



PLAY THE CLAY. PLAY FOR LIFE.

Har-Tru Maintenance Manual

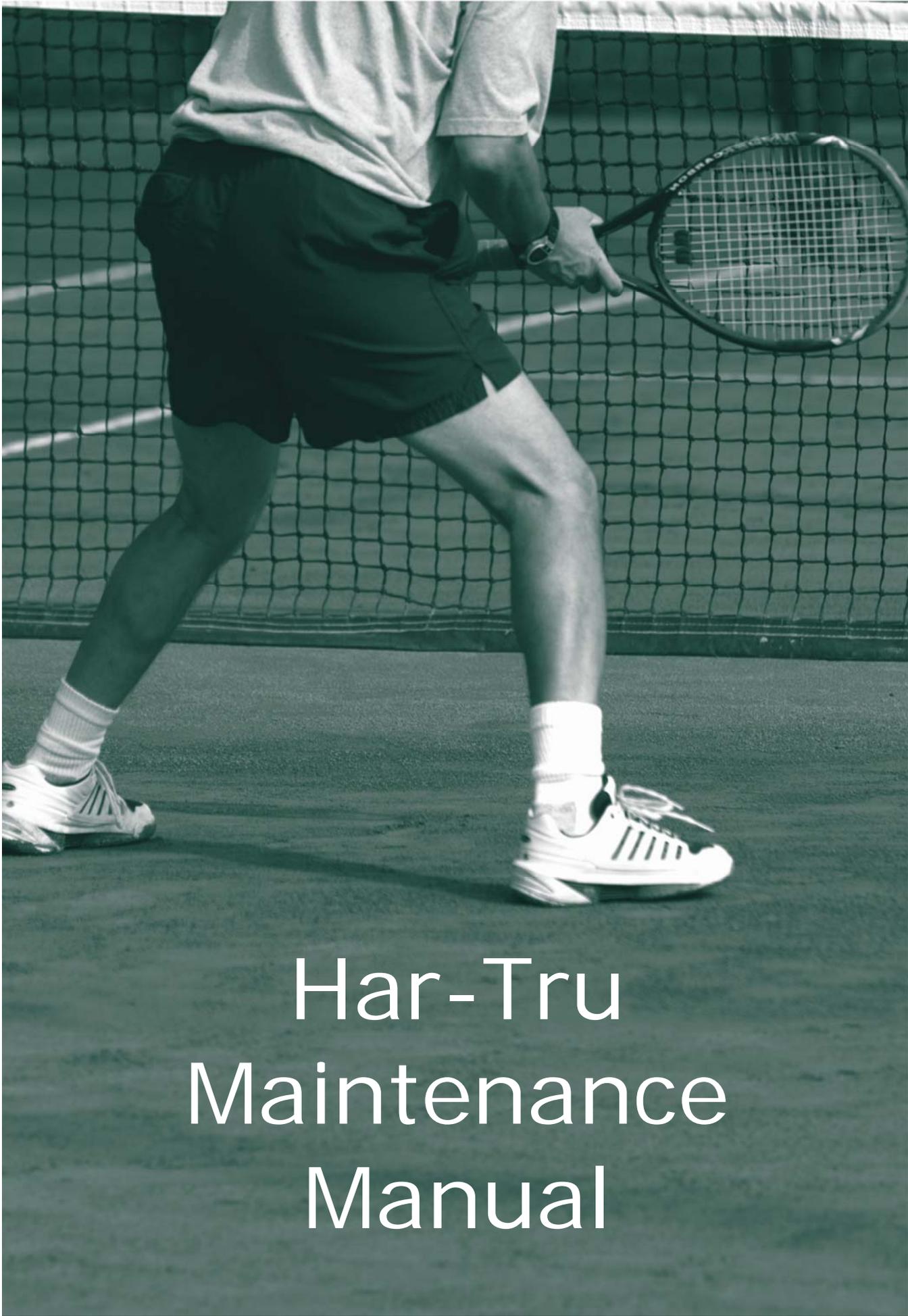


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1.0 COURT EVALUATION

Evaluate tennis court conditions in terms of preventive maintenance. Identify and correct potential problems before playing season begins. Inspect fencing, curbing, court surfacing and court equipment as described below.

