Game Statistics and Information System (GSIS) Player Participation Guide

Informational Website: http://www.nflgsis.com/pp

Review Photographs and Players: http://www.nfl.org/ppweb

Revised: 7/27/07

NFL GSIS Support: (877) 635-0171
(212) 450-2442

NFL Films Support: (800) 678-7574

Copyright © 2004-2007, National Football League, All Rights Reserved

This document is the property of the NFL. It may not be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information storage and retrieval systems, or the information therein disseminated to any parties other than the NFL, its member clubs, or their authorized representatives, for any purpose, without the express permission of the NFL.

Contents

Contents 3
About this Guide vii
What You Should Know viii
Introduction viii
Audience viii
Typographical Conventions viii
Keystrokes viii
Chapter and Section References viii
Menus, Menu Commands, and Command Buttons viii
Notes viii
What's New for this Season? viii
Organization ix
Terms Used in this Guide ix
Distribution Center (DC) ix
Primary ix
Secondary ix
Chapter 1- Game Day Equipment 11
Camera Equipment 12
Computer Equipment 15
Chapter 2 - Game Day Procedures of Camera Operator 17
Pre-Game Procedures 18
Reference Focal Lengths 26
Kickoff 28
Play From Scrimmage 31
Punt 34
Field Goal / Extra Point 37
Reviewing Photographs 39
End of Quarter 40
End of Game 41
Replacing a Camera Body During the Game 42
Chapter 3 - Game Day Procedures of Identifier 43
Pre-Game Procedures 44
Computer Equipment Setup 45
First Quarter End Procedures 46
End Game Procedures 54
Player Identification Complete 56
Data Verification Complete 58
Identifying Players 61
How to Manually Marry Photos to Plays 68
Kickoff Charting 71
Players Numbered by Position 74
Logging In 75
Chapter 4 - Troubleshooting 79

Camera Problems 80
Cold Weather Problems 82
Wet Weather Problems 83
Primary Computer Role Problems 84
Secondary Computer Role Problems 85
Marrying Photos To Plays Problems 86
Camera Offset Problems 87
Uploading Data to NFL Problems 89
Appendix A – Camera Settings 91
Menu Operations 92
Exposure Settings 96
Setting the Auto Focus Point 99
Appendix B - Gameday Forms 101
Gameday Checklist 102
Charting 104
Arizona Cardinals 107
Atlanta Falcons 109
Baltimore Ravens 111
Buffalo Bills 113
Carolina Panthers 115
Chicago Bears 117
Cincinnati Bengals 119
Cleveland Browns 121
Dallas Cowboys 123
Denver Broncos 125
Detroit Lions 127
Green Bay Packers 129
Houston Texans 131
Indianapolis Colts 133
Jacksonville Jaguars 135
Kansas City Chiefs 137
Miami Dolphins 139
Minnesota Vikings 141
New England Patriots 143
New Orleans Saints 145
New York Giants 147
New York Jets 149
Oakland Raiders 151
Philadelphia Eagles 153
Pittsburgh Steelers 155
San Diego Chargers 157
San Francisco 49ers 159
Seattle Seahawks 161
St Louis Rams 163
Tampa Bay Buccaneers 165
Tennessee Titans 167

Washington Redskins..... 169

About this Guide

This section describes the guide, its audience, and lists typographical conventions that are used.

NFL GSIS Support:	(877) 635-0171
	(212) 450-2442
NFL Films Support:	(800) 678-7574

What You Should Know

Introduction

This guide describes the procedures that you will need to successfully set up, test, and run the GSIS Player Participation cameras and software.

Audience

This guide is intended for use by the stadium technicians and the Player Participation operators.

Typographical Conventions

This guide uses the following typographical conventions.

Keystrokes

Keys that you press are set in **bold** type and enclosed in angle (<>) brackets. For example:

Press <**Enter**>.

Chapter and Section References

Chapter and section names are set in *italic* type. For example:

Please refer to *Setting the IP Address* in Chapter 3*, Initial System Configuration*.

Menus, Menu Commands, and Command Buttons

Menus, menu commands, and command buttons are set in **bold** type. For example:

Click **Next**.

Select **Login User…** from the **File** menu.

Notes

Information that further clarifies a procedure or concept is preceded by the symbol, and set in *italic* type. For example:

This prompt will not appear on the laptops set up as PRHome and PRVisit.

What's New for this Season?

Any changes to this document that are new for this season are highlighted in yellow.

Organization

This guide contains the following chapters:

Chapter 1: Game Day Equipment

Chapter 1 includes a list of all the equipment required for game day operation of the player participation system.

Chapter 2: Game Day Procedures of Camera Operator

Chapter 2 includes the procedures that need to be performed by the end zone camera operators during game day.

Chapter 3: Game Day Procedures of Coordinator

Chapter 2 includes the procedures that need to be performed by the coordinator during game day.

Chapter 4: Troubleshooting

Chapter 4 includes all troubleshooting procedures.

Appendix A: Camera Settings – Canon EOS Digital Rebel and Rebel XT

Appendix A contains configuration settings for the Canon EOS Digital Rebel and Rebel XT still cameras.

Appendix B: Gameday Forms

Appendix B contains a gameday checklist, football field charting tool, and the Jersey fonts of all 32 NFL teams.

Terms Used in this Guide

Distribution Center (DC)

The DC maintains a database of all game information. All stats generated during a game are sent to the DC in real time. There are two DCs in use for GSIS. The main DC is located at the NFL League office in New York City. The backup DC is located at NFL Films in Mt. Laurel, New Jersey.

Primary

The laptop that is assigned the role of Primary is the laptop that contains all of the photographs and the database that stores the game information.

Secondary

Secondary laptops include all laptops other than the Primary laptop. These laptops cannot work without a primary being assigned in the stadium.

Chapter 1- Game Day Equipment

The Game Statistics and Information System (GSIS) Player Participation subsystem consists of camera and computer equipment.

This chapter identifies each piece of equipment provided by the NFL to aid in the identification of every player on the field for each play of a game. A photograph of the item as well as a description of what the item is used for is provided in this chapter.

NFL GSIS Support: (877) 635-0171
(212) 450-2442
NFL Films Support: (800) 678-7574

Camera Equipment

QTY	Each End Zone Qty	Item	Description
3	**1**	**Canon EOS Rebel XTi Digital Still Camera (DSC) body** **AND / OR** **Canon EOS Rebel XT Digital Still Camera (DSC) body (Black Body)** 	**Prosumer 10.1 Mega pixel DSC. One camera for each upper end zone location.** **Prosumer 8.0 Mega pixel DSC.**
4	**2**	**Canon NB-2LH Lithium Ion Battery #9612A001 (XT and XTi)** 	**Spare battery for the Canon EOS Rebel XT and XTi DSC. One battery is supplied with the camera body. Batteries will be used when AC power is not available at the camera location. Note: one battery should be sufficient to last an entire game under normal weather conditions. When the temperature is below 20° F battery life may be significantly reduced.**
2	**1**	**Canon ACK-E2 AC Adapter kit (XT and XTi)** 	**AC adapter allows the camera to operate from AC power instead of the battery. The AC adapter pack is placed in the battery compartment of the camera.**
2	**1**	**75mm – 300mm Zoom Lens** 	**Zoom lens attached to the Canon EOS Rebel DSC. Please note: do not remove the lens from the camera body. Dust and debris entering the camera body may adversely affect the performance of the camera.**
10	**5**	**Sandisk 1GB Ultra II CompactFlash**	**One card for each quarter plus a**

		Card	**spare.**
2	1	**SanDisk 2 GB Ultra III CompactFlash Card**	**Used for second quarter.**
3	1	**Hakuba Hard Case for 4 CompactFlash Cards**	**Each end zone camera case will have one of these cases for storing the cards not in use in the camera. The third case will be used by the "runner" to retrieve the cards from the two end zone locations.**
2	0	**Sandisk ImageMate, CompactFlash (type I & II), USB 2.0 Interface, Card Reader/Writer**	**These card readers should be stored with the "Primary" and one "Secondary" Player Participation laptop. The CompactFlash cards containing the photographs will be inserted into this reader. The reader is then plugged into one of the USB slots of the "Primary" laptop. All of the photographs on the CompactFlash card can be seen by the laptop as a removable hard drive.**
2	1	**Slik Pro 330DX Tripod (Titanium) with 3-Way Panhead (Quick Release)**	**Tripod used to keep the camera steady when photographing the game.**
2	1	**Slik Tripod Case – Large**	**Storage and carry case for the tripod**
2	1	**Pelican 1400 Watertight Hard Case with Pick 'N Pluck Foam – Orange**	**Storage and carry case for the camera body, lens, batteries, AC adapter and CompactFlash cards.**
2	1	**Tenba RC24 Rain Cover – 24", Black**	**Rain cover used to protect the camera from wet weather. The rain cover should be used for every game. You never know when it may rain.**

2	**1**	**Canon ET-60 Lens Hood for EF 75-300mm f/4.0-5.6 USM, II, II USM, III & III USM Lens**	**The lens hood will help to eliminate sun glare and also provide added protection against rain. The Velcro for the rain cover will be attached to the lens hood.**
2	**1**	**25 Ft. 13 Amp Orange SJTW Extension Cord**	**Extension cord to reach AC power when using the AC adapter**

Computer Equipment

QTY	Item	Description
3	**Belkin - USB 4 Port Micro HUB**	**One hub will be used on each of the 3 laptops so that the USB mouse and USB numeric keypad can be used at the same time.**
4	**IBM Numeric Access Keypad, Black, USB**	**To allow quick touch-typing of the uniform number, an external numeric keypad will be attached to each of the laptops via the USB hub.**
4	**IBM Optical Scroll Travel USB Mouse, Black**	**An optical mouse will be attached to each of the laptops via an available USB port or the USB hub.**
1	**PNY USB 1.1 Flash Drive - 128MB**	**The Flash Drive will be used instead of floppy disks when transporting XML files from the GSIS computers to the "Primary" Player Participation laptop. It may also be used for storing reports in PDF format generated by the system.**
2	**WD USB 2.0 Hard Drive – 40GB**	**The USB Hard Drive will be attached to the Primary laptop after all of the photographs have been copied to the laptop. It will connect to the laptop via the USB 2.0 port. All of the photographs of each game will be copied onto this hard drive and sent to the NFL League Office.**
1	**Linksys - 10/100 5 Port Workgroup**	**This network switch is used to**

	Switch 	**connect the 3 or more Player Participation laptops to their own isolated network.**
4	**Belkin - CAT-5e Patch Cable, Blue, 7 feet, RJ-45 Male to RJ-45 Male** 	**Used to attach the 3 laptops to the Linksys switch.**
1	**25 Ft. 13 Amp Orange SJTW Extension Cord** 	**Used to connect the Surge Protector to an AC power supply.**
1	**Belkin 7-Outlet Surge Protector with 6 Ft. Power Cord** 	**Used to provide power to the 3 laptops, Netgear switch and camera battery chargers.**

Chapter 2 - Game Day Procedures of Camera Operator

This chapter describes in detail everything that needs to be done on game day to successfully record all players involved in every play of an NFL game.

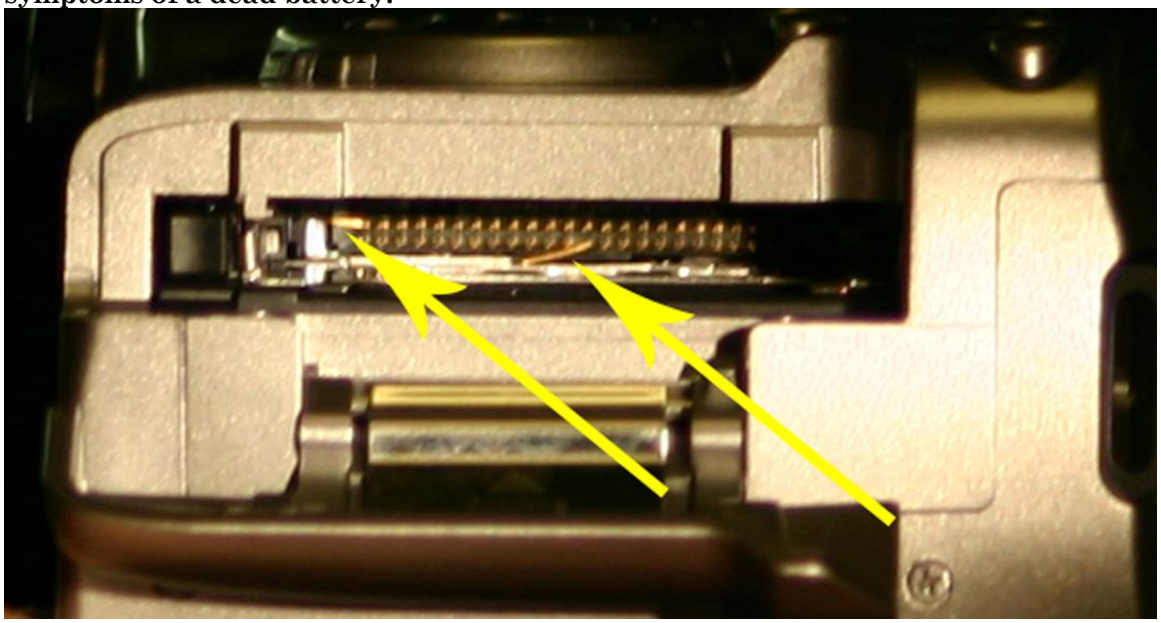
NFL GSIS Support:	(877) 635-0171
	(212) 450-2442
NFL Films Support:	(800) 678-7574

Pre-Game Procedures

All Player Participation personnel are required to arrive in the press box area at least 2 hours prior to kickoff.

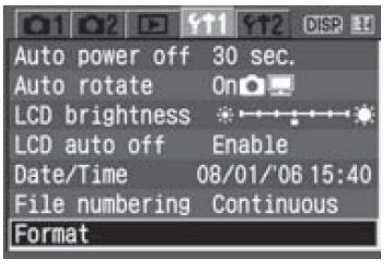
1. Retrieve Player Participation photographic equipment from the secured storage location
2. Ensure that all 4-camera batteries (2 for each camera) are fully charged. Note: red light on charging unit will remain lit when battery is fully charged or the red light will change to a green light.
3. Format each of the CompactFlash cards for each camera (i.e. Qtr 1, Qtr 2, Qtr 3, Qtr 4/OT, and Spare)

   IMPORTANT!!! Always make sure you are placing the CompactFlash card in the camera properly. The pinholes on the CompactFlash card should always face into the camera and the endzone label (i.e. North Q1) should be facing you. Forcing the CF card into the camera will bend or break the pins inside the camera causing the camera to no longer work. In the photograph below of one of the cameras you can see that two pins have been bent down. This camera wouldn't turn on after the pins were bent and exhibited symptoms of a dead battery.

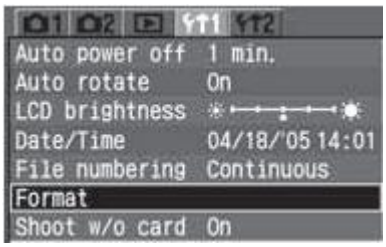


   a. On the camera, press the **Menu** button, select the tools menu 1 tab by pressing the right-arrow ▶ button. Press the down-arrow ▼ button to select **Format** then press SET. Select **Ok** and press SET

Canon Digital Rebel XTi

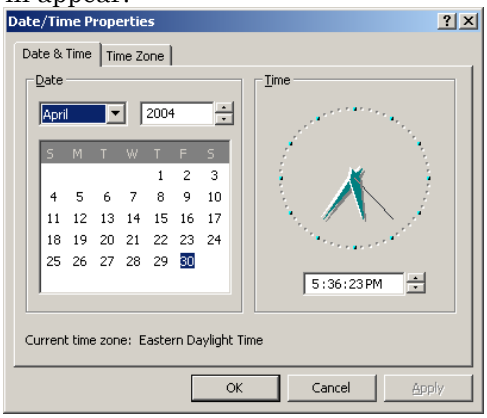


Canon Digital Rebel XT



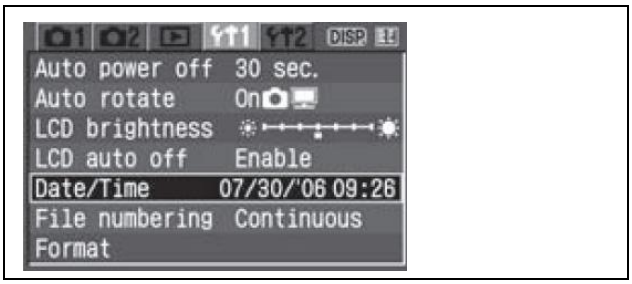
4. Set the clock time of each camera to the exact time of the GSIS Laptops.

   a. On the GSIS laptop choose Start, Settings, Control Panel, Date/Time. The following window will appear:

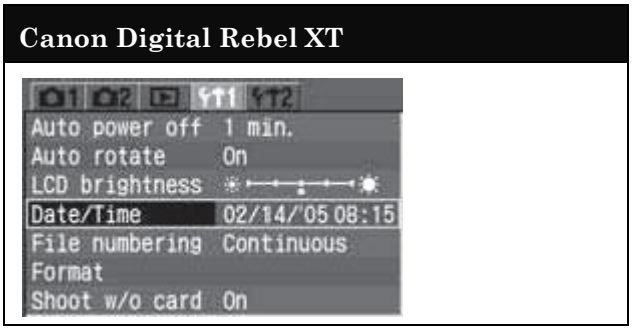


   b. On the camera, press the **Menu** button, select the tools menu 1 tab by pressing the right-arrow ▶ button. Press the down-arrow ▼ button to select **Date/Time** then press SET

Canon Digital Rebel XTi



Canon Digital Rebel XT



c. Press the right-arrow ▶ button to get to the time and use the up and down arrow buttons to set the minutes to the next minute. For example, if the clock on the GSIS computer says 11:05:10, set the time on the camera to 11:06. Wait until the GSIS computer says exactly 11:06:00 and press SET

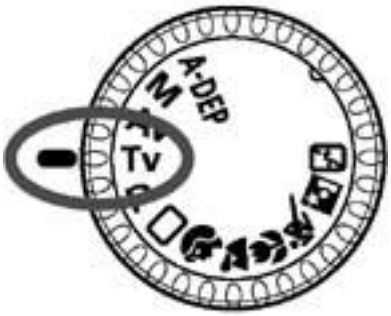
IMPORTANT NOTE: the time is entered in military (24-hour) time only. For example: 3:00 PM should be entered as 15:00.

Canon Digital Rebel XTi

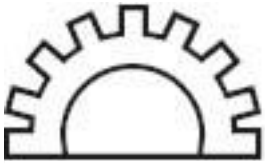
Canon Digital Rebel XT

5. Set the **Mode Dial** on the camera to **Tv** (TV stands for "time value"). Set the shutter speed to **125** by turning the **Main Dial.**

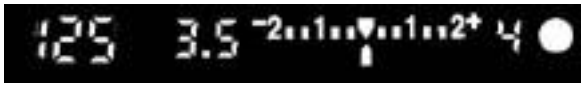
   Note: on bright days we may need to set this value higher.



Mode Dial



Main Dial



6. Set the ISO speed according to the lighting situation of your game (please refer to the table below). The ISO speed is a numeric indication of the sensitivity to light. A higher ISO speed number indicates a higher sensitivity to light. Therefore, a high ISO speed is suited for moving subjects or shooting in low-light conditions. However, the image will contain more noise to make it look coarse or grainy. On the other hand, a low ISO speed will make the image look finer, but it is not suited for freezing motion or shooting in low light.

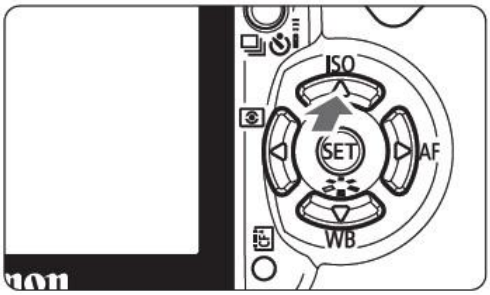
   Note: if lighting conditions change during the game, you must review your photographs and change the ISO speed accordingly.

Game Conditions	ISO

Bright and Sunny	100
Indoor	400
Stadium Lighting (night, rain etc)	400

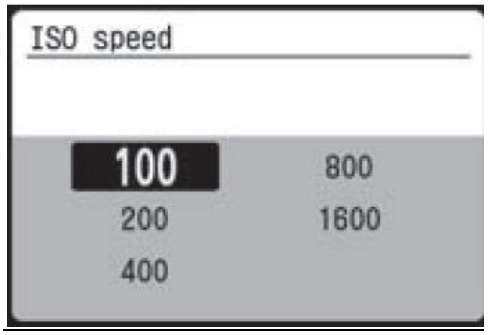
Canon Digital Rebel XTi

i. Press the ISO button ▲
The current ISO speed will be displayed on the LCD panel.



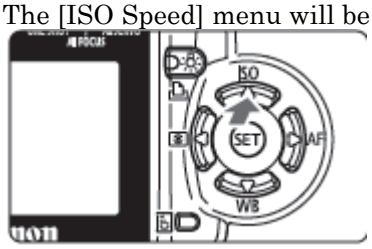
b. Set the ISO speed.

i. Press the arrow keys to select the desired ISO speed. Then press the shutter button halfway.

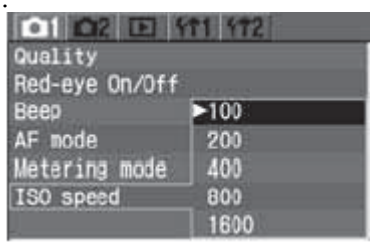


Canon Digital Rebel XT

a. Press the ISO button <▲ISO>
The [ISO Speed] menu will be displayed.

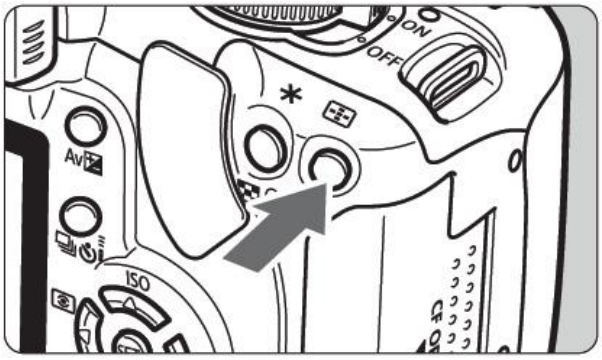


b. Set the ISO Speed
Press the <▲▼> key to select the desired setting, then press <(SET)>
.



7. Set the auto focus point to the center.

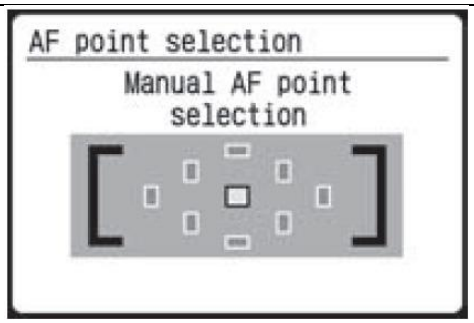
8. Press the button.



9. Select the center Auto Focus point.

Canon Digital Rebel XTi

Press the <✥> key while looking in the viewfinder or at the LCD panel.
Press the <◀▶> key to select a horizontal AF Point, or press the <▲▼> key to select a vertical AF Point.
By pressing <(SET)>, you can toggle between the center AF Point and automatic AF Point



Canon Digital Rebel XT

Press the <✥> key while looking in the viewfinder or at the LCD panel.

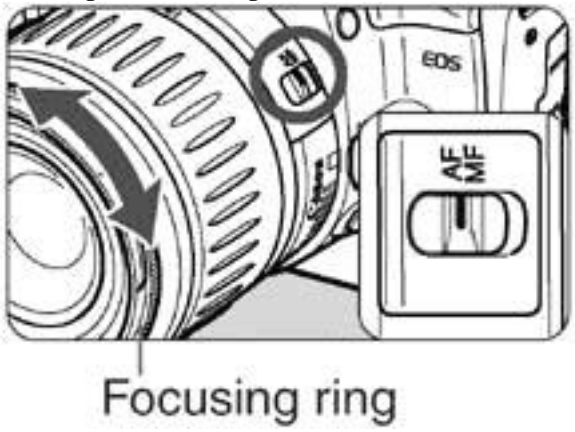
Press the <◀▶> key to select a horizontal AF Point, or press the <▲▼> key to select a vertical AF Point.

By pressing <SET>, you can toggle between the center AF Point and automatic AF Point selection.

a. After selecting the Auto Focus point, press the shutter button halfway. The camera will then be ready to shoot.

10. Place the rain cover on the camera and pack the camera case for transport to the end zone location.
11. Visit the restroom now, as you may not have a chance until after the game is over.
12. Go to end zone camera locations at least 60 minutes prior to the scheduled kickoff time.
13. Place the "Qtr 1" CompactFlash card in the camera. Make sure the other CompactFlash cards are stored in a location easily accessible to you at the end of each quarter.
14. If you have access to AC power and your location will remain dry during inclement weather place the AC adapter in the battery compartment of the camera. Otherwise, place a fully charged battery in the battery compartment.
15. If the temperature is expected to drop below 32° F, place the spare battery in your pocket to keep it warm.
16. Mount the camera on the tripod in a location that will stay dry in the event of rain or snow (if possible). In locations that cannot be kept dry, devise a way of protecting yourself and the camera equipment from the weather. If rain is forecast for the game and your location may get wet, do NOT use the AC adapter in the camera, as there may be a risk of electrocution. Only use a fully charged battery under these conditions.

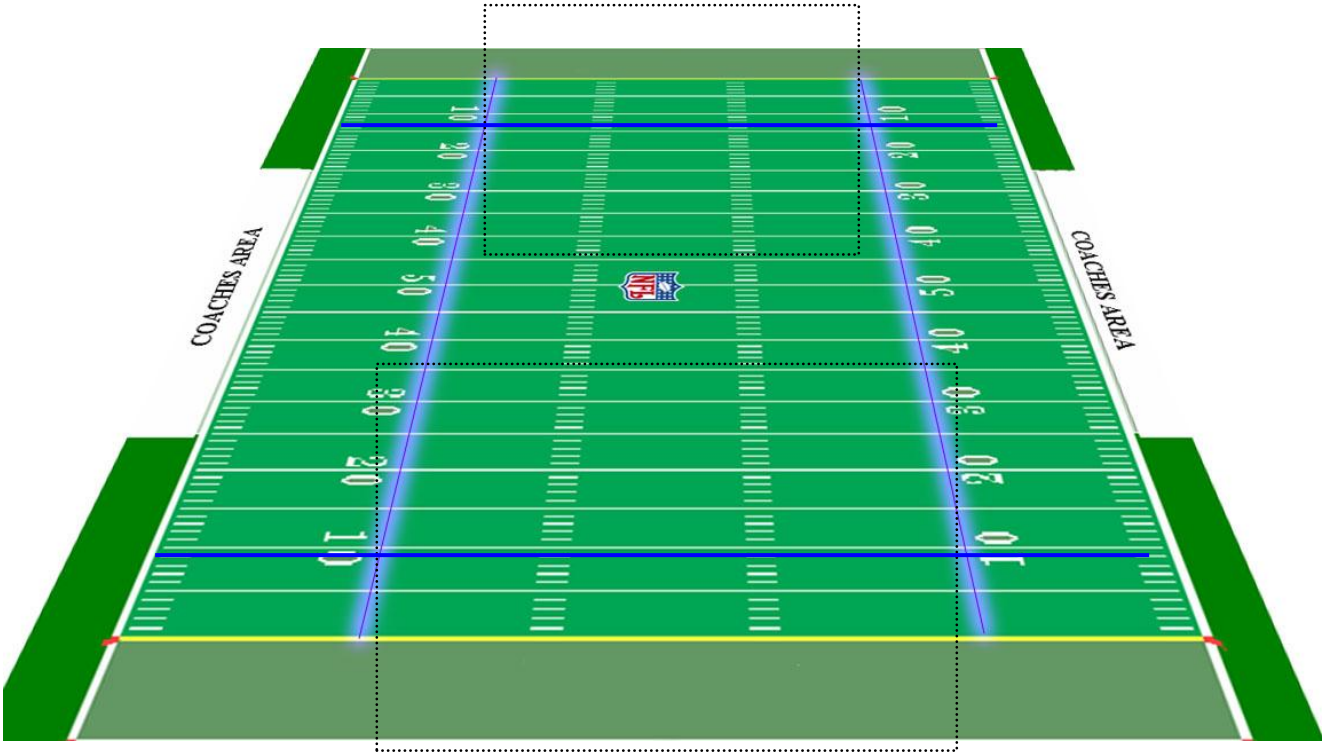
17. Make sure the camera lens is set to "AF" (Auto Focus) and take some practice photographs by zooming and focusing the lens. Reformat the CompactFlash card before the start of game.



Reference Focal Lengths

Before the start of each game, you need to take 9 reference photos by setting the focal length (zoom) of the lens for every 10 yards of the field. Set the focal length on the lens by centering the 10 yardline at the far end of the field in the lens. Then zoom out so that you can just see the numbers on the left and right side of the field at the 10 yardline. Then zoom in just a little so you can no longer see the numbers on either side of the field at the 10 yardline.

The illustration below demonstrates how to set the focal length of the zoom lens based upon where the line of scrimmage is. The neon blue lines represent an imaginary line that is just inside the numbers of the playing field. The black outlined boxes represent the frame of the photographs when the play is at the 10 yardline at the far end of the field and the 10 yardline at the near end of the field. Notice how the outside edge of the frame just touches the imaginary blue lines perpendicular to the line of scrimmage.

