THE RECORD PRODUCER: A STUDY INTO THE ASPECTS OF PRODUCING AN ALBUM

By

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ABSTRACT

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This thesis examines the role of the record producer and the various phases in producing an album. These phases included pre-production, recording, manufacturing, marketing, budget and financing, and legal aspects.

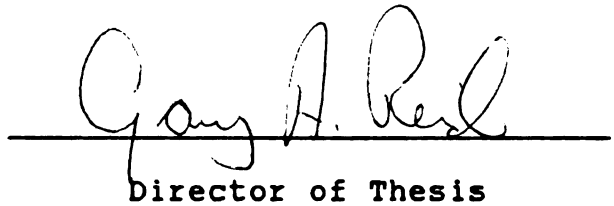
But, while the talents of the record producer need extend into all of these phases, it does not necessarily insure a successful product in terms of audience acceptance.

This study set forth testing procedures that a producer, artist, engineer, or record company could use to determine possible acceptance and hit potentials.

To accomplish this study, an album project containing six original songs was produced. The master tapes of the songs were tested on three separate groups, 1) lay persons, representing the general public, 2) semi professionals, persons possessing basic music production knowledge, and 3) professional advisory panel, consisting of music industry persons.

Subsequently, as a result of the research findings, the album was manufactured and released for sale to the public.

Accepted by the faculty of the Department of Telecommunication, College of Communication Arts and Sciences, Michigan State University, in partial fulfillment of the requirements for the Master of Arts degree.



Director of Thesis

This study is dedicated to Gary Reid, who's professional and academic guidance has made it entirely possible.

This study is also dedicated with appreciation to my parents, Philip and Geraldine Cousino, for their continued encouragement in completing this project.

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This project could not have been acheived without the talent and enthusiasm of artist, Stephen Stump and band members, Brian Morrill, Chuck Carroll, and Tony Fata.

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The production which accompanies this manuscript may be obtained by contacting the author or Gary A. Reid, Department of Telecommunication, 409 Communication Arts and Sciences Building, Michigan State University, East Lansing, MI 48824-1212.

CHAPTER I

PRE-PRODUCTION

The roles a record producer performs in creating an album are multi facetted. "Responsibilities can be in discovering recording artists, sifting out good musical material and in supervising recording sessions" (Shemel and Krasilovsky, 1985, p. 38). The pre-production phase of an album is the first step in planning for a successful record to be released. The pre-production phase of this project involved planning how the album project was to be accomplished. This involved making decisions on what artist to select for the project, what material to record, selection of a studio, establishment of recording sessions and drawing up a preliminary budget.

In selecting an artist for this project the producer needed to address a number of important questions. First, is the artist established? In other words does the public recognize the artist readily. Selecting an artist that is familiar to an audience may better help in

the sales of the produced record. Second, does the artist perform live and is there a loyal following. An artist who performs live will supply a means of promoting and selling the record, especially if there is a supportive loyal following. Third, does the artist write original material. Selecting an artist who has experience writing music and has a pool of original selections to draw from will offer an opportunity to choose the best material to record. Finally does the artist have previous recording experience? This in itself is an important factor for a number of reasons. An artist in the studio for the first time may be surprised and even frustrated at the amount of time required to complete a project. An artist new to recording will not be familiar with recording studio etiquette. They may be confused by recording procedures which may in turn detract from concentrating on a good performance. Also an artist familiar with recording procedures has heard themselves play in a studio situation, which is quite different from live performances. This may serve to keep the amount of anxiety and nervousness to a minimum. A band new to studio performing may be apprehensive and nervous about being recorded and critiqued.

Selecting an artist possessing some of the variables listed above helps the producer attain a more successful

project in terms of completing the project efficiently and getting the record to an audience.

The artist chosen for this study was Stephen Stump, a native of Lansing. His band was chosen because they met a number of the criteria previously mentioned. These criteria included frequent performances throughout the Mid Michigan area. His performances include night clubs, bars, weddings, and private parties. In addition Steve performs extensively as a solo act when not performing with the complete band. They have a fairly large loyal following, previous multi track recording experience and a pool of original material to select from. Another important variable that the band possessed was respect and cooperation. A producer needs to work in a situation where there is respect and cooperation among the band members. (Also there needs to be a mutual respect of the producer for the band and vice-versa). This variable helps when problems arise, which often do in recording situations. The producer has to be able to maintain control of the band and make prompt fair decisions. In return the band has to respect and trust that the producer has made the correct decisions.

The composition of the band is as follows, Stephen Stump, lead vocalist and rhythm guitarist, Tony Fata, bass and lead guitarist, Chuck Carroll, keyboardist and back-up vocalist, and Brian Morrill, drummer and back-up

vocalist.

Having selected an artist for the project, dates were established to review material for the album. Of the band's repertoire of original material six of the strongest songs were chosen for recording. According to Pell (1980),

> Every group has a direction whether it be rock, fusion,...Compare the tunes you are about to record against the chart records in your category. If they don't stand up favorably, either have your group write new material, or go to an outside source. (p. 156)

The material selected needed to be strong enough to stand up to current popular songs. Strength of the songs chosen was based on 1) performance, how solidly each tune could be performed, 2) contemporariness, do the songs have a contemporary "feel" when compared to current popular music in terms of arrangement and instrumentation, and 3) style, do the songs selected follow in a similar type of musical category. The material selected needed a consistency or flow necessary for album listening. In addition the material chosen needed to emphasize the talent, strength and versatility of the artist. The following is a list of the six songs chosen for the album along with a description of each tune.