A. FENCING

1. Bottom, Intermediate and Top Rails secured at the proper height above the court surface and evenly parallel around the court.
2. Line, Corner and Terminal Posts are plumb and vertical with End Caps in place and secure.
3. Fencing Fabric evenly stretched and secured to the upright posts. Height of fence bottom approximately $\frac{3}{4}$ " above the court surface.
4. Bottom Tension Wire should be tied to fence bottom with "hog rings" spaced every 24 inches.
5. Gate Frame tension bars, Post Hinges and Latching Devices should be inspected and secured.
6. Court numbers in place.

B. PERIMETER CURBING

1. Inspect obstructions along court perimeter that may affect surface drainage.
2. Remove build-up of surface material from top of curbing.
3. Inspect and repair curbing where necessary.

C. COURT SURFACING

1. Check average surface depth in several areas across the court. Identify and correct thin areas and minor grade changes. The following chart illustrates Har-Tru required for reconditioning and maintaining a surface thickness of 1".

<u>Average Depth</u>	<u>Surfacing Required per Court</u>
1"	2 Tons
$\frac{3}{4}$ "	10 Tons
$\frac{1}{2}$ "	20 Ton Lift
$\frac{1}{4}$ "	30 Ton Lift

When the average depth equals $\frac{3}{4}$ " to 1", up to 5 tons, in 1 ton applications can be made each spring and fall until the average depth equals 1". When the average depth equals less than $\frac{1}{2}$ ", a laser lift will provide the most precise method available for resurfacing a Har-Tru tennis court.

D. COURT EQUIPMENT

Inspect condition of the following equipment:

<u>Equipment</u>	<u>Condition</u>
Center Strap Anchors	
Center Straps and Hooks	
Court Numbers	
Drag Brushes	
Line Scrub	
Line Sweepers	
Line Tapes	
Lute Scarifiers	
Nails	
Nets	
Net Posts	
Net Post Reels	
Rollers	
Roller Brushes	
Roller Scrapers	
Tennie Two-Step	
Tidi-Court	
Windscreens	
Fasteners	
Ty-Wraps	
Plastic Snaps	

2.0 ACTIVATE IRRIGATION SYSTEM

Inspect irrigation system equipment.

<u>Equipment</u>	<u>Condition</u>
Controller	
Risers	
Sprinkler Heads	
Valves	
Valve Boxes/Lids	

Activating the irrigation system is a two step process, inspection of main feed lines and inspection of the zone valves and sprinkler heads.

1. Determine if any breaks exist in the irrigation lines leading to the tennis courts by activating the main supply line while keeping the zone control valve to the courts turned off. Ensure that the pressure booster pump is not operating during this process. If a leak does exist, the water will be forced up to the surface in a very short time and a repair can be made.
2. Test and adjust the performance of each sprinkler head.

3.0 SURFACE RECONDITIONING

The main objectives of surface reconditioning are to remove and replace the worn and weathered surface material while maintaining the property established slope of your Har-Tru court. The requirements for quality control will be met when reconditioning is accomplished properly and in the following sequence:

