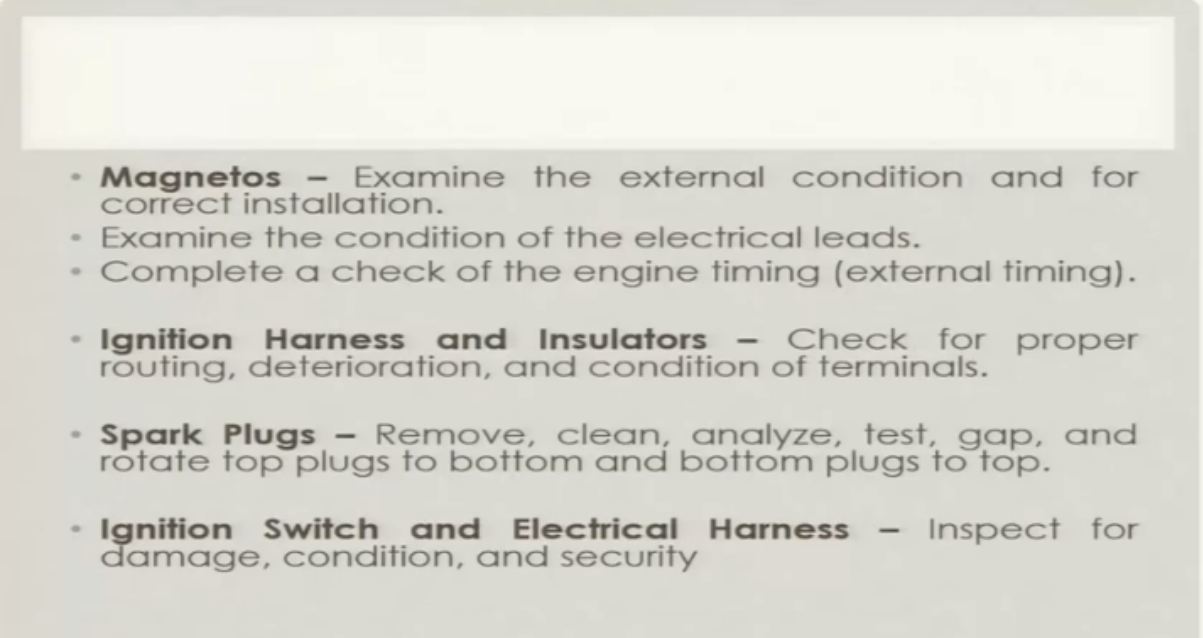

Next inspection in the hundred hours is on Magneto's. Examine the external condition and for correct installation. So, the magnitude should be examined for external condition and correct installation. They should be properly secured examine the condition of the electrical leads. The leads coming out of the Magnetos. They should be properly secured and complete a check of the engine timing external timing. So, a very important check a very important part of the hundred inspection is the timing of the magneto. The external timing of the magneto. We need to check how the magnitudes are to be typed? Ignition, harness and insulators we need to check for proper routing deterioration and condition of terminals. So, the ignition harness and the insulators should be checked for proper routing they are they should be properly routed. There should not be any deterioration on the harness and the terminals condition should be satisfactory. So, this is to be checked this is to be inspected during the 100 hours inspection. The spark plugs are to be removed, cleaned, analysed, tested, they should the gap should be adjusted, and they should be rotated, top plugs to the bottom and bottom plugs to the top. So, this is also, a very important feature of the 100 hours inspection. The ignition switch and the electrical harness inspect for deterioration condition and security. So, the ignition switches and the electrical hardness should also, be inspected for damage, condition and security.

