Haslett Viking Marching Band Master Handbook

2021 EDITION

Wysko et al.

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About this book

What is this book?

The book aims to be a Master Handbook, including all the information necessary to be a successful leader in the Haslett band program. Don't let the size of this book scare you! It simply serves the purpose of having the information necessary when needed. Although it would be highly beneficial to have the full content of this book understood and read, it is also meant for quick reference for information when it is needed.

Chapter 2 of this book aims to stand as a *Manual of Style*, a way to define how performers in the band execute maneuvers on the field, defining a ground-truth definition for each fundamental. I am adapting the term "Manual of Style" from Wikipedia's main styling guidelines documentation. If you are familiar with the "Fun with Fundamentals" document, you are familiar with the intention of this chapter. This chapter aims to be a revamped, updated, formalized version with full, complete information for every fundamental and marching maneuver, fleshed with figures and diagrams. This chapter should ideally be updated from year to year to adjust for additions or changes.

The source code for this book—including instructions for contribution and credits—is available at github.com/wyskoj/haslettvmbdocs.

How do I use this book?

Who wrote this book?

The first edition of this book was written by Jacob Wysko in 2020 using LyX, with review from

Chapter 1

The Field & Where to Be

1.1 Field Anatomy

Most marching that happens while being a member of the band will occur on a football field. This chapter will demonstrate how to understand the field to be most familiar with it.

1.1.1 Terminology and Layout

The standard high school football field can be described using some vocabulary (a labeled football field is demonstrated in Figure 1.1 on the following page):

Field A rectangular section of ground dedicated to playing football. But in our case, it's for marching!

Yard line A physical, vertical line that runs across the entire height of the field.

- **Hash** A horizontal line that runs across the entire width of the field, dividing the field into thirds. The **home hash** is closest to the home sideline, and the **away/visitor hash** is closest to the away sideline. There are physical, small, horizontal sections of this line where the hash meets the yard line (see Figure 1.2).
- Sideline A physical, horizontal line that runs across the entire width of the field, defining the upper and lower edges of the field. The sideline next to the press box or tower is the home sideline; the sideline on the opposite side of the field is the away/visitor sideline.
- **End zone** A physical, vertical line that runs across the entire height of the field, defining the left and right edges of the field. When facing the press box from the field, the right and left end zones are defined by the right and left sides of the person.¹
- **Tick** A mark on the practice field, usually orange, spaced 90 inches apart spanning the height of each yard line. These marks are only found on the practice field for reference.

¹If the home sideline is north, then the right end zone is east and the left end zone is west.

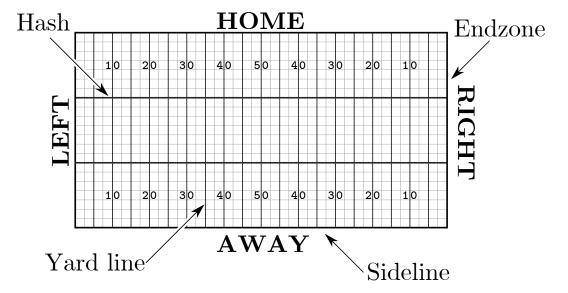


Figure 1.1: A standard football field. The grid represents 4 8:5 steps.

- The football field is 100 yards across and 52.5 yards tall. It is divided by 15 yard lines starting from the left end zone and moving towards the right end zone. Each yard line has a distance of 5 yards in between. Every other yard line is labeled by its distance from the nearest end zone (e.g., 10 yards, 20 yards, etc.). The middle yard line is marked 50 yards.
- The football field is divided into three sections vertically, making three "rows," divided by the hashes. The home hash sits 17.5 yards south from the home sideline. The away side line is 17.5 yards north of the away sideline, effectively making the distance in between hashes also 17.5 yards.
- The term "back field" refers to the part of the field closest to the away sideline (typically between the away sideline and away hash). Although the term "front field" can refer the the part of the field closest to the home sideline, it is not used as often.
- The part of the field in between the left sideline and the 50 yard line is called "field left." The part of the field in between the right sideline and the 50 yard line is called "field right."

1.1.2 Markings

The field is marked in several ways to help performers find their location on the field (a diagram is available in Figure 1.2 on the next page).

- The yard lines and end zones are marked by solid, white, vertical lines spanning the entire height of the field.
- The sidelines are marked by solid, white horizontal lines spanning the entire width of the field.

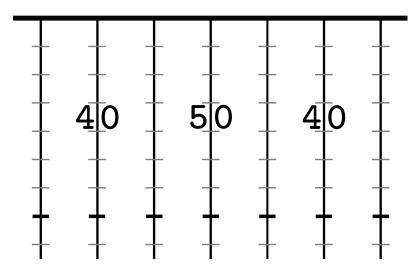


Figure 1.2: A small section of the practice football field, with the markings displayed. Gray lines represent orange tick marks. Solid ticks represent hash lines. Solid horizontal line represents sideline. Solid vertical lines represent yard lines.

- Every 90 inches (7.5 ft), starting from the sidelines, (4 * 8:5 steps, see Section 2.3.2 on page 25 for details), a short, horizontal, orange "tick mark" is drawn. These lines represent 4 even 8:5 steps.
- In lieu of an orange tick mark at the hashes, a short, horizontal *white* "tick mark" is drawn. These are 630 inches (52.5 ft) from each sideline.

It should be noted that only on the practice field will orange ticks be available for reference. Actual performance fields (e.g., Jamie Jent Stadium, etc.) do not have orange ticks, although all other markings are present. So, it is important to use the orange ticks when learning, but you must be comfortable without them too!

1.2 Interpreting Your Dotsheet

The DOTSHEET is a personalized slip of paper that defines where you are in each set of the show. Each performer will get a unique dotsheet. This section will demonstrate the terminology, abbreviations, and some examples of interpreting the sheet.

1.2.1 Terminology

Show The performance that you will be presenting this year!

Drill A show consists of drills. Usually each song in the show correlates to each drill.

Set A specific point in time in the show that defines where each performer is. A show can consist of many sets, usually close 20. You will have to know where you need to be for each set!

Coordinate/Dot The specific "x/y" location that the performer is to be at in a set.

Form A loose term to define a group of performers on the field. Forms can last throughout the whole show, or may only last for a set.

1.2.2 Dotsheet Layout

In Figure 1.3 is a portion of a dotsheet from the 2019's "Pure Michigan" show.

Drill: Get Ready Performer: Wysko	X S3	ID:19
-----------------------------------	------	-------

Set	Move	right-left	Visitor-home
#15A	0	right: 2.25 stps inside 40 yd ln	5.0 stps behind Home hash (HS)
#16	32	right: 2.0 stps inside 25 yd ln	0.25 stps in frnt of Home hash (HS)
#17	48	right: 3.0 stps inside 20 yd ln	on Home hash (HS)
#18	80	right: 1.0 stp inside 40 yd ln	3.5 stps behind Home hash (HS)
#19	20	right: 1.25 stps outside of 50 yd ln	1.75 stps in frnt of Home hash (HS)

Figure 1.3: A portion of a dotsheet from the 2019's "Pure Michigan" show.

The dotsheet consists of four columns:

- Set The current set number. A set can also have subsets (#15A is a subset of #15).
- Move The amount of beats that elapse since the last set.
- Right-Left The X coordinate of the performer.
- Visitor-Home The Y coordinate of the performer.

The right-left and visitor-home columns use a special type of notation to define distance.

- The format for right-left notation: [On 50 yd ln/[left/right]: [(x) steps [inside/outside] of/on] (x) yd ln]
- The format for visitor-home notation: [On home sideline/On home hash/On visitor hash/On visitor sideline/(x) steps [in front of/behind] [Home sideline/Home hash/Visitor hash/Visitor Sideline]

Here are some examples of right-left notation:

- If the coordinate was "Right: 2 steps inside of 40 yd ln" find the right 40 yard line, and take two 8:5 steps towards the 50 yard line. This is the X-coordinate of the set.
- If the coordinate was "Right: 3 steps outside of 25 yd ln" find the right 25 yard line, and take three 8:5 steps away from the 50 yard line. This is the X-coordinate of the set.
- If the coordinate was "Left: 2.5 steps inside of 35 yd ln" find the left 35 yard line, and take two and a half 8:5 steps towards the 50 yard line. This is the X-coordinate of the set.

- If the coordinate was "Left: 3.75 steps outside of 45 yd ln" find the left 45 yard line, and take three and three-quarters 8:5 steps away the 50 yard line. This is the X-coordinate of the set.
- If the coordinate was "On 50 yd ln" find the 50 yard line. That was easy!

Here are some examples of visitor-home notation:

- If the coordinate was "5.0 stps behind Home hash", find the home hash, and take five steps away from the press box/tower. This is the Y-coordinate of the set.
- If the coordinate was "0.25 stps in frnt of Visitor hash", find the visitor hash, and take a quarter step towards the press box/tower. This is the Y-coordinate of the set.
- If the coordinate was "2 stps behind of home sideline", find the home sideline, and take two steps away from the press box/tower. This is the Y-coordinate of the set.
- If the coordinate was "On visitor sideline", find the visitor sideline. That was easy!

Chapter 2

Fundamentals

This chapter of the book will present each fundamental in ideal chronological teaching order, in full detail.

The Wiktionary definition of "fundamental":

A leading or primary principle, rule, law, or article, which serves as the ground-work of a system; an essential part

As such, the fundamentals of our marching band are the skills demonstrated on the marching field that is used in complex maneuvers and is found in a marching show.

This chapter of the book provides an enumeration of styles; the descriptors and text provided in the section shall be treated as definition. If definition changes, the book shall change to reflect this.

2.1 The Basics

These are the most rudimentary fundamentals that the band should absolutely be comfortable with and can execute with perfection.

2.1.1 Attention

ATTENTION is the most rudimentary fundamental of any, since the band will be holding this position for the majority of the time. Therefore it is most absolutely necessary the band can do this perfectly.

The goal of *holding Attention* is to allow the band to appear uniform when arranged together, whether it is on the practice field practicing fundamentals, on the field marching a show, walking at an *Attention Walk*, or marching in *Parade Block*. When the band is not uniform, it is simply unappealing to look at; noticing a person swaying side to side, itching their leg with their foot, or looking around, can break the aesthetic of a marching band.

It is also important to realize the word choice of "attention." If you are holding Attention, you are also *paying attention*! If a leader gives you a command while you are holding Attention and you fail to respond to the command, we've broken the purpose of Attention!