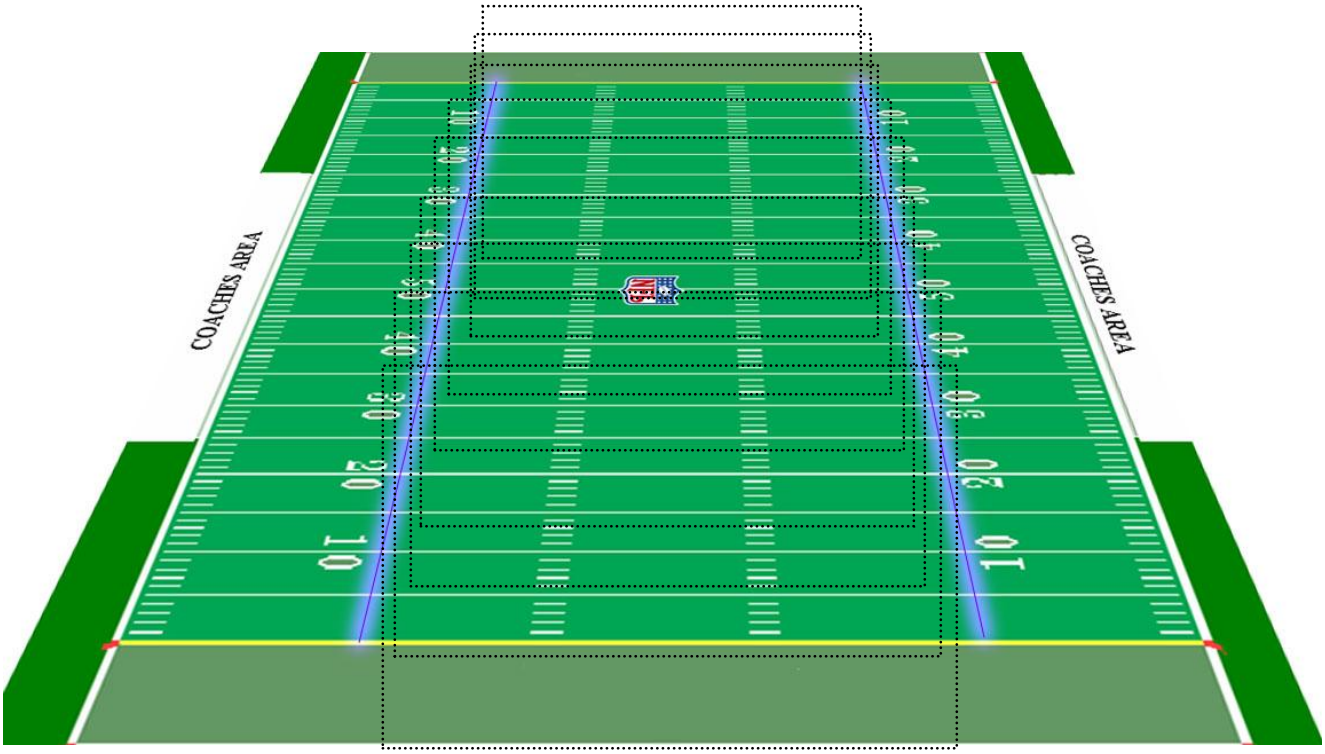


Before the game starts take 9 photographs of the field (every 10 yards). Start by setting the focal length for the 10 yardline at the far end of the field and take the first photograph. Then set the focal length for the 20 yardline at the far end of the field and take the second photograph. Repeat this procedure every 10 yards until you reach the 10 yardline on the near end of the field.

Note: if your camera location is close to the field you may not be able to zoom out any further on the near 10 yardline. This is Ok and may be an indication that we need to replace your lens with one that has a shorter focal length.

Keep these reference photographs on the memory card. Do not delete them on the camera or reformat the CompactFlash just before the game starts. When loading the photographs into the computer you may simply discard them by right-clicking on them and choose **Discard Photo**. This will provide our quality assurance team with a good reference point of the focal lengths required at your stadium and will help them to provide the most appropriate lens for your stadium.

This will also provide you with a good reference point for setting the focal length of the lens throughout the game based upon the yardline of the ball.



Reference Photographs taken every 10 yards of the field.

IMPORTANT: Each endzone must take the reference photographs before each game.

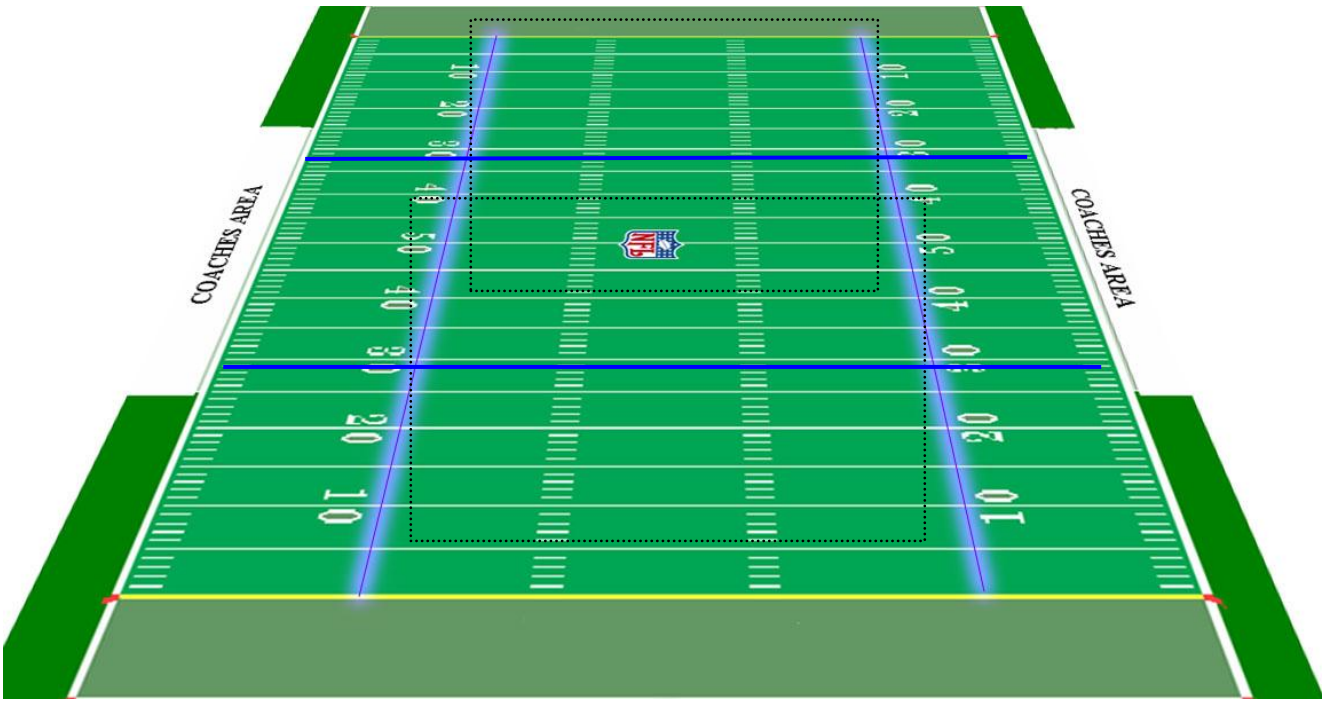
Kickoff

Kickoffs are the most difficult plays because players are dispersed throughout the field. It is imperative to get your timing right, and to take the proper number of photos. Without all of the photos for a kickoff, you will not be able to chart the players which will likely lead to mistakes made in the identification process.

IMPORTANT: You should be taking 9 photographs per kickoff.

Focal Length (Zoom)

Find the focal length of the far and near 30 yardlines. Take note of two focal lengths and practice zooming between the two. You'll get a feel for how much you need to turn the lens in order to zoom between the two yardlines. There should be plenty of time before the kickoff for you to practice zooming between the far and 30 yardlines.



Timing

Do **NOT** take any photos until after the official hands the ball to the kicker and signals with his right hand in a circular motion to begin play. You will have approximately 15-20 seconds to take photos before the moment of the kick.

3 Photos of Players Closest to You

With the focal length (zoom) set to near 30 yardline, take 3 photos of the players closest to you. First, take a photograph of the left side of the field, then the center, and then the right side of the field.
IMPORTANT: Make sure you capture the players on the far left and right sides of the field.

3 Photos of Players Furthest from You

Pan the camera up to capture the players on the farther side of the field. Adjust the focal length to the far 30 yardline. First, take a photograph of the right side of the field, then the center, and then the left side of the field. Make sure you capture the players on the far left and right sides of the field.

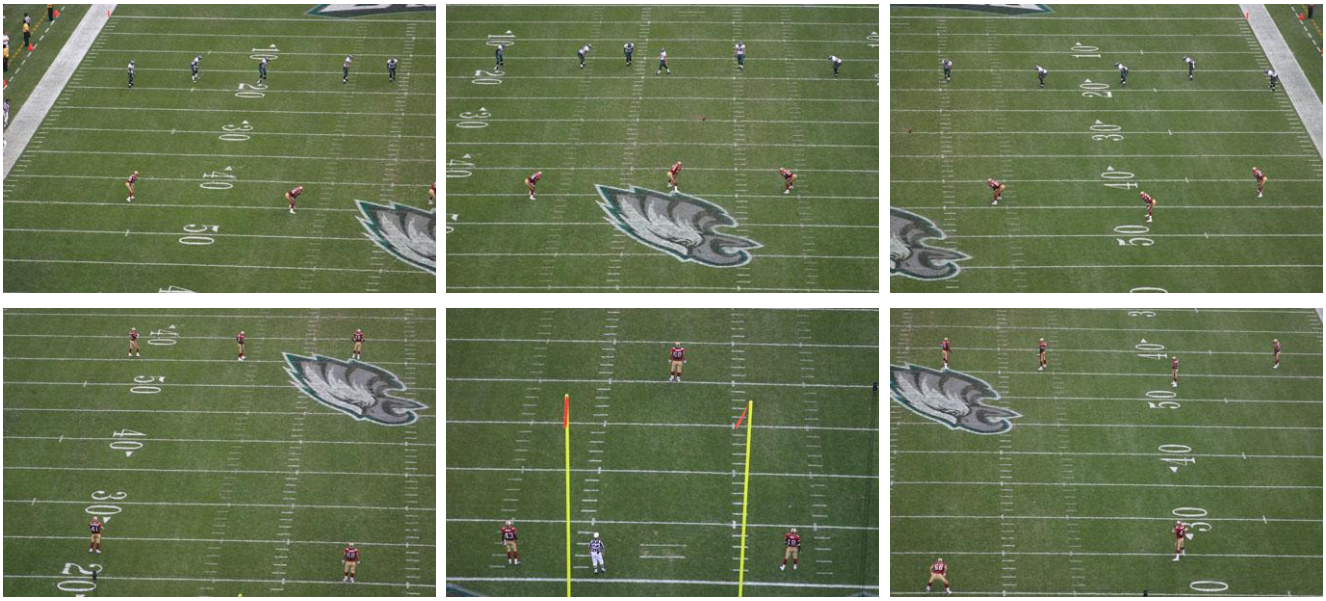
Moment of the Kick

Leave the focal length setting set for the far 30 yardline. Get ready for the moment of the kick and take a photograph of the kicker and as many players around him as possible (including the receiving team). This picture should be taken right at the moment when the kicker is physically kicking the ball. Then take a photograph of the players running on the left followed by another photograph of the players running on the right.

Example Kickoff Photographs

3 Photos of Players Furthest from You

The 3 photos below were taken with focal length set to the far 30 yardline. They are the fourth, fifth and six photos taken in the sequence and are shown above the photos 1-3 for presentation purposes.



3 Photos of Players Closest to You

The 3 photographs above were taken with focal length set to the near 30 yardline. They are the first, second and third photographs taken in the sequence.

Moment of the Kick

The 3 photographs below were taken at the moment of the kickoff and shortly after the kick. The focal length is still set to the far 30 yardline.

Play From Scrimmage

You should take 3 to 5 photographs per play from scrimmage.

Focal Length (Zoom)

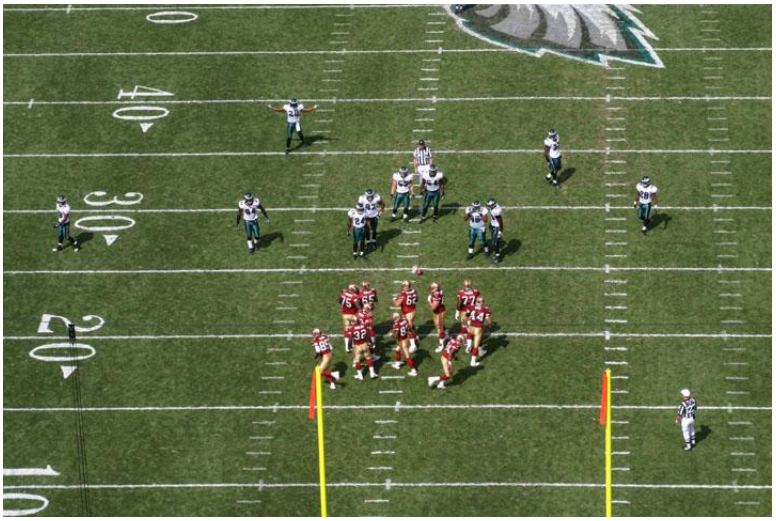
Position the center focal point of the lens on the line of scrimmage and set the focal length using the same methodology as when you took the reference photographs before the game. Whenever the line of scrimmage changes by more than 5 yards from the previous spot where you last set the focal length, adjust the focal length again from this new location.

Timing

Do **NOT** take any photos while the offense is still in the huddle.

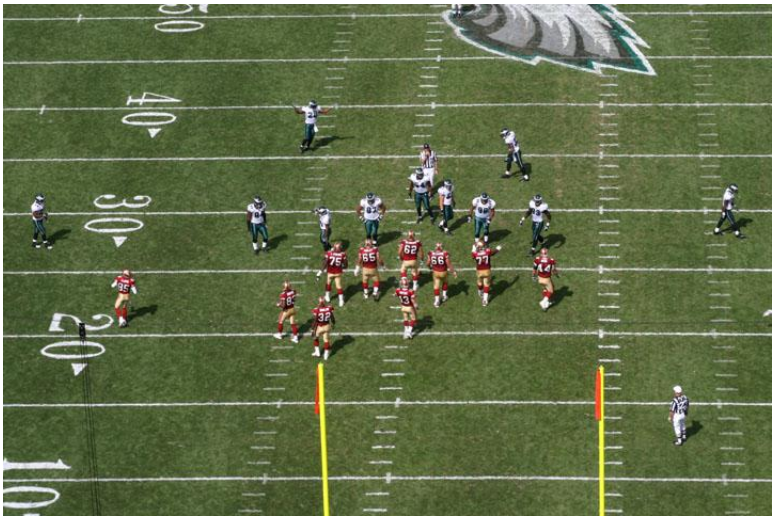
First Photograph (after huddle break)

Take the first photo approx. 1-2 seconds after the offensive huddle breaks. The offensive players should separate to the point where no player is blocking the view of another player when the first photograph is taken.



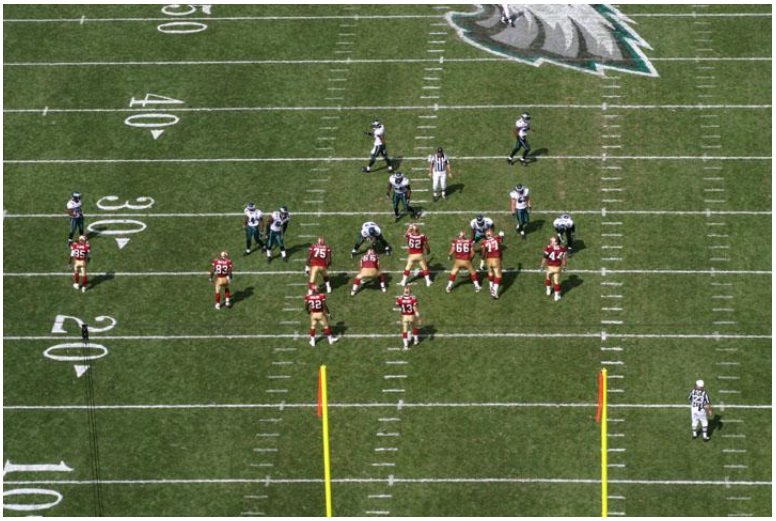
Second Photo (offense at line of scrimmage)

Take the second photo just as the offensive line gets to the line of scrimmage and the center is about to get down in his stance.



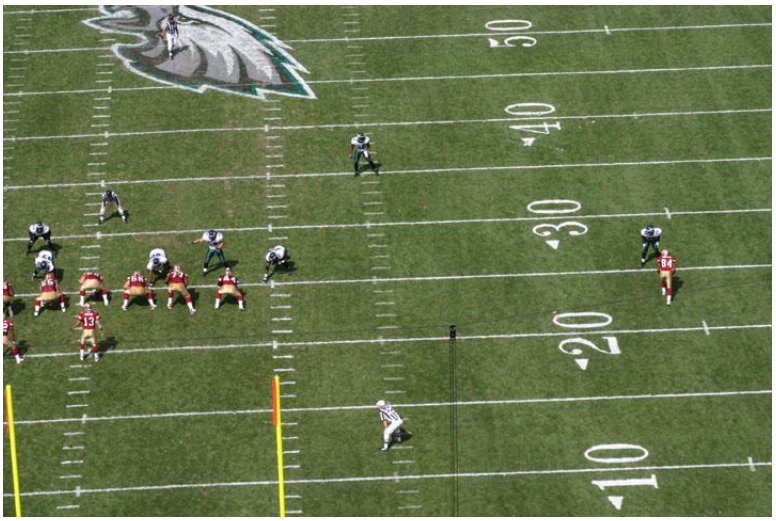
Third Photograph (wide left)

If a wide receiver is lined up on the left side of the field, pan out to take a photograph of him as well as the defender(s) covering him. They should be in the left side of the frame with as many players on the line of scrimmage as possible. **Important: do not change the focal length of the zoom lens**.



Fourth Photograph (wide right)

If a wide receiver is lined up on the right side of the field, pan out to take a photograph of him as well as the defender(s) covering him. They should be in the right side of the frame with as many players on the line of scrimmage as possible. **Important: do not change the focal length of the zoom lens.**



Fifth Photograph (1st three plays only)

Take a photograph of the interior line at the moment of the ball snap for the first three plays of the game. We do this for the same reason we take a photograph at the moment of the kick. In the event the GSIS entry operator didn't press the F11 key at the moment of the kickoff you will be able to accurately calculate the time offsets using these photographs.

Punt

You should plan on taking approximately 5 photographs on a punt play. Note: you must be ready for punt plays, as teams often do not huddle prior to a punt.

Focal Length

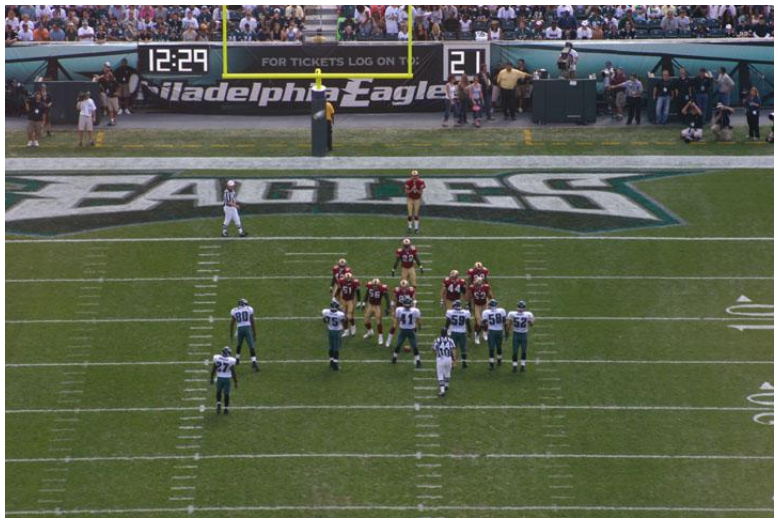
Set the focal length to include all interior linemen and the kicker. This is generally zoomed in a little more than you would on a typical play from scrimmage.

Timing

Be careful. Most punting teams do not form a huddle. In many cases 11 new players will come onto the field for each team. Wait for the punting team to line up at the line of scrimmage and take the first when they are all still standing tall. When the center begins to get down in his stance take a second photograph

First Photograph

Prior to the offensive team getting into their stance take the first photograph keeping the interior linemen and punter visible.

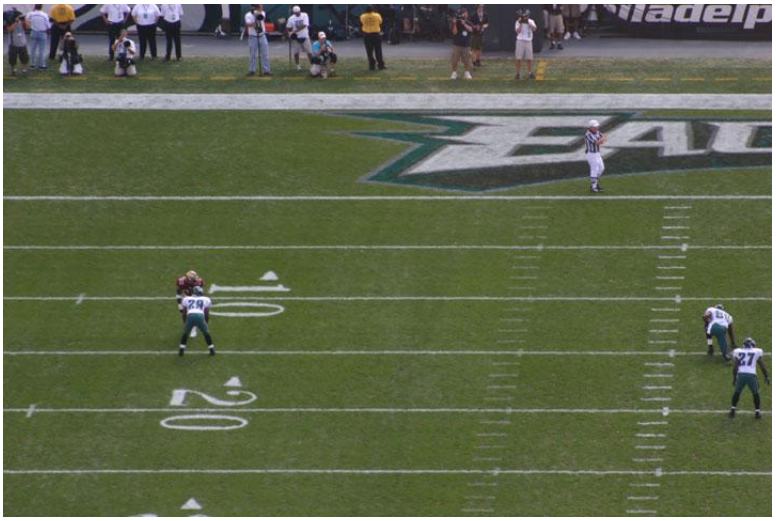


Second Photograph

Just as the punting team is about to get down in their stance, take another photograph of the interior line including the punter.

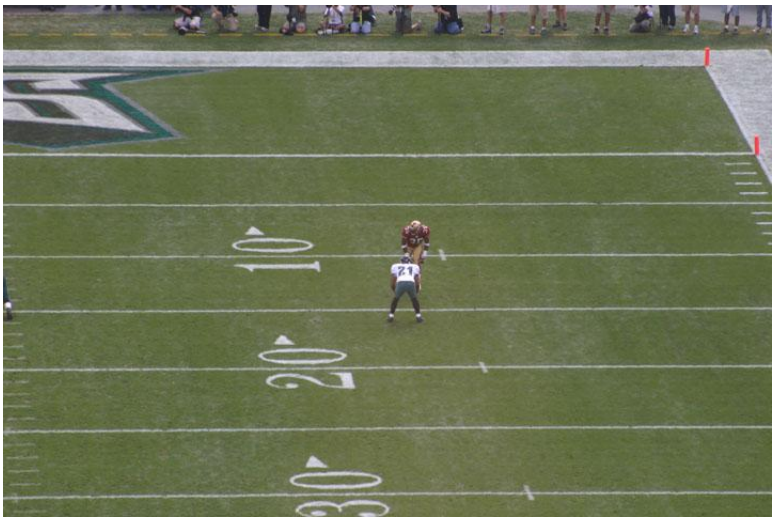
Third Photograph (wide left)

Capture the players located wide left. Try to get some overlap of players on the interior line. Notice how the players wide left are NOT centered in the photograph.



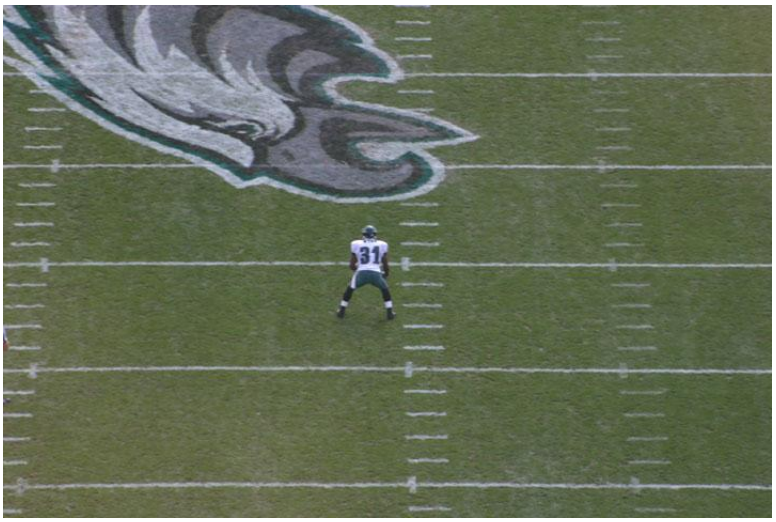
Fourth Photograph (wide right)

Capture the players located wide right. Try to get some overlap of players on the interior line. Notice in the sample photo below that the camera could have been panned more towards the left. This would have allowed more interior linemen to be in the photograph and give you a better chance of identifying a player that may be difficult to see in a previous photograph.



Fifth Photograph

Don't forget to capture the punt returner.



Field Goal / Extra Point

Field goal and extra point attempts are straightforward plays to photograph however these plays are usually run without a huddle so you must be ready to take the photograph as soon as the offense approaches the line of scrimmage. Two photographs are usually sufficient to capture all players on the field.

Focal Length

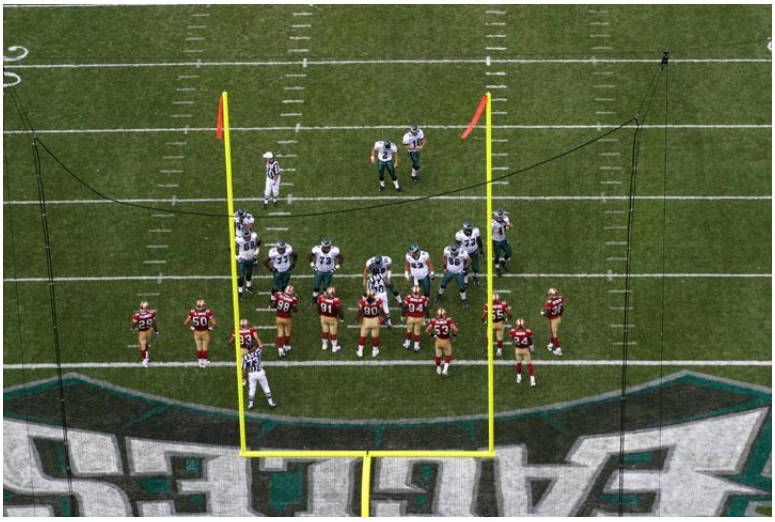
Set the focal length to include all interior linemen and the kicker. This is generally zoomed in a little more than you would on a typical play from scrimmage.

Timing

Be careful. Most teams do not form a huddle. In many cases 11 new players will come onto the field

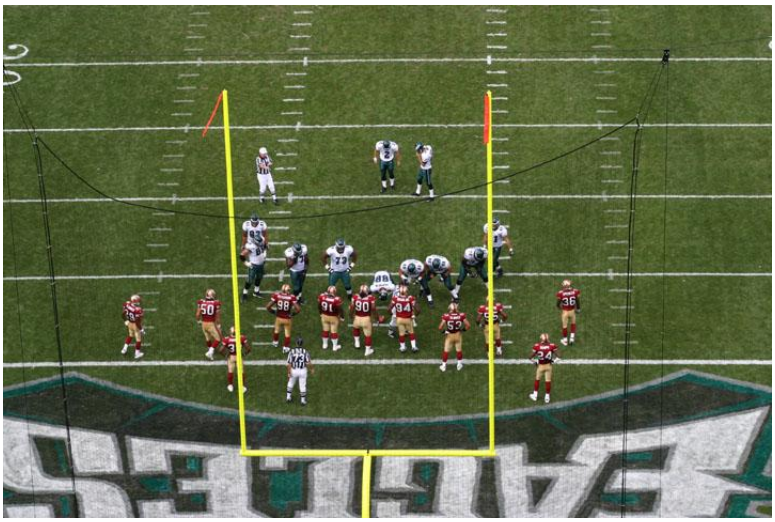
First Photograph

Take this photograph while the kicking team is still standing up.



Second Photograph

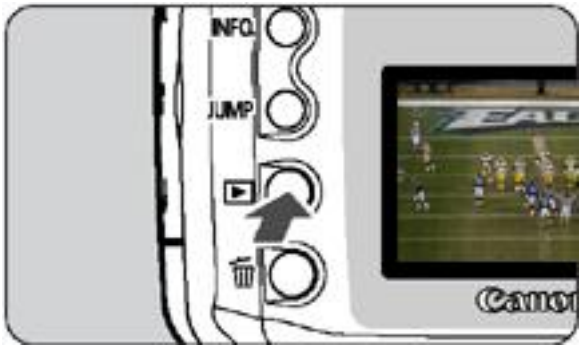
Take this photograph just as the center is getting into his stance.



Reviewing Photographs

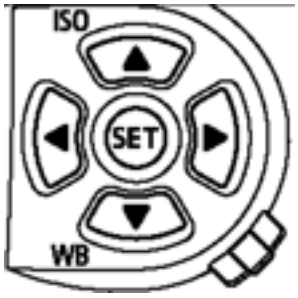
Periodically throughout the game you must review your photographs to ensure that they are focused properly, adequately zoomed, and have the proper exposure settings. Make sure you can clearly identify each player in the photograph.

1. Press the button
2. The last captured image will appear on the LCD monitor



3. Magnify the image by pressing the button.

4. Scroll around the image to ensure that you can read the uniform numbers by pressing the arrow buttons.



5. To prepare for the next photograph, partially depress the shutter release button.

End of Quarter

At the end of each quarter you must change the CompactFlash card in the camera to the card designated for that quarter. At the end of the first quarter, you will be providing the first quarter CompactFlash card to the "identifier" who will then take those photographs back to the work area and begin identifying players.

End of Game

At the end of the game you must pack up all of the camera equipment and immediately proceed to the designated work area. When you arrive at the work area you need to do the following:

1. Immediately give your CompactFlash cards of the remaining quarters of the game to the "identifier".
2. Begin charging the camera batteries.
3. Use the restroom and get some refreshments.

Replacing a Camera Body During the Game

In the event you need to replace a camera body during the game, you must follow these steps in order to achieve success.

1. If possible, set the time on the new camera body to time on the GSIS laptops.
2. Record the quarter and clock time of the first play you begin shooting photographs with the new camera body. You may record this information by either jotting it down on paper or taking a photograph of the scoreboard. Make sure you capture the quarter and game clock time in the photograph.
3. Take an additional photograph of the moment of the start of the play (i.e. ball snap, moment of kickoff etc.) for the first 3 plays with the new camera body. This will provide a point in time that the identifiers can use to determine the camera body time offsets.
4. Inform the identifiers that you changed the camera body during the game and give them the quarter and clock time of the first play you began shooting photographs.

Chapter 3 - Game Day Procedures of Identifier

This chapter describes in detail everything that needs to be done on game day by the identifier.

Pre-Game Procedures

All Player Participation personnel are required to arrive in the press box area at least 2 hours prior to kickoff.

1. Retrieve Player Participation computer equipment from the secured storage location.
2. Log on to the computer as <club-name>-Guest. Example: Eagles-Guest.
3. Check with the GSIS Stadium Technician to see if there are any software updates for the Player Participation software. If so, connect the Player Participation laptops to the GSIS network and log on to the laptop(s) as <club name>-admin to allow the software updates to get installed on the laptop(s).
4. Make a bunch of copies of the Kickoff Charting form found in Appendix B.
5. Secure the computer equipment with the GSIS Stadium Technician in the stats booth. Or, if you have a secure work-area setup the laptop(s) in the work area with the network switch, numeric keypad, mouse etc. See Computer Equipment Setup on page .
6. **IMPORTANT:** speak with the GSIS entry operator and gently remind him/her to capture the time of **EVERY** play by pressing the F11 key at the **EXACT MOMENT** of the start of **EVERY** play including kickoffs and extra points. Also stress the importance of pressing the F11 key at the exact moment of the initial kickoff.
7. When the end zone camera operators report to the camera positions, you may either go with one of them or stay in the press area until about halfway through the first quarter. Bring one of the CompactFlash storage cases with you and make sure you are ready to retrieve the memory cards immediately after the first quarter ends.