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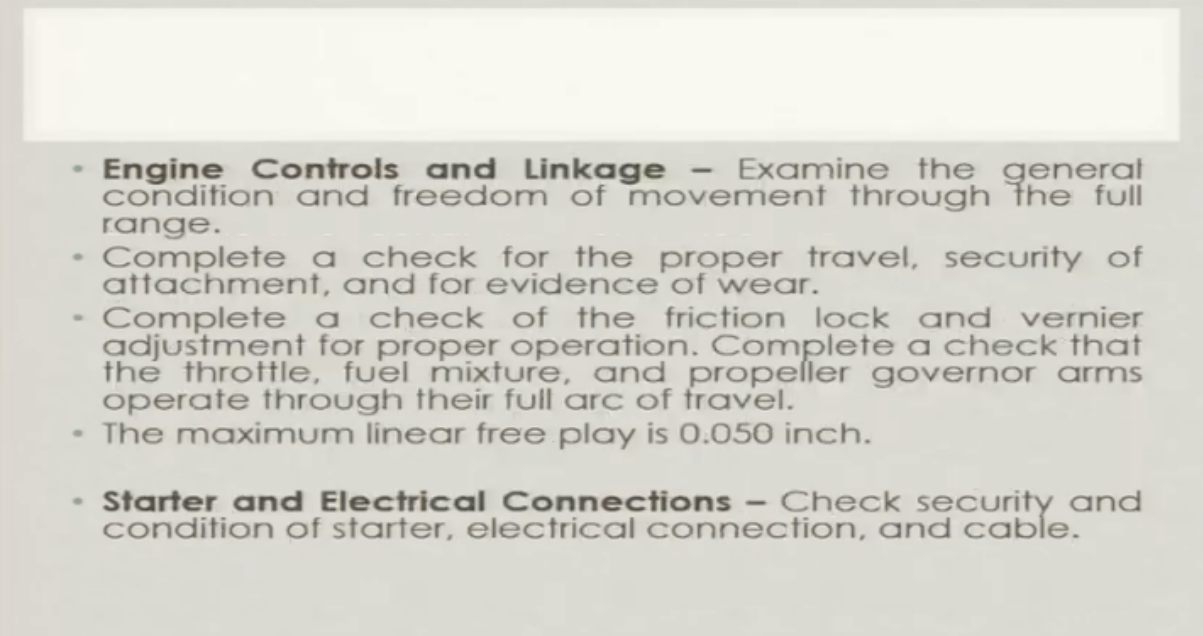

Next is your injured controls and linkage. So, hundred hours inspection you also need to inspect the engine controls and the linkage examine the general condition and freedom of movement through the full range. Complete a check for the proper travel security of attachment and for evidence of wear. We also need to check, that that the travel is proper, they are securely attached all the cotter pins are in place and there is no wear in the controls. Complete a check of the friction lock and Vernier adjustment for proper operation. Complete a check that the throttle fuel mixture and propeller governor arms operate through their full arc of travel. We need to check the stops, whether the all the controls are touching their stops as specified by the manufacturer and they are properly secured there is no evidence of wear. There is no binding in the movement of the controls they are free to move. The maximum linear flame Free Play is point zero five zero inches, that is fifty-four. So, the maximum permissible linear free play is fifty-four. Starter and electrical connections check security and condition of starter electrical connections and cable.

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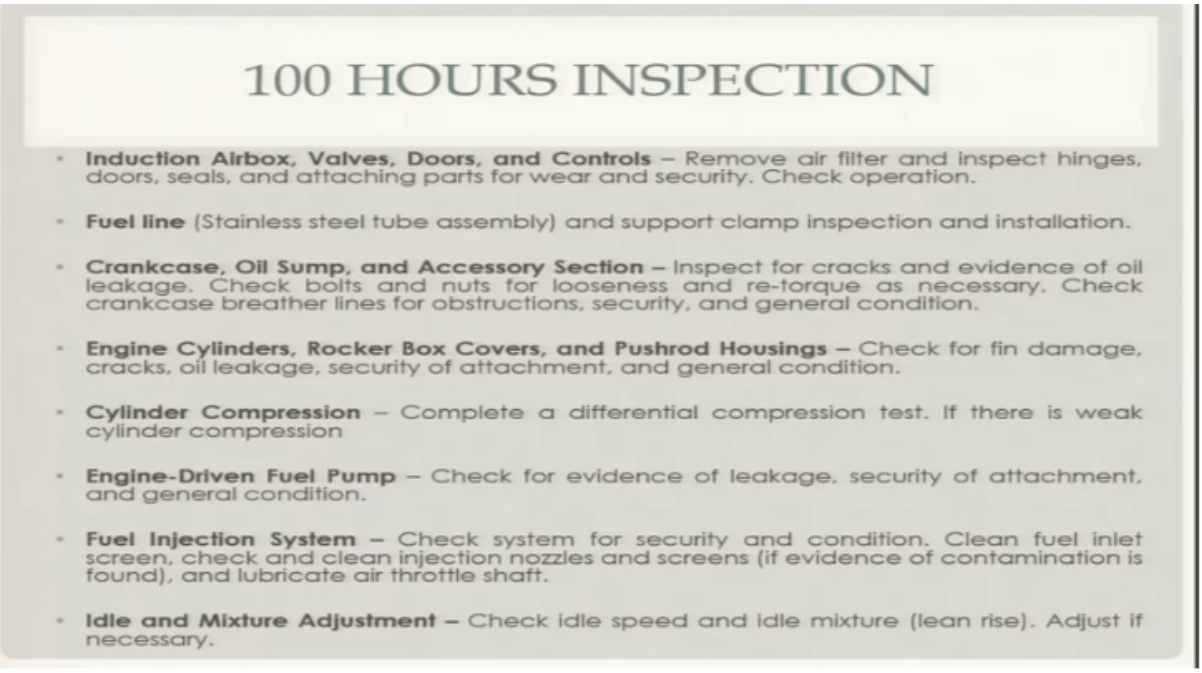