All commands and instructions will be performed when the band is holding Attention.

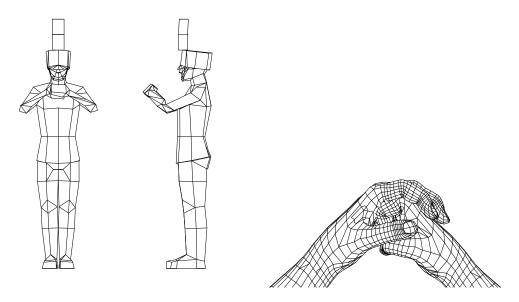


Figure 2.1: The "imaginary trumpet" Attention pose.

2.1.1.1 The Attention pose

These descriptors demonstrate Attention with no horn for the standard wind player (the "imaginary trumpet" Attention). This pose is demonstrated in Figure 2.1.

Feet placed side by side, toes and heels together, toes pointing forwards.

Legs slightly bent, just enough that knees are not locked, pointing forwards.

Hips level and providing even weight distribution to both legs.

Torso straight and tall, core engaged.

Shoulders relaxed, but back, square, and even.

Arms extended forwards, elbows pointing out and down, relaxed, forming a 90° angle.

Hands right hand forms a fist, right thumb resting on tops of index and middle fingers, left hand wrapping around, left thumb resting on top of fist, at eye level.

 $\bf Head\,$ looking slightly up at $15^{\rm o}$ angle, neck relaxed.

For each instrument:

Flute/Piccolo/Clarinet The horn should be held vertically, with the hands positioned in normal playing position, arms extended outwards. The mouthpiece should be just above eye level.

Saxophones The saxophone should be positioned horizontally, resting on the stomach with the help of the neck strap. The hands should be placed in normal playing position.

Trumpets/Mellophones/Trombones The horn should be held vertically with the bell facing down, close to eye level, with hands positioned in normal playing position.

Baritone The baritone should be held with the right arm, holding against the torso, bell facing forwards. The left arm should be down, relaxed, but in place and holding a fist.

Sousaphone The sousaphone should be appropriately worn, with the neck and mouthpiece angled down.

Snare/Tenor Drum The sticks should be held together in opposing directions, with the right hand stick closest to the body.

Bass Drum The mallets should be held against the rim of the drum on the side closest to the body.

Flag The flag should be held vertically with the left hand near eye level, grabbing the cloth of the flag and holding it to the rod. The right hand should hold the rod near waist level.

Important aspects of Attention:

- This position should be comfortable and easy to pose. If you are experiencing exhaustion, relax your shoulders, unlock your knees, and keep your weight distribution even between both legs.
- When holding the "imaginary trumpet" or other instrument that requires you to hold
 your instrument out in front of you (all except saxophones, baritones, sousaphones,
 drum line, and color guard), do not tuck your elbows. If you were to draw a line
 from your wrists down to your elbows and extend that line outwards, it should hit the
 ground away from you, on either side.
- Absolutely NO TALKING. How can you pay attention to your leader if you are talking to the people around you? The main point of not talking is to maintain a mental attention to the leader.

Tips for learning how to hold a good Attention:

- To know if you are holding your arms out far enough, check to see if someone can easily "sneak in for a hug." You are not holding a proper Attention if your arms are too extended or not extended enough.
- To know if you are holding your head at the correct angle, place your hand in an "L shape." Place your index finger under the bottom of your chin and your thumb in between your clavicles. You can also imagine pointing your head to the tops of the trees.¹
- If you imagine your hips are a bucket of water that is 99% full, and you don't want to spill any water, you must keep your hips level to do so.

¹I can't recommend using the tree method, since your distance to a tree can affect the angle, and you probably won't have a tree to reference when you are marching a show on the field. However, if you can perfect the angle while on the the practice field and memorize that angle, it may just work for you.

• Imagine you are being pulled from the top of your head by a string, extending your spine all the way and up onto your toes. Hold this position, then *only* move your ankles so your feet are now flat on the ground. This should show how your back and torso should be positioned to maintain a good posture.

2.1.1.2 Falling into Attention

To "fall into Attention" means to begin holding the Attention pose and be ready for instructions. The band can either fall in synchronously or asynchronously (all at the same time or all at different times). Attention is the only command that can be called when the band is not in form.

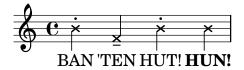
Synchronously The band shall immediately fall into Attention when a leader shouts:

BAN 'TEN HUT!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3. The band shall then respond and fall into the Attention pose and await further commands:

HUN!

The band's response shall land on beat 4 of the measure.



Asynchronously The band shall, as quickly as possible, fall into Attention when a leader states one the following:

Fall into Attention!

Fall in!

The band does not provide a response when falling into Attention asynchronously.

2.1.1.3 Legal commands while at Attention

Attention is the most basic state the band can be in, so any other command can be called while the band is at Attention.

2.1.1.4 Attention Walk

When the band can't be in step due to reasons, the band can ATTENTION WALK. To attention walk, simply walk at attention. This means every part of the body should appear to be holding Attention except for the legs. This also means the head should remain forward with the chin up, just as it is in Attention.

2.1.1.5 Relaxed Attention

Very rarely does the band ever hold a Relaxed Attention, but when it is done, it is used for extended periods of time of holding attention. Times upwards of 10–15 minutes and more warrant Relaxed Attention. The most prominent example of this is during Homecoming as the couples walk through the aisle the band forms in Jamie Jent Stadium.

2.1.2 Parade Rest

PARADE REST is the next most important fundamental to learn, since it is another basic pose that does not involve any movement and is often used next to Attention.

The goal of Parade Rest is to allow the band to remain uniform, while also resting. It requires less work to hold than Attention. Parade Rest is used commonly when the band is waiting for an event to happen, so that the band can return to Attention and continue marching. For example, while waiting for the clock to strike 00:00 for halftime, the band will hold Parade Rest to appear uniform while not specifically being in formation.

2.1.2.1 The Parade Rest pose

These descriptors demonstrate Parade Rest with no horn for the standard wind player (the "imaginary trumpet" Parade Rest). This pose is demonstrated in Figure 2.2 on the next page.

Feet placed shoulder-width, or slightly greater, apart, toes pointing forwards.

Legs slightly bent, just enough that knees are not locked, pointing forwards.

Hips level and providing even weight distribution to both legs.

Torso straight and tall, back straight, but relaxed.

Shoulders relaxed.

Arms left arm reaching behind back, right arm holding same pose as Attention.

Hands right hand maintains Attention pose. Left hand is placed in the small of the back, fingers straight and together, thumb resting next to index finger, hand horizontal to ground, horizontally centered in back.

Head looking slightly up at 15° angle, neck relaxed.

For each instrument:

All wind instruments The left arm will follow the pose as defined previously. The right arm will maintain its instrument specific pose. The left foot will spread to be balanced shoulder-width apart.

Drum line The arms rest to the side holding the sticks, feet apart.

Flag The flag is held parallel to the ground, feet apart.

Important aspects of Parade Rest:

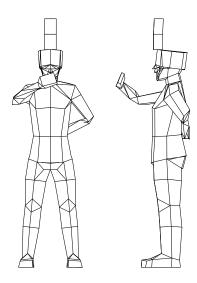


Figure 2.2: The "imaginary trumpet" Parade Rest pose.

- This position should be comfortable and easy to pose. If you are experiencing exhaustion, relax your shoulders, unlock your knees, and keep your weight distribution even between both legs.
- The left hand should form a "blade" and be placed in the small of the back.
- The right arm does not move. It does not come closer to the body. It should still be extended in the same manner as Attention. Just imagine your left arm is invisible, but still there to accompany the right arm.

Tips for learning how to hold a good Parade Rest:

• To find the perfect foot placement, position your feet so that they are directly underneath your armpits. This is an equivalent for those who spread too far when prompted on "shoulder-width."

2.1.2.2 Going in and out of Parade Rest

The band "falls into" Parade Rest asynchronously and "moves to" Parade Rest synchronously. The band can only move to Parade Rest when at Attention and horns are down, or out-of-state.

Going in synchronously The band shall immediately move to Parade Rest when a leader shouts:

BAN PA 'RADE HESS!

The timing of the syllables forms a dotted eighth, followed by a sixteenth, then two quarters. The band shall then respond and fall into the Parade Rest pose and await further commands:

HUN!

The band's response shall land on beat 4 of the measure.



Transitioning To transition from Attention to Parade Rest, the left arm should quickly snap from its position in Attention to Parade Rest. The left foot should also move out the left, landing just under the armpit/shoulder. The right foot never moves! By doing this, your center of mass will move to the left.

Falling in asynchronously The band shall, as quickly as possible, fall into Parade Rest when a leader states one the following:

Fall into to Parade Rest!

If a whistle is blown with a long-short pattern, the band will fall to Parade Rest, although this may differ depending on context. If a whistle is blown, then falls in pitch, then rises back to the initial pitch, the band is expected to fall into Parade Rest. The band does not provide a response when falling into Parade Rest asynchronously.

Going out of Parade Rest There is only one legal command the band can follow when holding Parade Rest: Attention. If any other command is given while the band is at Parade Rest, the band is expected to respond with:

AS YOU WERE!

The timing of the syllables forms a dotted eighth, a sixteenth, followed by a quarter, starting on beat $4.^2$



2.1.3 Horns Up/Down

What is the point of a marching band if our instruments are always down? The band always puts its horns up and down together.

2.1.3.1 The horns up position

When holding the imaginary trumpet, the only part of the body that moves is the arms and the hands. The hands are placed at or above eye level, while maintaining a 90° angle at the elbows. The hands bend slightly at the wrist so that the left thumb that is resting on the right fist is facing towards the face.

For each instrument:

²This often becomes simplified to two eighths, followed by a quarter.

Flute The flute is held horizontally in a normal playing position.

Clarinet The clarinet moves down (contrary to any other instrument) to reach the mouth for normal playing position.

Saxophone The saxophone is lifted up vertically to a normal playing position. The neck strap should be adjusted to the saxophone "comes" to the player, and not vice versa. The saxophone should be pushed forwards with the right hand to not rest against the stomach.

Trumpet/Mellophone/Trombone The horn is rotated and lifted to come to a normal playing position. The angle of the horn should be $\sim 15^{\circ}$ above the horizon line.