Computer Equipment Setup

1. Locate the 2 IBM G40 (or G41) laptops for Player Participation.
2. Connect the external mouse and numeric keypad to the USB ports on each laptop.
3. Connect a network cable from each computer to the Linksys switch.
4. Connect the Linksys switch to the GSIS network (if available). Please see your local GSIS Stadium Technician for assistance.
5. Connect the CompactFlash reader to the Primary laptop.

First Quarter End Procedures

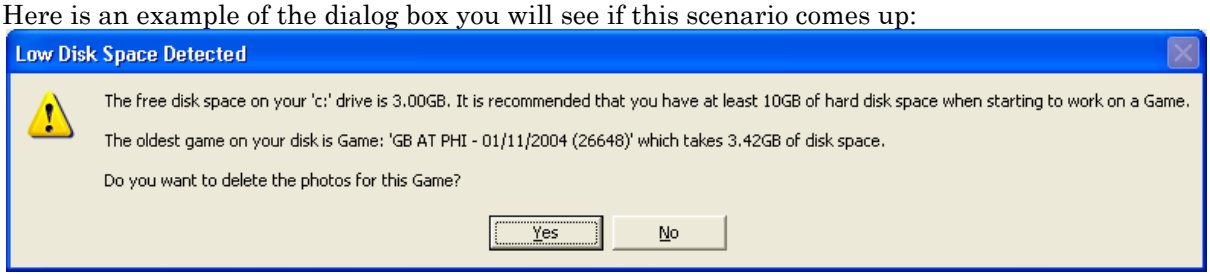
You must be at one of the end zone camera locations as the first quarter ends.

1. The camera operator will remove the CompactFlash card from the camera and hand it to you. Make sure you are given the properly labeled card (i.e. North – 1st Qtr). Place the CompactFlash card in the storage case you brought with you.

   Note: do NOT place an uncovered card in your pocket as lint and other debris may lodge in the card and get in the camera.

2. Proceed to your gameday working location.
3. Setup the Player Participation computer equipment.
4. Start the Player Participation application on the laptop labeled "**Player Participation**" by clicking **Start, All Programs, GSIS, Player Participation**.
5. Enter your first name and last name and choose "Primary".

6. If your Primary Laptop has less then 10GB of free disk space the software will help you free up some space by asking you if you want to delete the photos of the oldest game on your machine. Here is an example of the dialog box you will see if this scenario comes up:



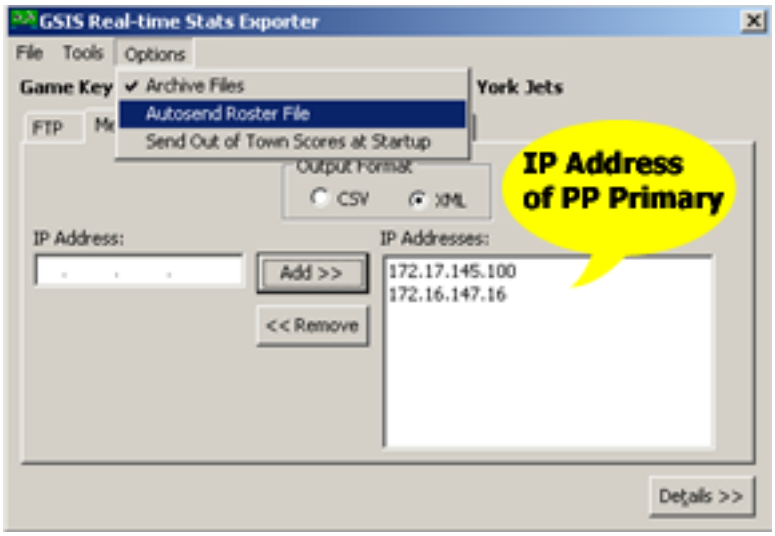
   In the example above the oldest Game on the Primary laptop was Game "GB at PHI – 01/11/2004 (26648)" and the photos for this game take up 3.42GB of disk space. If you click "Yes" on the dialog window above the software will automatically delete the photos for this Game and free up disk space. This process will continue until you have at least 10GB of free disk space on your laptop. If you do not want the software to delete the photos for the specified Game then click on the "No" button and the login process will continue.

7. Retrieve the list of plays and roster information from GSIS. If the primary computer has network connectivity with the GSIS computers you may choose the "Automatic" import method. Otherwise, you will need to use the manual method and make use of the Flash Drive.

   Automatic Method

   When using the automatic method, one of the GSIS computers must be running the "Real-time Stats Exporter" utility and this utility must be configured to send XML files via Message Queuing to the IP address of the primary player participation laptop.

a. The GSIS Stadium technician must configure the Real-time Stats Exporter on one of the GSIS machines to send data to the Player Participation primary laptop. He/she must add the IP address of the Player Participation laptop to the list of IP addresses under the Message Queue tab. He/she must also set the Option to automatically send the rosters. If the Real-time Stats Exporter is started after the game has started, you may need to force the sending of the files by choosing **Tools, Send Game-to-Date Stats** and **Tools, Send Roster File**.



b. Choose **Data, Import From GSIS** from the menu-bar.

c. Click **Automatic** and click **Ok**.

Manual Method

Hand the Flash Drive to the GSIS Stadium Technician and ask him to export the XML files for Player Participation onto the flash drive.

a. Insert the Flash Drive into the USB port of a GSIS laptop.

b. Within GSIS, choose **File**, **Text File Reports, Cumulative Stats XML…** from the menu-bar.

c. Select the drive letter of the Flash Drive and click **OK**. This will store a file named GSISGameStats.xml on the Flash Drive.

d. Within GSIS, choose **File**, **Text File Reports, Roster XML File…** from the menu-bar.

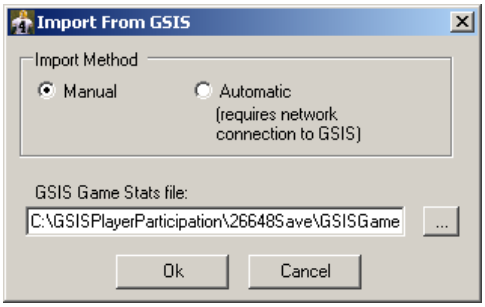
e. Select the drive letter of the Flash Drive and click **OK**. This will store a file named Roster.xml on the Flash Drive.

f. On Windows 2000 Professional computers, stop the Flash Drive by double-clicking on the icon in the task tray. Select the **USB Mass Storage Device** and click **Stop**. If you receive a message stating: "The device 'Generic volume' cannot by stopped right now. Try stopping the device again later.", then simply remove the USB drive.

Figure 1- Flash Drive

a. Plug in the Flash Drive and Import the GSISGameStats.xml file. Choose **Data, Import From GSIS** from the menu-bar.

b. Navigate to the flash drive location where the GSISGameStats.xml file was copied by the GSIS stadium technician. Click **Ok**.



8. Place a CompactFlash card from one of the end zones into the CompactFlash reader. Plug the USB cable of the reader into a USB slot on the Primary laptop.

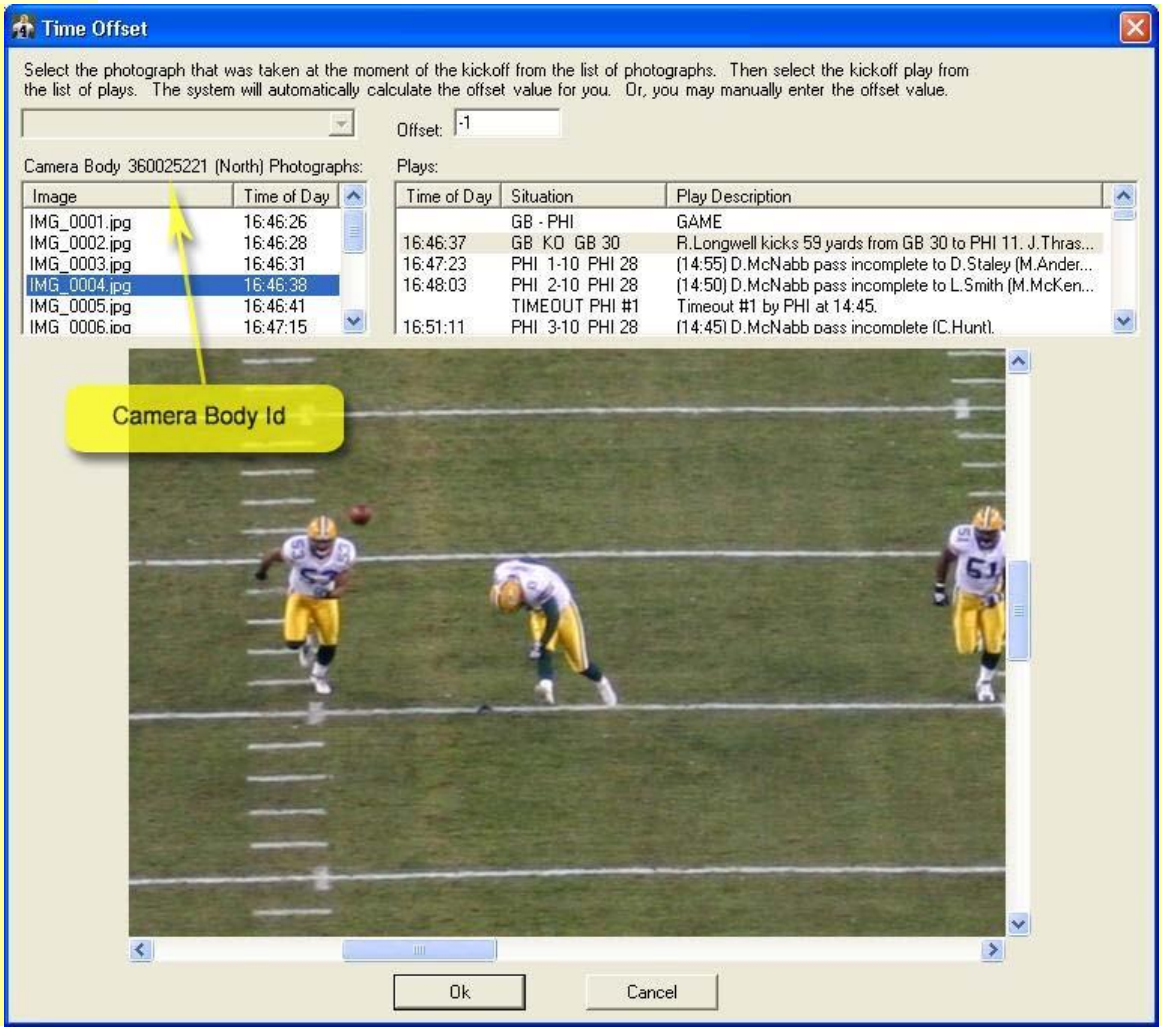
Figure 2 CompactFlash card reader

9. Load the photographs from the CompactFlash card. Choose **Photos, Load Photographs** from the menu-bar.

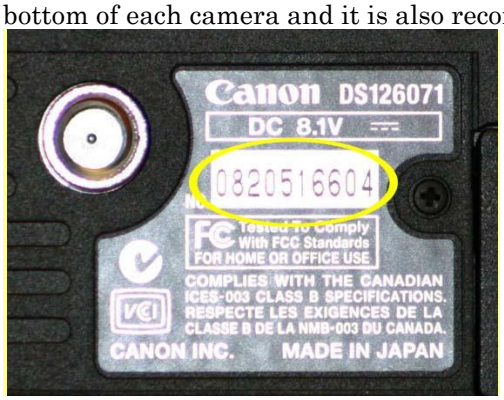
10. Enter the name of the camera operator who took the photographs on this CompactFlash card. Select the root folder location of the CompactFlash card by clicking on the "**…**" button and navigating to the CompactFlash drive letter. Then select the end zone from which the photographs originated. This process may take a minute or so for each CompactFlash card. Make sure you select the appropriate end zone for the photographs that are being loaded.

   *Note: Select only the drive letter (i.e F:/) or the DCIM folder (i.e. F:/DCIM). Do **not** select one of the folders named "xxxCanon".*

11. Set the time-offset values for each camera body. This can be automatically calculated for you by simply selecting the photograph that was taken at the moment of the kickoff. Then select the kickoff play from the play list. The system will automatically calculate the offset value. The time-offset values are used to compare the difference between the clock on the GSIS laptops with the clock on each of the cameras. You'll only need to set this value once for each camera.



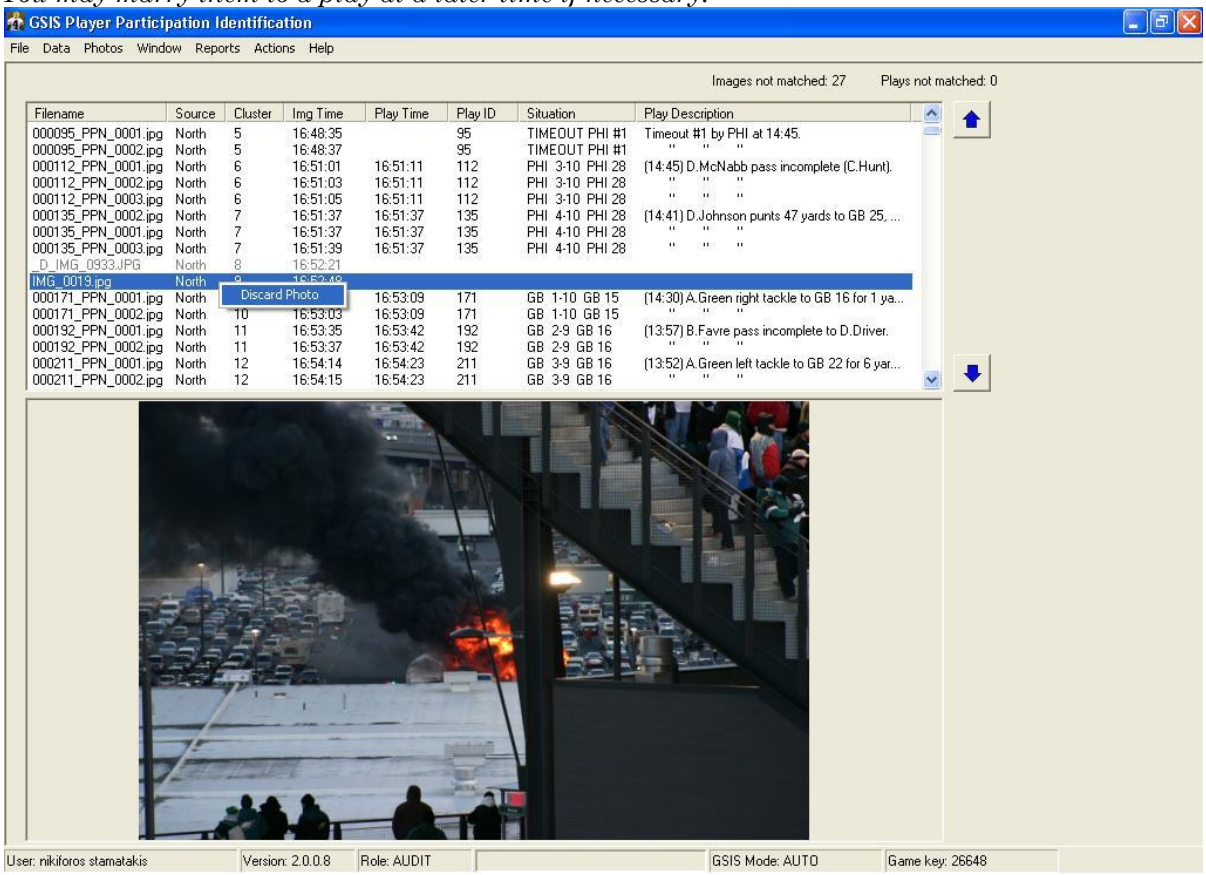
The camera body ID is a unique identifier for each camera. This number can be found on the bottom of each camera and it is also recorded inside each photo that is taken.



Note: The list of Photographs displays only the photos that were taken with the camera body that you're setting the offset value for. Also if there is no "Time of Day" value for the kickoff play or if there is no photograph at the moment of the kickoff then you should use the 1st, 2nd or 3rd play from scrimmage and the photograph that was taken when the ball was snapped for the 1st, 2nd or 3rd play from scrimmage to calculate the offset value.

12. Remove the CompactFlash card and place the other end zone CompactFlash card in the reader. Import those photographs by repeating steps 8 through 10.
13. Automatically marry the photographs to the proper GSIS plays. Choose **Data, Marry Photos to Plays** from the menu-bar.
14. Manually marry the remaining photographs to the proper GSIS plays by double-clicking on the photographs that were not automatically married to a play. The application will do a pretty good job of finding the correct play but you must verify that the team with possession and yard line match what you see in the photograph.
    See***: How to Manually Marry Photos to Plays***.
15. If a photograph should not be married to a play you should "Discard" it by right clicking on the photograph and selecting "Discard Photo". This won't delete the photograph however it will now appear gray in the list and be an indicator to you that you don't need to check this photograph in the future.

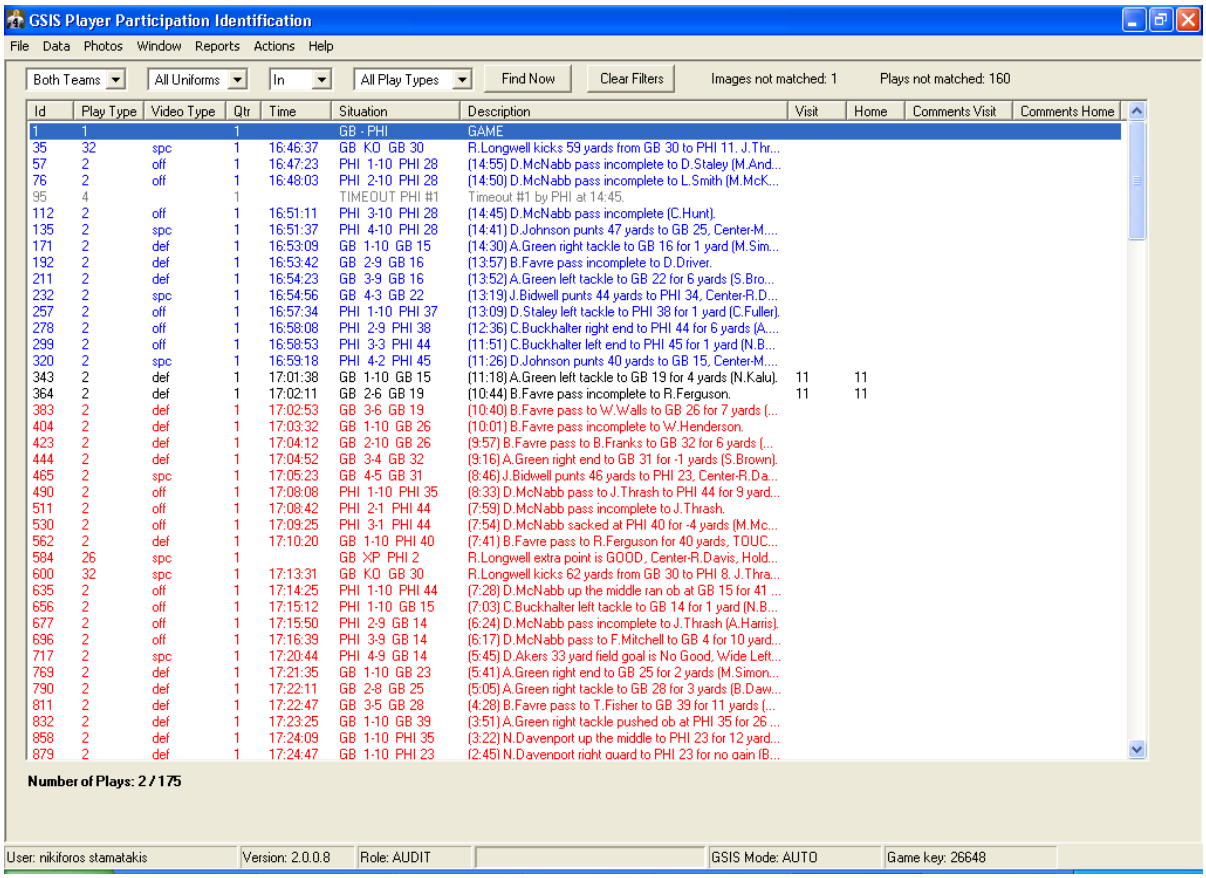
Note: discarded photographs are simply renamed and are NOT deleted from the file system. You may marry them to a play at a later time if necessary.



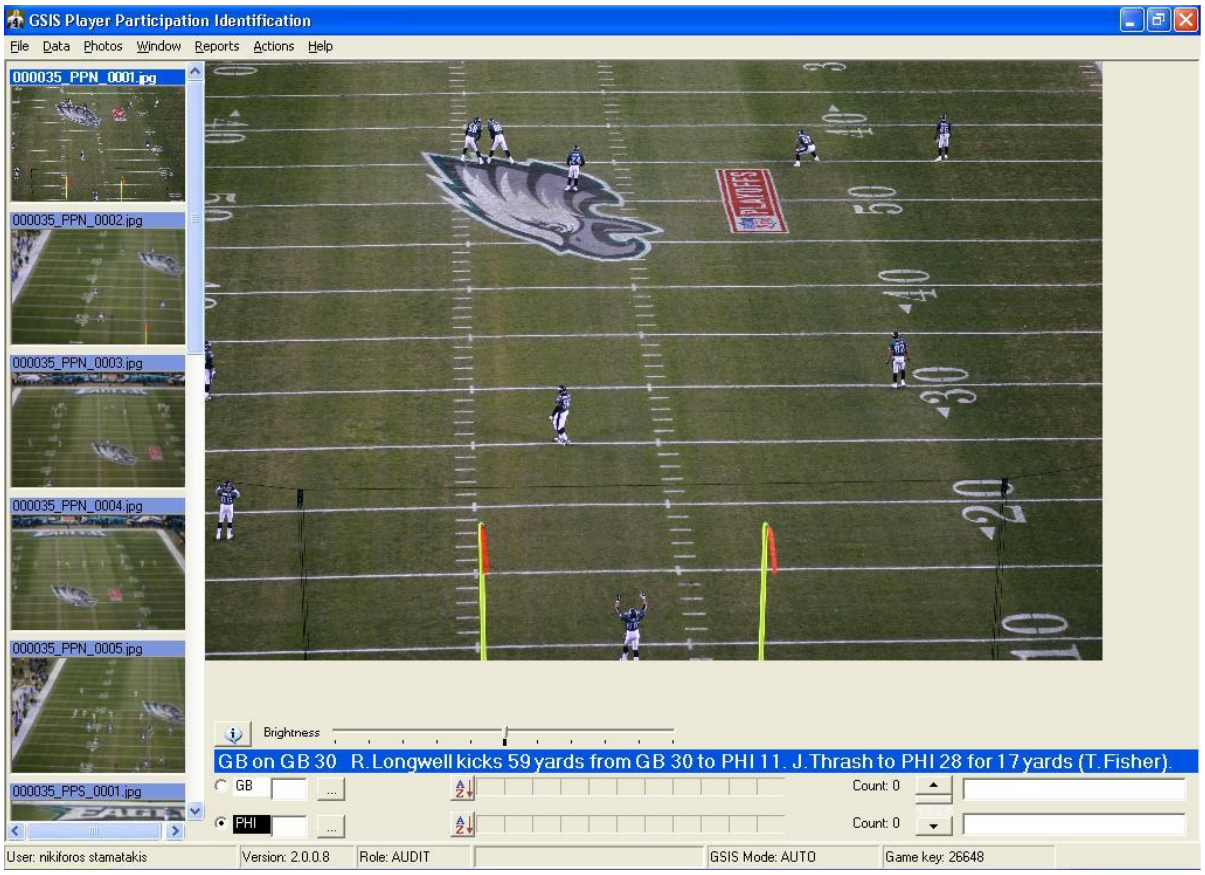
16. Change the view to the **Play List** by choosing **Window, Play List** from the menu-bar.

    The color coding of plays is as follows:

    - Gray – No player participation information is required on these plays. (i.e. Game, Time Outs, End Quarter etc.)
    - Blue – Photos exist for this play but not all 22 players have been identified
    - Black – All 22 players have been identified in this play
    - Red – No photos exist for this play



17. Double-click on the kickoff play and the window will change to the "**Player Identification**" view.



18. Identify the players in each of the plays. See *Identifying Players* below.
19. After the first offensive play of each team has been identified, generate the "Starters Report" and save it in PDF format to the USB drive. Select **Reports, Starters** from the menu-bar or press CTRL+S. When the report shows in the window, click the button to export the report to a PDF document. Insert the USB drive into the laptop and save the Starters.pdf file on the USB drive. Choose **Window, Play List** from the menu-bar to resume identifying players. Take the USB drive to the stats crew so they can print the report and verify the starters.
20. Identify the rest of the plays in the first quarter
21. When finished with the first quarter and if time permits, retrieve the 2nd and 3rd quarter CompactFlash cards from the end zone camera locations. Bring those cards back to the work area and begin importing those photographs and identifying the players.

End Game Procedures

1. Retrieve 2 additional laptops from the GSIS stadium technician and attach those to the network with the Player Participation primary machine.
2. Attach the external mouse and numeric keypad to the 2 additional laptops using the USB hub.
3. If using the **Automatic** method of importing the data from GSIS you may skip this step. Go back to the stats booth and hand the Flash Drive to the GSIS Stadium Technician and ask him to export the XML files for Player Participation onto the flash drive.

    a. Insert the Flash Drive into the USB port of a GSIS laptop.

    b. Within GSIS, choose **File**, **Text File Reports, Cumulative Stats XML…** from the menu-bar.

    c. Select the drive letter of the Flash Drive and click **OK**. This will store a file in the form of GSISGameStats.xml on the Flash Drive.

    d. Within GSIS, choose **File**, **Text File Reports, Roster XML File…** from the menu-bar.

    e. Select the drive letter of the Flash Drive and click **OK**. This will store a file in the form of Roster.xml on the Flash Drive.

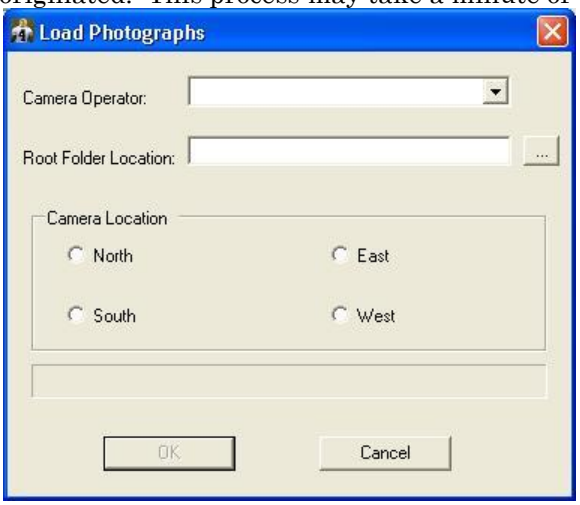
    f. Stop the Flash Drive by double-clicking on the icon in the task tray. Select the **USB Mass Storage Device** and click **Stop**.
    If you receive a message stating: "The device 'Generic volume' cannot by stopped right now. Try stopping the device again later.", then simply remove the USB drive.

    g. Plug in the Flash Drive and Import the GSISGameStats.xml file. Choose **Data, Import From GSIS** from the menu-bar.

    h. Navigate to the flash drive location where the GSISGameStats.xml file was copied by the GSIS stadium technician. Click **Ok**.

4. When each end zone camera operator arrives with the CompactFlash cards, load the photographs from the cards in the application. Choose **Photos, Load Photographs** from the menu-bar.

5. Enter the name of the camera operator who took the photographs on this CompactFlash card. Select the root folder location of the CompactFlash card by clicking on the "**…**" button and navigating to the CompactFlash drive letter. Then select the end zone from which the photographs originated. This process may take a minute or so for each CompactFlash card.



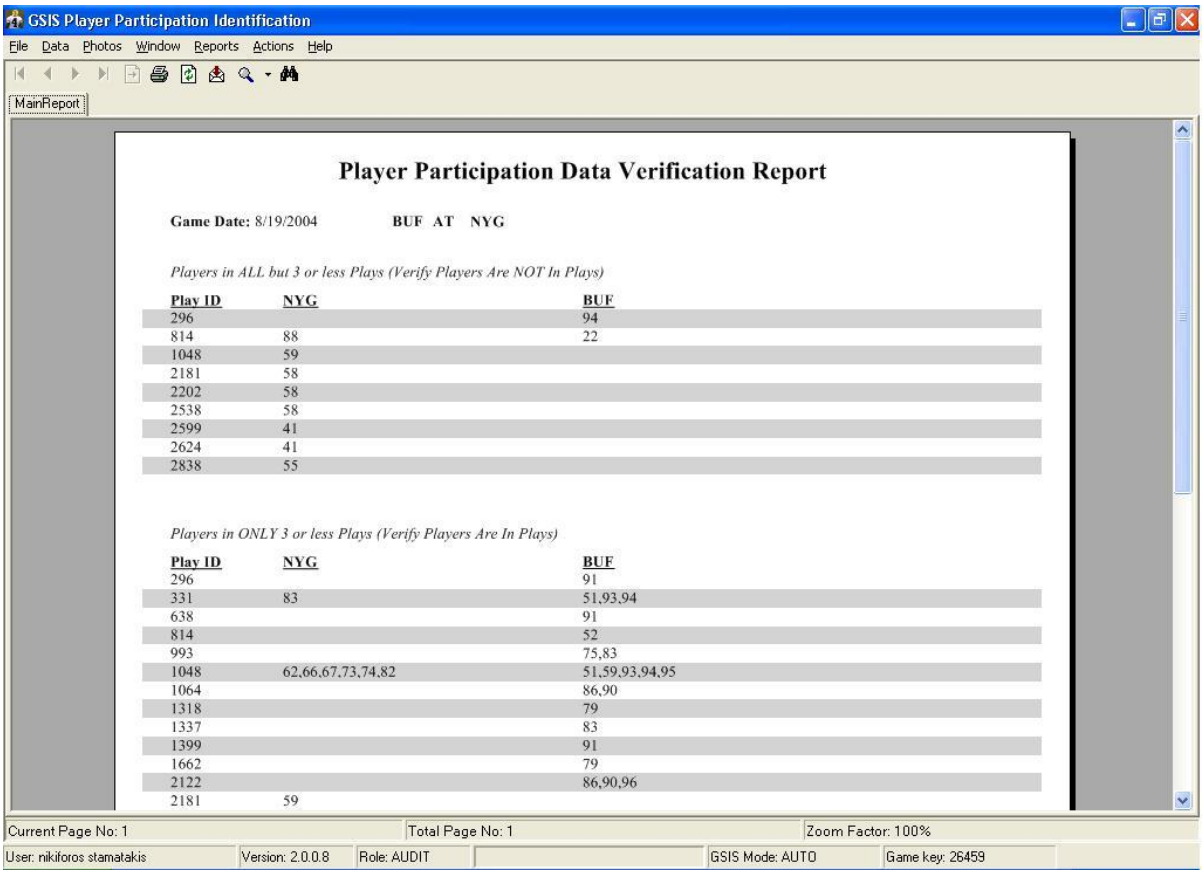
6. Change the view to the **Image List** by choosing **Window, Image List** from the menu-bar.
7. Automatically marry the photographs to the proper GSIS plays. Choose **Data, Marry Photos to Plays** from the menu-bar.
8. Manually marry the remaining photographs to the proper GSIS plays by double-clicking on the photographs that were not automatically married to a play. The application will do a pretty good job of finding the correct play but you must verify that the team with possession and yard line match what you see in the photograph. It is also very helpful to compare the time of previous and next play with the time of the photograph to determine which play should be married.
   See***: How to Manually Marry Photos to Plays***.
9. Change the view to the **Play List** by choosing **Window, Play List** from the menu-bar.
10. Divide the work of identifying the players of each remaining play with the camera operators. For example: since the third quarter generally contains fewer plays than the second and fourth quarters, it may make sense of the identifier to take the lighter workload, as he/she will have other responsibilities and he/she has already worked on a quarter.