So, this was about the hundred hours of inspection. It is an elaborate inspection you see various areas involved induction air box, walls, doors and controls, fuel line, crankcase, oil sump, and accessory section engine cylinders, rocker box, covers and push rod housings, cylinder compression check, engine driven fuel pump inspection, fuel injection system inspection, idle and mixture adjustment,

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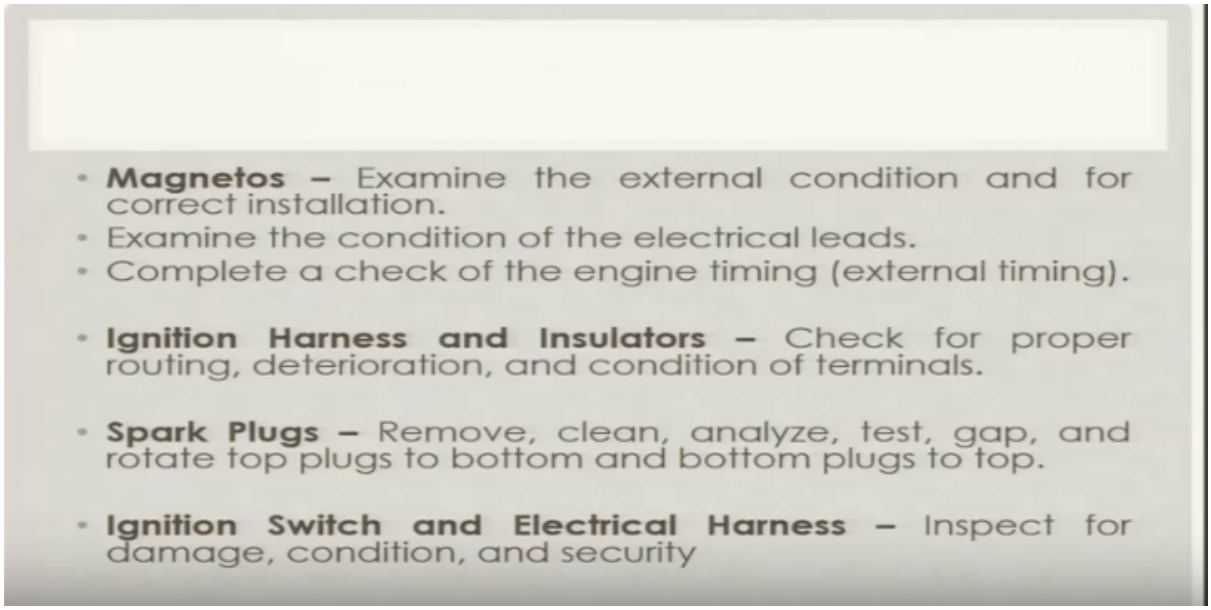

Magneto's inspection, magneto timing, external timing, ignition harness and insulators inspection, spark plugs removal, cleaning, gap adjustment, testing, rotation of the plugs, then ignition switch, and electrical harness inspection,