Baritone The baritone is grabbed with the left hand and brought up to a normal playing position.

Sousaphone The neck and mouthpiece is rotated to come to the mouth of the performer for a normal playing position.

Snare/Tenor Drum The sticks are held with appropriate grasp and point 45° inwards from center.

Bass Drum The mallets are extended outwards so the head of the mallets are positioned in the center of the drum head.

Flag The flag is raised.

It is important to note that for wind instruments, the mouthpiece of the instrument should not be in contact with the mouth; it only makes contact when playing. Trying to bring the horn up and directly into your mouth in a short, snappy move may not be good for the health of your mouth!

2.1.3.2 Moving the horns

The transition of moving the horn should be short and snappy.

Horns up The band will only transition to horns up from a command or a whistle pattern. The band will move to horns up if the following command is given:

BAN HORNS UP!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3. The band shall then respond and move to the horns up position:

AND UP!

The timing of the syllables forms two even quarter notes, starting on beat 4, landing on beat 1 of the next measure. The band will also move to horns up if three short whistles are given, indicating the beginning of a song. The band should respond with the previous response.



Horns down The band will transition to horns down (normal attention) from a command or the end of a song. The band will move to horns down if the following command is given:

BAN HORNS DOWN!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3. The band shall then respond and move to the horns up position:

AND DOWN!

The timing of the syllables forms two even quarter notes, starting on beat 4, landing on beat 1 of the next measure. The band will also move to horns down at the end of a song. The response should start on the closest beat 4 to the end of the song, where the response would not overlap playing.



2.2 Adding Movement

Once the band has learned the basics, it is now possible to teach skills that involve more complex motions.

2.2.1 Mark Time

The band can Mark Time while in place to establish a maintenance of rhythm. It is visually appealing if the entire band is marking time synchronized.

2.2.1.1 Marking Time

Marking time involves one main motion: the bending of the knee. This motion will happen to both legs. This is demonstrated in Figure 2.3 on the following page.

- The toes of the foot are to remain planted on the ground, from the very end of the toe, to just before the arch of the foot. The heel of the foot is to raise up and be above the ground about the diameter of a tennis ball (30°). The knee should bend outwards from its position, already unlocked and slightly bent. Everything from the waist up should remain absolutely motionless.
- To mark time, alternate moving the leg to this position and back to normal Attention leg. As you move your left foot down, raise your right foot, effectively alternating between each leg.
- The most important aspect of marking time is keeping your upper body motionless.
 If you were to imagine having a glass of water resting on the top of your head, you would not want to spill any of the water out of the glass. To do this, engage your core and maintain stability in your upper body.

To mark time "in time," you will alternate your feet to the beat. Your left foot will always raise on beats 2 & 4, and your right foot will always raise on 1 & 3. You can also think of this as lowering your left foot on beats 1 & 3 and lowering your right foot on beats 2 & 4.

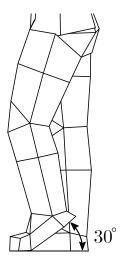


Figure 2.3: The raised leg position in a proper mark time.

2.2.1.2 Starting and Stopping a Mark Time

The band starts marking time when a leader shouts:

MARK TIME MARK!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3. The band shall then respond and begin marking time by raising the left foot:

AND!

The band's response shall land on beat 4 of the measure. Once the band has lifted the left foot, this is treated like a pickup measure to the mark time. The band shall remain marking time, and on beat 4 of each measure, shout the measure number multiplied by 4 (or simply, the current net beat number):

This pattern will repeat indefinitely. If a mark time is interrupted by another maneuver or command, the count resets.



The band stops marking time when a leader shouts:

BAN READY HALT!

The timing of the syllables forms a quarter, sixteenth, dotted-eighth, then a quarter. The band shall then respond, place the right foot down, and lift the left foot:

LOCK AND CLOSE!

The band's response begins on beat 4 and is two eighth notes, followed by a quarter, landing on beat 1 on the next measure. The left foot is finally placed down on beat 1. See Section 2.3.3 on page 27 for more information.



2.2.2 Slow Turns

SLOW TURNS are used to gradually rotate performers from facing one direction to another. They are less common than Flankings and are primarily used in fundamental block to rotate the band. However, they can appear in a show. Slow turns will always occur when at Attention.

2.2.2.1 Left Turn

The band begins a LEFT TURN when a leader shouts:

LEF TURN HO!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3.

- The band does not do anything on beat 4 of this measure.
- On beat 1 of the next measure, the left foot is moved to be rotated 45° to the left. The left foot should pivot around the heel. The upper body should not rotate.
- On beat 2, the right foot rotates about the heel to match the orientation of the left foot.
- On beat 3, the left foot rotates another 45° to the left, resulting in a net rotation of 90°.
- On beat 4, the right foot rotates another 45° to the left, matching the orientation of the left foot. The upper body "unlocks" from facing forwards and quickly rotates to the left to match the direction of the feet. The band finally responds on beat 4:

LOCK!



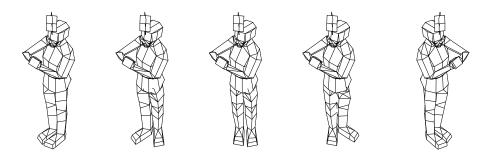


Figure 2.4: The proper left turn maneuver.

2.2.2.2 Right Turn

The band begins a RIGHT TURN when a leader shouts:

RIGHT TURN HO!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1-3.

• The band responds on beat 4 of this measure, picking up the left foot (like a mark time):

AND!

- On beat 1 of the next measure, the left foot is placed on the ground.
- On beat 2, the right foot rotates about the heel 90° to the right. The upper body should not rotate.
- On beat 3, the left foot rotates 90° to the right, matching the orientation of the right foot.
- On beat 4, the upper body "unlocks" from facing forwards and quickly rotates to the right to match the direction of the feet. The band finally responds on beat 4:

LOCK!



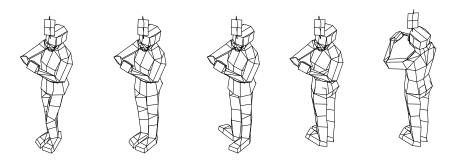


Figure 2.5: The proper right turn maneuver.

2.2.2.3 About Turn

An About Turn is a 180° rotation, rotating counterclockwise. The band begins an About Turn when a leader shouts:

A 'BOUT TURN HO!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3, with a sixteenth appropriatura before beat 1.

- The band does not do anything on beat 4 of this measure.
- On beat 1 of the next measure, the left foot is moved to be rotated 90° to the left. The left foot should pivot around the heel. The upper body should begin rotation, but will not rotate greater than 90° CCW until beat 4.
- On beat 2, the right foot rotates about the heel to match the orientation of the left foot.
- On beat 3, the left foot rotates another 90° to the left, resulting in a net rotation of 180°.
- On beat 4, the right foot rotates another 90° to the left, matching the orientation of the left foot. The upper body quickly rotates 90° to the left to match the direction of the feet. The band finally responds on beat 4:

LOCK!



2.2.3 Facings

FACINGS are only typically used in fundamental block. They allow the band to be rotated very quickly. They are similar to Flankings, which are much more common. Facings only occur with a given command:

BAN [LEF/RIGHT] HASTE!

The timing of the syllables forms three even quarter notes of a 4/4 measure, landing on beats 1–3.

- On beat 4, the band then will then rotate by pivoting on both feet and rotating the upper body.
 - If the band is Facing to the left, the band will pivot on the heel of the left foot and the ball of the right.
 - If the band is Facing to the right, the band will pivot on the heel of the right foot and the ball of the left.
 - This rotation is quick and snappy as the upper body rotates at the same time as well.
- On beat 1 of the next measure, the foot that is backwards of the other moves forward to match the position of the other.

The band responds with:

HUN TWO!

The response begins on beat 4 as the feet pivot, then ends on beat 1 as the feet come together.



2.3 Moving to new places

All of the previous fundamentals only take place in one spot. Now, we discuss basic traveling skills. Note that the following fundamentals are not directly given via commands, but are given through a set of instructions (e.g., "mark time 4, forwards march 4").

This also introduces *instruction giving*, contrary to command giving. When command giving, the band immediately responds and does an action when a command is given. In instruction giving, the band is given a series of commands, given time to process them mentally, then the band is given a command to begin.³ So, instruction giving is appended by a command. When the band has been given instructions, the leader will shout to start the instructions given:

³When I say "instruction giving," I'm referring to delivering a set of maneuvers for the band to perform (e.g., "mark time 8, forwards march 8, and close") instead of more generic commands (e.g., "16 beats to go back to set 1").

HUP HUP RIGHT NOW!

The timing of the syllables forms four even quarter notes of a 4/4 measure, landing on beats 1–4. Depending on what the band's first move is, they will have a different response, but will always give back a response.



2.3.1 Lock-Push

The Lock-Push begins movement by allowing a stationary performer to begin traveling forwards.⁴ The Lock-Push is colloquially called the STEP-OFF.

The Lock-Push is comprised of two separate parts: the "lock" and the "push." This is demonstrated in Figure 2.6 on the next page.

- On the first beat, the feet need to be together at the standard Attention pose. The performer will be stationary at this point, so the only action necessary is if the performer is marking time (which they will then just Lock and Close).
- On the second beat, the left foot will extend outwards 22.5 inches⁵ and only the heel of the foot will touch the ground. It is important to note that the toes of the left foot should be raised upwards. The right foot will begin to roll up onto the ball. It is important to keep the upper body stabilized (the left foot should touch, not pound or punch the ground).
- Always start with the left foot!

The band shouts when doing a Lock-Push:

LOCK PUSH!

The response is two even quarter notes.

Tips for learning a good Lock-Push:

• Imagine there is a sticky note on the bottom of your foot that says "Hi Mom!" In order for your mom to see the note from the stadium seats, you have to raise your toes as high as possible so she can see the note.

After performing the Step-Off, you will move directly into a continued Roll Step!

2.3.2 Roll Step

The ROLL STEP is the most rudimentary and fundamental way to travel the field. It allows the band to move with a standardized look. This section will focus on an 8:5 (8 steps for every 5 yards) step size. It is common to call the culmination of roll stepping and other maneuvers "marching."

 $^{^4}$ The band Lock-Prep-Steps when going backwards. See Section 2.4.1 on page 27 for details.

⁵As denoted later, various step sizes exist and this description implies an 8:5 step size.