1. Ensure that the court surface is firm enough to accommodate foot and light equipment traffic before beginning reconditioning.
2. Remove foreign debris such as branches, leaves, and weeds from the Har-Tru surface. Use a Lute/Scarifier and a plastic grain shovel.
3. Brush and roll Har-Tru surface until smooth and firm.
4. Lute into piles and remove the "dead material" from the Har-Tru surface. The "dead material" is loose Har-Tru material that has fallen out of gradation as a result of wind, water erosion and tennis play. This portion of the Har-Tru material will appear lighter in color and is the larger particle sizes of the mixture.
5. Brush Har-Tru surface repeatedly to re-distribute and re-level the remaining Har-Tru.
6. Identify and patch low areas of court surface. Areas immediately behind and in front of baselines where most play takes place, may need of particular attention. These areas are identified by stretching a mason's line over the court and marking the perimeter of the low areas. New Har-Tru can then be applied and leveled with the straight edge of the Lee Drag Brush/Lute or an aluminum extension ladder.
7. Hand lute alley, center, base and service line areas with new Har-Tru dressing to fill old nail holes and level surface prior to topdressing.
8. Topdress court surface uniformly with Har-Tru using the Tru-Flow spreader. Follow instructions on the Har-Tru bag. Apply no more than one ton per application.
9. Immediately begin brushing new Har-Tru topdressing before moisture migrates up from beneath existing surface. Court surface may have an amount of moisture that requires immediate brushing after each pass of the topdressing spreader. Better results are obtained when working with a surface that is as dry as possible during reconditioning, followed by a light overhead watering, a waiting period and then rolling.
10. Water-in new Har-Tru surfacing by hand with a "gentle shower" type nozzle.
11. Stay off newly resurfaced court until firm. Allow Har-Tru topdressing to absorb moisture and become firm.
12. Continue the smoothing and leveling Har-Tru by slowly brushing in two directions making wide turns at the end of each run.
13. Roll in a back and forth method without turning sharply.
14. Continue alternating steps 12 and 13 until the desired results of smoothness and firmness are achieved.
15. Har-Tru surface should be in playable condition before proceeding with final tennis court preparation.

4.0 FINAL TENNIS COURT PREPARATIONS

1. Remove net post foundation hole caps or protective covers. Remove foreign debris that may have fallen down into the net post holes.
2. Re-install net posts.

3. Hang windscreens. Use ty-wraps, plastic snaps and fasteners where necessary.
4. If necessary, remove Har-Tru material from inside net center anchor.
5. Measure for line tape layout:
 - a. If using more than one measuring tape, ensure both tapes have been compared side by side for synchronization. Improper corner locations will result from use of unsynchronized tapes.
 - b. Lee Speed Cables may reduce set-up time by at least 50%.
6. Install line tapes. Proper use of a speed-winder chalk-line ensures a clean snap and a straight line to layout line tapes. Follow the instructions included with tapes. Be sure to leave nail heads 1/8" above tape surface. Nailing heads down to the tape results in "hammer-head" depressions, which hold Har-Tru material around each nail rendering an unsightly appearance.
7. Roll nail heads down to tape surface slowly and carefully. Roller should always travel forward, in a straight line with the direction of line tape and should never make a turn until off the tape surface.
8. Install tennis net. Attention to details such as correct lacing and the tightness of the net against the net poles makes for a clean fitting net.
9. Measure net and ensure center strap is straight and is not twisted.

5.0 WEED CONTROL

The main objective of herbicide use is to apply the proper chemical in a correct manner to achieve an adequate level of weed control. Weed growth may become a problem on those areas of the tennis court where the least amount of traffic occurs, around the inside perimeters and along the net line.

A basic understanding of herbicides is essential before making any decisions involving the purchase, mixing and application of an herbicide. Always contact your local agricultural extension office for the latest regulations and recommendations.

Herbicides fall into 2 general categories: Pre-emergent and Post-emergent.