Player Identification Complete

Only after you have identified every player in every play of the game you should begin the data verification process.

1. Run the **Data Verification** report by choosing **Reports, Data Verification** from the menu-bar. This report is divided into two sections. The first section lists each play in which players are suspicious because they participated in every play except 3 or fewer. The second section, lists each play in which players participated in only 3 or less plays in the game

   In the sample report below, Buffalo player #94 is suspicious in play id #296 because he is in every play except for play id #296. You will need to open play id #296 and check the photos to see if he did or didn't participate in that play.



2. Print this report if you have a printer available or export this report to a PDF file and open the PDF file in the Acrobat Reader.
3. Select **Window, Play List** from the menu-bar.
4. Load each Play on the report by double clicking each Play in the Play List while matching the Play ID on the report with the Play ID in the Play List. Or, press **<CTRL+G>** to quickly go to another play by entering the play id.

5. Look at the report and see which section of the report the currently loaded Play resides in. If the Play is in the "Verify Players Are NOT in Plays" section then verify from the photographs that the player(s) from each specified club are indeed **NOT** in this Play. If the Play is in the "Verify Players Are In Plays" section then verify from the photographs that the player(s) from each specified club are indeed **IN** this Play.
6. Repeat this procedure for every Play on the Data Verification report and make corrections where necessary.

Note: There is an easier and faster way to load the plays in the data verification report while you're going through them. When you've finished checking a play instead of going back to the Play List and selecting the next play in the report, simply press **<Ctrl+G>** on your keyboard or select the **Actions,Go To Play** menu item. The following window will appear:

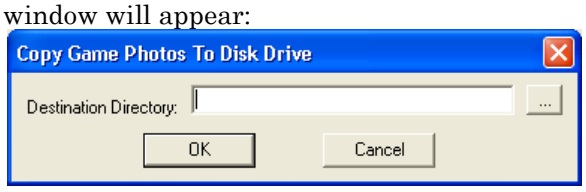
Enter the Play Id of the next play in the data verification report and click on the **Go** button or press **<Enter>**. The play with the Play Id you entered will automatically load.

Data Verification Complete

Only when you are confident that the information recorded for player participation is as accurate as you can get, you may continue with the following steps.

1. Connect the **Primary** laptop to the GSIS network in the stadium. If you cannot connect the laptop computer to the GSIS network then you must connect the computer to a working analog phone line and use the **GSIS DC** dial-up connection to establish connectivity with NY. Click **Start, Connect To, GSIS DC**.
2. PING 172.19.1.106 to make sure you have connectivity to the NY Distribution Center.
    a. Open a command prompt
    b. Type **PING 172.19.1.106**
    c. You should receive 4 replies. If not, troubleshoot the network connection or the dial-up connection and call the GSIS Helpdesk at 877-635-0171.
3. Select **Data, Upload to NFL** from the menu-bar.
    a. The application will first determine if it can reach the NY distribution center. A count of elapsed seconds will be displayed. Under normal conditions it will not count past 10.
    b. If the NY distribution center is reachable, the data will be uploaded. Again, a count of elapsed seconds will be displayed. This step normally takes 300-420 seconds (5-7 minutes).
4. Wait for confirmation that the data has been successfully uploaded. If you receive an error or the application continues counting higher than 500 seconds, please call the GSIS helpdesk at 877-635-0171.

11. Connect the Western Digital USB Hard Drive to the Primary laptop and copy the "c:\GSISPlayerParticipation\<game key> folder to it by following these steps:
    a. Select **Photos, Copy Photos To Disk Drive** from the menu-bar. The following dialog window will appear:



b. Click on the "…" button and you will see the Windows "Browse For Folder" dialog window:

c. Expand the "My Computer" entry by clicking on the plus sign to the left of it and select the "WD Passport" drive from the list by clicking on it. When you're done click on the "OK" button.

d. Click **OK** on the "Copy Game Photos To Disk Drive" dialog window.

e. The progress of the copy operation is displayed on the heading of the application and also a progress bar is displayed on the information bar on the bottom of the application. Here is an example of this:

f. While the copy operation is completing you can keep using the application to identify players. When the copy operation completes the following message will appear:

g. Open **Explorer** (or **My Computer**) and navigate to the Western Digital Passport drive. Verify that the photos for the Game have been copied successfully by navigating to the GameKey folder of your loaded game and opening up one of the JPG files. Double-clicking on the JPG file will open it in Internet Explorer.

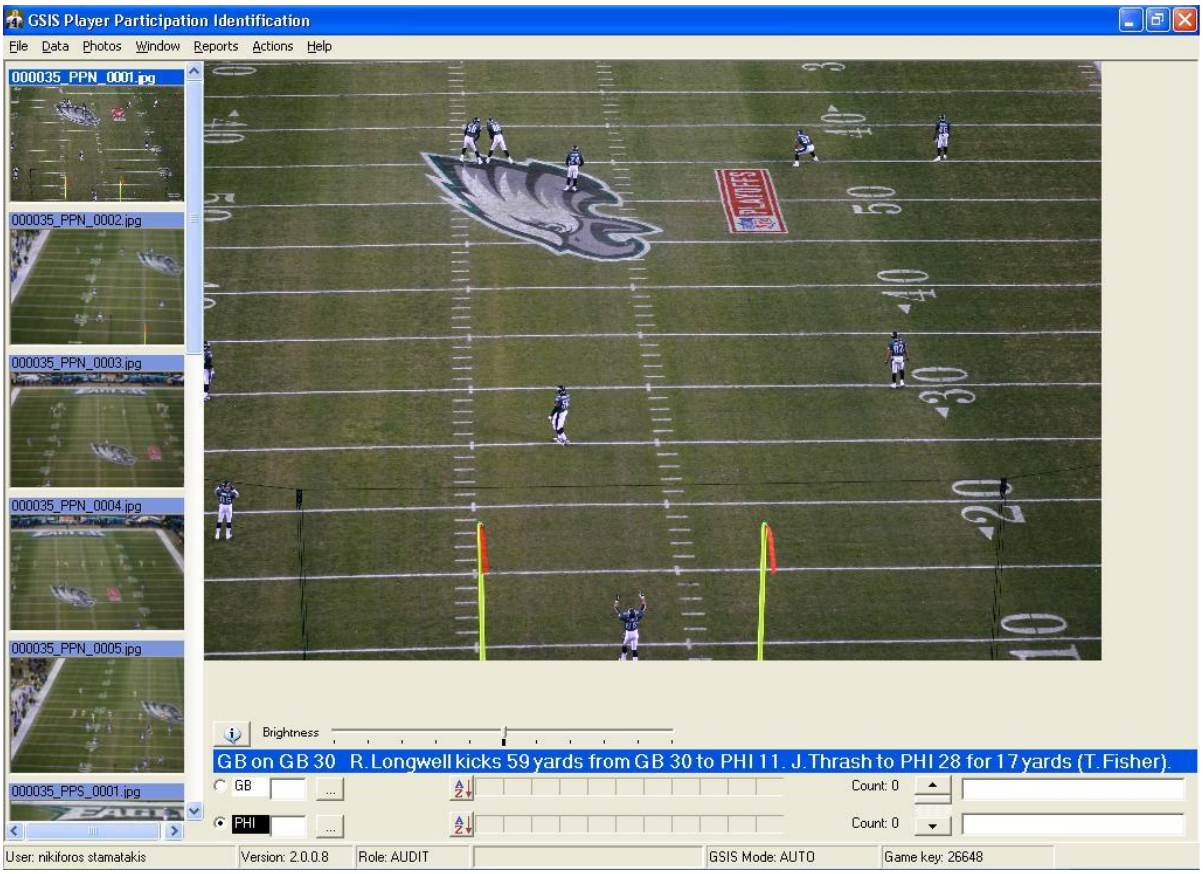
5. Disconnect the Western Digital drive and place it in the blue Pelican carrying case. Then place the carrying case in the FedEx envelope and send it to the following address:

   John Cave
   National Football League
   280 Park Ave
   New York, NY 10017
   212-450-2441

6. Pack up all of the equipment.
7. Secure all laptops and camera equipment in the case and store it in the designated secure storage location.

Identifying Players

This screen allows you to identify players on both teams by entering the uniform number of the player in the field for the appropriate team. It also allows for zooming and panning of the photograph so you can easily identify each player. When finished identifying all the players, you may easily navigate to the next play.



Zooming the Photograph

You may zoom-in and zoom-out the photograph using the mouse or the keyboard. Clicking the left mouse button will zoom in on the point that was clicked on the photograph. Clicking the right mouse button will zoom out. Pressing the "+" (plus sign) key on the keyboard will zoom in. Pressing the "-" (minus sign) key on the keyboard will zoom out.

Zoom In

Left Mouse Click

"+" (plus sign)

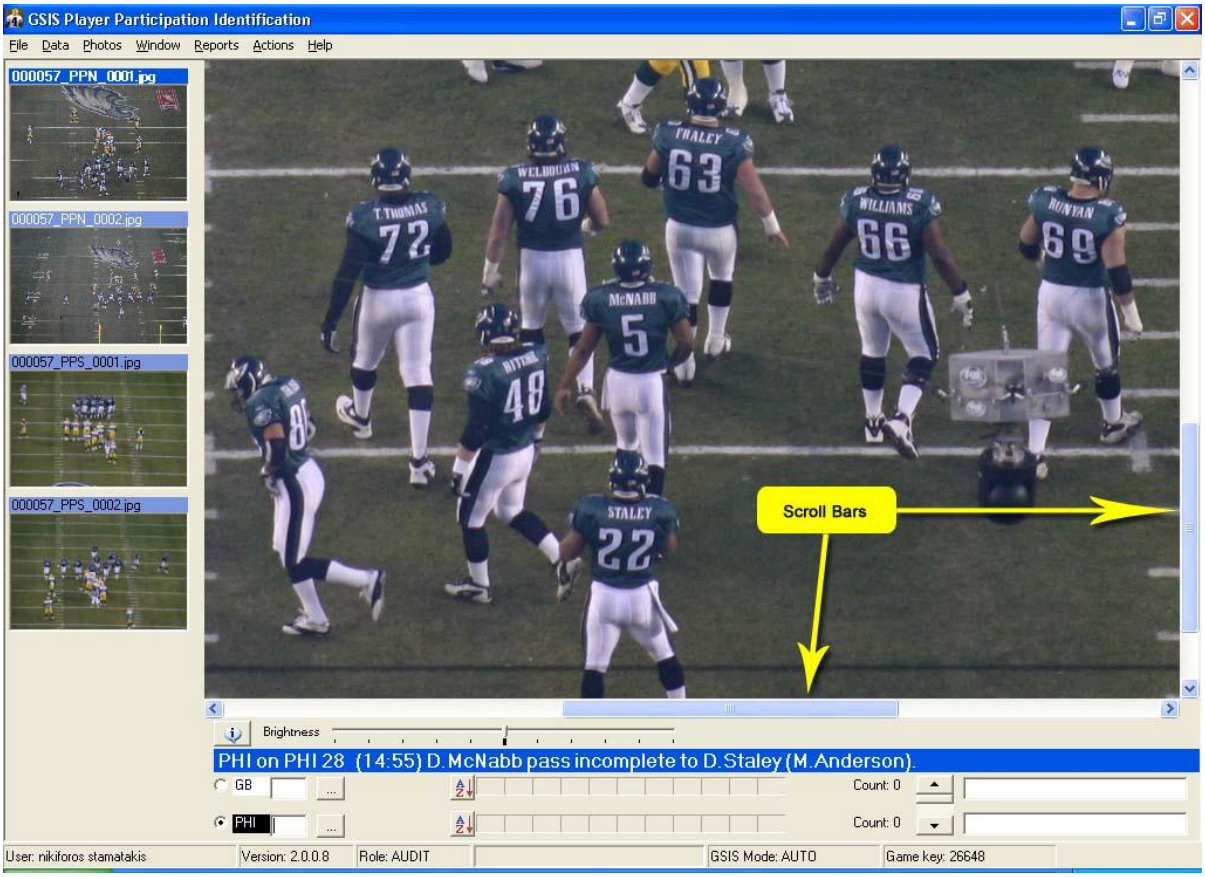
Zoom Out

Right Mouse Click

"-" (minus sign)

Panning the Photograph

You may pan the photograph by using your mouse to move the scroll bars on the right and bottom of the photograph. You may also pan the photograph by pressing the up, down, left and right arrow keys on the keyboard.



Selecting a Photograph

One photograph is seldom able to help you identify every player in the play. You'll need to select other photographs from the thumbnail panel on the left side of the screen. The photographs in this panel contain the file name of the photograph in the following format: <Play id>_PP<end zone>_<sequence number>.jpg. For example: 000076_PPN_0003.jpg is the third photograph taken from the North end zone of play id 76.

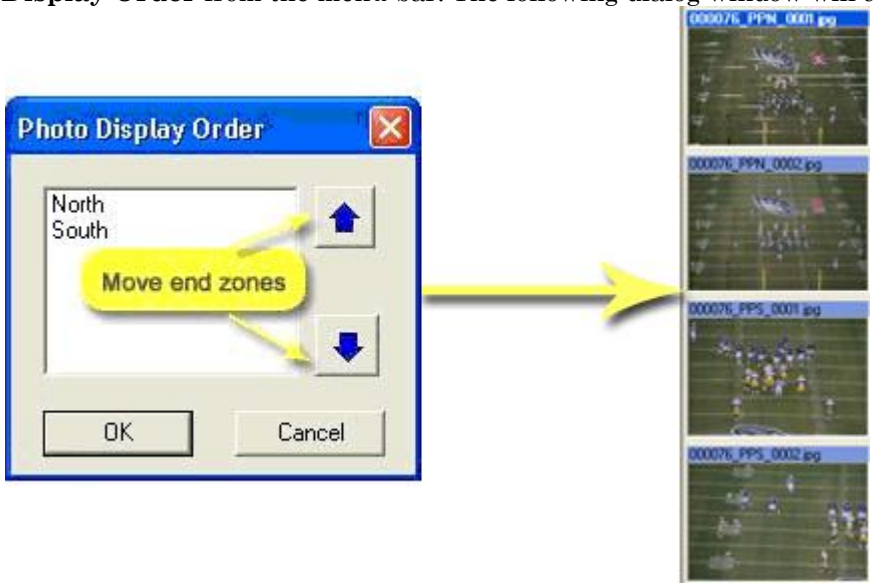
To view a large image of the thumbnail photograph, simply use your mouse to left-click on the thumbnail you'd like to view.

Note: thumbnail photographs are ordered by end zone and sequence number.

You may also press F9 to go to the previous photograph or F10 to go to the next photograph.

Set Photograph Display Order

You may set the order in which thumbnails of the end zone photos are loaded in the application when identifying players. This is helpful when the photos from one end zone are of poor quality and you do not want them to load first. You can set the display order of the photographs by navigating to **Photos, Display Order** from the menu-bar. The following dialog window will appear:



The current display order is displayed in the list. In our example above the North end zone photos will be loaded first, followed by the South end zone photos. To change the photo display order, select an end zone by clicking on it and then use the blue up/down arrow buttons to the right to move the selected end zone up or down in the display order list as desired. Once you are finished, click on the **OK** button to save your changes. When a Play is loaded, the photos from each end zone will be loaded in the order you set them.

Entering Uniform Numbers

Place the cursor in the field of the team you are identifying players. Pressing the **<tab>** key or clicking on the appropriate field can accomplish this. Enter the two-digit uniform number of the player by using the numeric keypad. Players with a single-digit uniform number should be entered with a leading zero (i.e. 05). During preseason games and Pro Bowl, often there are players wearing the same uniform number. In these situations, the GSIS entry operator will have assigned a suffix to the end of the number to make the uniform numbers unique on the roster. For example: if there are two players with the uniform number 80, one may be 80 and the other 80A. To determine which is which, click the **"…"** (edit players) button to review the game roster. You must press the **<enter>** key after entering a two-digit uniform number when there is also a three-digit uniform number (i.e. 80<enter>).

When you enter a valid uniform number, the number and the player's position and name will appear in a "confidence" window over the photograph for ½ second. This is provided as feedback so that you may verify the number you typed is correct.

After you've entered at least 11 players for any team, press the **<enter>** key to navigate to the other team's entry field. If both teams have at least 11 players identified, pressing the **<enter>** key will navigate to the next play. Or you use the **F11** and **F12** keys to navigate to the previous play or next play respectively.

Jersey Colors

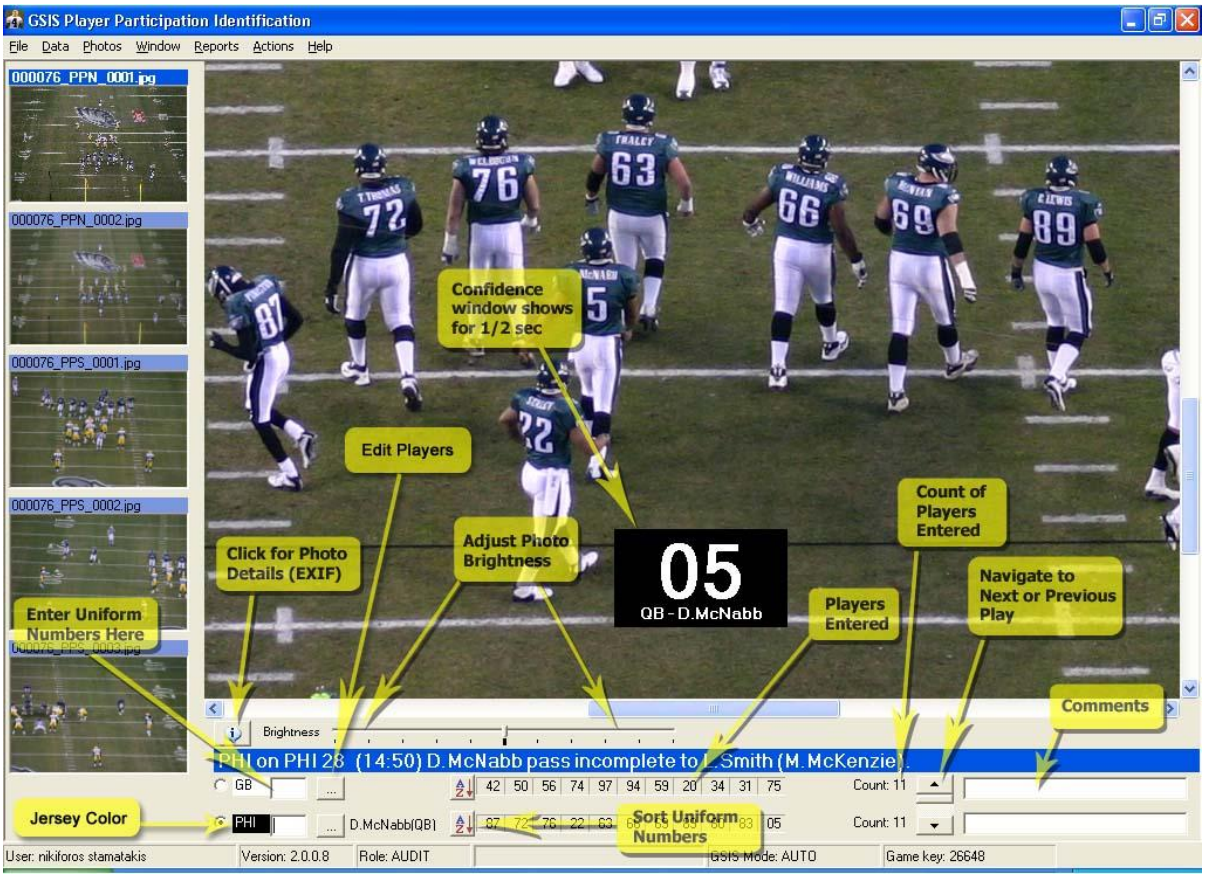
In all football games, one team wears dark jerseys and the other team white. The home team has the option to choose their jersey color and in most cases chooses the dark jersey. When the weather is hot many times you will see the home team wearing their white jerseys. On the bottom of the player identification screen you will see the team names, one with a white background and one with a black background as shown below.

You should set the black and white according to the jersey the teams are wearing in this game. As you enter players, our confidence window that displays the uniform number you just entered will reflect the white or dark jersey you selected for a team. This is helpful to know that you are entering the numbers for the correct team.

When you start the application the home team will be defaulted to the dark jerseys. To change this, simply right-click on one of the team names and select "White Jerseys" or "Dark Jerseys" to change the setting as shown below.

Uniform Number Confirmation Colors

When you re-enter a uniform number that was already recorded on a play, the background of that player's uniform number will change to blue. If you enter a uniform number that's likely to be a mistake, for example when you enter a defensive player in an offensive play or vise-versa, the player's uniform number will change to **red**. If you enter a uniform number of a player that's not on the roster then the uniform number will show up as "N/A" and the background color will change to yellow. Examples of each uniform color are show below:

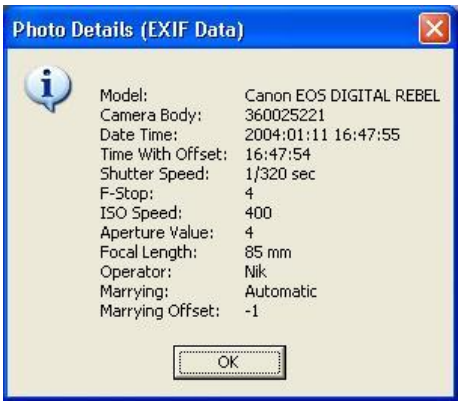


Adjusting Photograph Brightness

In some lighting conditions, the photograph may be too dark or too bright for the human eye to easily read the uniform numbers. You may control the brightness of the photograph by moving the Brightness slider. Moving the slider to the right will brighten the photograph. Moving the slider to the left will darken it.

Reviewing Camera Settings

There are times when it is important to view the settings of the camera for a specific photograph. For example, if a photograph is exceptionally good or bad you may want to learn from that photograph and view the settings of the camera when that photograph was taken. Click on the photo information button to view the camera settings. Below is a screenshot of the dialog window and an explanation of every field.



Model: Camera model
Camera Body: Camera Body ID (located on bottom of camera)
Date Time: Date and time when photo was taken
Time With Offset: Time when photo was taken with camera offset value applied. This gives us the GSIS time when the photo was taken.
Shutter Speed: Shutter speed value of camera. This value should almost always be 1/125 sec.
F-Stop: F-Stop value of camera.
ISO Speed: Camera ISO setting. This value should be 100 for very sunny outdoor games and 400 for stadium lighting conditions (indoors, bad weather, night)
Aperture Value: Camera aperture value
Focal Length: Zoom level of camera. If lens is 75mm-300mm, 75 mm is fully zoomed-out and 300 mm is fully zoomed-in.
Operator: Name of camera operator who snapped the photo.
Marrying: If value is "Automatic" then photo was automatically married to current play by software, if value is "Manual" then photo was manually married to current play by the user.
Marrying Offset: Offset value of a camera body at the moment the photo was married to the play.

Sorting the Uniform Numbers

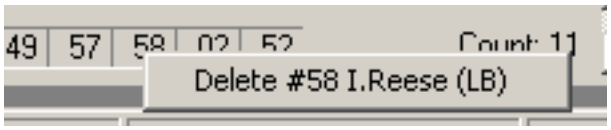
You may change the order of the uniform numbers. The default order is the order in which the uniform numbers were entered. By clicking on the **Sort** button you may change the order to display the uniform numbers in ascending order. The sort order will always revert back to the order in which they were entered.

Deleting Uniform Numbers

After you've entered a complete uniform number and the wrong person was identified, press the **<Delete>** key to remove the last uniform number in the list. You may continue to press the **<Delete>** key to remove additional uniform numbers.

Or, you may also click the **"…"** button and select one or more players to be deleted.

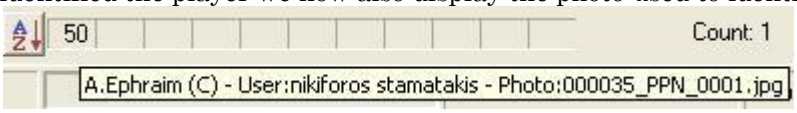
Or, you may right-click on the uniform number and select **Delete**.



Note: if the uniform numbers are sorted by uniform number, pressing the <Delete> key will delete the last player identified not the last player sorted by uniform number.

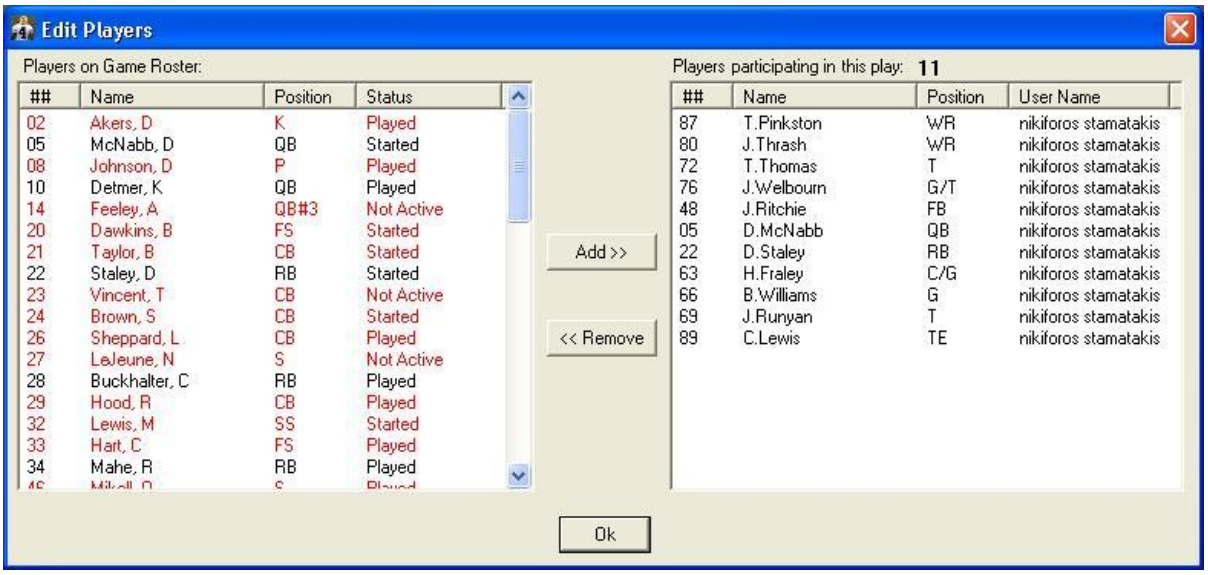
User Identifying Player

As you record the players you see in the photograph, the software is now capturing the name of the photograph you were looking at when identifying the player. When you hover your mouse over a uniform number that has been entered, in addition to displaying the player's name, position and the user who identified the player we now also display the photo used to identify the player.



Searching for Players by Name

Click the **"…"** (edit players) button to view the game roster. Scroll through the list of players on the game roster for the one you're looking for. You may also sort the game roster list by clicking on the column headers. For example, to sort by name, click on the **Name** button. To sort by position, click on the **Position** button. When you locate the player you want to add double-click on him or click the **Add>>** button. Click **Ok** when you're done.

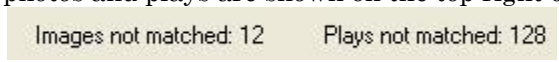


Navigating to the Next Play

Click on the down-arrow button. Or, if you've identified at least 11 players for each team, press **<Enter>** to navigate to the next play. Press **F11** to navigate to the previous play or press **F12** to navigate to the next play.

How to Manually Marry Photos to Plays

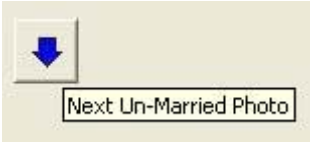
After automatically marrying photos to plays, there could be some photos left over that the software was not able to determine which plays to marry them to. The number of unmarried photos and plays are shown on the top right of the application:



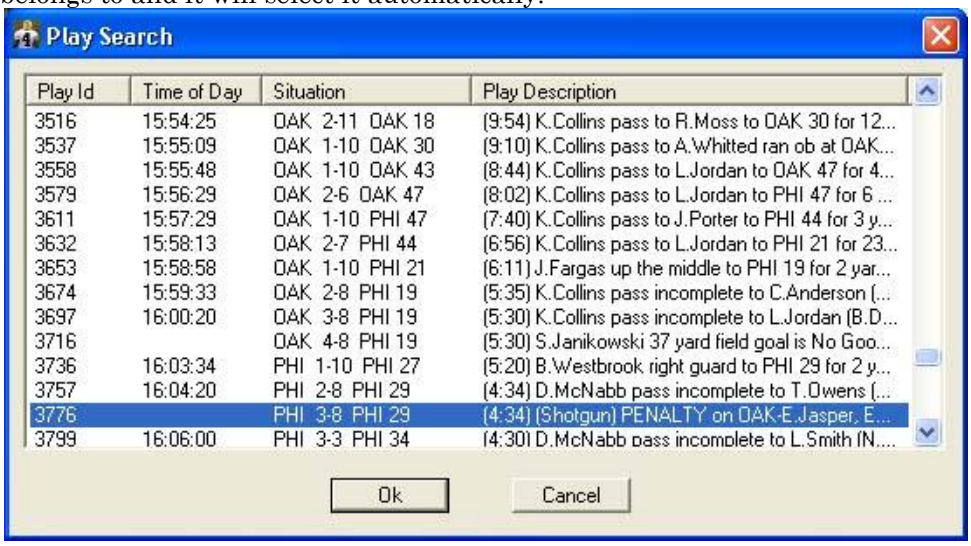
Note: Do NOT start identifying players until you manually marry the remaining unmarried images to plays or discard them if they don't belong to a play.