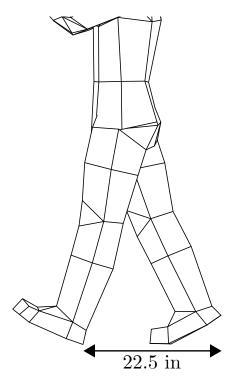


Figure 2.6: A proper step off, where the left heel is 22.5 inches in front of its initial position.

Once you have initiated a Step-Off and your left foot is in front of you, roll through the entire left foot as you pickup your right foot and place it 22.5 inches in front of your left foot, only placing down the heel. Then as you roll through your entire right foot, pickup your left foot and place the heel 22.5 inches in front of your right foot. Alternate feet and you are Roll Stepping! It's like walking, but rolling through each step at a fixed distance with no upper body movement.

We march with step sizes of 22.5 inches, because 8 of these specifically defined steps will allow you to travel exactly 5 yards. We can also march with different step sizes. See Section 2.5.3.1 on page 31 for more details.

Important things to remember:

- The entire upper body shall remain **motionless** throughout the Step Off and Roll Stepping. Your core will need to be engaged to maintain this stability. Squeeze your glutes. Imagine there is a glass of water on your head and you can't spill any of it. You should not move your upper body at all!
- Rolling through each foot is important for maintaining stability. Imagine there is a
 tube of toothpaste on the ground and you have to use your entire foot to squeeze it
 out from back to front.
- The height of your toes must remain as high as possible, just like in the step-off. This will help you with the rolling action.

Why should we keep our upper body still? It is vital that your upper body remain motionless while marching because you are also playing an instrument while doing this! Imagine if you were to march a show while bouncing up and down, your tone would go up and down too! Multiply that by 100 people in the band and now we can't agree that A4 = 440 Hz.

2.3.2.1 **Guiding**

GUIDING is one of the most important fundamentals to execute, since it allows the band to appear uniform. The idea of guiding is to keep forms straight. For example, when in fundamental block, you are in a row with everyone else in your section, and it is not going to look good if everyone is slightly offset from each other. Instead of a straight line, we have a wavy line!

The way to fix this is to guide. By guiding, you keep your body in line with the person on your right. You will always guide to the person on your right.⁶ If you are in a form where there are also people in front of you, you will also guide forwards, making sure you are in line with the person to your right and the person in front of you. Imagine keeping your shoulders on an imaginary axis that is perfectly in line with your guides.

Responses in Fundamental Block When marching in fundamental block, the band will shout responses when hitting subdivisions of marching lengths. The response varies depending on the direction of travel:

- When traveling parallel to the sideline
 - Half way between yard lines (when the right foot is placed down):

HALF!

- On the yard line (when the right foot is placed down):

HIT!

- When traveling perpendicular to the sideline
 - Every fourth step, the beat number:

FOUR! EIGHT! [...]

Marching an 8:5 parallel to sideline for 10 yards:

0	1	2	3	4	5	6	7	8
	L	R	L	R	L	R	L	R
LOCK	PUSH			HALF				HIT

9	10	11	12	13	14	15	16	17
L	R	L	R	L	R	L	R	L
			HALF				LOCK AND	CLOSE

Marching an 8:5 perpendicular to sideline for 10 yards:

 $^{^6\}mathrm{There}$ are exceptions to this but they are less common.

0	1	2	3	4	5	6	7	8
	L	R	L	R	L	R	L	R
LOCK	PUSH			FOUR				EIGHT

9	10	11	12	13	14	15	16	17
L	R	L	R	L	R	L	R	L
			TWELVE				LOCK AND	CLOSE

Different responses vary depending on the step size. See Section 2.5.3.1 on page 31 for responses with different step sizes.

2.3.3 Lock and Close

When the band ends its maneuvers, they will LOCK AND CLOSE. The Lock and Close will always end a maneuver and put the performers feet idle and stationary. It consists of two parts: the "lock" and the "close."

- The "lock" occurs with the right foot and "locks" the foot in place. For example, after roll stepping, the right foot will lock down in place where the performer will stand after marching. After marking time, the right foot locks down on the ground and does not lift back up.
- The "close" occurs with the left foot and "closes" the feet together. The left foot will lock next to the right foot to close the distance between the feet.

The response forms three even eighth notes:

LOCK AND CLOSE!

The response begins on the lock of the right foot and ends with the close of the left foot.

2.4 Changing Directions

Now that we can move forwards, mark time, and start and stop, let's find out how to move backwards.

2.4.1 Backwards March

The Backwards March allows performers to move backwards, unlike roll step which is forwards. A different technique is used for marching backwards.

As it was important for rolling through each step for a forwards march, it is important to remain on the balls of your feet for a backwards march. Backwards march is colloquially called "drag toes" since that is what the technique entails.

- When marching backwards, always be on the balls of your feet. Your heels should not touch the ground in any capacity.
- Bend your knees slightly more than the unlocked position for attention to absorb some shock from dragging your toes on the ground. Your upper body should not move at all, just like a roll step.

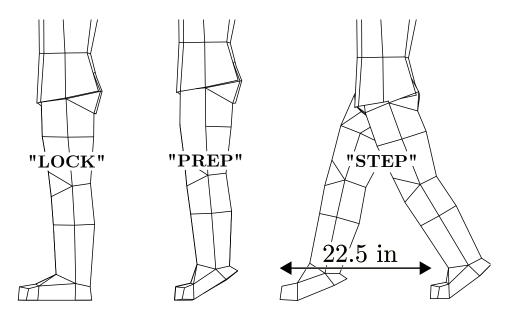


Figure 2.7: The proper "Lock Prep Step" movement, as notated.

- As you move your feet back for each step, imagine tickling the blades of the grass on the ground: your feet should have contact with the ground, but not be so forceful as to inhibit movement. If you were backwards marching in sand, there would be two, straight, parallel lines in the sand where your toes dragged.
- It is common for those who are first beginning learning how to backwards march to undershoot the distance and fall short of the destination behind them. It is important to take bigger steps—bigger than you probably think you need to—to reach your destination.

The band does a "Lock Prep Step" when beginning a backwards march, similar to the Lock-Push when forwards marching (this is demonstrated in Figure 2.7):

LOCK PREP STEP!

The response forms three even quarter notes.

2.4.2 Rock and Roll

The ROCK AND ROLL allows performers to switch from going forwards to backwards, or going from backwards to forwards, without stopping.

- To switch to going backwards from marching forwards, at the time of the rock and roll, the right foot will be placed down like a normal roll step. However, when the foot is placed down, the weight of the body is going to roll through the foot and move to the ball of the foot, then the left foot is raised to be on the balls, effectively placing the performer in a perfect backwards march position.
 - It is important to roll all the way through the right foot. You can imagine an imaginary pane of Plexiglas positioned vertically at the point where you want to

rock and roll: roll all the way through the right foot so you can kiss the pane of glass.

- Once rolled through the right foot, it is necessary to not linger in this position, and immediately begin moving backwards to regain momentum. However, it is important that the full weight of the body rolls through the right foot and moves forwards as much as possible.
- To switch to going forwards from marching backwards, at the time of the rock and roll, the right foot will be placed down like a normal drag toes step. However, when the foot is placed down, the weight of the body is going to roll through the foot and move to the heel of the foot, the the left foot is lowered to be on the heel, effectively placing the performer in a perfect roll step position.
 - It is important that the full weight of the body move back as far as possible, then begins moving forwards to gain momentum and begin a forwards march.

The band shouts when doing a rock and roll:

ROCK AND ROLL!

The response forms two eighth notes, followed by a quarter.

2.4.3 Flankings

FLANKINGS rotate performers from moving in one direction to another, but unlike Slow Turns, Flankings only need one beat to turn and happen while roll stepping, or when ending a roll step.

2.4.3.1 Flanking Left

When performing a left flank, the body will quickly pivot on the ball of the right foot and on the heel of the left foot. The foot anchorage and rotation is exactly the same as a Facing. The rotation of the body will occur on the upbeat of the beat (the "and" of the beat). The upper body should rotate quickly and snappy. Typically, the Flank will be 90 degrees, but it is possible to only rotate partially to achieve a shorter rotation angle.

2.4.3.2 Flanking Right

The procedure for flanking right is similar to flanking left, except an added "cheat step" is used. The right foot, when flanking, should be placed on the ground half way of the total expected rotation. This will help with an easier body rotation snap. When flanking, the left foot will not be pivoted on, but will rather be swung around the be placed for the left foot step.

The band shouts when doing a hip flank:

AND ONE!

The response forms two eighth notes.

2.4.3.3 Backwards Flanks

Sometimes the band with have to perform a Backwards Flank, where performers must change direction from or to a backwards march.

For example, when marching field left, parallel to the sideline, traversed home (traversing explained in 2.5.1), a backwards flank to the left would put the performer's body facing the sideline, marching backwards (back field). It is a backwards flank because the march direction after the flank was backwards.

The other type example is starting with a backwards march. For example, when marching backwards perpendicular to the sideline, a backwards flank to the right would put the performer's direction of travel field right in a forwards march. It is a backwards flank because the march direction before the flank was backwards.

It is not common for a backwards march backwards flank into a backwards march, but can be seen (for example in Appendix A.1.1 on page 42).

To backwards flank, simply place the left foot in the new direction of travel on the downbeat of the flank. There is no spinning on the heels and balls like there is in a normal flank.

2.5 Final Steps

These fundamentals are the final icing on the cake and allow performers to move themselves in any direction or fashion on the field.

2.5.1 Traversing

TRAVERSING is marching one direction while having the upper body face a different direction, up to 90° left or right. It is common to "traverse home" to allow the band to march one direction and point the instruments towards the home sideline for best sound quality.

Traversing involves rotating the upper body so that it is facing one direction, while marching in another. Therefore, it is important to traverse correctly to reduce the amount of strain and tension caused on the spine.

- Traversing involves two directions: the march direction, and the facing direction. The march direction is the direction the performer is marching. This could be forwards, backwards, or any angle in between. The facing direction is the direction the upper body is facing while marching. It is possible for the facing direction to be anywhere within the range of -90° to +90° from the direction of the marching direction. It should be noted that performers will never march backwards when the facing angle is 90° of the marching angle (they will forwards march instead).
- To rotate the body to the desired facing direction, the hips should rotate half way to the desired angle, then the upper torso should rotate another half, resulting in the shoulders above having a net rotation of the desired facing rotation. For example, if you needed to traverse 90°, your hips will rotate 45°, and the upper body will rotate another 45°, resulting in a 90° rotation of the upper body.
- To healthily rotate the upper body, imagine pushing the should behind forwards, instead of pulling the forwards shoulder back. It is also important to retain a proper posture and provide lower back support to reduce strain and soreness.