1. A **Pre-emergent** herbicide provides a measure of weed control by forming a "chemical barrier" that interferes with the germination process of a weed seed. The weed seed actually germinates, absorbs the chemical through the emerging root, and then dies.
2. A **Post-emergent** herbicide provides a measure of weed control if applied properly over the leaf surface. The chemical is absorbed by the leaves and in most cases translocated throughout parts of the plant before the weed dies. Post-emergent herbicides are classified as either **SELECTIVE**, meaning that they control only certain broadleaf weeds, or **NON-SELECTIVE**, meaning that they control everything that they are applied to.
3. A **combination** of both pre-emergent and post-emergent herbicides can be employed to control existing weeds and weeds that have not yet germinated. **However**, only certain herbicides are compatible; meaning they can be safely mixed together. Roundup and Surflan are examples of compatible herbicides.
4. **Always** read and follow the instructions on the herbicide label before use. Always consult with your local county extension agent for advice on any weed problem.
5. The **method** of herbicide application is the key to quality control. Maintain constant pressure, agitation, and a constant walking pace. Keep the spray nozzle at a constant height above the ground. This method ensures that an **evenly distributed** band width of chemical has been applied correctly.

6.0 DAILY MAINTENANCE

A. MORNING

1. Inspect Har-Tru surface for minor scuffing. If baseline areas require divot repair, lute and re-dress as necessary.
2. Remove any weed growth problems and foreign debris from the surface.
3. Inspect tapes and nails for lifting or shifting.
4. Groom surface with an Aussie Clean Sweep, Court Rake or a Drag Brush. Make wide turns with the Drag Brush to avoid accumulation of Har-Tru material. The Aussie Clean Sweep serves a dual purpose; as a smoothing/leveling tool (with teeth in the up position) and a debris remover (with teeth in the down position).
5. Sweep the line tapes. Ensure the line tape area beneath the net has been swept. Use a Line Scrub to remove surface material that adheres to the line tape.
6. Roll the surface if necessary. Make wide turns. Avoid twisting and turning motions that cause surface damage.
7. Sweep the tape lines after the surface has been rolled for a cleaner looking line (optional).
8. Ensure that the net and center strap is set correctly.
9. Clean benches, coolers, cooler stands, ect. If these items are kept on-court during the season, move them and groom the surface below on a regular basis.
10. Wash out the Tennie Two-Step on a daily basis if possible.
11. Inspect Windscreens.
12. Ensure Line Sweeper, Aussie Clean Sweep, Court Rake and Drag Brush are stored properly and do not pose a hazard to players.

B. MID-DAY

Mid-day maintenance keeps the court looking and playing as well during late afternoon as it plays in the morning. The ideal situation would be for maintenance time to be scheduled so courts could be brushed, lines swept and the surface watered properly. The moisture level in the court profile should remain adequate until the next maintenance period.

C. EVENING

Adequate brushing and thorough watering will ensure quality playing conditions the following day.

1. Brush in alternate directions, particularly around baseline areas to smooth surface prior to watering. Alternate direction of brushing on a nightly basis.
2. Water the court in a "cycling method" to accomplish a thorough watering during the course of an evening with as little run-off of water as possible. Proper timing of watering cycles is best determined by observation. The ideal situation would be for the court profile to retain adequate moisture until the next maintenance period.

7.0 PERIODIC MAINTENANCE

1. Inspect court surface material for any build-up to be removed; particularly along the net-line.
2. Inspect the court surface for weed growth. Algae control is best achieved by following these guidelines:
 - a. Agitate low traffic areas on the court periodically. Use the Court Rake, Lute/Scarifier, Steel Bristle Drag Brush, Court Devil or the Lee Tow Scarifier.
 - b. Stay on top of growth problems by regular observation and **preventive** maintenance practices such as frequent surface agitation.
 - c. **Consult** your local county agricultural cooperative extension agent prior to the purchase and application of any chemicals.
 - d. **Always** read the entire chemical label and follow any safety precautions prior to application.
3. Periodic leveling/smoothing of the court surface may be required, particularly in areas of heavy play. The best time of the day for smoothing the surface is during the afternoon when the surface is drier, just before turning on the watering cycle. Use a regular or Steel Bristle Drag Brush.
4. Periodic observation of the irrigation heads while irrigation system is running is the best preventive measure to ensure thorough and even water distribution.