Unmarried photos are displayed in red color in the image list:

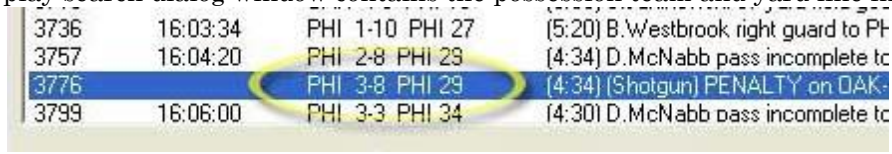
To find unmarried photos in the list, either use the scrollbars to the right of the list to search for the photos in red text or you can use the buttons with the blue arrows to the right of the image list. The up arrow finds the previous unmarried photo and the down arrow finds the next unmarried photo automatically.



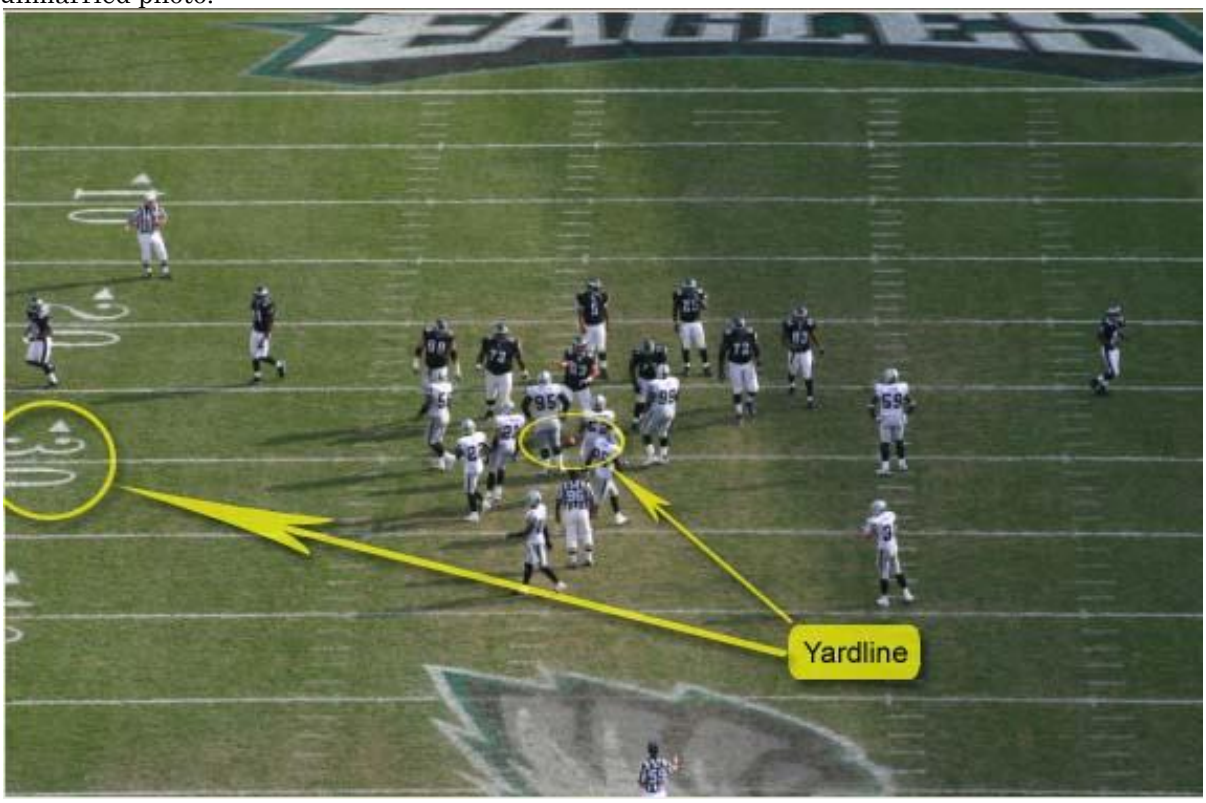
To marry an unmarried photograph to the proper GSIS play, double-click on it and the play search dialog window will appear. The application will find the play that this photo most likely belongs to and it will select it automatically.



To verify whether the selected play is the correct one, you must check that the team with possession and the yard line match what you see in the photograph. The situation column in the play search dialog window contains the possession team and yard line information:

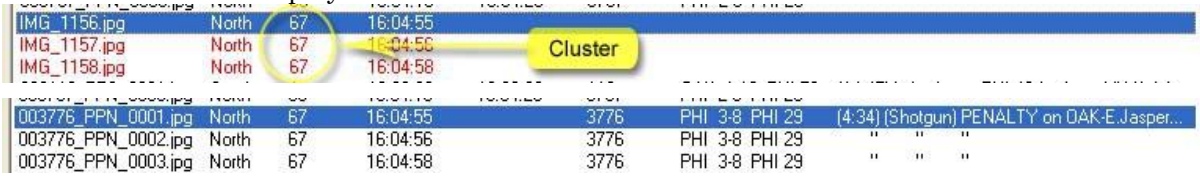


So in the above example, the Philadelphia Eagles have possession of the ball, it's 3rd and 8 yards to go and the ball is on the Philadelphia 29 yard line. Verify this information by looking at the unmarried photo:



As you can see from the photo above, the Philadelphia Eagles do have possession of the ball because you can see the Eagles offense on the field and the offensive line walking towards the line of scrimmage. Also you can see that the ball is behind the Eagles 30 yard line so this information verifies that this photo belongs to Play Id 3776 selected in the play search dialog window. To marry the unmarried photo to the selected play click on the **Ok** button.

When manually marrying a photo to a play, all plays in the same cluster as that photo will be married to the selected play as shown in the before and after screenshots below:



When trying to decide which play a certain unmarried photo belongs to, it is also very helpful to compare the time of previous and next play with the time of the photograph to determine which is the correct play. In the example below, the time of day of the three unmarried photos is 16:00:47, 16:00:49 and 16:01:00 respectively.

When you double-click on one of these photos, the following play is automatically selected as the most likely match:

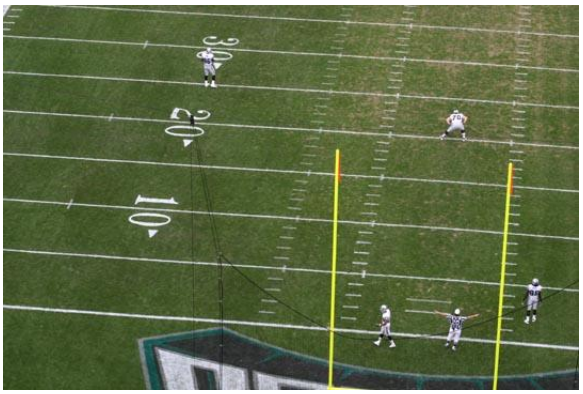
The previous play, Play Id 3697 went off at 16:00:20 and the first unmarried photo was taken at 16:00:47 which is after this play went off so you can eliminate play 3697 as the matching play. Also if you notice the next play, Play Id 3736 went off at 16:03:34. The last unmarried photo was taken at 16:01:00 which is two minutes and 34 seconds before this play went off so you eliminate this play as the matching play. The only play that these photos can logically match to is Play Id 3716.

Note: Be very careful when manually marrying photos to plays. Use all methods explained above to decide the correct play to marry photos to. Never manually marry a photo to a play if you're not sure if you've selected the correct one. Ask for help from another crew member or call the NFL support line.

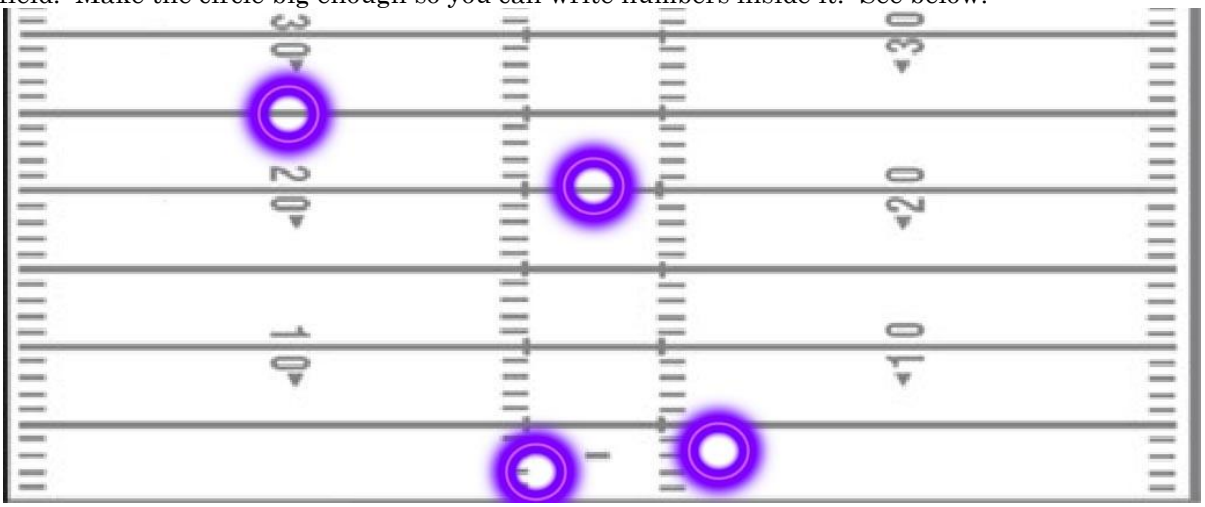
Kickoff Charting

During kickoffs, players are spread across most of the field and it takes many photos to capture all 22 players. We have found that when you identify players by reviewing the photographs and entering the players as you see them, you will make a lot of mistakes. Because all of the players are not in one photo it is impossible to account for all 22 players from a single photo and players may be entered incorrectly. For example, in one photograph one player may look like #58. In another photograph you may be able to positively identify him as #59. When this happens, if you recorded him as #58 and #59 then you will have identified an additional player in the play and you'll miss the actual 11th player who may have been #77. These mistakes are easy to prevent by using our kickoff charting methodology. Follow the steps below to properly chart a kickoff play.

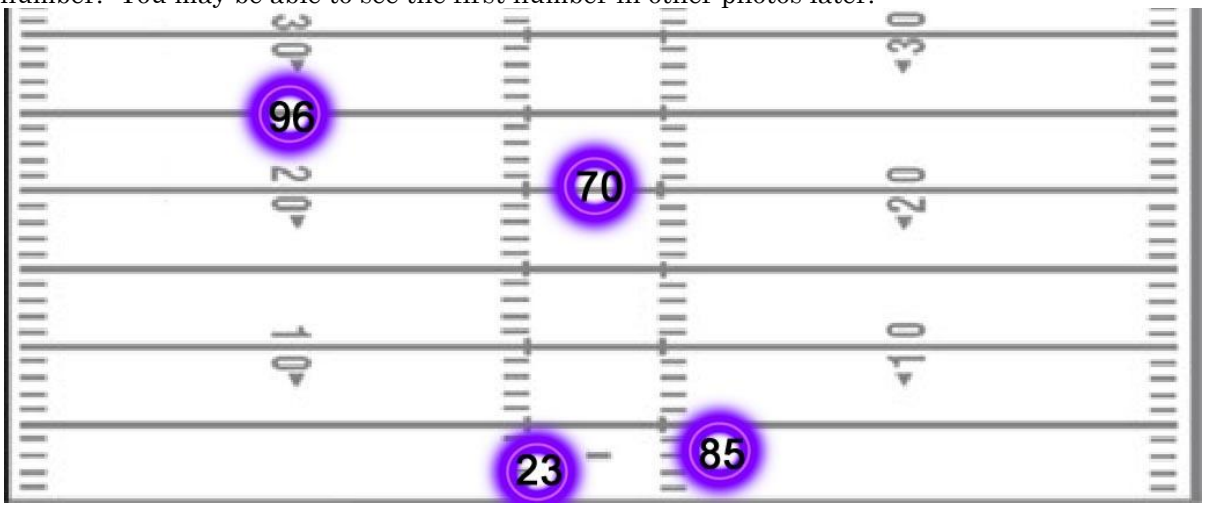
1. Make a copy of the Kickoff Charting form found in Appendix B.
2. Look at the first photograph but do not zoom in on it.



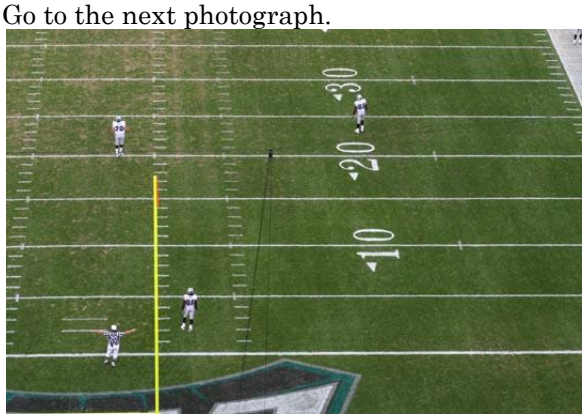
3. Place a circle on the kickoff charting form where each player is in relationship to the field. Make the circle big enough so you can write numbers inside it. See below.



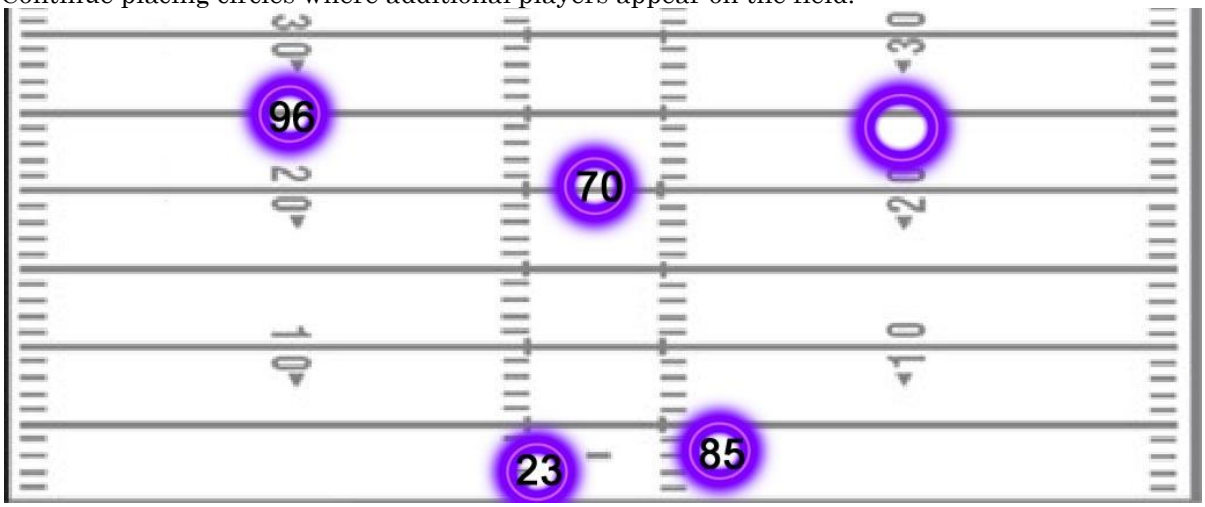
4. Now zoom in on the first photograph to determine the players' identity. Write their uniform number in the circles. If you can't see all of their uniform number, write any identifying information in or above the circle on the form. For example, if you can only see that his second number is a 5, write "x5". The "x" will be your indicator that you are missing the first number. You may be able to see the first number in other photos later.



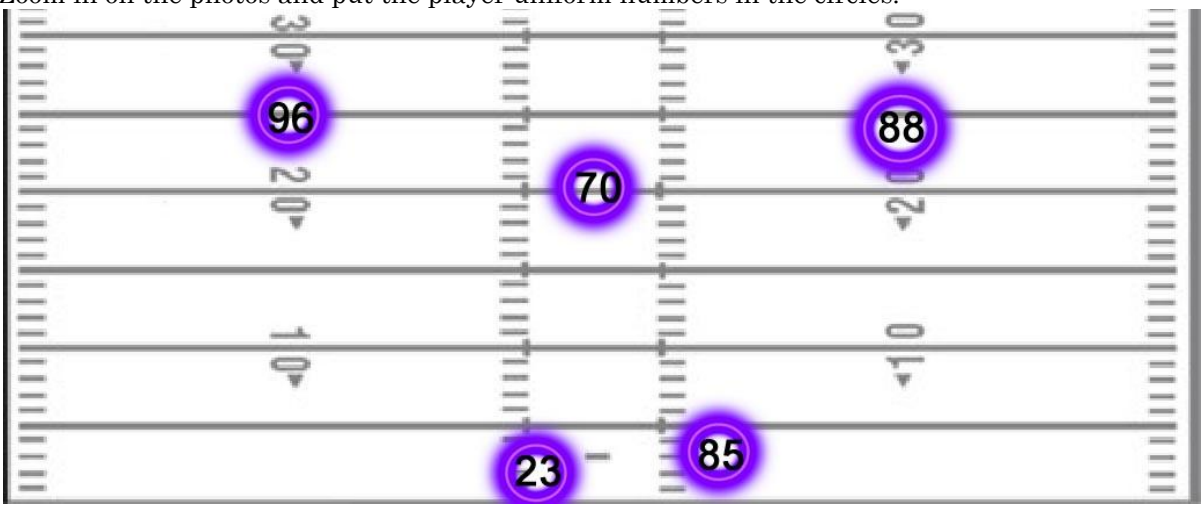
5. Go to the next photograph.



6. Continue placing circles where additional players appear on the field.



7. Zoom in on the photos and put the player uniform numbers in the circles.



8. Continue with this process until you've been able to positively identify all 22 players.
9. When finished identifying all of the players on paper, enter the players into the Player Participation system.

Players Numbered by Position

Rule 4, Article 4

All players must wear numerals on their jerseys in accordance with Rule 5, Section 3, Article 3(c), and such numerals must be by playing position as follows:

Position(s)	**Uniform Number Range**
Quarterbacks, punters and place kickers	1-19
Running backs and defensive backs	20-49
Centers	50-59 (60-79 if 50-59 unavailable)
Offensive guards and tackles	60-79
Wide receivers	10-19 and 80-89
Tight Ends	80-89
Defensive linemen	60-79 (90-99 if 70-79 unavailable)
Linebackers	50-59 (90-99 if 50-59 unavailable)

If a player changes his position during his playing career in the NFL and such change moves him out of a category specified above, he must be issued an appropriate new jersey numeral.

Any request to wear a numeral for a special position not specified above (e.g., H-back) must be made to the Commissioner.

During the preseason period when playing rosters are larger, the League will allow duplication and other temporary deviations from the numbering scheme specified above, but the rule must be adhered to for all players during the regular season and postseason. Clubs must make numerals available to adhere to the rule, even if it requires putting back into circulation a numeral that has been retired or withheld for other reasons.

Logging In

There may be times when another user logged onto the machine that you are about to use. You should always identify yourself as the person working on the machine. You accomplish this by choosing **File, Switch User** from the menu-bar. Or, if there has been 5 minutes of inactivity on the computer you will be automatically prompted to log in.

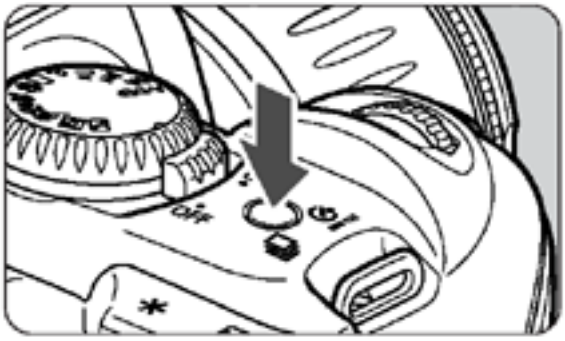
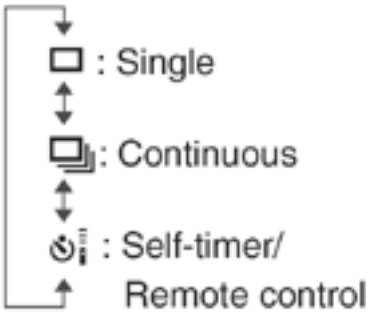
Chapter 4 - Troubleshooting

This chapter includes troubleshooting procedures for scenarios we've identified. We expect this chapter to be expanded to include more troubleshooting issues as the 2004 season progresses.

Camera Problems

Introduction

This section explores possible problems you may experience with the Canon EOS Digital Rebel camera and provides solutions to remedy the problems

Problem	Resolution
When pressing the shutter button it takes 10 seconds before the camera takes a picture.	You have accidentally placed the camera in self-timer mode.  Press the drive mode selection button and cycle through the display until you reach **Single** mode. 
Underexposed Photos	Change the ISO setting to a higher value.
Overexposed Photos	Change the ISO setting to a lower value.
Condensation on Lens and Camera when it's hot & humid	Allow time for the camera to warm up. Do NOT turn on the camera if there is a lot of condensation on it. Moving the camera from a cold environment to a warm

	environment normally causes this.
Camera will not turn on	1. Make sure your battery is fully charged 2. Make sure the battery door is completely closed. 3. Remove the CompactFlash card and check to see if there are any bent or missing pins inside the camera. There should be two rows of 25 pins and they will look like dots. If one is bent it will look different from the others.
Camera reports "Err 02"	1. There is a problem with the CompactFlash card. Do one of the following: Remove and reload the CF card, use another CF card, or format the CF card. 2. Remove the CompactFlash card and check to see if there are any bent or missing pins inside the camera. There should be two rows of 25 pins and they will look like dots. If one is bent it will look different from the others.

Cold Weather Problems

Introduction

This section explores possible problems you may encounter during cold weather and provides solutions to remedy the problems.

Problem	Resolution
Batteries don't have sufficient power in cold weather.	Use A/C power whenever possible. Keep spare battery in a warm location (i.e. pants pocket) until ready for use.

Wet Weather Problems

Introduction

This section explores possible problems you may encounter during wet weather situations and provides solutions to remedy the problems.

Problem	Resolution
Lightning	If your camera location is not sheltered, seek shelter immediately. Your life is more important than these photographs.
Rain	Place rain-cover over camera body and lens. Seek a sheltered shooting location if possible.

Primary Computer Role Problems

Introduction

This section describes problems that may occur on the computer performing the role of Primary. You can determine the computer role of any computer by examining the Role in the status bar at the bottom of the GSIS Player Participation window.

Problem	Resolution
Can not find the GSIS DC dial-up networking connection.	Contact the GSIS Helpdesk
Primary machine has some problem that you can't resolve and you need to move the Primary Role laptop to a another laptop.	The Player Participation software has a feature that allows you to save the work you've done to a flat file. Normally, you shouldn't have to use this feature. However, in the unlikely event you need to move the primary computer role from one machine to another, you may save your work by choosing **File, Save** from the menu-bar. This will make a copy of the work you've done from the database into a file located in the c:\GSISPlayerParticipation\<gamekey> folder. You may copy that file to another machine and make that machine perform the primary role. Then simply choose **File, Open** from the menu-bar and load that file into the new primary's database. You may also copy the photographs from the original primary to the new one. Simply map a drive to the GSISPlayerParticipation folder of the original primary machine and copy the entire folder with today's gamekey to the new primary machine.

Secondary Computer Role Problems

Introduction

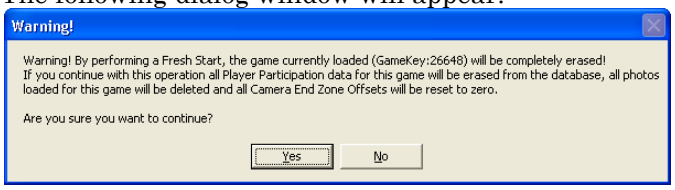
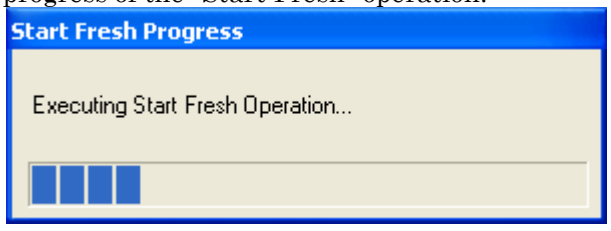
This section describes problems that may occur on any computer that is **not** performing the role of Primary. You can determine the computer role of any computer by examining the Role in the status bar at the bottom of the GSIS Player Participation window.

Problem	Causes / Resolution
When starting GSIS Player Participation on a Secondary laptop, you receive a message indicating "Couldn't locate a primary data machine in stadium" message almost immediately: *Figure 37: No Primary in Stadium Prompt*	**Causes** This problem is caused by one of the following: • There is no laptop in the stadium running GSIS Player Participation with a computer role of Primary. • This laptop does not have network connectivity with the Primary laptop. **Resolution** Make sure a laptop is running GSIS Player Participation with the primary. Make sure that both this laptop and the Primary laptop are connected to the local area network and the two laptops can communicate with each other via the network. Try PINGing the Primary laptop. For example, go to a command prompt and type **PING GSISxxxx** where *GSISxxxx* is the computer name of the primary laptop. If the PING is unsuccessful, see the *LAN Problems* section of this document. Click **OK** to exit GSIS Player Participation. Restart GSIS Player Participation on this laptop after you've fixed the problem.

Marrying Photos To Plays Problems

Introduction

This section explores possible problems you may encounter when marrying Photos to Plays and provides solutions to remedy the problems.

Problem	Cause / Resolution
You discover that the Camera Offset values you set before marrying the photos to Plays were wrong and you also may have manually married some Photos to the wrong Plays. You've reached a point where so many Plays are married to the wrong Photos that you can't continue and you want to Start Over.	To resolve this problem the software will help you do this by deleting all the photos you've loaded for this Game, resetting the Camera End Zone Offset values and by erasing all Player Participation data you've entered this far for this Game. If you've identified all 22 players for 50 or more Plays in the Game you will **not** be able to perform the following operation. Here are the steps to "Start Fresh" in a game: 1. In the Player Participation software that's running on the Primary machine select **File, Start Fresh**. 2. The following dialog window will appear:  3. Be very careful with this operation, **by performing a Start Fresh, the game currently loaded will be completely erased.** If you do not wish to continue with the "Start Fresh" then click the **No** button. 4. If you do want to continue with the "Start Fresh" operation then click on the **Yes** button. 5. The following window will appear showing the progress of the "Start Fresh" operation: 

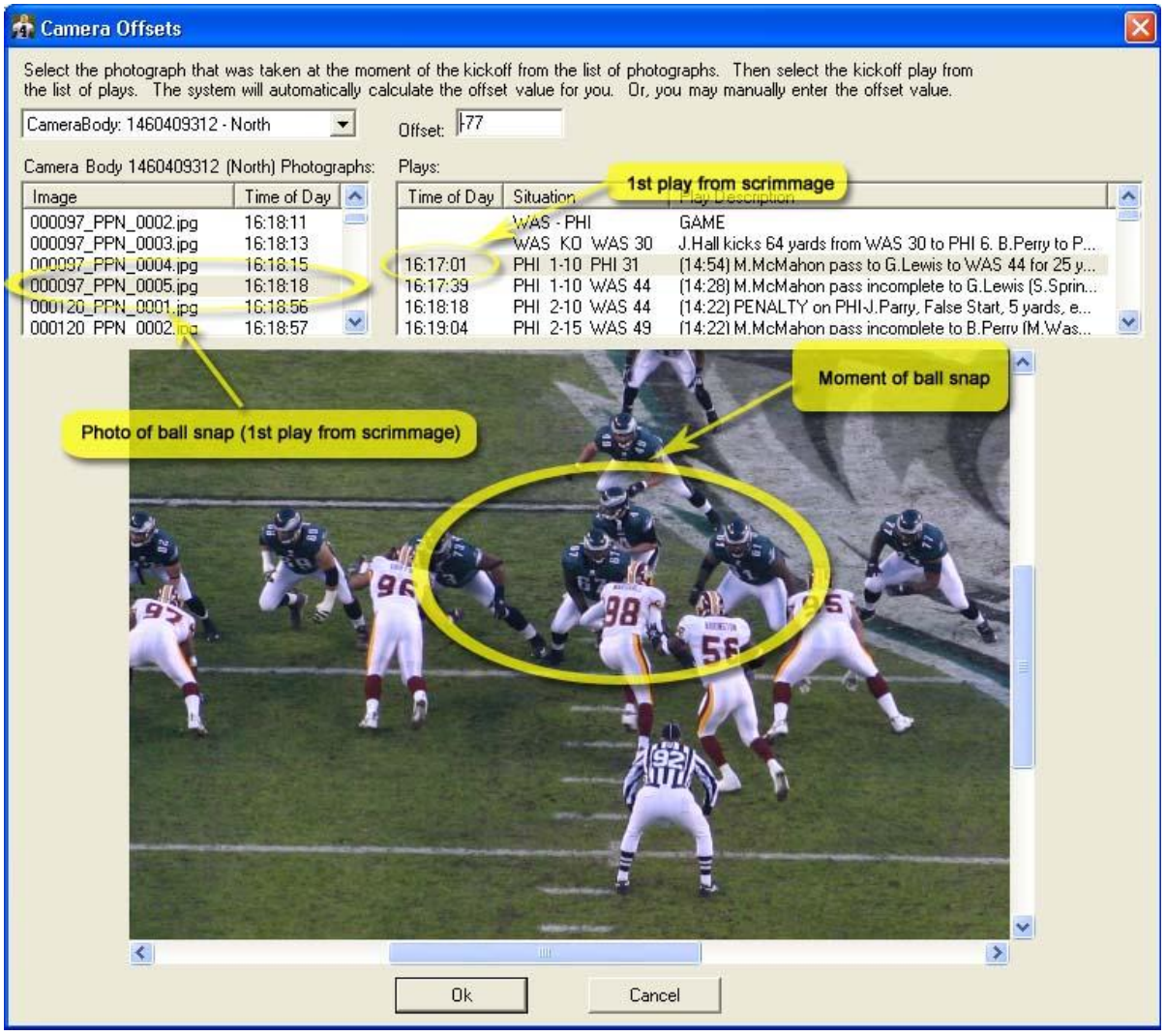
Camera Offset Problems

Introduction

This section explores possible problems you may encounter when setting the camera offset values and provides solutions to remedy the problems.

Problem	Cause / Resolution
You realize that the camera offset value you set was wrong and you want to correct it.	To resolve this problem, select **Photos, Camera Offsets** from the menu-bar. On the dropdown on the top left of the form, select the Camera Body you want to change the offset value for: The photographs list will load the photos taken with the selected Camera Body. Select the photograph that was taken at the moment of the kickoff and the kickoff play from the Play List. The offset value will automatically get calculated for you and will show up in the "Offset" input field. Note: If there is no time of day value for the kickoff play you will have to use a play from scrimmage to calculate the offset value. Once you've entered an offset value click **Ok** to save your changes.
The kickoff play doesn't have a time of day value and you don't know how to set the camera offset value.	Sometimes the GSIS operator forgets to press the F11 key to capture the time of day of the initial kickoff in the game. If this happens the time of day value in the Camera Offset dialog will be blank as shows below: To calculate the camera offset value you must use the next play in the play list that has a time of day value. The camera operators are instructed to take a photo of the ball snap for the first three plays from scrimmage so you should be able to set the camera offset value using any of those plays. In the Play List, select the first play from scrimmage that has a time of day value and then in the photographs list, select the photo of the moment of the ball snap for that play. Once you've entered an offset value click **Ok** to save your changes. The following

screenshot shows the selection of the 1st play from scrimmage in the Plays list and the photo of the moment of the ball snap for that play:



Uploading Data to NFL Problems

Introduction

This section explores possible problems you may encounter when uploading the data to the NFL and provides solutions to remedy the problems.