• Beginners will experience that they will "drift" or march oblique to their intended marching path if they are traversing. It is simple as just practicing to overcome this habit and remain on track. Extra attention must be given to the feet to achieve this. It may be helpful to overcompensate when first learning traversing to effectively remain the correct path.

2.5.2 Hip Switch

Performers perform a HIP SWITCH (also known by its response TO THE REAR) when alternating from forwards marching to backwards marching—and vice versa—without changing velocity (i.e., heading in the same direction). An example of when this may be used is traverse marching in a circle. If the performer must always face towards the home sideline and march in a circle, they will have to hip switch on either side of the circle so that they can remain marching in the correct direction without turning the upper body more than 90° .

• The hip switch can be thought of as a 180° flank. When doing a hip switch, you will always pivot on your right foot, and your left foot will swing around. The movement, like all others, is short and snappy. After bringing the left foot around, it will either go directly into a roll step position or drag toes position, depending on the orientation the performer is about to march.

The band shouts when doing a hip switch:

TO THE REAR!

The response forms two eighth notes, followed by a quarter.

2.5.3 Adjusted Step Size

A performer's step size will not always be a perfect 8:5 (i.e., 8 steps for every 5 yards). Certain forms in the show's chart may have performers moving at a different speed (by changing step size, the performer's speed is inherently changed⁷). To account for this, performers will have to march with an ADJUSTED STEP SIZE. This means that the distance in between each step will change. In an 8:5, the step distance is 22.5 in. For a 16:5 (16 steps for every 5 yards), the step distance is 11.25 in.

To adjust from marching in one step size to another, simply begin taking smaller/larger steps at the time of adjustment to begin marching at the new step size.

It should be noted that step sizes may not always be "neat"; step sizes of 6.28:5 and 31.415:5 are perfectly valid step sizes.

2.5.3.1 Marching Responses

When marching at an adjusted step size, the response for marching in fundamental block varies depending on the step size. In this section, the responses for 16:5, 6:5, and 12:5 are defined:

⁷Given the performer remains in normal step time (does not move to half time or double time) and the tempo is constant, etc.

	Parallel to sideline	Perpendicular to sideline
16:5	QUARTER! HALF! THREE QUARTERS! HIT!	FOUR! EIGHT! []
6:5	HALF! HIT!	THREE! SIX! []
12:5	QUARTER! HALF! THREE QUARTERS! HIT!	THREE! SIX! []

It is important to realize that in 6:5 and 12:5 step sizes, the foot that is placed down as the response is shouted alternates. For example, in 12:5, the responses for marching parallel to the sideline for 5 yards:

0	1	2	3	4	5	6
	L	R	L	R	L	R
LOCK	PUSH		QUARTER			HALF

7	8	9	10	11	12	1
L	R	${ m L}$	R	L	R	L
		THREE QUARTERS ⁸			LOCK AND	CLOSE

And marching 6:5 for 5 yards:

	0	1	2	3	4	5	6	1
		L	R	L	R	L	R	L
Ī	LOCK	PUSH			HALF		LOCK AND	CLOSE

2.6 Making Shapes

2.6.1 Box

A good way to practice flankings and roll stepping is with a Box. A box consists of three turns, four sides, and can be in variable size and direction. For example, some valid boxes:⁹

BoxL4 "Box Left 4" — Box with left turns, each side is 4 steps long

BoxR8 "Box Right 8" — Box with right turns, each side is 8 steps long

Consider the example of a BoxR8 (pronounced "Box Right 8"). This means that the band will take right turns, and march for 8 steps on each side before turning. The band will lock-push¹⁰ and begin marching forwards for 8 steps. After 8 steps, the band will Flank right, and take another 8 steps. The band will Flank right again and take 8 more steps. Finally, the band will flank right again and take 8 more steps. The last step before finishing the box is a cheat step. The band finishes in the same direction as they started, so, the very last step is a flank to rotate back to the initial direction. The cheat step helps achieve this.

If the box had a length of 4 instead of 8, simply only take 4 steps instead of 8. If the box was "left," simply take left flanks instead of right flanks.

⁸The vocal response for "three quarters" begins on beat 8.5 in this example.

⁹Boxes in fundamental block will always be square and have an even side length.

¹⁰If the band begins this box command from a non-stationary position (e.g., marching, another box, etc.), the band will not stop and immediately begin the maneuvers for this box.

2.6.1.1 Traverse Box

Boxes are good for practicing flankings and roll stepping. While we practice those fundamentals, we can also practice traversing with TRAVERSE BOXES. Traverse boxes are just normal boxes, while also traversing in one direction the whole time.

The traverse direction is chosen arbitrarily, as long as the direction can be traversed to at the beginning (cannot traverse home sideline when facing away).

One side of the traverse box will be backwards marching, one side will be forwards marching, and two sides will be traversing. 11

For example, if the band was facing field left, traversing to the home sideline, and doing a traverse box left:

- The first edge of the box will be a forwards march while traversing home (upper body rotated right).
- The band will then backwards flank and march backwards the second edge of the box.
- The third edge of the box will be a forwards march while traversing home (upper body rotated left).
- The final edge of the box will be a forwards march. The final step will return the feet to the initial direction ending the traverse box.

2.6.1.2 Adjusted Boxes

Just like how traverse boxes are good for practicing traversing, having boxes at adjusted step sizes can help with practicing adjusted steps. It is also fun to have the band do a box at one step size, then immediately have the band do another box at a different step size.

Examples of how adjusted boxes are labeled:

BoxR6@6:5 "Box Right 6 at a 6:5"

RoxL18@12:5 "Box Left 18 at a 12:5"

2.6.1.3 Diagonal Boxes

DIAGONAL BOXES are an exotic form of Boxes and are not typically practiced during Fundamental Block nor seen in a show. Essentially, a Diagonal Box is a normal box, but scaled and rotated 45° .

2.7 Conclusion

Congrats! If you are able to perform all the above fundamentals at any given tempo while playing your instrument, consider yourself an experienced marcher! The entire band should be able to execute all fundamentals while playing.

¹¹As mentioned in Section 2.5.1 on page 30, performers will never march backwards when traversing at a 90°. They will forwards march while traversing the appropriate direction.

Chapter 3

Blocks

This chapter will cover the technicalities and details of the several blocks the band forms, including Fundamental Block and Parade Block.

3.1 Fundamental Block

FUNDAMENTAL BLOCK is used to group all the members of the band together on the field. The purpose of Fundamental Block is to allow for the teaching and practicing of fundamentals.

3.1.1 Layout

The band has mostly kept sections in the same place from year to year. The general layout is found in Figure 3.1 on the following page.

Each section begins consists of "lines." A line is a row of performers that begins on the home sideline and extends towards the home hash (or further). A section leader or other veteran should be the one marching on the sideline, so that the general accuracy of the line is maximized. For each performer in each line, there is typically 4 steps of distance in between (an orange tick).

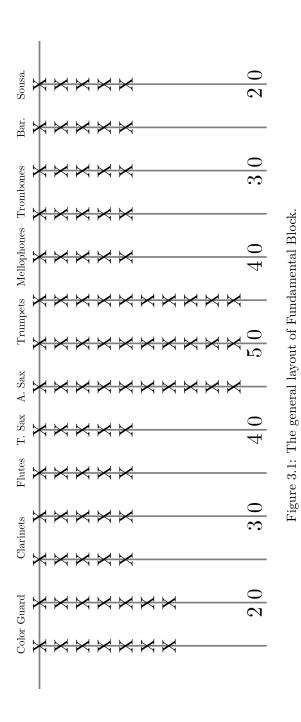
3.2 Parade Block

PARADE BLOCK is used to allow the band to move together in a standardized position. This position is commonly used to travel to a stadium, during Homecoming Parade, etc.

3.2.1 Layout

The instruments in Parade Block are typically in the same sections from year to year. The general layout is found in Figure 3.2 on page 36. Some things are to be noted:

- The Figure only represents a general layout. Year to year, adjustments are made to preserve symmetry with variable section sizes.
- Tenor Saxes are often merged with Alto Saxes if the section is small enough to merge.



Drum Majors $old X$	Color Guard X X X X X X	Troml	Bar. Tpt. / Mell X X X X	S.D.T.DCym.	Bass I	Jrums X	r. / Flute A. Sax Sou X X X X X X X X X X X X X X X X X X X
		\prec \times	X	× × ×	×	×	X
×	XXXXXXX	X	XXXXX	XXXX	×	×	XXXXX
\			MARCHING DIRE	ECTION —			

Figure 3.2: The general layout of Parade Block.

3.2.1.1 "Squish"

Sometimes while in Parade Block, the band has to fit within a restricted width. Examples of this include doorways, sidewalks, etc. When "squished," rows are divided and stacked, effectively making the parade longer, but more narrow.

Those near the front of the parade will be the first to know that the parade must squish. They commonly will yell "squish!" and those behind them yell it subsequently, effectively sending the message to the very back of the parade.

3.2.2 Marching

Most of the time while in Parade Block, the band will be marching in time because the cadence is playing (see Section 3.2.3 for more information). The band should march in time with the current song or cadence. Remember, even though we may not be on the field, this should still be a roll step to ensure a good playing quality.

3.2.2.1 Turns

Turning in Parade Block requires special attention to maintain the form. Because the block consists of "rows" the whole row must maintain a row shape throughout the entire turn. To do this, special marching is done:

The individual on the inside will march the least distance while turning, while the individual on the outside of the turn will march the most? Why is this? Imagine each band member is marching on quarter circles (this is demonstrated in Figure 3.3). Since the circle furthest away from the epicenter of the circle has a larger circumference, the member that follows that path must march proportionately further.

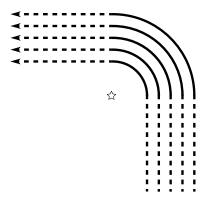


Figure 3.3: Members on the inside of a turn in Parade Block have a shorter distance to march compared to those further away from the epicenter (star) of the turn.

3.2.3 Cadences

While in Parade Block, there are several cadences that the band recites while marching. These are found in Appendix B.

