



golf industry show

GCSAA Education Conference | Trade Show | GCSAA Golf Championships
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PRESENTING PARTNERS



PARTICIPATING PARTNERS



Same Two Guys Productions



Preventive Maintenance Strategies For Turf Equipment



Periodic Maintenance



Periodic Maintenance



Periodic Maintenance



Preventive Maintenance Defined

- Preventive maintenance is maintenance that is regularly performed on a piece of equipment to lessen the likelihood of it failing. Preventative maintenance is performed while the equipment is still working, so that it does not break down unexpectedly.
- Preventative maintenance is planned so that any required resources are available.

Advantages

- Planning is the biggest advantage of preventive maintenance over less complex strategies.
- Unplanned, reactive maintenance has many overhead costs that can be avoided during the planning process.
- The cost of unplanned maintenance include lost production, higher costs for parts and shipping, as well as time lost responding to emergencies and diagnosing faults while equipment is not working.
- **Unplanned maintenance typically costs three to nine times more than planned maintenance.**
- When maintenance is planned, each of these costs can be reduced. Equipment can be shut down to coincide with production downtime.

Advantages

- Ensures trade-in resale values are maximized
- Your program will be recognized by vendors
- Lease Residual values.

Disadvantages

- Really?
- OK, Can increase workload
- Administrative time for scheduling and documentation
- Easily pencil whipped for time constraints and special projects
- Can become useless unless there is commitment to the program by the entire staff

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PREVENTIVE MAINTENANCE

SECTION 11C. MAINTENANCE SCHEDULES

GENERAL

The following charts summarize maintenance to be performed daily, weekly, every two weeks, monthly, every three months, and annually.

The maintenance charts give recommended hours of

operation between various procedures. Tri-King machines equipped with the performance monitor have direct read outs of operating hours.

Reference numbers are keyed to the illustration on page 11C-4. Footnotes on page 11C-3 give additional information.

MAINTENANCE SCHEDULE CHART

Ref.	Qty.	Description	Daily	Weekly	Every 2 Weeks	Monthly	Every 3 Months	Annually	Remarks and/or Type of Lubricant
HYDRAULIC SYSTEM									
13	1	a Hydraulic reservoir oil level	X						Check dipstick.
14	1	b Hydraulic oil filter						X	Change filter the first 25 hours and thereafter every 250 hours.
13		c Hydraulic oil						X	Change every 250 hours.
		Hydraulic hoses and lines		X					Inspect for loose connections, kinks, worn or cut hoses, etc.
ENGINES — DIESEL									
15	1	Kubota diesel D-600-B fuel	X						Check. Use diesel fuel oil #2 Cetene rating 45.
		Fuel tank						X	Remove sediment.
		d Fuel filter element				X	X		Clean at 100 hours. Replace at 400 hours.
		Fuel pipes and clamp bands		X					Check 50 hours.
		e Engine oil	X		X				Change after the first 35 hours, thereafter every 75 hours.
		Engine oil filter element				X			Change after the first 35 hours, thereafter every 150 hours.
		f Radiator coolant	X					X	Check, change coolant, 3 qt. volume annually.
		j Radiator core		X					Use clean tap water.
		Radiator hoses and clamp bands				X		X	Check and replace every two years.
		Cap (top of air cleaner)	X						Clean area around screen.
		g Dust cup (end of air cleaner)	X						Clean.
		Air cleaner element			X			X	Clean every two weeks and/or replace every year.
		h Battery			X	X			Check electrolyte level. Replace every two years.
		i Fan belt			X				Check tension.
		Glow plug				X			Preheating time recommended: over 0° C/32° F: 15 sec., below 0° C/32° F: 30 sec.

11C

11C-1

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- **Every 200 Hours or Annually (whichever comes first)**
- Change spark plug.
- Change air cleaner element.
- Check air cleaner dust unloading valve.
- Change fuel filter.
- Check spark arrestor.
- Check drive belt condition.
- Check driven clutch wear buttons.
- Inspect and replace battery hold-down strap, if necessary.
- Inspect battery; clean if necessary.
- Check and tighten wheel bolts to correct torque.
- Check and tighten hardware.
- Check brake pad wear.
- Inspect cargo box tailgate lanyards. Replace if kinked or frayed.

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gofftechs.us/Manual: *
gofftechs.us/Manuals/3150%20service%20manual.pdf
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Technician:	A	B	C	D	Other	
Maintenance Page 2 - 8 Greenmaster 3150	A - Service (every 50 hours) <ul style="list-style-type: none"><input type="checkbox"/> Check Battery Fluid Level<input type="checkbox"/> Check Battery Cable Connections<input type="checkbox"/> Service Air Filter Pre-Cleaner<input type="checkbox"/> Lubricate All Grease Fittings<input type="checkbox"/> Change Engine Oil<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____	B - Service (every 100 hours) <ul style="list-style-type: none"><input type="checkbox"/> Replace Engine Oil Filter<input type="checkbox"/> Replace Air Filter Element<input type="checkbox"/> A - Service required<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____	C - Service (every 200 hours) <ul style="list-style-type: none"><input type="checkbox"/> Torque Wheel Lug Nuts<input type="checkbox"/> Check Reel Bearing Preload Adjustment<input type="checkbox"/> A and B - Service required<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____	D - Service (every 800 hours) <ul style="list-style-type: none"><input type="checkbox"/> Replace Hydraulic Oil<input type="checkbox"/> Replace Hydraulic Oil Filter<input type="checkbox"/> Check Engine RPM (idle and full throttle)<input type="checkbox"/> Replace Fuel Filter<input type="checkbox"/> Replace Spark Plugs<input type="checkbox"/> Check Engine Valve Clearance<input type="checkbox"/> A, B, and C - Service required<input type="checkbox"/> _____<input type="checkbox"/> _____	Other - Annual Service and Specials <ul style="list-style-type: none"><input type="checkbox"/> Replace Moving Hoses (2 years)<input type="checkbox"/> Replace Safety Switches (2 years)<input type="checkbox"/> Fuel Tank - Drain/Flush (2 years)<input type="checkbox"/> Hydraulic Tank - Drain/Flush (2 years)<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____	<input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____

(See Operator's and Service Manual for specifications and procedures.)

12:52 PM
8/26/2015

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- Always add items of local interest
- Recent high failure items
- Seasonal adjustments
- Pay particular attention to high hour items
- Plan ahead Parts, consumables, supplies

Build Your Program

- Ideally One piece of equipment per week, two for large fleets
- 180 day cycle gets each piece in twice per year
- Always include the smallest equipment (weed eaters, chain saws)
- Allows one to adjust for heavier work loads pre planned projects, down time, vacations

Dollars and Cents

- Actual Lease savings – On a 1 Million dollar fleet of equipment doing the proper PM can save your company \$1000's per month in lease payments.
- Shop around for high use items (filters, oil, grease, etc)
- Don't be afraid to challenge parts pricing!

Dollars and Cents

A few examples of what savings can be realized when you have the time to shop around...

\$75.00 v.s. \$14.95



\$419.00 v.s. \$24.17



\$75.00 vs \$21.00



Improve the Program

- If you see items that wear often that are not in the program put them in.
- If a repair is needed find out why the part failed so maybe you can prevent others.
- If you see something going bad fix it then rather than wait.

What Programs are There?

- Index Cards
- Excel Spreadsheet
- Toro My Turf
- Trims
- Others

Thank You

Contact Us

Mike Kriz – mike.kriz@midco.net

Stephen Tucker – Stephen@turfaddict.com