Problem	Cause / Resolution
The Status Window says "Determining if Distribution Center is Reachable" and the number keeps getting higher.	The primary machine is unable to communicate with the Player Participation Queue Processor service in NY. 1. From a command prompt type: PING GSISSQLCluster1 2. If you don't receive a reply then check to see if the dial-up connection is still active or the GSIS network connection is still active. 3. Open Computer Management, expand **Services and Applications, Message Queuing**. 4. Click on **Outgoing Queues**. 5. Check the number of messages in the PlayerParticipation queue. 6. If the number is zero then call the GSIS Helpdesk at 877-635-0171 and ask if the Player Participation service is running on the cluster.

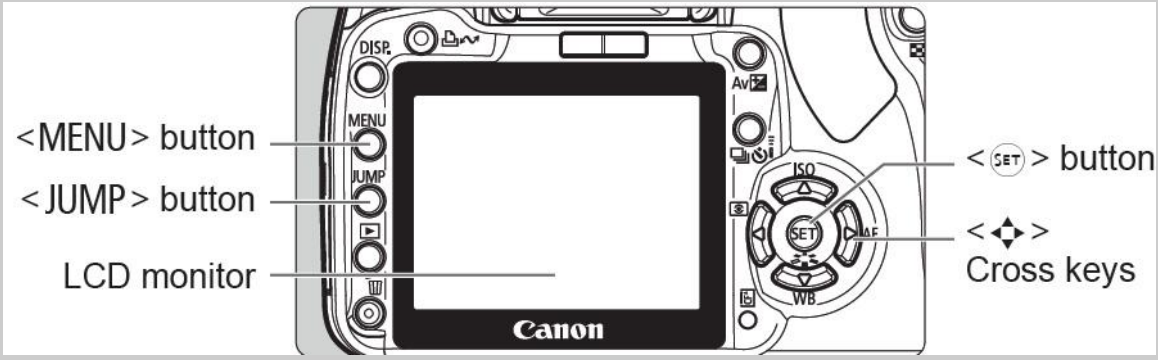
Appendix A – Camera Settings

This appendix provides all of the initial settings of the camera. The cameras you receive from the NFL will be pre-configured with all of the required settings. You should not have to change the settings unless the internal camera battery has been replaced or you needed to purchase a camera to replace a lost or damaged camera.

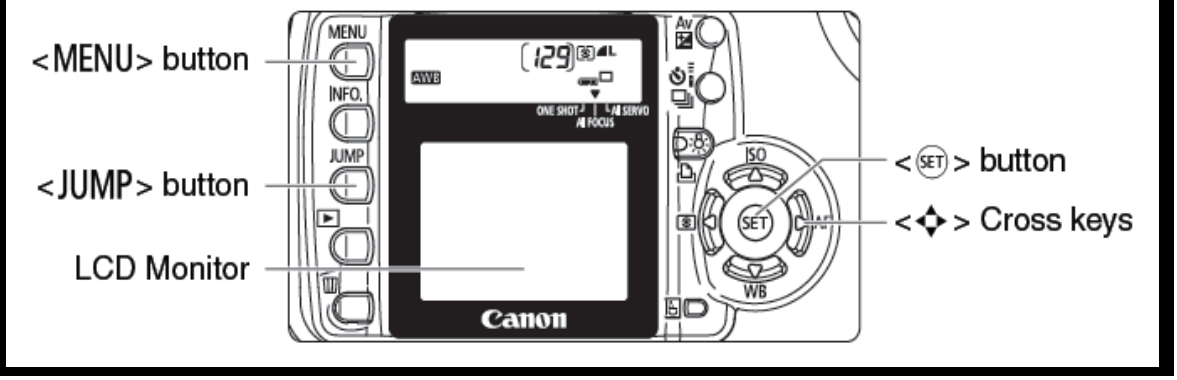
Menu Operations

The on-screen menus enable you to set various settings such as the image-recording quality, date and time, etc. Basically, you look at the LCD monitor and use the <MENU> button, <JUMP> button, Cross keys <◀ ▶ ▲ ▼>, and (SET) button to proceed to the next step.

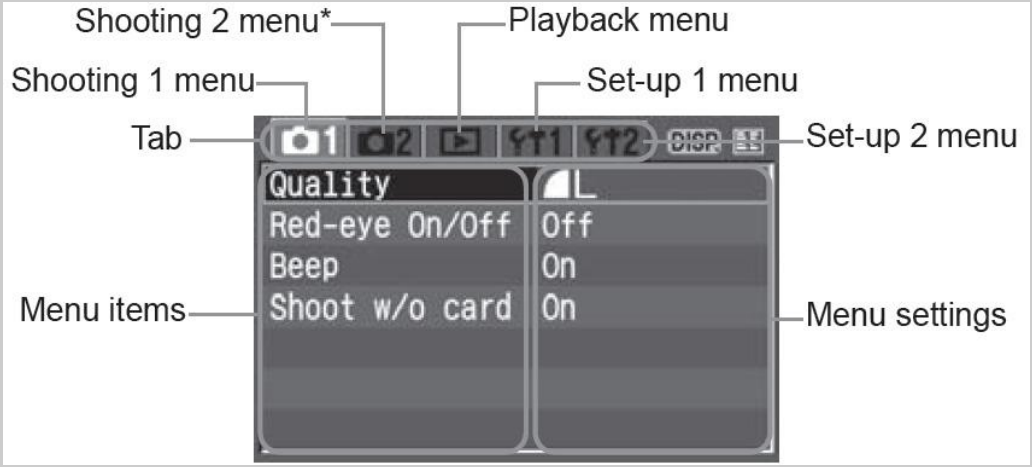
Canon Digital Rebel XTi



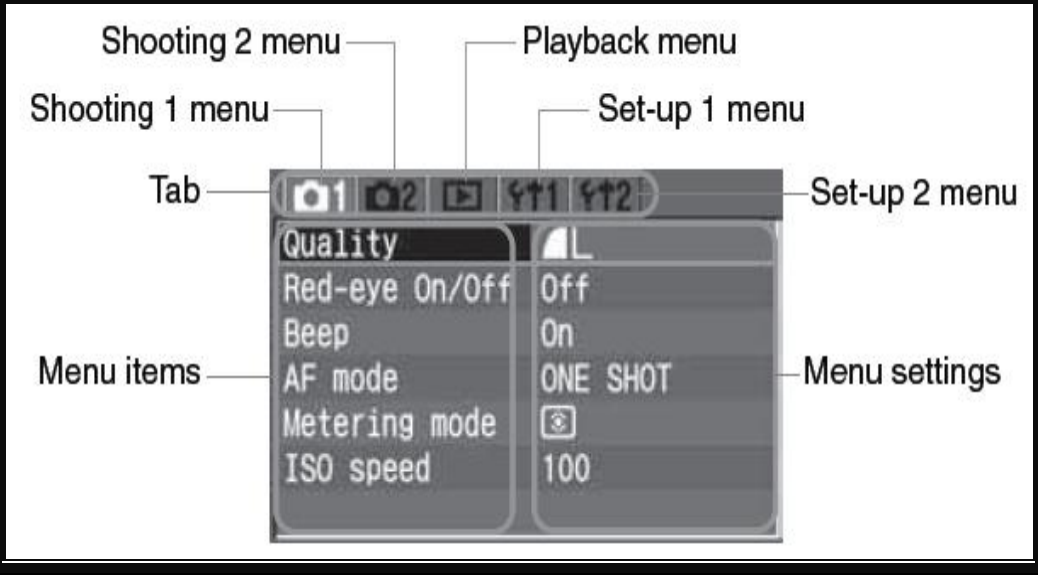
Canon Digital Rebel XT



Canon Digital Rebel XTi

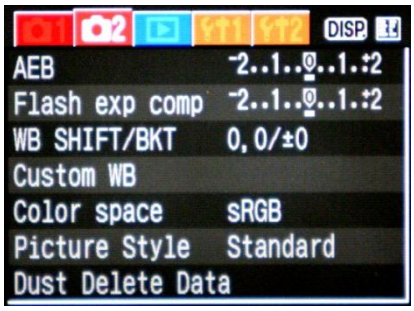


Canon Digital Rebel XT



Shooting Menu

Ensure that the values in the shooting menu on each of your cameras match the settings in the image below.

Canon Digital Rebel XTi	Canon Digital Rebel XT
  	

Playback Menu

Ensure that the values in the playback menu on each of your cameras match the settings in the image below.

Canon Digital Rebel XTi	Canon Digital Rebel XT

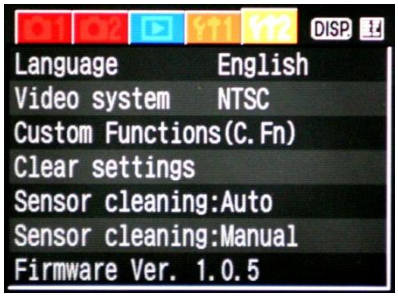
Set-up 1 Menu

Ensure that the values in the set-up 1 menu on each of your cameras match the settings in the image below.

Canon Digital Rebel XTi	Canon Digital Rebel XT

Set-up 2 Menu

Ensure that the values in the set-up 2 menu on each of your cameras match the settings in the image below.

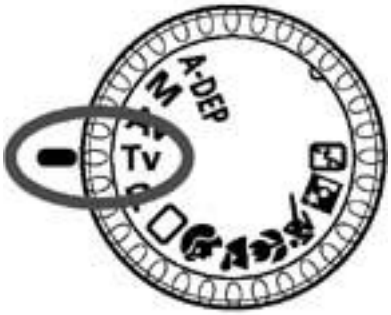
Canon Digital Rebel XTi	Canon Digital Rebel XT
	

Exposure Settings

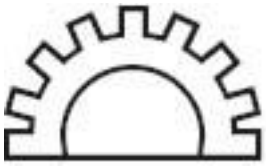
We need to ensure that every photograph taken has a shutter speed of 1/125 second. This will allow the camera to automatically set the aperture value to suit the brightness of the subject and should increase the depth of field of the photograph.

2. Set the **Mode Dial** on the camera to **Tv** (TV stands for "time value"). Set the shutter speed to **125** by turning the **Main Dial.**

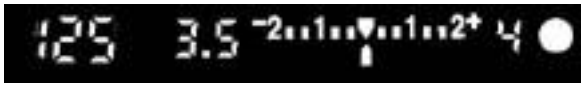
   Note: on bright days we may need to set this value higher.



Mode Dial



Main Dial



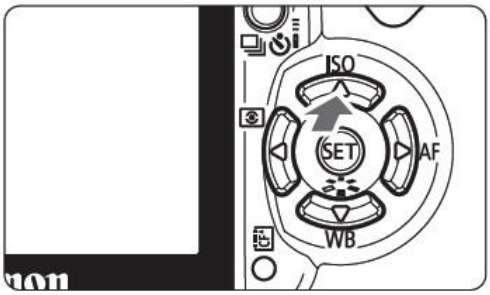
3. Set the ISO speed according to the lighting situation of your game (please refer to the table below). The ISO speed is a numeric indication of the sensitivity to light. A higher ISO speed number indicates a higher sensitivity to light. Therefore, a high ISO speed is suited for moving subjects or shooting in low-light conditions. However, the image will contain more noise to make it look coarse or grainy. On the other hand, a low ISO speed will make the image look finer, but it is not suited for freezing motion or shooting in low light.

   Note: if lighting conditions change during the game, you must review your photographs and change the ISO speed accordingly.

Game Conditions	ISO
Bright and Sunny	100
Indoor	400
Stadium Lighting (night, rain etc)	400

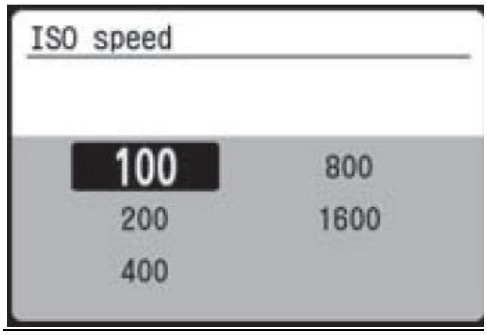
Canon Digital Rebel XTi

i. Press the ISO button ▲
The current ISO speed will be displayed on the LCD panel.



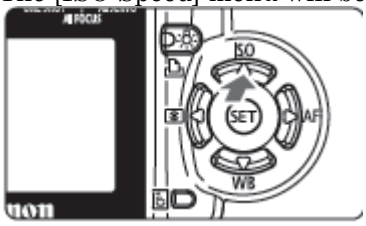
b. Set the ISO speed.

i. Press the arrow keys to select the desired ISO speed. Then press the shutter button halfway.

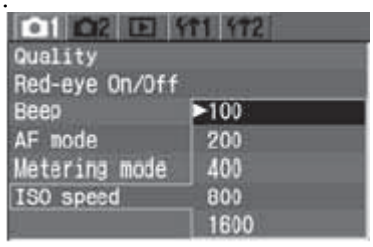


Canon Digital Rebel XT

c. Press the ISO button <▲ISO>
The [ISO Speed] menu will be displayed.



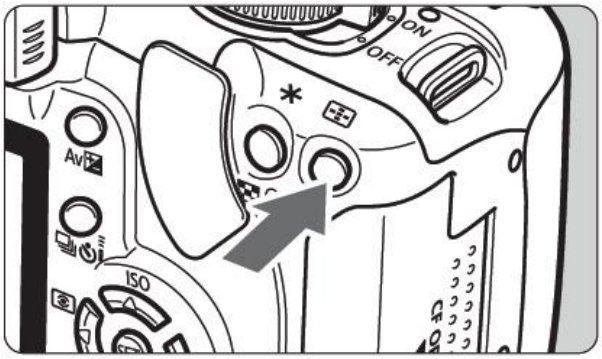
d. Set the ISO Speed
Press the <▲▼> key to select the desired setting, then press <(SET)>
.



Setting the Auto Focus Point

You can select any of the seven Auto Focus points manually. Since we are composing the photograph on football field, it is best to set the auto focus point to the center of frame.

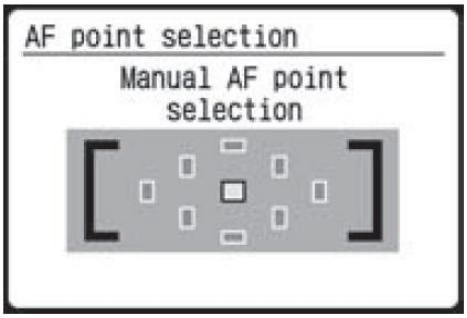
1. Press the button.



2. Select the center Auto Focus point.

Canon Digital Rebel XTi

Press the <✣> key while looking in the viewfinder or at the LCD panel.
Press the <◀▶> key to select a horizontal AF Point, or press the <▲▼> key to select a vertical AF Point.
By pressing <(SET)>, you can toggle between the center AF Point and automatic AF Point



Canon Digital Rebel XT

Press the <✣> key while looking in the viewfinder or at the LCD panel.
Press the <◀▶> key to select a horizontal AF Point, or press the <▲▼> key to select a vertical AF Point.
By pressing <(SET)>, you can toggle between the center AF Point and automatic AF Point selection.

3. After selecting the Auto Focus point, press the shutter button halfway. The camera will then be ready to shoot.

Appendix B - Gameday Forms

Gameday Checklist

Pre-game

1. Charge camera batteries (p 18)
2. Format CompactFlash Cards (p 18)
3. Sync camera clocks with GSIS Laptop (p 19)
4. Set the Mode Dial to TV and shutter speed to 125. (p 21)
5. Set the ISO and shutter speed on camera (p 21)
6. Set the Auto Focus point on the camera (p 23)
7. Setup computer equipment (p 45)
8. Update software (p 44)
9. Make copies of the Kickoff Charting form.
10. If connected to the GSIS network, ensure that the GSIS Real-time Stats Exporter is sending stats to your primary laptop. (p 47) If not, give the USB drive and extension cable to the GSIS Stadium Technician. (p 47)
11. Make photocopies of the home and visiting teams' Jersey artwork located in Appendix B.
12. Gently remind the GSIS data entry operator to press the F11 key at the start of every play (especially the opening kickoff) to capture the accurate time of day the play started. We define the start of play as the moment of the ballsnap or the moment of a kickoff. (p 44)

End Quarter 1

1. Login as <club-name>-Guest, start the Player Participation software and log in. (p 44)
2. Import data from GSIS (p 46)
3. Load photographs from both end zones (p 48)
4. Marry photographs to plays (p 51)
5. Identify 1st quarter players (p 53)
6. Create starters report and deliver to stats crew (p 53)

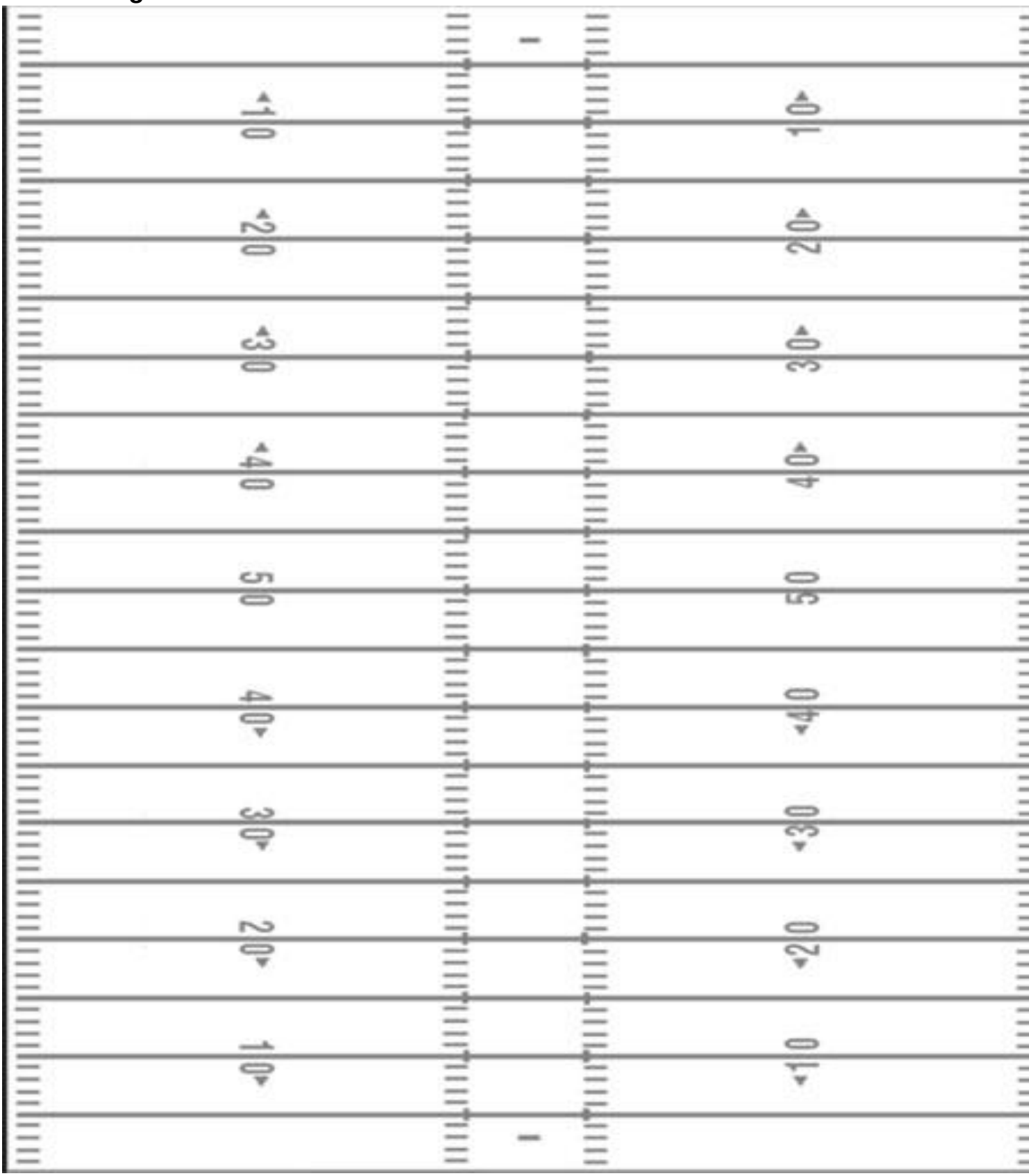
End Quarter 2 and 3

1. Import data from GSIS (p 46)
2. Load photographs from both end zones (p 48)
3. Marry photographs to plays (p 51)
4. Identify Players in 2nd quarter (p 53)

End Game

1. Import data from GSIS (p 46)
2. Optional, setup additional laptops after end of game (p 54)
3. Charge camera batteries (p 18)
4. Load photographs from both end zones (p 48)
5. Marry photographs to plays (p 51)
6. Identify Players in 3rd and 4th quarter plays (p 53)
7. Create the Data Verification report and check suspicious players(p 56)
8. Connect Primary computer to NY distribution center (i.e. dial-up or GSIS network) (p 58)
9. Upload data to NFL (p 58)
10. Copy game photos to Western Digital USB hard drive. (p 58)
11. Make sure the photos were copied successfully by opening a JPG image on the Western Digital drive. (p 59)
12. Pack up equipment
13. Send Western Digital USB drive to NFL (p 60)