3.2.4 Flashes

While in Parade Block, instruments are held a special way and are flashed during the cadences.

3.2.5 Taps

While in Parade Block, the Center Snare will play TAPS. These are played so that every member in the band is marching at the same time.



Chapter 4

Drum Majors

- 4.1 Leadership
- 4.2 Conducting

Chapter 5

Color Guard

Chapter 6

Drum Line

Appendix A

Drill Repository

These drills are available to use for practicing certain fundamentals. Presented are both computer generated drills, and some specially designed drills. The goal of the computer generated drills is to allow drum majors to present new content to the band, having an available resource at hand on the field.

Here are the definitions for abbreviations used in these drills:

Abbreviation	Meaning
F	Forwards march
В	Backwards march
MT	Mark time
RR^1	Rock & roll
LF	Left flank
RF	Right flank
X	Arbitrary number
Box[L/R]X	Box
@X:5	Step size

A.1 Designed

A.1.1 Ian's I

This drill was presented by former Michigan State's Spartan Marching Band Drum Major Ian McNabb during the 2019 Drum Major Clinic. 2

The drill makes an "I" shape and should be done while traversing forwards. This drill is best taught by teaching the first line, then appending the second line, and so forth until the whole drill is marched in one go.

```
FX, LF, FX, RR, BX, LF, BX
FX, RF, FX, RR, BX, RF, BX
BX, LF, BX, RR, FX, LF, FX
BX, RF, BX, RR, FX, RF, FX
```

¹Rock and roll is assumed and not written in computer generated drills.

²Ethan will tell you he came up with the name but I'm 100% positive I came up with it.

A.1.2 Rockin' Multiples of 2

This drill helps performers practice Rock & Rolls by marching forwards, then backwards, decreasing the march distance each time.

F8, RR, B8

F6, RR, B6

F4, RR, B4

F2, RR, B2

A.2 Generated

The generated drills are at various difficulties, getting increasingly harder with difficulty. Note: the generated drills asume an infinite field, so make sure there is enough space to complete the drill.³

Generated drills were made using a custom program written by Jacob Wysko. The source code is available at github.com/wyskoj/DrillGen.

The lengths of each fundamental in each drill is dependent on the step size and difficulty. The generation rules are in Table A.1.

Step Size	Beginner	Easy	Medium	Hard	Expert
8:5	4, 8	4, 8	4, 8, 16	2, 4, 8, 16	2, 4, 6, 8, 16
16:5			8, 16	8, 16	4, 8, 16
6:5				6, 12	3, 6, 12
12:5					6, 12

Table A.1: The allowed lengths for drills.

A.2.1 Beginner

The list of drills in Table A.2 on the next page lists every possible drill that follows the following set of rules:

- Possible fundamentals: March
- Possible step sizes: 8:5
- No double forwards/backwards marches
- 1–2 fundamentals
- Adheres to Table A.1

 $^{^3}$ Or, don't and throw off the band for elimination block (since the band should respond AS YOU WERE if they cannot complete the drill)!

[FM8@8:5]	[BM808:5, FM408:5]
[FM4@8:5]	[FM408:5, BM408:5]
[BM8@8:5]	[FM808:5, BM808:5]
[BM408:5]	[BM408:5, FM408:5]
[FM808:5, BM408:5]	[FM408:5, BM808:5]
[BM808:5, FM808:5]	[BM4@8:5, FM8@8:5]

Table A.2: Beginner drills.

A.2.2 Easy

The list of drills in Table A.3 lists every possible drill that follows the following set of rules:

- Possible fundamentals: March, flank
- Possible step sizes: 8:5
- No flanks coming from or going into a backwards march⁴, no starting or ending with a flank
- No double forwards/backwards marches
- 2–3 fundamentals
- Adheres to Table A.1

```
[BM408:5, FM808:5]
                                        [FM408:5, RF, FM808:5]
[FM408:5, LF, FM808:5]
                                        [BM808:5, FM408:5]
[FM408:5, BM808:5, FM808:5]
                                        [BM408:5, FM408:5, BM808:5]
[FM808:5, RF, FM808:5]
                                        [BM408:5, FM408:5]
[FM408:5, BM408:5, FM408:5]
                                        [FM408:5, BM408:5, FM808:5]
[FM808:5, LF, FM408:5]
                                        [FM808:5, BM408:5, FM408:5]
[FM808:5, BM408:5, FM808:5]
                                        [FM808:5, BM808:5, FM808:5]
[FM408:5, BM808:5]
                                        [FM808:5, BM408:5]
[FM408:5, BM408:5]
                                        [FM808:5, BM808:5, FM408:5]
[FM808:5, LF, FM808:5]
                                        [FM408:5, BM808:5, FM408:5]
[BM808:5, FM808:5]
                                        [BM408:5, FM408:5, BM408:5]
[BM808:5, FM408:5, BM408:5]
                                        [BM808:5, FM808:5, BM408:5]
[FM408:5, LF, FM408:5]
                                        [BM808:5, FM808:5, BM808:5]
[BM408:5, FM808:5, BM408:5]
                                        [BM408:5, FM808:5, BM808:5]
[FM408:5, RF, FM408:5]
                                        [FM808:5, RF, FM408:5]
[BM808:5, FM408:5, BM808:5]
                                        [FM808:5, BM808:5]
```

Table A.3: Easy drills.

 $^{^4{}m This}$ is doable and is allowed in ${\it Hard}$ and ${\it Expert}$ difficulties.

A.2.3 Medium

The list of drills in Table A.4 on the next page lists 100 unique drills that follows the following set of rules:

- Possible fundamentals: March, flank, box
- Possible step sizes: 8:5, 16:5
- No flanks coming from or going into a backwards march, coming out of a box, no starting or ending with a flank
- No double forwards/backwards marches
- 2–4 fundamentals
- Adheres to Table A.1

A.2.4 Hard

The list of drills in Table A.5 on page 47 lists 100 unique drills that follows the following set of rules:

- Possible fundamentals: March, flank, box
- Possible step sizes: 8:5, 16:5, 6:5
- No flanks coming out of a box, no starting or ending with a flank
- No double forwards/backwards marches
- 3–4 fundamentals
- Adheres to Table A.1

A.2.5 Expert

For the toughest nuts to crack!! The list of drills in Table A.6 on page 48 lists 100 unique drills that follows the following set of rules:

- Possible fundamentals: March, flank, box
- Possible step sizes: 8:5, 16:5, 6:5, 12:5
- · No flanks coming out of a box, no starting or ending with a flank
- No double forwards/backwards marches
- 4–5 fundamentals
- Adheres to Table A.1

[BoxR8@8:5, BM16@8:5,	[BoxR8@8:5, BoxL8@8:5,	[FM408:5, BM408:5]
FM1608:5, BM1608:5]	FM8@8:5]	[FM16@16:5, BoxR16@16:5,
[FM8@8:5, BM8@16:5,	[BoxR4@8:5, BM8@16:5]	BM8@8:5]
BoxR8@16:5, BM8@8:5]	[BoxR8@16:5, BM16@16:5]	[BoxR16@16:5, BoxR8@8:5,
[FM4@8:5, LF, BoxL16@8:5]	[FM8@8:5, BoxR8@16:5,	BoxR16@16:5, BM4@8:5]
[BM1608:5, BoxL408:5,	FM808:5]	[FM16@8:5, BM16@8:5]
BoxR16@8:5, BoxR8@16:5]	[BoxR1608:5, FM408:5,	[FM1608:5, BM16016:5,
[BM16@16:5, FM8@16:5]	BM808:5]	BoxL408:5, BM8016:5]
[BM8@16:5, FM8@16:5,	[FM408:5, RF, BM16016:5]	[BoxR8@16:5, BoxR16@16:5]
BM1608:5]	[BM16@16:5, BoxL8@8:5]	[BoxL408:5, FM16016:5,
[BM16@16:5, FM8@16:5,	[FM8@16:5, RF, BoxR16@16:5,	BM16@16:5]
BM4@8:5]	BM1608:5]	[BoxR16@16:5, BoxR16@16:5,
[BoxR1608:5, BoxL408:5]	[FM16@8:5, BoxR8@16:5,	BoxL8@16:5, BoxL4@8:5]
[BoxL16@16:5, FM16@16:5]	FM16@16:5]	[FM8@16:5, BM16@16:5]
[BoxL8@16:5, BoxL4@8:5]	[BoxL16@16:5, FM4@8:5, LF,	[BM16@16:5, BoxR16@16:5,
[BM8@16:5, FM8@16:5,	BoxR16@8:5]	FM1608:5]
BoxR16@16:5, BoxR8@16:5]	[BM408:5, BoxR8016:5]	[BoxR8@8:5, BoxR8@16:5,
[BoxR408:5, BoxL408:5,	[BoxR16@16:5, BM16@16:5,	BoxR16@16:5, FM16@16:5]
BoxR1608:5, BM8016:5]	FM16@16:5, BoxL8@8:5]	[BoxR8@8:5, BoxL16@16:5]
[BM16@8:5, FM8@16:5,	[BM808:5, BoxL408:5]	[BoxR408:5, BoxR8016:5,
BM16@16:5]	[BM16@16:5, FM16@16:5,	BoxL16@16:5]
[BoxL8@16:5, FM8@16:5,	BoxL8016:5]	[FM808:5, BM408:5,
BoxR16@16:5]		BoxR8@16:5, BoxR4@8:5]
	[BoxR16016:5, FM408:5] [FM808:5, BM408:5]	
[BoxL16016:5, FM16016:5, LF,		[BoxR408:5, BoxL16016:5]
FM8016:5]	[BoxL16@16:5, BoxL8@8:5,	[BM408:5, BoxR408:5,
[FM16016:5, LF, BoxR16016:5, BoxR408:5]	BM16@16:5]	BoxR1608:5, BM8016:5] [BoxL808:5, BoxR16016:5]
[BM408:5, BoxL1608:5,	[BoxL808:5, BoxL8016:5, BM808:5]	[BoxL8@16:5, BoxL8@8:5,
FM808:5, BoxL808:5]	[FM8@16:5, LF, BoxR16@16:5,	BM8016:5]
[BoxR408:5, BoxL1608:5,	BM408:5]	[BM1608:5, FM16016:5]
BM408:5]	[BM16@16:5, FM16@8:5,	[BoxR8@16:5, BoxR4@8:5,
[BM8@16:5, BoxL4@8:5,	BM16@8:5]	BoxL16@16:5]
FM408:5, BoxL1608:5]	[BoxR408:5, FM8016:5,	[BoxL8@16:5, BoxL16@8:5,
[BoxL8@16:5, BoxR8@8:5,	BoxR1608:5]	BoxL16@8:5, FM16@8:5]
BoxL1608:5, BoxR16016:5]	[FM8@16:5, BM8@8:5, FM8@16:5]	[BM16@16:5, FM8@16:5,
[BoxL8@8:5, BM8@16:5,	[BM16@16:5, FM16@8:5,	BoxL16@16:5, BoxL4@8:5]
BoxL16@16:5, FM8@16:5]	BoxR16@16:5, BoxR4@8:5]	[BoxR8@16:5, BoxL8@16:5,
[BM408:5, FM408:5]	[BM8@16:5, BoxL8@8:5]	BoxR808:5]
[BM8@16:5, FM8@16:5]	[FM16@16:5, BM16@16:5]	[BoxR16@16:5, FM16@16:5]
[BM408:5, FM1608:5,	[BoxR16@16:5, BM8@16:5,	[FM16@16:5, BM8@16:5,
BoxL8@16:5, FM8@16:5]	FM408:5, BM808:5]	BoxL16@16:5]
[BoxR408:5, BM408:5,	[BoxL1608:5, FM808:5]	[BoxR8@16:5, BoxR16@8:5,
FM8@16:5, BM8@16:5]	[BM1608:5, BoxL16016:5,	BoxL408:5]
[BoxR8@16:5, BM16@16:5,	BoxR808:5, BoxR1608:5]	[BM1608:5, FM16016:5,
FM8@8:5]	[BoxL8@16:5, FM4@8:5]	BoxR16@16:5]
[BoxR16@8:5, BM16@8:5,	[FM808:5, BM1608:5]	[BoxR8@16:5, BM16@8:5,
FM1608:5, BM8016:5]	[BoxR8@16:5, FM16@16:5,	BoxR8016:5]
[BoxR16@16:5, BoxR16@16:5,	BoxR8@16:5]	[FM8@16:5, BoxR8@16:5]
BM1608:5]	[BoxR4@8:5, FM16@8:5,	[BoxR8@16:5, BoxL8@8:5,
[BoxL4@8:5, BoxR8@8:5,	BM1608:5, BoxL808:5]	BoxR808:5, BM8016:5]
FM16@16:5, BM8@16:5]	[BoxR16@16:5, BoxR16@8:5]	[BoxR16@16:5, BoxL16@16:5,
[BoxR4@8:5, FM16@8:5]	[BoxR8@16:5, BM8@16:5,	FM8@16:5, BM16@8:5]
[BM16@16:5, FM16@16:5,	BoxL408:5, BoxR16016:5]	[BoxR16@8:5, FM8@16:5,
BM8@16:5]	[BoxL8@16:5, BoxR8@8:5,	BoxL16@16:5]
[FM8@8:5, BM8@16:5]	BM8@8:5]	-
-		