8.0 END OF SEASON MAINTENANCE

1. Tennis Nets: Remove and attach a tag noting any repairs needed.
2. Windscreens: Inspect for needed repairs, label for easy relocation next season and fold neatly for storage in a plastic bag. Wait until the windscreen is dry (afternoon) before removing. Fence maintenance during the "off-season" can be accomplished much easier without the windscreens hanging on the fence.
3. Net posts: Remove and inspect for repairs.
4. Cover net postholes to prevent water, surface material and debris from entering during the off-season.
5. Remove the tapes and nails. Ensure all nails have been removed from the court surface.
6. Coolers: Wash inside and out. Repair spouts if necessary.
7. Benches: Wash, repair and paint if necessary.
8. Line Sweepers, Drag Brushes and other accessories: Wash clean, inspect for repairs and hang properly to protect the bristles.
9. Roller: Consult owner's manual for proper servicing.
10. Aussie Clean Sweep: Wash clean, inspect for repairs and hang to protect rubber matting.

9.0 END OF SEASON HAR-TRU SURFACE MAINTENANCE

1. Brush and roll repeatedly to fill in and compact old nail holes.
2. Covering court surface with a nylon reinforced plastic cover for the winter months reduces the amount of reconditioning required the following spring.

10.0 FALL SURFACE RECONDITIONING

Fall surface reconditioning is increasing in popularity because the tennis courts can be opened earlier in the spring when demand for play is strong and time available for reconditioning is short, particularly during a wet spring. The maintenance staff is under less time constraint in the fall, allowing for better quality control in providing a superior playing surface. More time is available for other important (and often postponed) spring maintenance duties around the tennis court. Fall weather patterns are more stable & predictable for reconditioning. Initial expense to purchase a tennis court cover is justified considering the life of the cover, benefits to the players and increased productivity of the maintenance staff.

11.0 WINTERIZING THE IRRIGATION SYSTEM

1. Turn off main water supply.
2. Ensure manual valves at base of sprinkler heads are open.
3. With an air compressor, blow out the irrigation lines by activating each zone separately for approximately 5 minutes, do not exceed 60 psi. Open each zone valve box cover and inspect valves for any needed repairs while the system is being blown out.
4. Repeat step 3 until all water has been blown through the system.
5. Remove any debris from inside the valve boxes.
6. Replace valve box lids.
7. Note any repairs or improvements needed for the system before the next season

12.0 CONTINUING EDUCATION

Several educational aids are available for staff training; the General Maintenance Outline for Har-Tru Tennis Courts, the Maintenance Video, the maintenance DVD and other resources. Visit our web-site at www.leetennis.com for additional information. These products are ideal for keeping your staff informed, on a regular basis about the most efficient methods of Har-Tru tennis court maintenance.

TENNIS COURT MAINTENANCE
BUDGET WORKSHEET

<u>Inventory</u>	<u>Condition</u>	<u>Needed</u>	<u>Budget</u>
Aussie Clean Sweep			
Benches			
Center Strap Anchor			
Center Strap/Hook			
Coolers & Stands			
Court Layout Cables			
Court Numbers			
Drag Brush			
Har-Tru			
Line Scrub			
Line Sweepers			
Line Tapes			
Lute Scarifier			
MAG			
Maintenance DVD			
Maintenance Video			
Nails			
NDS Drainage			
Nets			
Net Posts & Reels			
Roller			
Roller Cover			
Scarifier			
Sprinkler Heads			
Squeegee			
Tape Stretcher			
Tennie Two-Step			
Tidi-Court			
Tru-Flow Spreader			
Windscreens			
Fasteners			
Ty-Wraps			
Plastic Snaps			
Other			



Lee Tennis Court Products
650 Peter Jefferson Parkway, Suite 300 B
Charlottesville, VA 22911
877-4-HAR-TRU • fax 434-971-6995
www.hartru.com