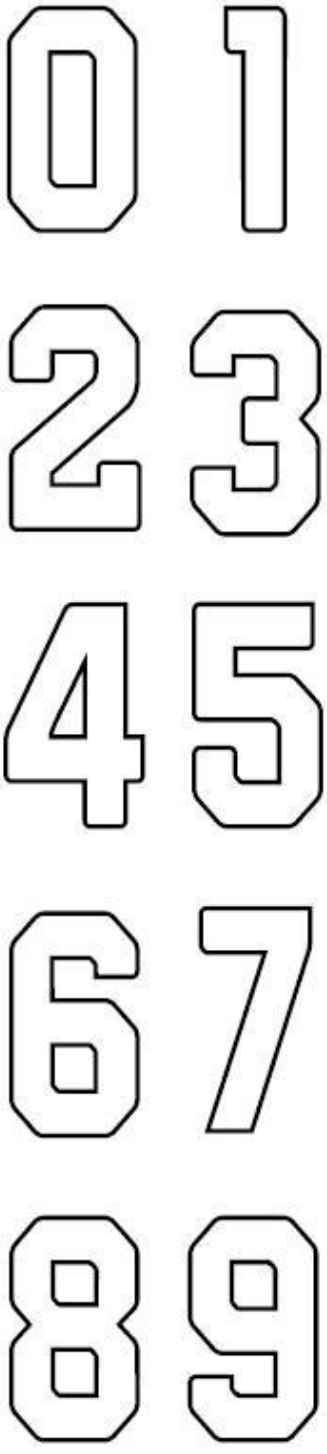
Charting



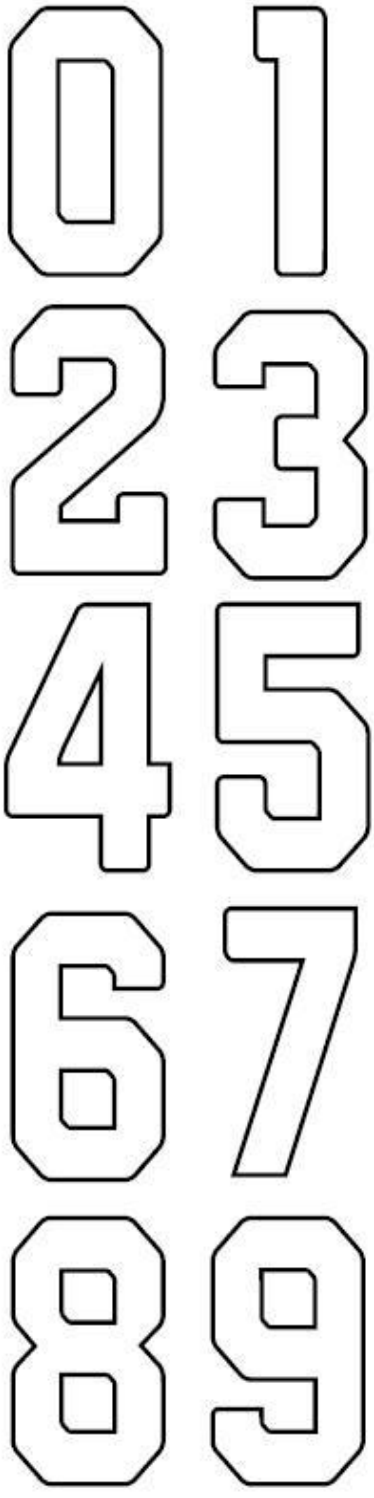
Arizona Cardinals

CARDINALS JERSEY - Chest/Back Numerals Artwork **PG. 9**

Jersey Chest Numerals



Jersey Back Numerals

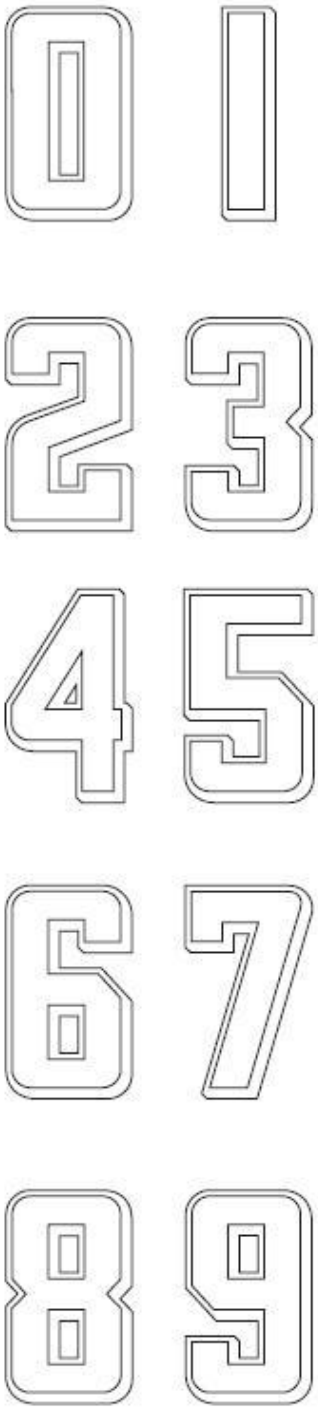


Atlanta Falcons

FALCONS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals

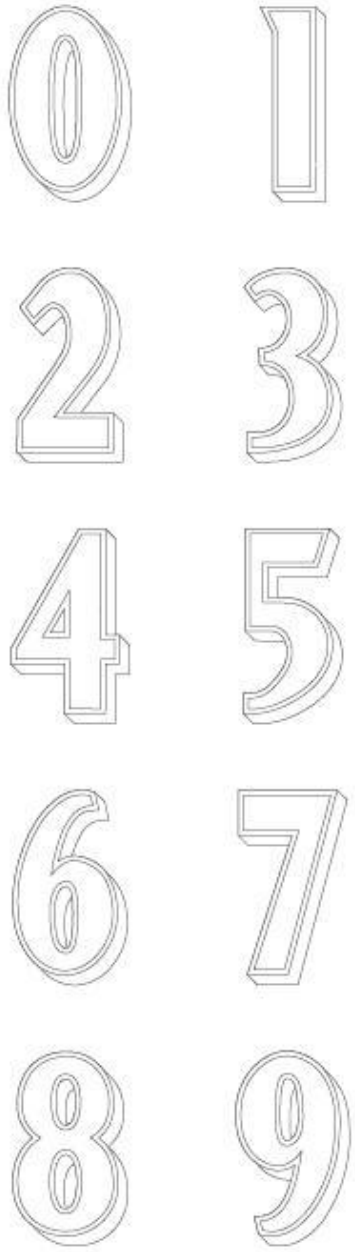
Jersey Back Numerals



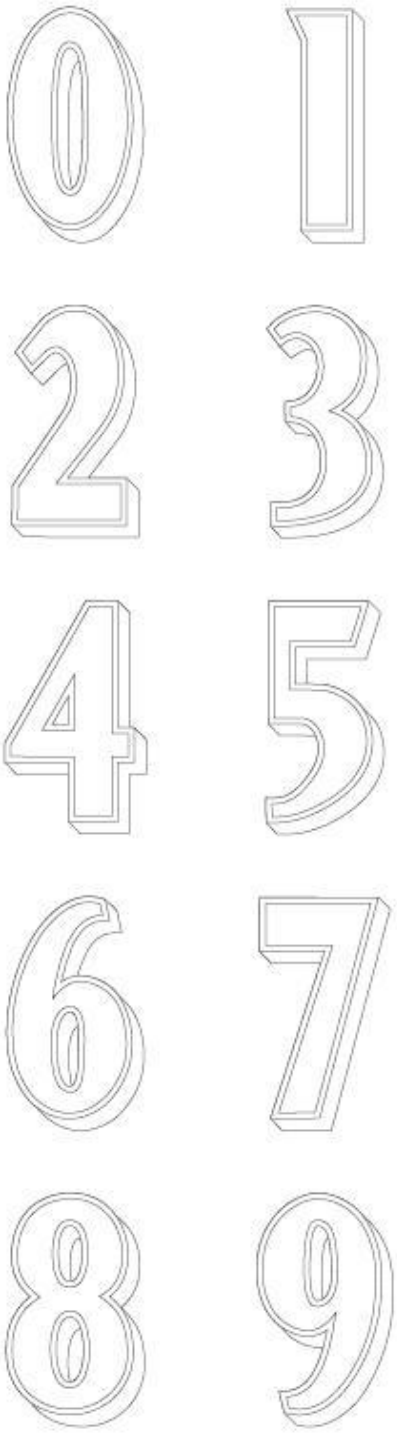
Baltimore Ravens

RAVENS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals



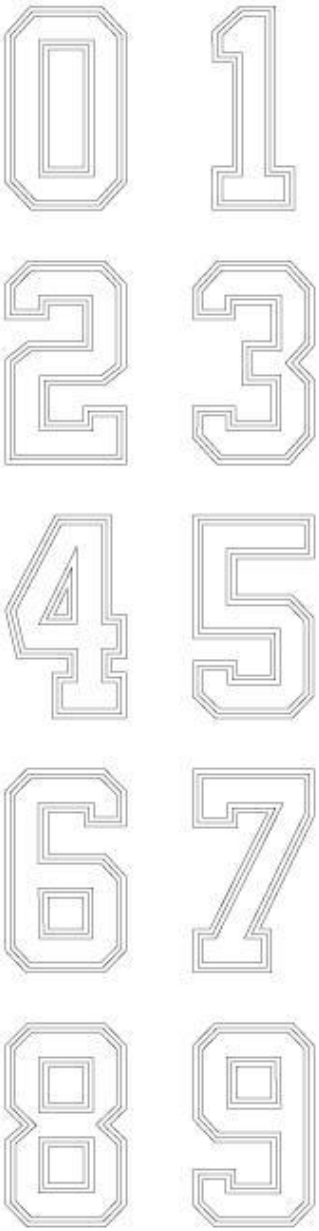
Jersey Back Numerals



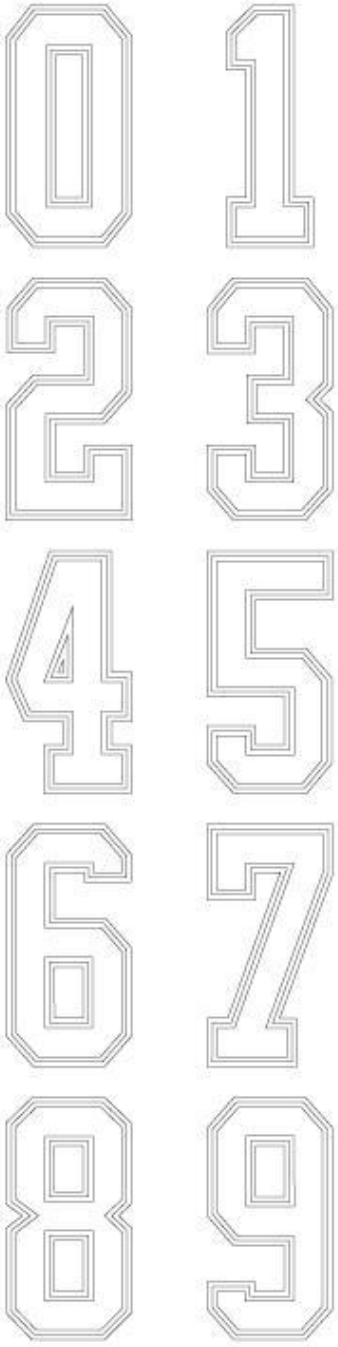
Buffalo Bills

BILLS JERSEY - Color - Chest/Back Numerals Artwork **PG. 9**

Color Jersey Chest Numerals



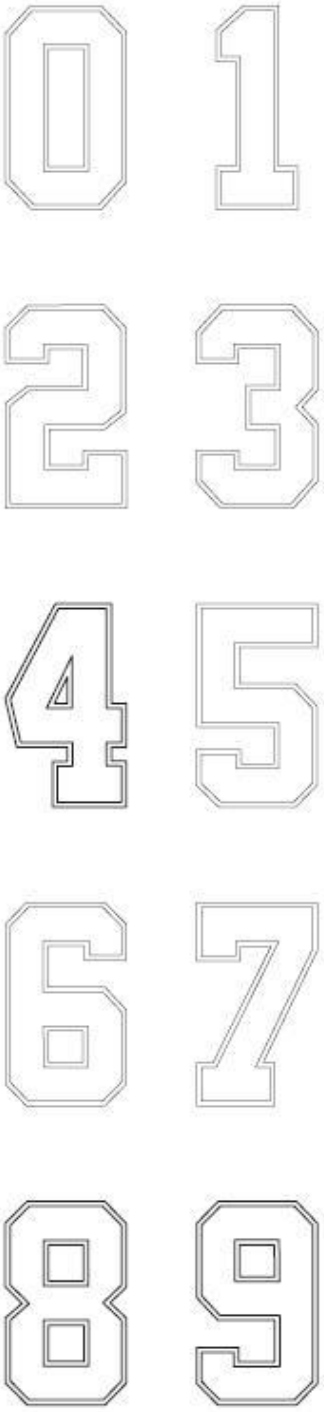
Color Jersey Back Numerals



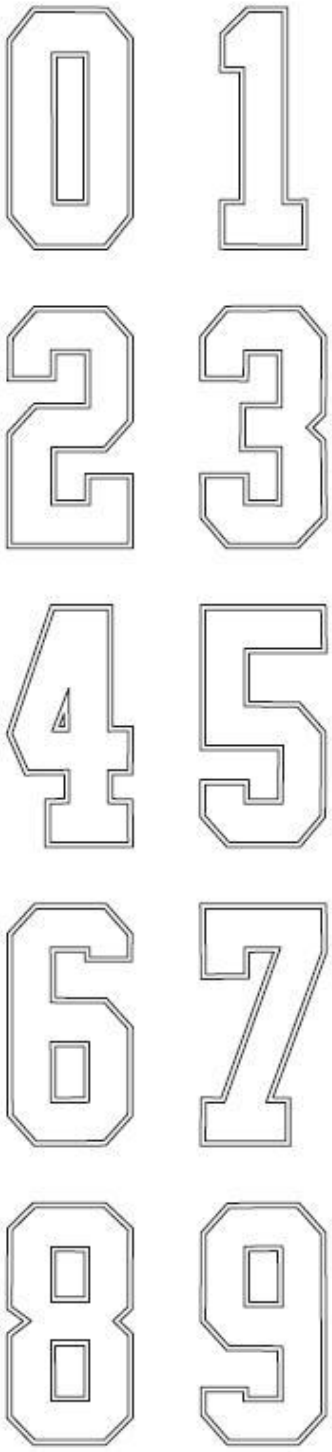
Carolina Panthers

PANTHERS JERSEY - Chest/Back Numerals Artwork PG. 8

Jersey Chest Numerals



Jersey Back Numerals



Chicago Bears

BEARS JERSEY - Chest/Back Numerals Artwork **PG. 9**

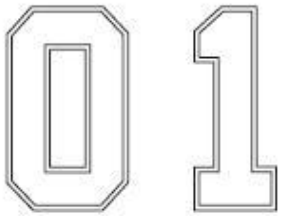
Jersey Chest Numerals

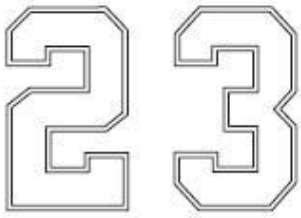
Jersey Back Numerals

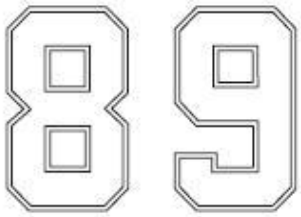
Cincinnati Bengals

BENGALS JERSEY - Chest/Back Numerals Artwork **PG. 8**

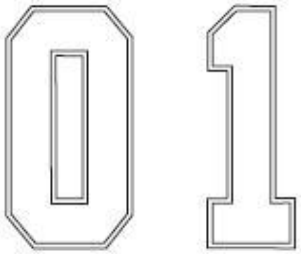
Jersey Chest Numerals

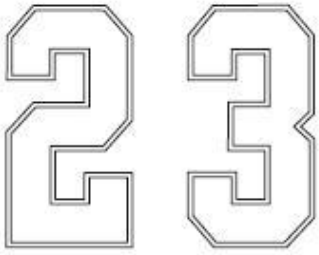


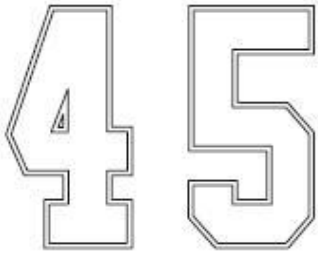


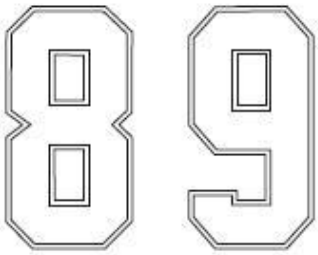


Jersey Back Numerals









Cleveland Browns

BROWNS JERSEY - Chest/Back Numerals Artwork **PG. 9**

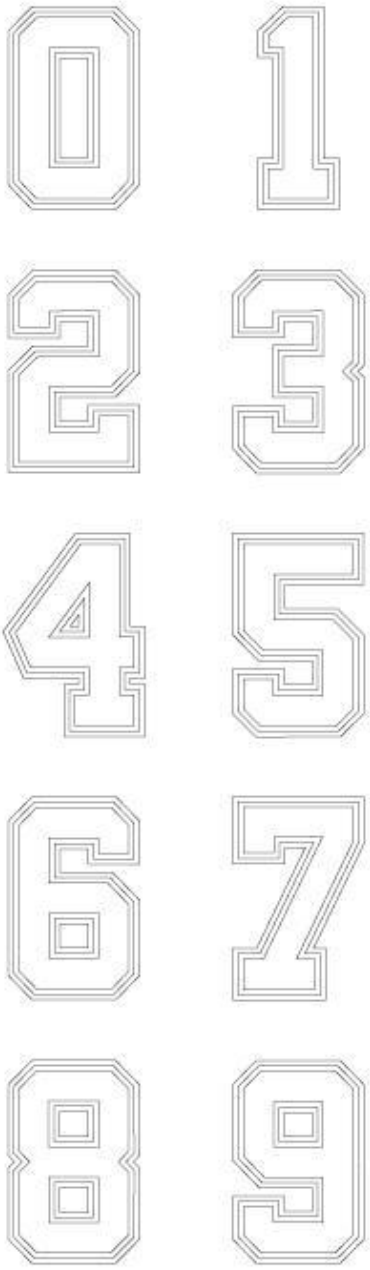
Jersey Chest Numerals

Jersey Back Numerals

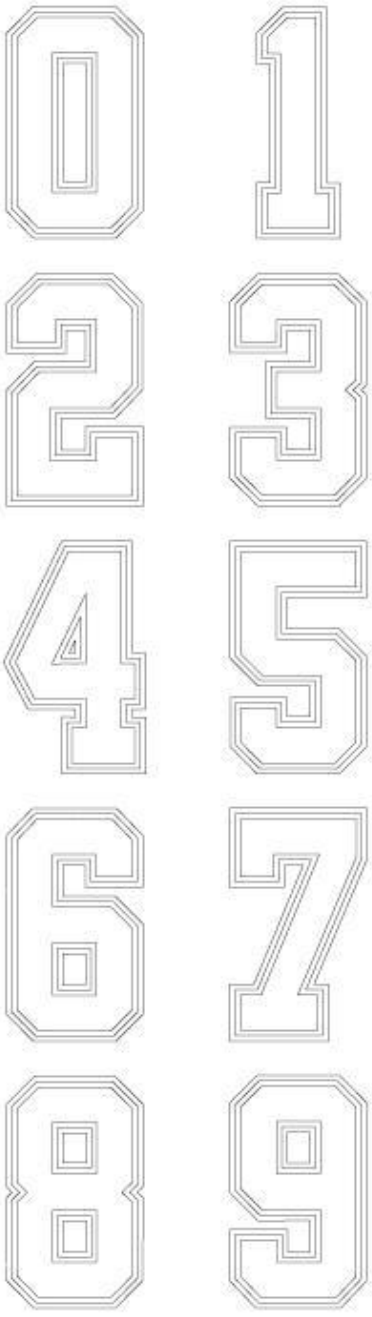
Dallas Cowboys

COWBOYS COLOR JERSEY - Chest/Back Numerals Artwork **PG. 11**

Color Jersey Chest Numerals



Color Jersey Back Numerals



Denver Broncos

BRONCOS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals

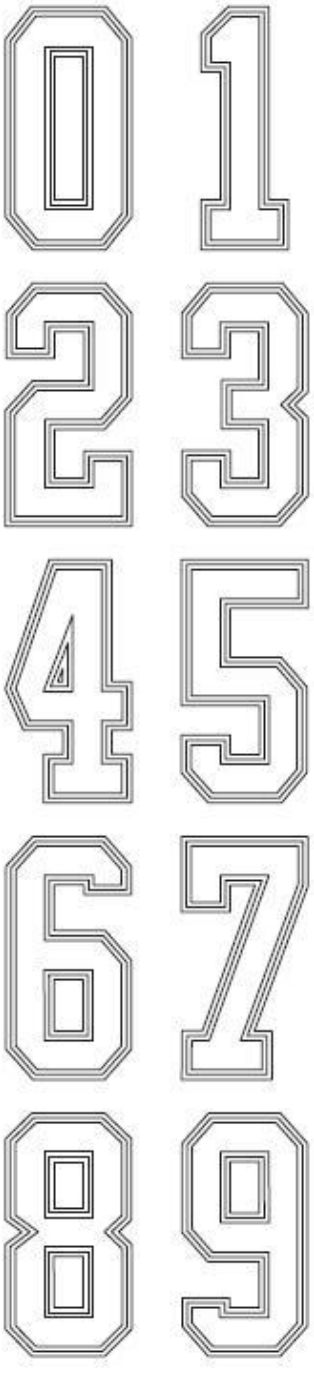
Jersey Back Numerals

Detroit Lions

LIONS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals

Jersey Back Numerals

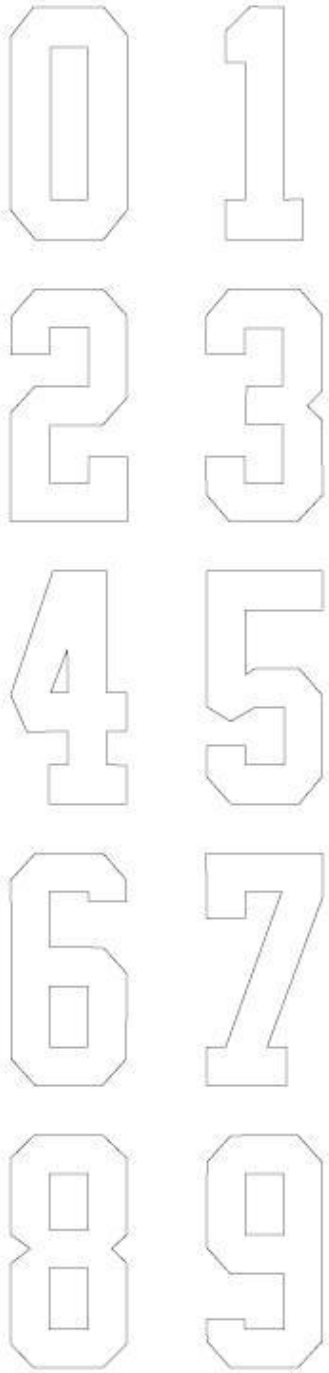


Green Bay Packers

PACKERS JERSEY - Chest/Back Numerals Artwork **PG. 7**

Jersey Chest Numerals

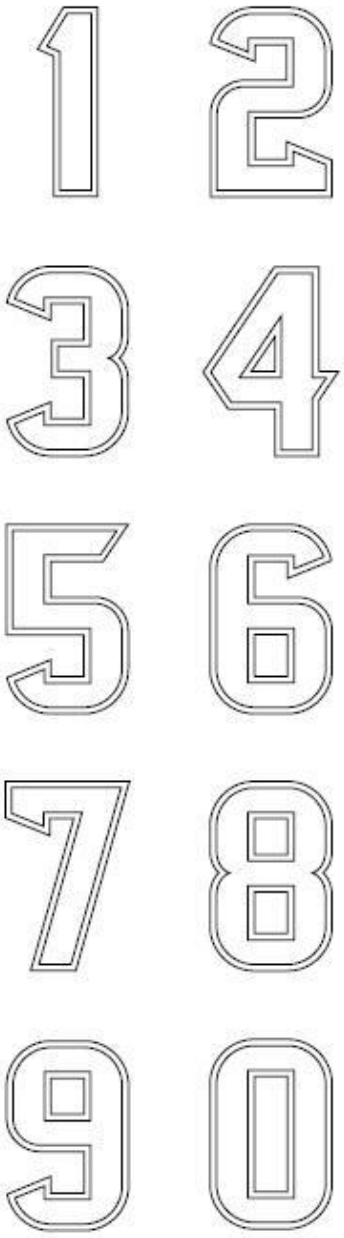
Jersey Back Numerals



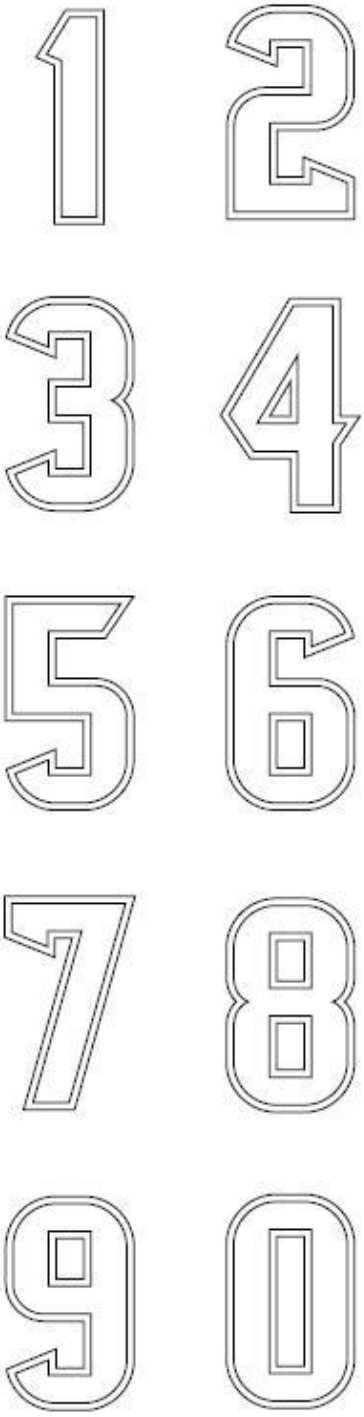
Houston Texans

TEXANS JERSEY - Chest/Back Numerals Artwork **PG. 6**

Jersey Chest Numerals



Jersey Back Numerals



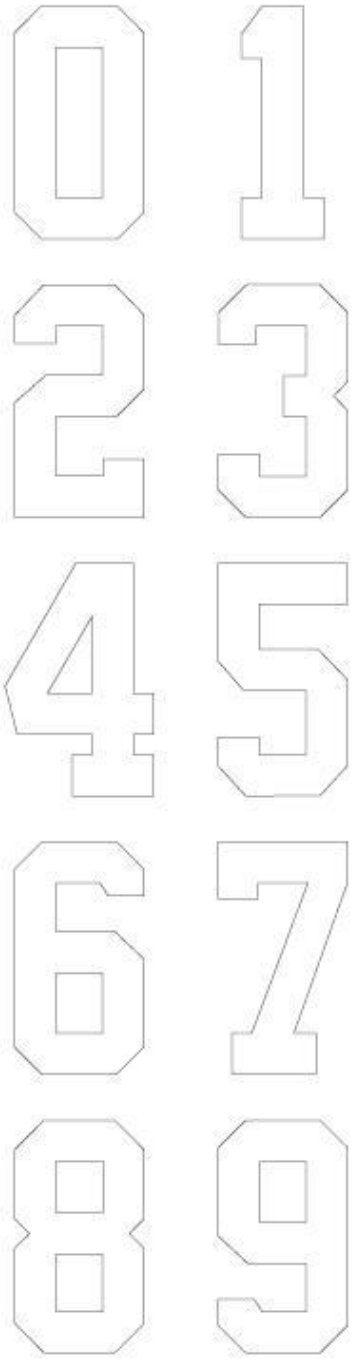
Scale: 1/8

Indianapolis Colts

COLTS JERSEY - Chest/Back Numerals Artwork PG. 7

Jersey Chest Numerals

Jersey Back Numerals

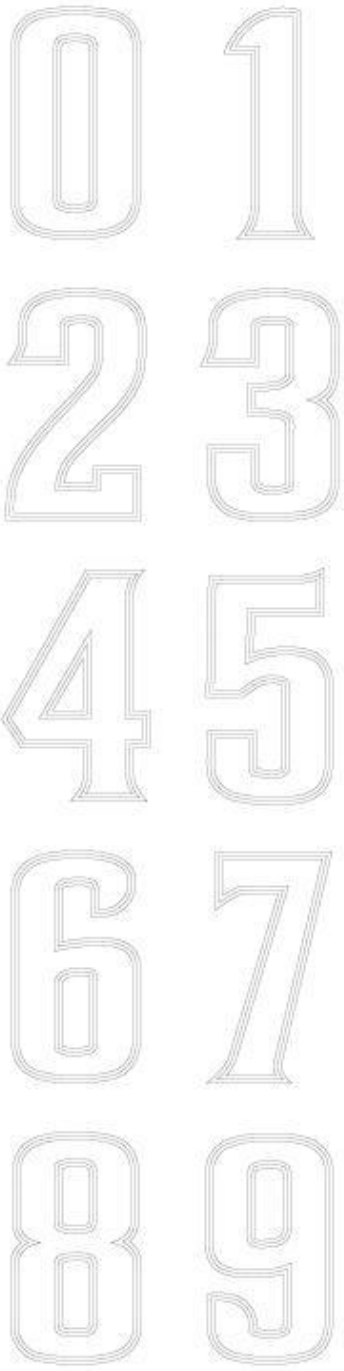


Jacksonville Jaguars

JAGUARS JERSEY - Chest/Back Numerals Artwork **PG. 7**

Jersey Chest Numerals

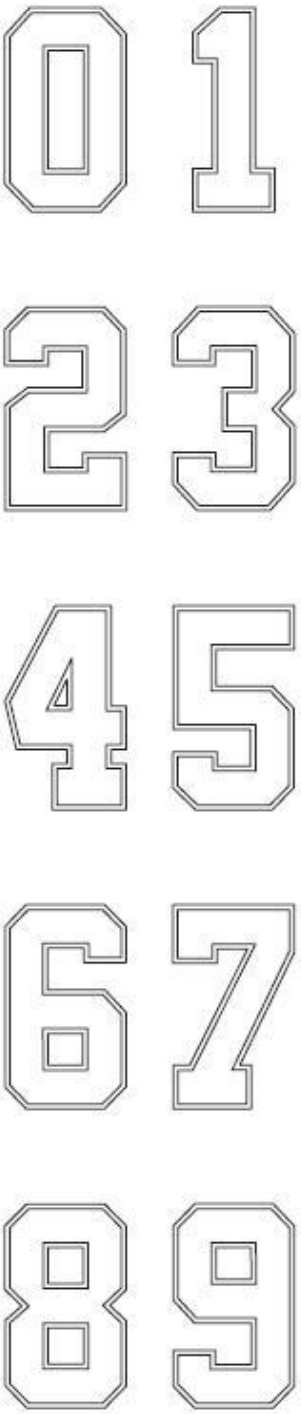
Jersey Back Numerals



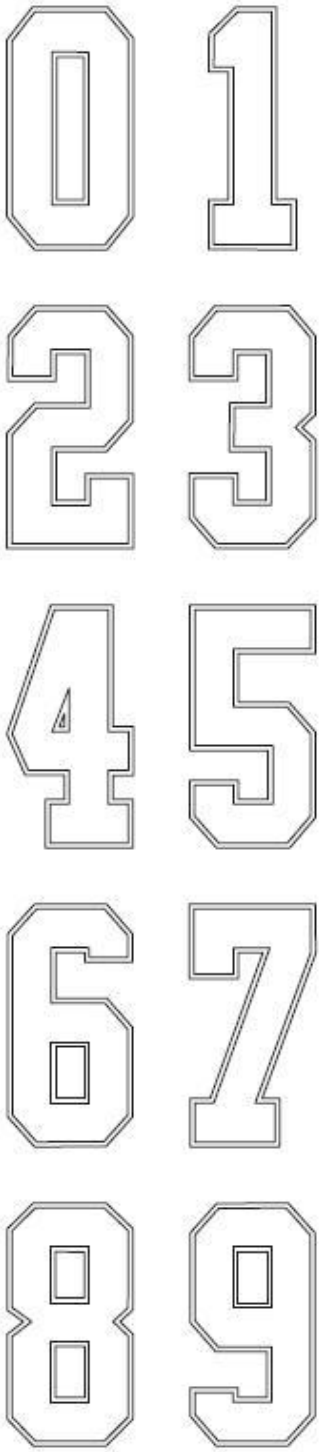
Kansas City Chiefs

CHIEFS JERSEY - Chest/Back Numerals Artwork PG. 7

Jersey Chest Numerals



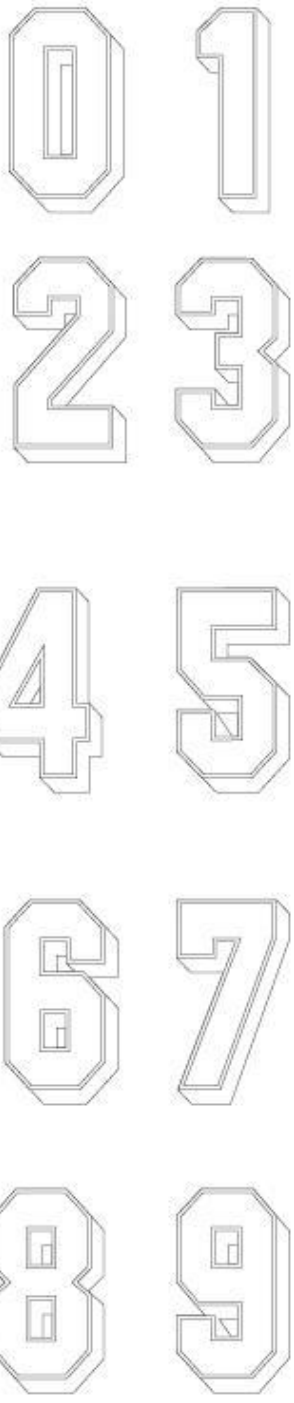
Jersey Back Numerals



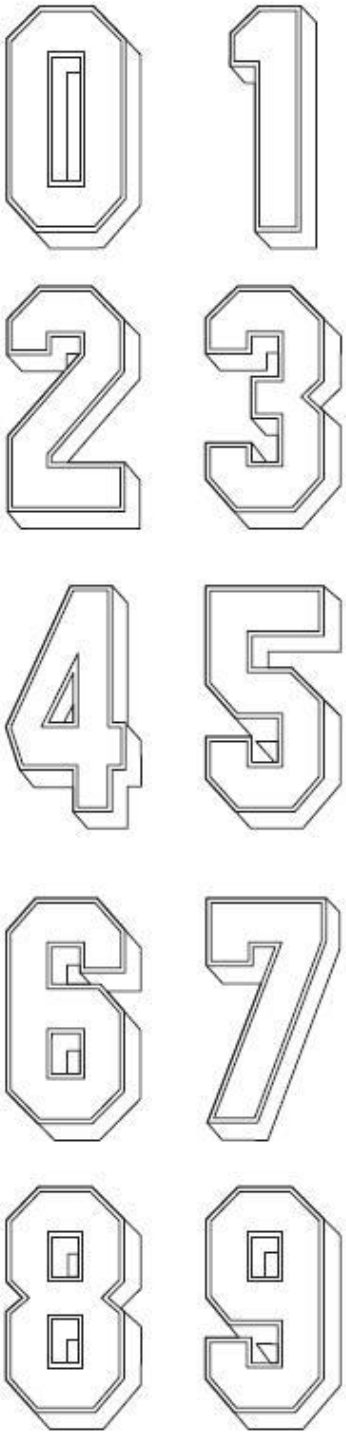
Miami Dolphins

DOLPHINS JERSEY - Chest/Back Numerals Artwork **PG. 10**

Jersey Chest Numerals



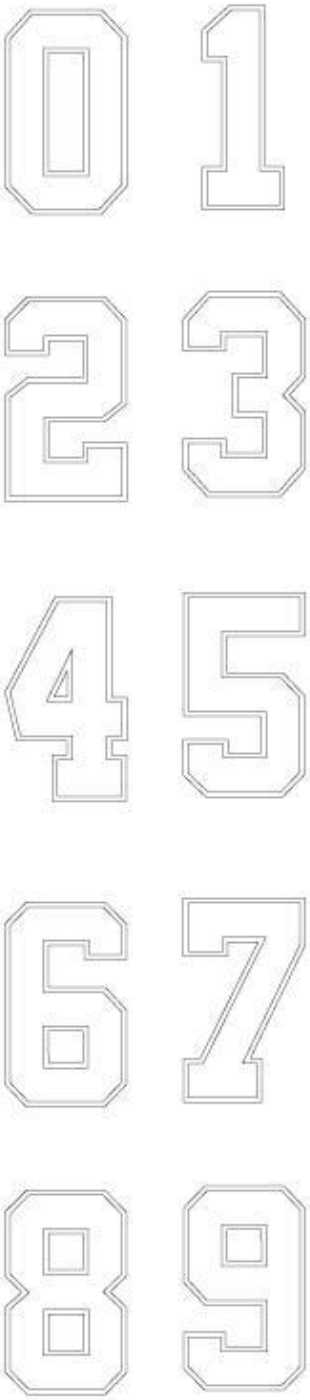
Jersey Back Numerals