Table A.4: Medium drills.

[BoxL12@6:5, BM12@6:5,	[BM8@16:5, FM6@6:5, BM2@8:5]	[BoxR8@16:5, BoxL6@6:5,
FM6@6:5, BM6@6:5]	[BM8@16:5, BoxL12@6:5,	BM16@16:5, FM16@16:5]
[BoxR8016:5, FM606:5,	BoxR606:5, FM606:5]	[BM1206:5, RF, BoxR1206:5]
BoxL8@8:5]	[BM8@16:5, RF, BM12@6:5,	[BM16@16:5, FM16@16:5,
[FM16@16:5, BoxR16@16:5,	FM12@6:5]	BoxL808:5, BoxL1206:5]
BoxL1206:5, BM808:5]	[BoxR408:5, BoxR606:5,	[BoxR2@8:5, BM8@16:5,
[BoxL1608:5, FM606:5,	BoxL606:5, FM16016:5]	FM1608:5]
BM1608:5, BoxL606:5]	[BoxL12@6:5, BM8@8:5,	[FM1206:5, RF, FM1608:5]
[BM16@16:5, FM8@8:5, LF,	BoxL2@8:5]	[FM4@8:5, LF, BM6@6:5,
BoxR8@16:5]	[BoxR8@16:5, BoxL16@8:5,	BoxL6@6:5]
[BoxL12@6:5, BoxL16@16:5,	BM6@6:5, BoxL6@6:5]	[BoxR408:5, BM808:5, RF,
BM1608:5]	[FM808:5, LF, FM1608:5]	BoxR1608:5]
[BoxL808:5, BoxL606:5,	[BoxR808:5, FM606:5,	[BoxL16@16:5, BM12@6:5,
FM606:5]	BM16@16:5]	FM16016:5, BM808:5]
[BoxR8@16:5, FM4@8:5,	[BM8@16:5, BoxL16@16:5,	[BoxR1608:5, BM1206:5,
BoxR16@16:5] [BoxR8@8:5, BoxR16@16:5,	FM16@8:5, BoxL6@6:5] [BM8@16:5, BoxL16@16:5,	FM808:5, BoxR1206:5] [BM8016:5, LF, BoxR8016:5]
BoxL1206:5]	FM6@6:5, BoxR16@8:5]	[BM8@16:5, LF, BoxR16@16:5,
[BoxL8@16:5, BoxR6@6:5,	[BoxR8@16:5, BoxL8@8:5,	FM16016:5]
BM8@16:5]	FM12@6:5]	[BoxL8@16:5, BoxR2@8:5,
[BoxR808:5, BM1608:5,	[BM16@16:5, BoxL16@16:5,	BoxL16@16:5, FM4@8:5]
BoxR4@8:5]	FM6@6:5. BM6@6:5]	[BoxR6@6:5, BM6@6:5,
[BoxL8@8:5, BoxR16@8:5,	[BoxR16@16:5, BoxL4@8:5,	FM8@16:5]
BoxR808:5, BM606:5]	BoxL16@16:5, BoxR2@8:5]	[BoxR16@16:5, BM12@6:5, LF,
[BM12@6:5, FM16@16:5,	[BoxL16@16:5, FM12@6:5,	BM6@6:5]
BoxL1206:5]	BM6@6:5]	[BoxR16@16:5, BoxR4@8:5,
[BoxL16@16:5, BoxR2@8:5,	[BoxR606:5, BoxL1608:5,	FM16@16:5, BoxR8@16:5]
BoxL606:5, BoxL16016:5]	BoxR12@6:5, FM8@16:5]	[FM16@16:5, BM16@16:5,
[FM1608:5, LF, BM208:5]	[BoxL16@16:5, FM16@16:5,	BoxR4@8:5, BoxL8@16:5]
[BoxL8@16:5, BoxR12@6:5,	BoxR408:5, BoxL606:5]	[BoxR8@16:5, FM4@8:5,
BoxL1608:5]	[BoxL2@8:5, BoxR16@16:5,	BM1206:5]
[BoxL12@6:5, BM16@16:5, LF,	BoxR1206:5]	[FM208:5, RF, BoxL606:5]
BoxR16016:5]	[BoxR1206:5, FM1206:5,	[BoxL16@16:5, BoxR6@6:5,
[FM808:5, BM16016:5, FM1206:5, BM8016:5]	BM1206:5]	BM12@6:5, BoxL12@6:5] [BoxR16@16:5, BoxR6@6:5,
[BM8@16:5, BoxR12@6:5,	[FM408:5, LF, BoxR408:5, BoxR606:5]	BoxR606:5, BoxL8016:5]
BM408:5]	[BoxL408:5, BoxR8016:5,	[FM208:5, BM1206:5,
[BM2@8:5, BoxR2@8:5, FM8@8:5]	BoxL16@16:5, BoxR4@8:5]	BoxL1206:5, FM16016:5]
[BM808:5, FM808:5, BM606:5,	[BoxL2@8:5, BM4@8:5, RF,	[FM16@16:5, BM8@16:5,
BoxR6@6:5]	FM6@6:5]	FM16@8:5]
[FM8@16:5, BoxR2@8:5,	[BoxL8@16:5, BoxL12@6:5,	[FM8@8:5, LF, BoxR16@16:5,
FM8@16:5, BM4@8:5]	BoxL16@16:5, BM8@16:5]	BoxR12@6:5]
[FM16@16:5, BM8@8:5,	[BoxL16@16:5, BoxR16@8:5,	[BM2@8:5, BoxL12@6:5,
BoxR16@16:5, BoxL12@6:5]	FM16@8:5]	BM6@6:5]
[BoxR606:5, BM1206:5,	[FM606:5, BM16016:5,	[BoxL8@16:5, BoxR12@6:5,
BoxR1206:5]	FM1608:5, BoxL8016:5]	FM208:5]
[FM8016:5, BM408:5, FM208:5,	[BoxL606:5, BM606:5, FM208:5]	[BoxR8@16:5, FM8@16:5,
BoxL1608:5]	[BoxL1206:5, BM1206:5,	BM8@8:5]
[BoxR12@6:5, BoxL6@6:5,	FM16016:5]	[FM16016:5, BoxR1206:5,
BoxL606:5]	[BoxR606:5, FM606:5, BM208:5]	BoxL1608:5, FM1608:5]
[BoxL808:5, FM8016:5,	[BM208:5, BoxL1608:5,	[BoxR8016:5, BoxL606:5, BoxR606:5, FM1608:5]
BoxL1608:5] [BoxL8016:5, BoxR8016:5,	BM16@16:5] [BoxL12@6:5, BoxR16@8:5,	[BM8@16:5, FM2@8:5, LF,
BoxR2@8:5, BoxL16@16:5]	BM208:5]	BoxR8@16:5]
[BoxR4@8:5, FM16@8:5,	[BoxR6@6:5, FM2@8:5,	[FM808:5, BM808:5, FM808:5,
BoxR808:5]	BM1206:5, FM8016:5]	BM1608:5]
[BoxR8@16:5, BoxL6@6:5,	[BoxR8@16:5, BM2@8:5,	[BoxL12@6:5, BoxR6@6:5,
BoxR808:5]	FM6@6:5, BoxR12@6:5]	FM4@8:5, BM2@8:5]
[BM6@6:5, RF, BoxR16@16:5,	[BM606:5, LF, FM16016:5,	[BoxL808:5, FM808:5,
BoxL16@16:5]	BoxL16@8:5]	BoxL8016:5, FM208:5]
[BoxR808:5, FM408:5, BM606:5]	[FM606:5, BM1608:5, FM208:5]	[BoxL16@16:5, BoxR6@6:5,
[FM1206:5, BoxR208:5,	[BoxR208:5, BoxL408:5,	BM4@8:5]
BM1608:5, FM16016:5]	BoxR12@6:5, BoxR8@16:5]	