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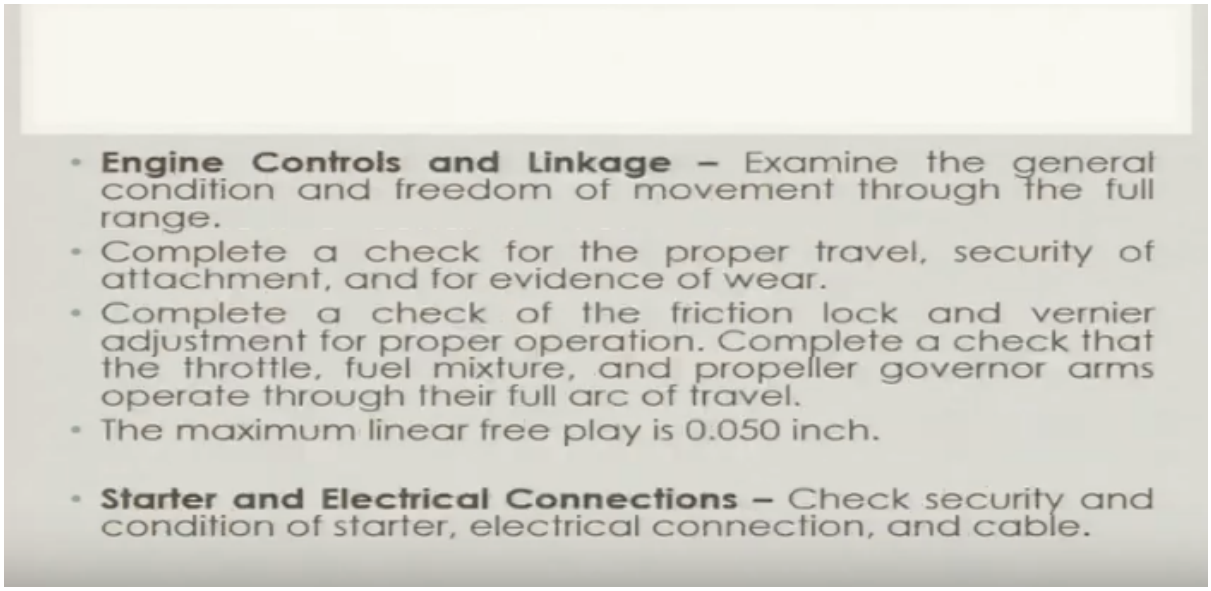

engine controls inspection, free movement inspection, lubrication of the engine controls, then starter and electrical connections inspection. So, quite an elaborate inspection. So, this we have seen the inspections involved.

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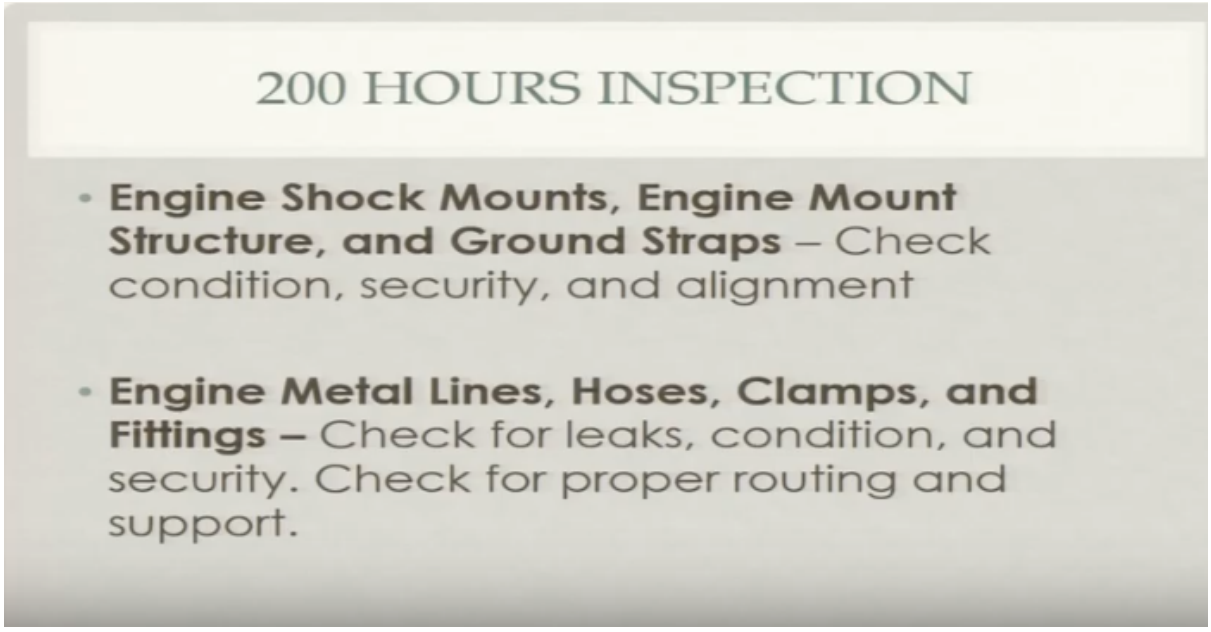