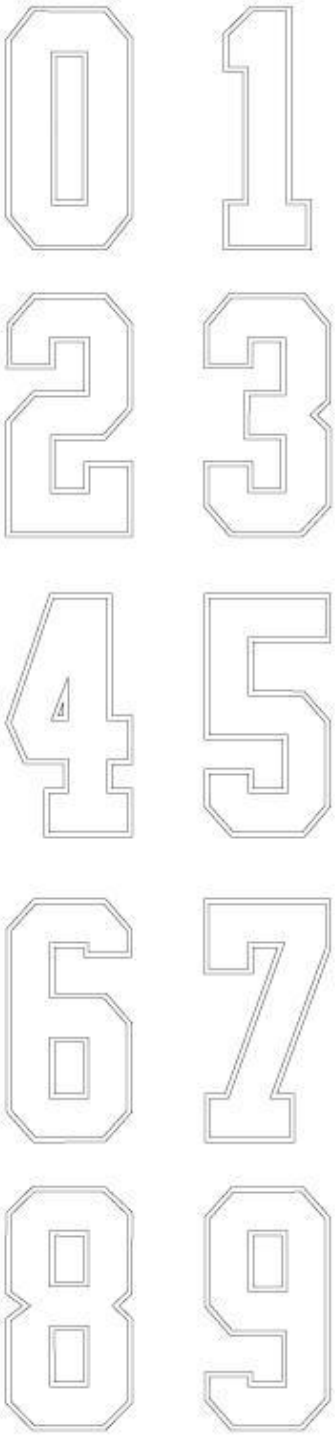
Minnesota Vikings

VIKINGS JERSEY - Chest/Back Numerals Artwork **PG. 9**

Jersey Chest Numerals



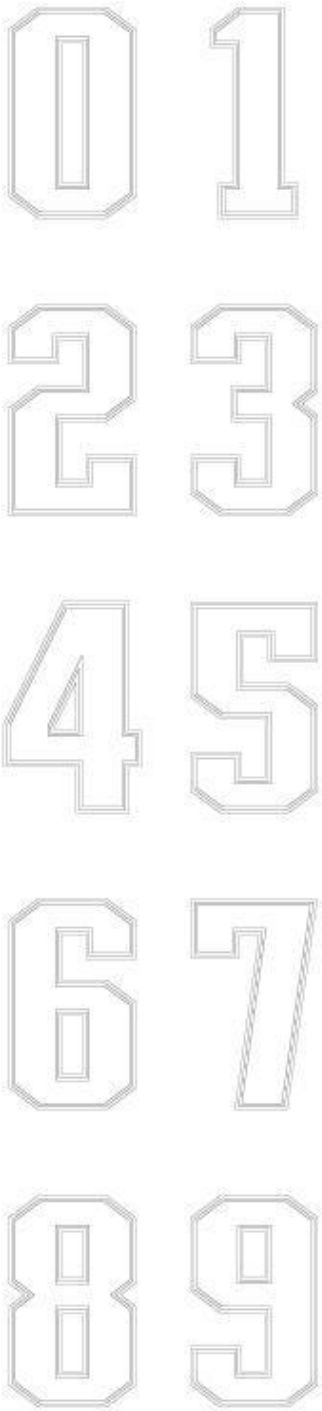
Jersey Back Numerals



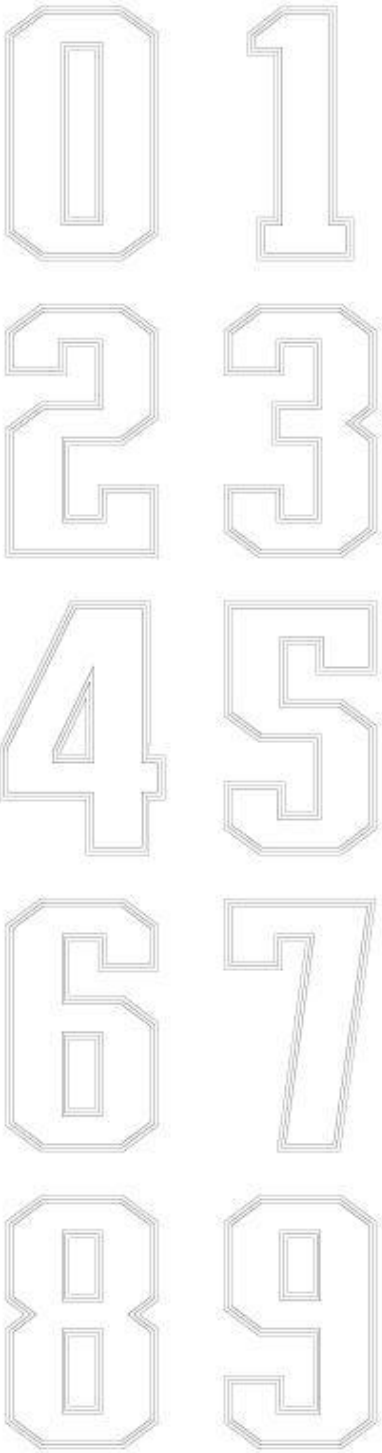
New England Patriots

PATRIOTS JERSEY - Chest/Back Numerals Artwork **PG. 9**

Jersey Chest Numerals



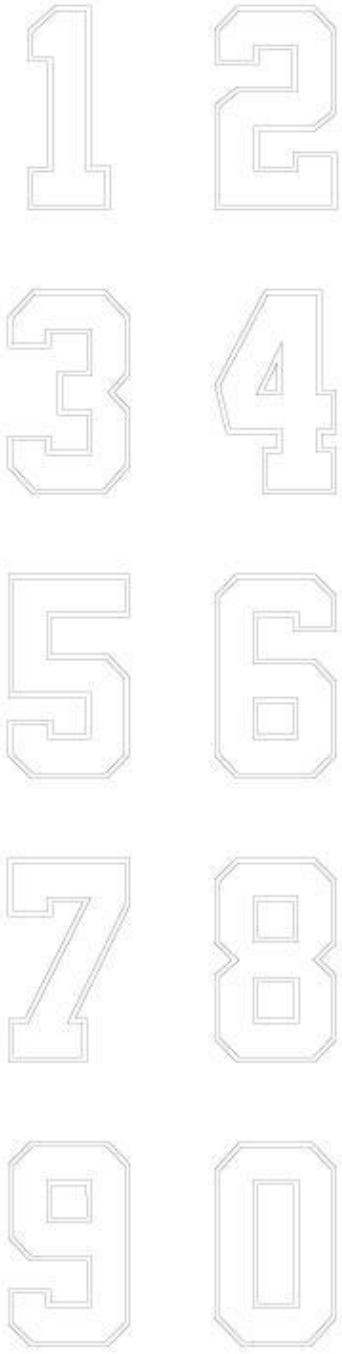
Jersey Back Numerals



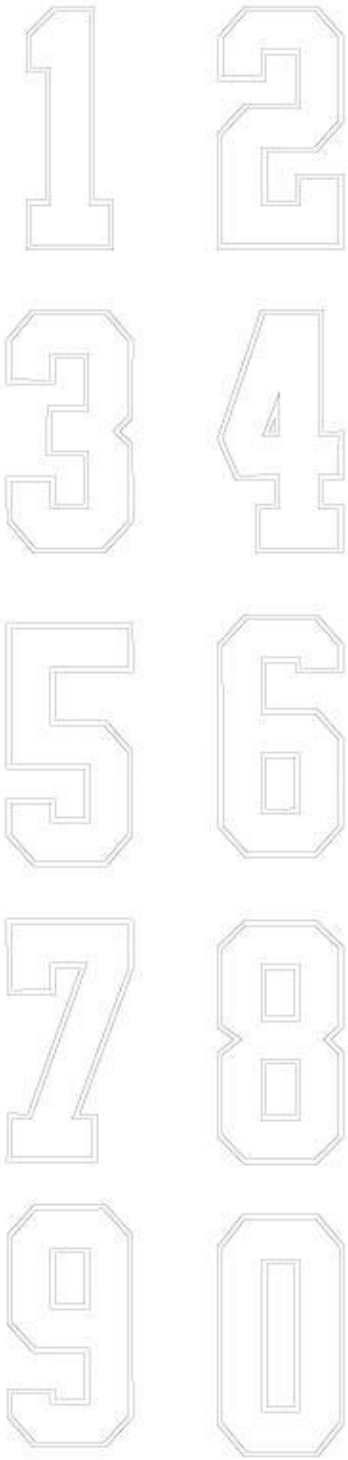
New Orleans Saints

SAINTS JERSEY - Chest/Back Numerals Artwork **PG. 7**

Jersey Chest Numerals



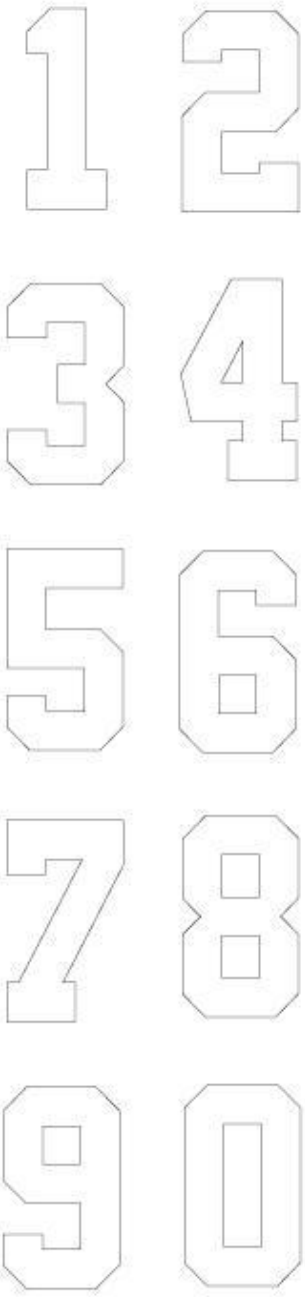
Jersey Back Numerals



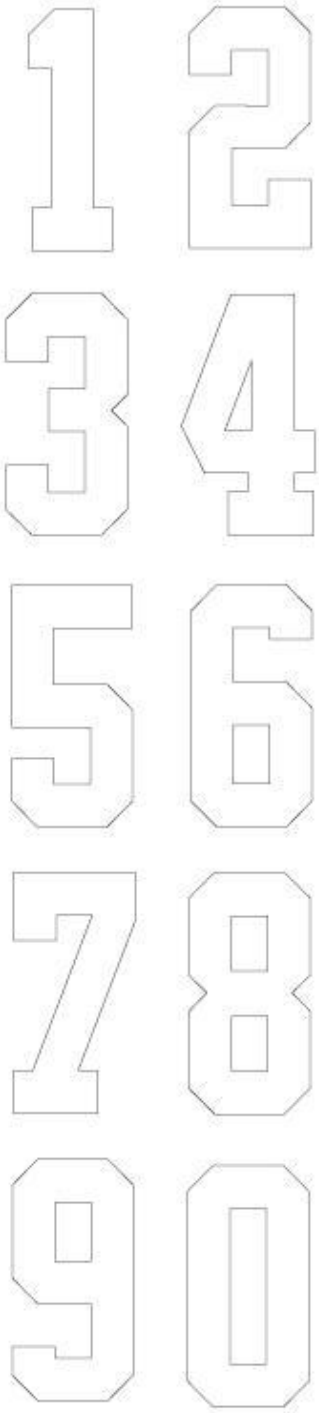
New York Giants

GIANTS JERSEY - Color - Chest/Back Numerals Artwork **PG. 7**

Color Jersey Chest Numerals



Color Jersey Back Numerals



New York Jets

JETS JERSEY - Chest/Back Numerals Artwork **PG. 8**

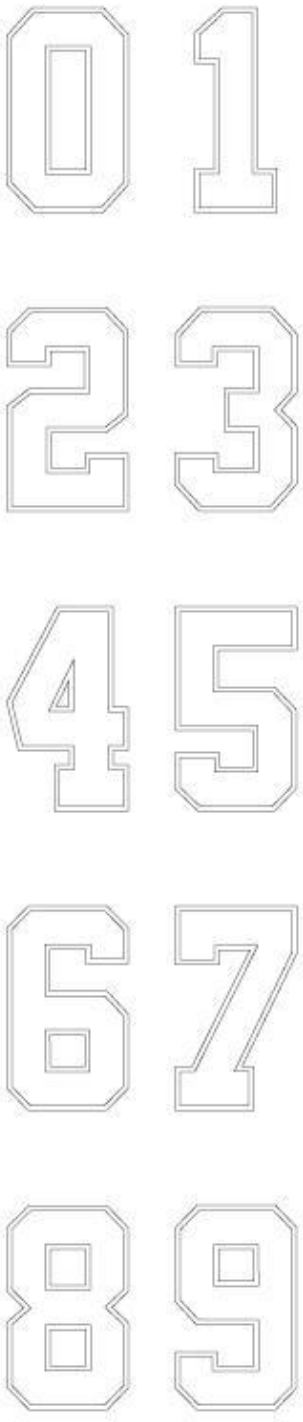
Jersey Chest Numerals

Jersey Back Numerals

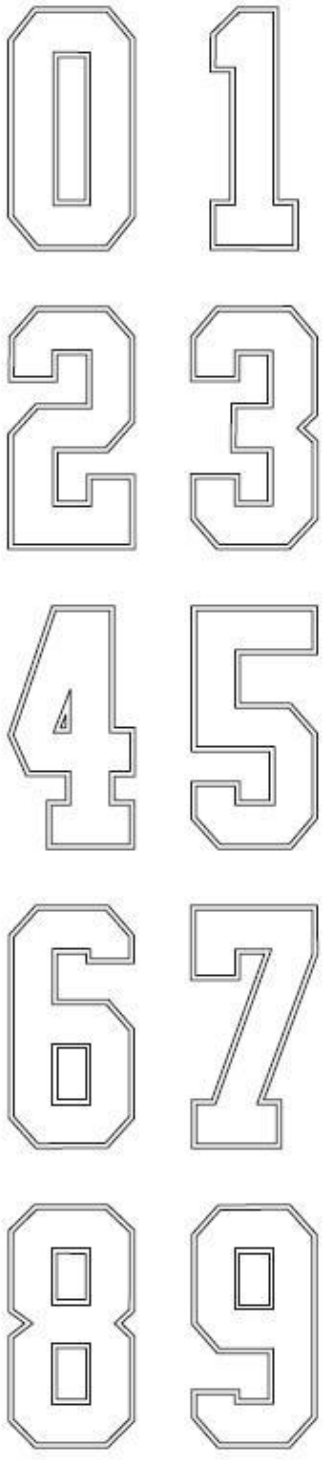
Oakland Raiders

RAIDERS WHITE JERSEY - Chest/Back Numerals Artwork **PG. 7**

Jersey Chest Numerals



Jersey Back Numerals



Philadelphia Eagles

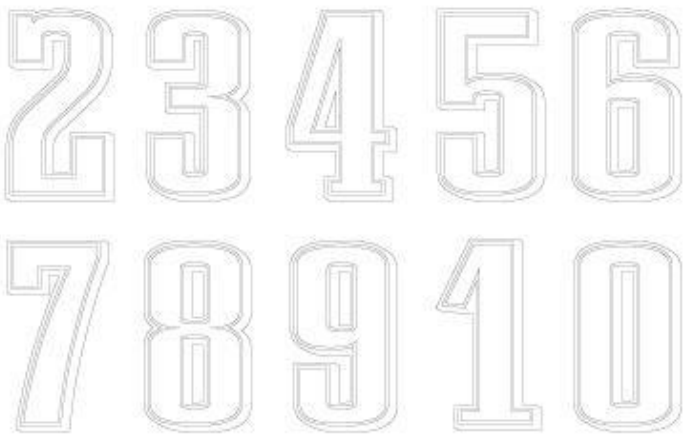
EAGLES JERSEY - TV Numbers Sample PG. 9

Color & White Jersey

NOTE: Double Tackle Twill

Scale: Full

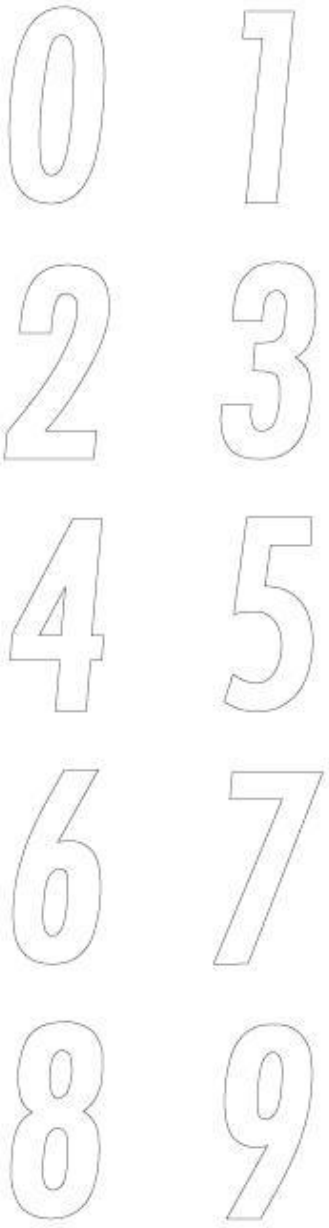
EAGLES JERSEY - Numerals Artwork



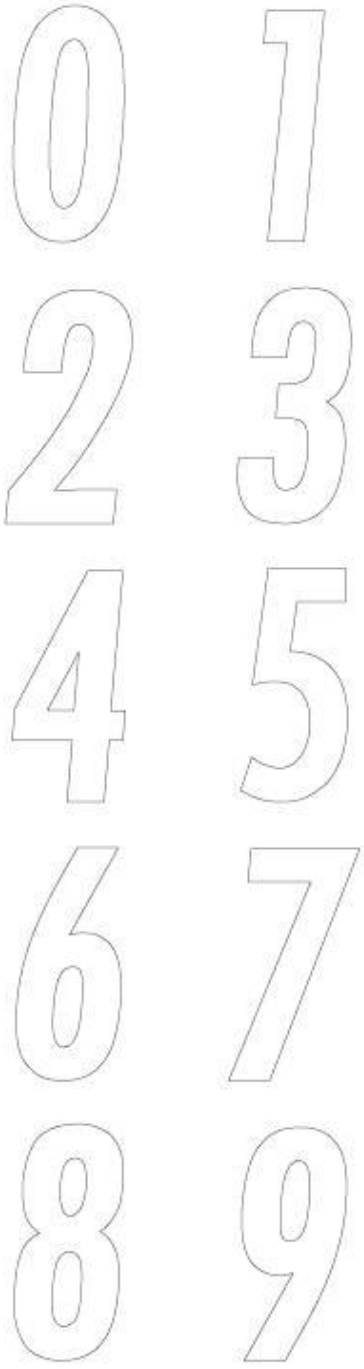
Pittsburgh Steelers

STEELERS JERSEY - Chest/Back Numerals Artwork PG. 8

Jersey Chest Numerals



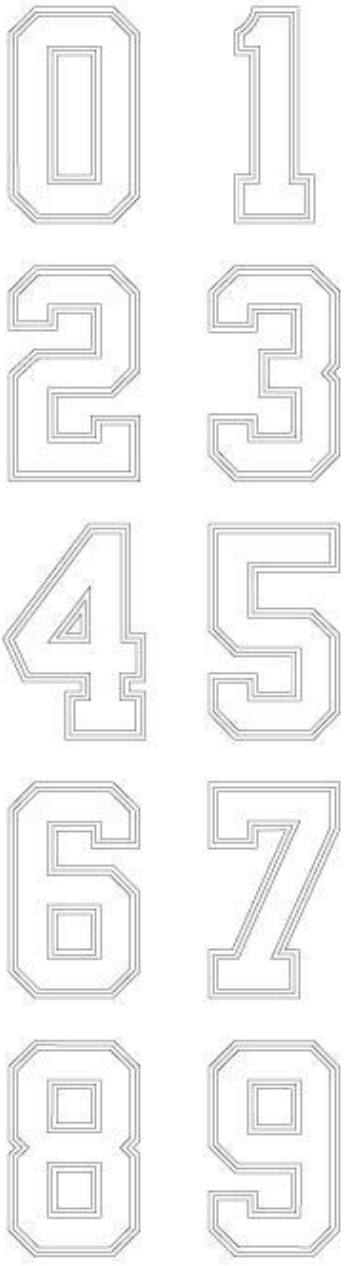
Jersey Back Numerals



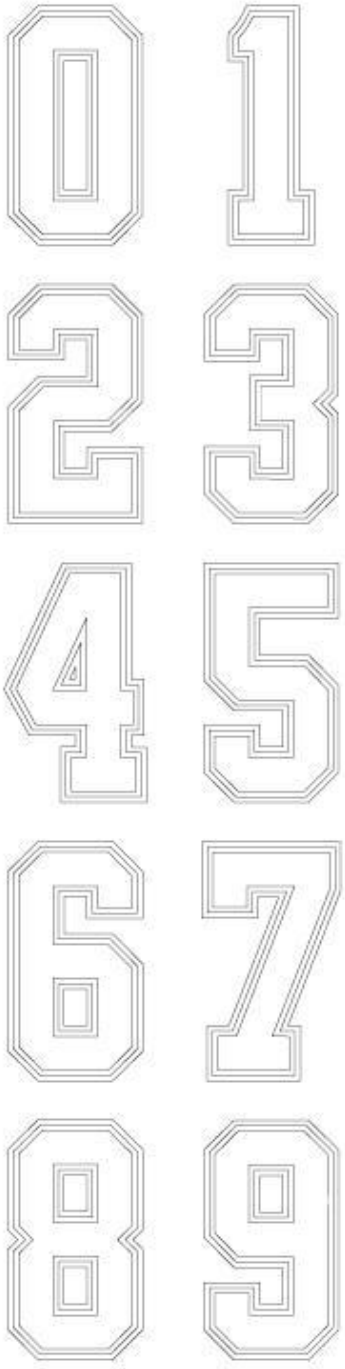
San Diego Chargers

CHARGERS JERSEY - Chest/Back Numerals Artwork **PG. 7**

Jersey Chest Numerals



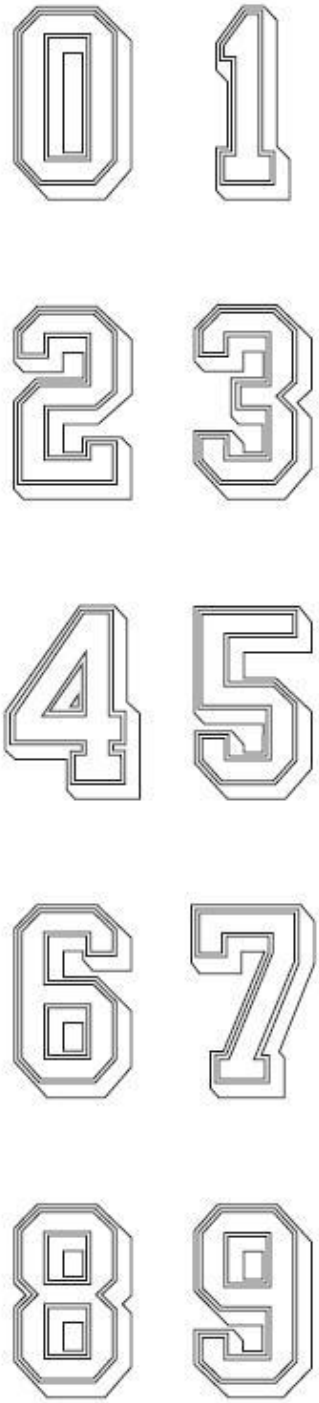
Jersey Back Numerals



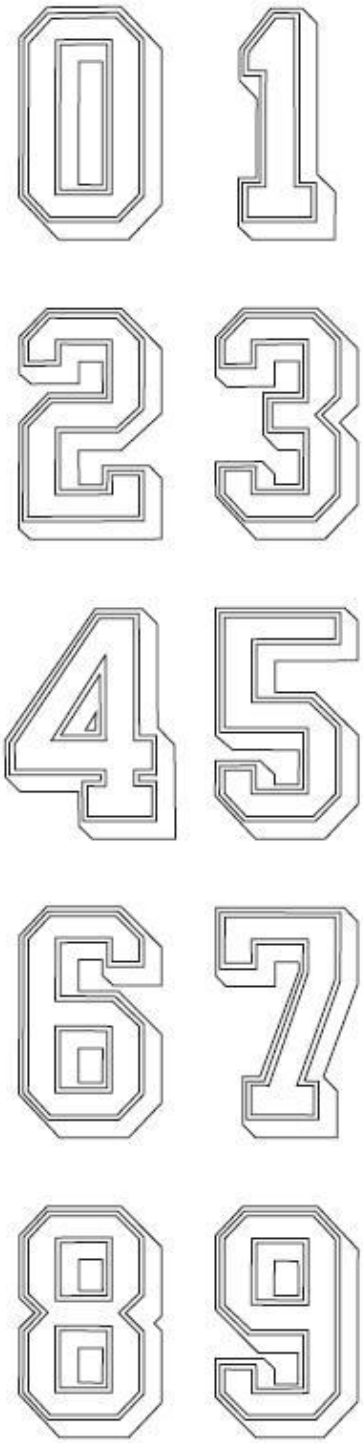
San Francisco 49ers

49ERS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals



Jersey Back Numerals



Seattle Seahawks

SEAHAWKS JERSEY - Chest/Back Numerals Artwork PG. 8

Jersey Chest Numerals

Jersey Back Numerals

St Louis Rams

RAMS JERSEY - Chest/Back Numerals Artwork **PG. 9**

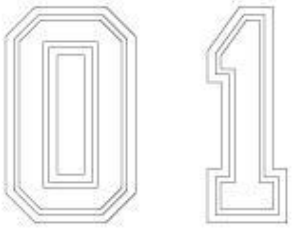
Jersey Chest Numerals

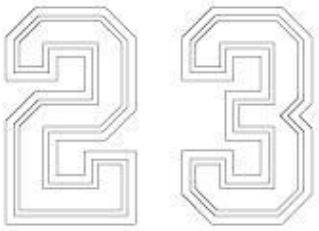
Jersey Back Numerals

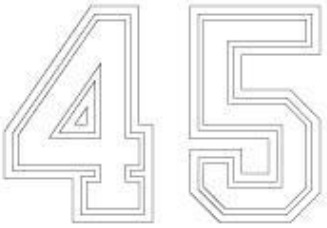
Tampa Bay Buccaneers

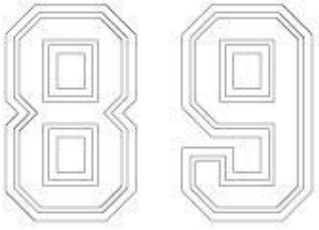
BUCCANEERS JERSEY - Chest/Back Numerals Artwork PG. 9

Jersey Chest Numerals

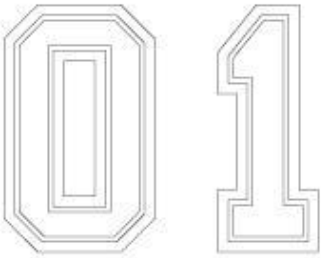


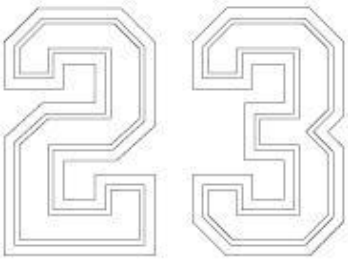


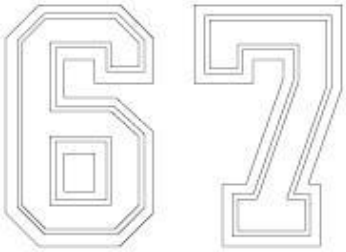


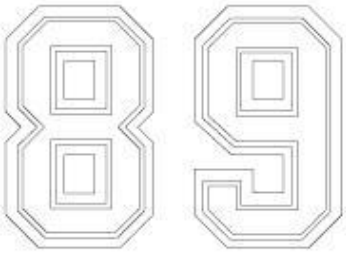


Jersey Back Numerals





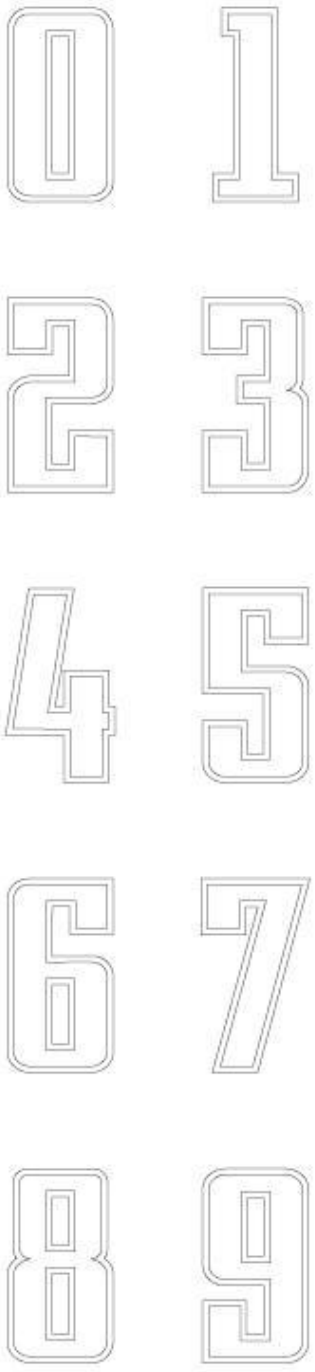




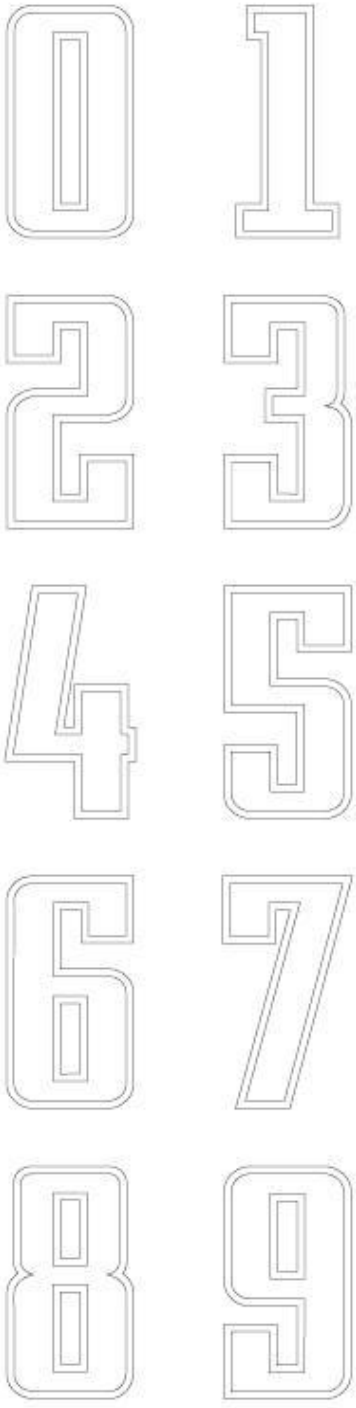
Tennessee Titans

TITANS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals



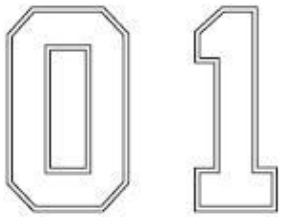
Jersey Back Numerals

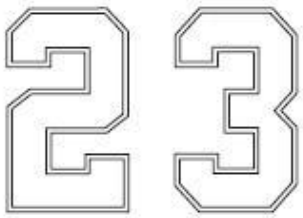


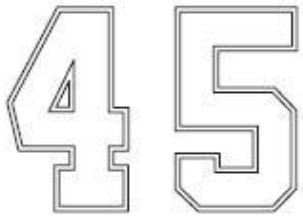
Washington Redskins

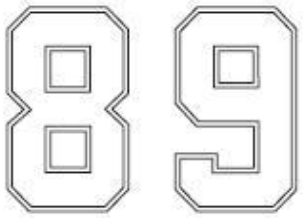
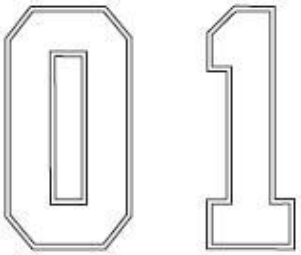
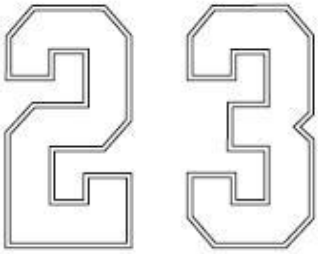
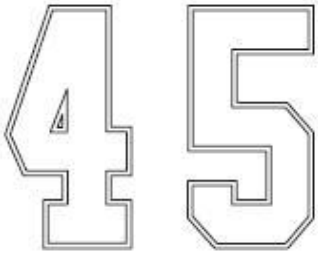
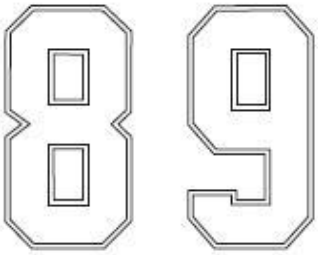
REDSKINS JERSEY - Chest/Back Numerals Artwork **PG. 8**

Jersey Chest Numerals









Jersey Back Numerals