[BoxL8@16:5, BoxL6@8:5,	[BoxL16@16:5, BoxL12@6:5,	BoxL3@6:5]
FM12@12:5, BM12@12:5]	FM8@16:5, LF, FM12@6:5]	[BM3@6:5, FM12@6:5, LF, FM6@6:5]
[BoxL12@6:5, BoxL4@16:5,	[FM12012:5, BM408:5, LF,	[FM3@6:5, BM12@6:5, BoxL6@12:5,
FM4@16:5, BoxL16@16:5, BM6@12:5]	BoxL606:5, BM4016:5]	BM6@6:5, BoxL6@12:5]
[FM16@16:5, LF, BM12@12:5, RF,	[BoxL12@12:5, BoxR6@12:5,	[BoxL6@8:5, BoxL12@12:5,
BM8@16:5]	BM12@12:5, BoxR8@16:5,	BM1608:5, FM16016:5, BM1206:5]
[BoxL8@8:5, BoxR6@12:5,	BoxL8@16:5]	[BoxR4@16:5, BoxL12@6:5,
BoxL6@12:5, BoxL16@8:5,	[BoxL6@6:5, BoxL4@16:5,	BoxR12@12:5, BM8@16:5]
BoxL16@16:5]	BoxL4@16:5, BoxR12@12:5,	[FM3@6:5, RF, FM6@12:5,
[FM6@12:5, BM12@12:5, FM12@6:5,	BM12@12:5]	BoxL12@12:5]
RF, BM4@16:5]	[BM6@12:5, BoxL12@6:5, FM4@16:5,	[BoxL6@12:5, BoxL6@6:5,
[FM6@12:5, BoxL12@6:5, BM2@8:5,	BM6@12:5, FM16@8:5]	BoxR6@12:5, FM4@8:5, BM16@8:5]
FM408:5, BM1608:5]	[BoxL6@12:5, FM16@8:5, BM16@16:5,	[BoxR4@16:5, BoxR8@16:5,
[BoxR4016:5, BM1206:5, LF,	FM6@12:5]	BoxL4@8:5, FM4@8:5]
BM1206:5, BoxR4016:5]	[BoxL12012:5, BoxR1206:5,	[BoxR12012:5, BoxL1206:5,
[FM1206:5, LF, FM8016:5,	FM306:5, BoxL8016:5]	BoxR306:5, FM12012:5]
BoxR16016:5, BM4016:5]	[BoxL608:5, BoxR608:5,	[BoxL12@6:5, BoxR12@12:5,
[BoxL6012:5, FM6012:5, BoxR606:5,	BoxL16@16:5, BoxR6@12:5,	FM808:5, BM8016:5, FM12012:5]
BM8@8:5, BoxL3@6:5] [BM4@8:5, FM6@6:5, RF, BoxR2@8:5]	BoxL2@8:5] [BM16@8:5, LF, FM16@16:5,	[BoxL2@8:5, BoxL8@16:5, BoxL12@12:5, BoxR16@16:5,
[FM16@16:5, BM6@6:5, RF, FM2@8:5,	BM12@12:5, FM6@12:5]	BM12@6:5]
BM12@12:5]	[BoxR8016:5, FM306:5, BoxL306:5,	[BM12012:5, FM1608:5, LF,
[FM16@16:5, BoxL6@12:5,	FM6@12:5]	BoxR6@12:5]
BoxL8@8:5, BoxL8@16:5]	[BoxR12012:5, BoxR6012:5,	[FM6@12:5, BM16@8:5, BoxR4@8:5,
[BM2@8:5, FM6@12:5, BM12@12:5,	FM6@6:5, BM2@8:5, BoxL16@16:5]	BoxL16@16:5]
BoxL12@6:5, BoxR12@12:5]	[BoxL306:5, FM606:5, RF,	[BoxL16@8:5, BM6@12:5, BoxL2@8:5,
[BM16@16:5, RF, BoxR8@16:5,	BoxL6@6:5]	BoxR8@16:5, BoxR6@6:5]
BoxR4@8:5]	[FM606:5, BM306:5, FM408:5,	[BoxR6@6:5, FM6@12:5, BM3@6:5,
[FM16@8:5, LF, FM3@6:5,	BoxL6@12:5, FM16@16:5]	RF, BM16@16:5]
BoxR606:5]	[BoxR16@16:5, BM4@16:5, RF,	[BoxR6@12:5, BoxL4@16:5,
[BoxR12@6:5, BM12@12:5,	BoxR12@12:5, BoxL16@8:5]	BoxR6@6:5, BoxR3@6:5]
BoxL16@8:5, FM2@8:5]	[BoxL4@8:5, BoxR12@6:5, FM2@8:5,	[BM3@6:5, BoxR2@8:5, FM12@12:5,
[BoxR12@12:5, BoxR16@16:5,	BM4@16:5, FM12@12:5]	BoxR12@12:5]
BoxR8@16:5, BoxL16@8:5]	[BM1206:5, FM4016:5, BoxL408:5,	[FM6@12:5, BM16@16:5, BoxR3@6:5,
[BM6@6:5, RF, BoxR12@6:5,	FM4@16:5]	FM6@6:5]
BoxL16@16:5]	[BoxR808:5, BoxR808:5, BoxR408:5,	[BoxL6@12:5, BoxL8@8:5,
[BoxR408:5, BoxL4016:5,	BM16@16:5, BoxL16@16:5]	BoxR8016:5, BoxL12012:5,
BoxR8@8:5, FM6@12:5, BoxR8@8:5]	[BoxL306:5, BM4016:5, BoxL408:5,	BoxL606:5]
[BoxR1608:5, FM306:5, RF,	BM8016:5]	[BoxR1608:5, BoxL1608:5,
BoxL12@12:5] [BoxL4@16:5, BoxR4@16:5,	[BoxR6@8:5, FM6@6:5, LF, FM2@8:5, BM6@8:5]	BoxL606:5, BoxR16016:5] [FM306:5, BM408:5, BoxR606:5,
BoxR12@12:5, BM2@8:5, BoxL8@16:5]	[BoxR16@8:5, BoxL16@16:5,	BoxR12012:5, BoxL608:5]
[BM6@12:5, RF, BM8@16:5,	BoxR6@12:5, FM6@12:5,	[BM1608:5, RF, BoxR8016:5,
FM6@12:5]	BoxR16@16:5]	BoxL12@12:5, BoxR16@8:5]
[BoxR606:5, BoxL408:5, FM6012:5,	[BoxR4@16:5, BM16@8:5, RF,	[BM16@16:5, LF, FM6@6:5, LF,
BM208:5]	BoxL1608:5, BoxL8016:5]	BoxR6@12:5]
[BM4@8:5, RF, BoxL12@12:5,	[BM3@6:5, BoxR2@8:5, FM6@12:5,	[BM6@6:5, FM6@12:5, BoxR6@12:5,
BoxL6@12:5, FM6@6:5]	BoxL306:5, BM4016:5]	BoxR12@6:5]
[BM3@6:5, RF, FM6@6:5, BM16@16:5]	[BoxR16@16:5, BoxR12@6:5,	[BM6@12:5, LF, BM4@16:5,
[FM8@8:5, BoxR12@6:5, BoxR16@8:5,	BM12@12:5, BoxL16@16:5]	BoxR6@12:5]
BoxL6@6:5, BoxR16@16:5]	[BoxR12@12:5, FM4@8:5, BM12@12:5,	[BoxL12@12:5, BoxR6@12:5,
[BM808:5, LF, BM12012:5, FM606:5]	FM4@16:5]	BoxL2@8:5, BoxL6@12:5,
[BM6@12:5, BoxR6@6:5, FM3@6:5,	[BM6@8:5, RF, BoxR3@6:5,	BoxR16@16:5]
BoxR8@16:5]	BM16@16:5, FM12@6:5]	[FM12@12:5, BM6@12:5, FM6@12:5,
[FM2@8:5, BoxR16@16:5,	[FM3@6:5, BoxR4@8:5, BoxR4@16:5,	BoxR4@16:5, BM12@12:5]
BoxR1206:5, FM1608:5]	BoxL2@8:5]	[BoxL808:5, BM4016:5, BoxR208:5,
[FM808:5, BoxL8016:5, BoxL6012:5,	[BM306:5, FM12012:5, BM12012:5,	FM606:5]
BM1206:5, FM8016:5]	LF, BM3@6:5]	[BM306:5, FM8016:5, BoxL306:5,
[BM6@8:5, LF, BoxR6@12:5,	[BoxL306:5, BoxR8016:5,	BM1206:5, BoxL8016:5]
BoxL1608:5, BoxL808:5]	BoxR606:5, FM606:5, BM12012:5]	[BoxL306:5, BoxL8016:5,
[FM606:5, BoxL606:5, FM12012:5,	[BM6@12:5, FM12@12:5, BoxL12@6:5,	BoxR3@6:5, BM16@16:5] [FM8@8:5, BM12@6:5, LF, FM6@8:5]
LF, BM2@8:5] [FM12@6:5, LF, BoxR4@8:5,	BoxR8@16:5, FM8@16:5] [BoxL6@8:5, BoxR12@6:5,	[FM8@16:5, BM2@8:5, BoxL6@12:5,
[FM1240:5, LF, BOXR440:5, FM408:5]	BoxL16@16:5, BM6@8:5, BoxL8@16:5]	BoxL16@8:5, BoxL12@12:5]
[FM3@6:5, RF, BM4@16:5, LF,	[BoxL808:5, FM16016:5,	[FM12@6:5, LF, BoxL6@12:5,
BoxR8@16:5]	BoxR6@12:5, BoxR6@8:5]	FM8@8:5, BM6@6:5]
[BoxR4@16:5, BM3@6:5, LF,	[BoxL4@16:5, BoxR6@6:5,	[BoxL208:5, BM8016:5, BoxL8016:5,
BM12@12:5, BoxR6@6:5]	BoxR8@16:5, BoxR6@12:5,	BoxL408:5, FM606:5]
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Table A.6: Expert drills.

Appendix B

Scores