Next inspection is after 200 hours of inspection. So, let us see what are the inspections we carry out after 200 hours versus the engine shock mounts, engine mounts structure and ground straps, check conditions security and alignment. We need to check the security, you need to check the condition, and alignment very important. engine metal lines, hoses, clamps and fittings. Check for leaks condition and security check for proper routing and support. So, we need to check the metal lines, hoses, clamps and fittings. We need to check the proper routing and support. This is part of the 200 hours inspection. We need to understand, that whenever we are carrying out a higher schedule, we

also carry out a lower schedule. In addition to that schedule. So, suppose we are carrying out a 200 hours inspection. So, during the 200 hours inspection. We will also carry out 100 hours inspection as well as the 50 hours inspection. So, that is the reason you find very less number of points here in the 200 hours inspection. Because, while carrying out a 200 hours inspection we will also be carrying out the 100 hours and the 50 hours of inspection. So, it will make the complete inspection very elaborate during the 200 hours of inspection. So, We have seen the points here. We will check it physically on the aircraft.

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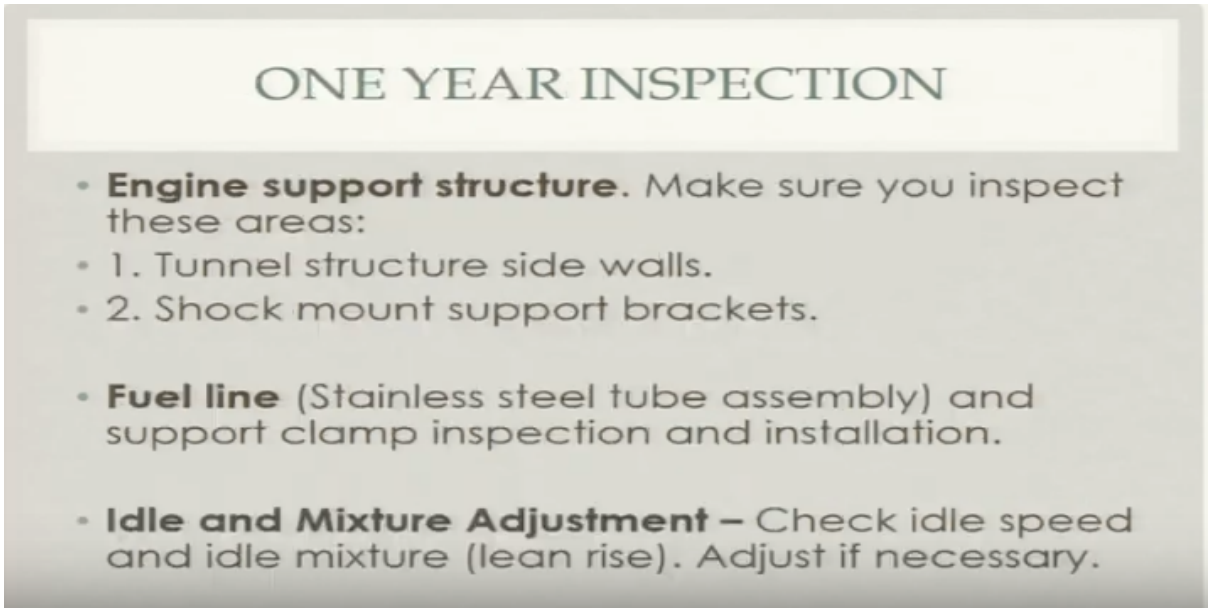

Now, next inspection is the one-year inspection. This is you see this is the calendar based inspection. The one-year inspection. Even if if we have done say 20 hours of flying during the during one year period in that case also we have to carry out this inspection. This is the one year inspection. In this you need to check the engine support structure make sure you inspect these areas tunnel structure side walls shock mount support brackets. So, basically this is a structural kind of an inspection. Where we need to check the tunnel structure side walls. We need to check the shock mount support brackets. We need to check the fuel lines the stainless steel tube assemblies and support climb inspections and installation. This inspection was there in the 100 hours inspection also. I had mentioned, that there is a service bulletin issued by the manufacturer in case of lycoming engines. It is the lycoming service bulletin three hundred and forty two, which calls for inspection of stainless steel tube assemblies fuel line, and support clamp inspections. So, this is also required to be carried out at one-year inspection. Apart from that the idle speed and idle mixture should be adjusted if required. So, these are the inspections in the one-year schedule. So, you see, that the fuel line inspection is there in the hundred hours inspection the idle speed adjustment and mixture adjustment is also there in the hundred hours

inspection. Apart from that you have structural inspection called the engine support structure. Where we need to inspect the tunnel structure side walls and that shock mount support brackets.