#1) Know Your Heart-medium tempo, melodic, love song

#2) Guess Work-medium tempo, percussionistic, love song

#3) Survive-slow tempo, melodic, love song

#4) New Day-fast tempo, calypso style, happy song

#5) Even If You Love Me-fast tempo, pop, bitter love song

#6) The Way I Loved You-slow, melodic, love song

Two of the songs,"Know You Heart" and "Guess Work" had been previously recorded for other projects. For this production some instrumentations were changed and parts rewritten for a more contemporary sound. "New Day and "The Way I Loved You" were previously demoed in four track recording form. For this project existing parts were maintained and additional instruments and arrangements added to fill out the sound. The remaining two songs "Survive" and "Even If You Love Me" were written for the project and had never been previously recorded.

These selections show the range of versatility the artist possesses, in terms of tempo and style, while demonstrating contemporariness and consistency.

The reasoning behind selecting six songs for the project were economic and time based. First, the cost of

two inch recording tape is approximately $120 per reel. Purchasing one reel of tape and recording at fifteen inches per second allowed for approximately thirty minutes of recording time. This was enough time to comfortably record six songs without needing to purchase an additional reel of tape. Secondly, the amount of time needed to properly execute the entire project and test it without subject fatigue, would allow for six songs. Finally, and to a lesser extent, six songs evenly divide to place three songs per side of an album. Once the material had been selected the producer was responsible for selecting a recording studio and establishing recording dates.

In selecting a recording studio the producer needs to research the facilities available in the area where production will take place. Information such as studio equipment, studio size, rates, and open recording dates need to be addressed. The producer should select the proper studio to accommodate the needs of the band and type of production required. The producer also needs to select a studio for mixing the master recordings. In many instances the studio where the original recording took place is utilized. But should the producer decide otherwise, again, available facilities, processing equipment, studio rates, and available time need to be considered.

For this project it was determined that a full 24 track recording facility would be necessary to properly accommodate the band and material chosen to record. The facility selected was the 24 track recording studio at Michigan State University located in the Telecommunication Department's Audio Production Labs. This facility was also used for mixing the recordings. The studio's equipment included the following:

Microphones	Quantity
AKG 414	2
AKG 452	2
Sennheiser 421	2
SM 53	2
SM 57	2
SM 58	2
SM 78	2
SM 81	2
Neumann U87	2
Console	
Soundcraft 2400	1
Recorders	
Otari MTR 90 24 track	1
Otari MTR 10 2 track	1
Otari MX 5050 B II 2 track	1
Technics RS M95 cassette	1
Technics B7 cassette	3

Processing Equipment

Lexicon 224 digital reverb	1
Lexicon Prime Time 93	1
Eventide Harmonizer H 949	1
Valley People Kepex II	4 channels
Valley People Kepex I	4 channels
Aural Exciter 3	2
UREI Compressor/Limiter LA-4	2
Orban Gated Compressor/Limiter 424A	1
Gold Line 30 Real Time Analyzer	1

Monitors

UREI 813 A	1 pair
JBL 4313 B	1 Pair
Auratone 5c	1 Pair

Headphones

AKG 141	4
Fostex T20	4

Amplifiers

Crown 200	2
Crown D75	2

(See Figures 1 and 2 for Studio and Control Room Dimensions)

Having selected a studio, "rhythm session", recording dates were scheduled. It is during these sessions that rhythm instruments are recorded they include drums, rhythm guitar, bass guitar, and keyboard.

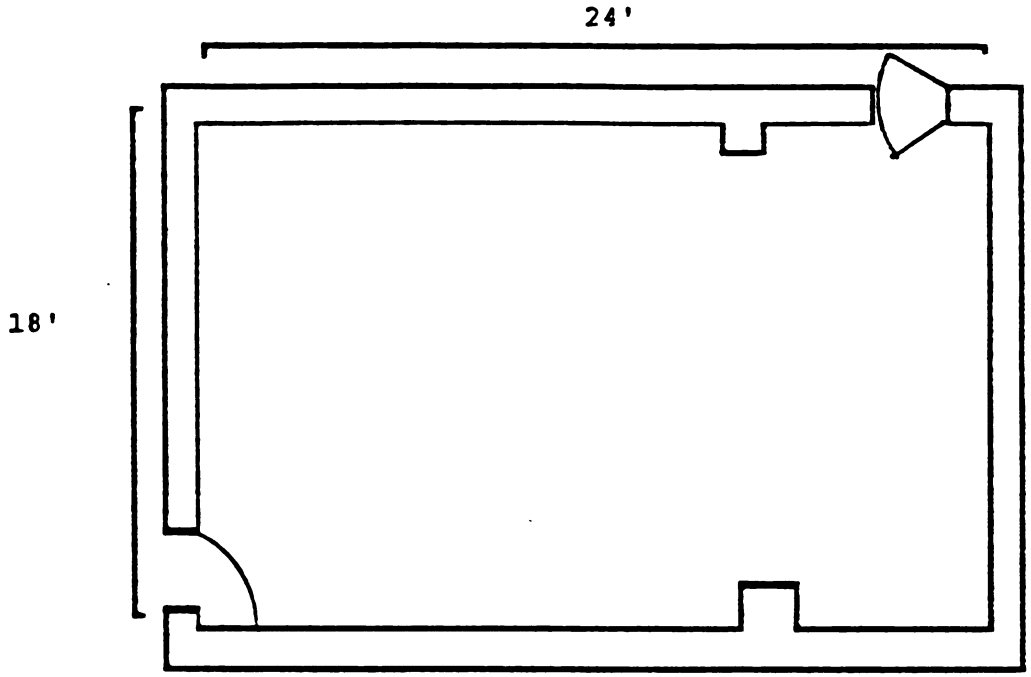

Figure 1. Studio Dimensions

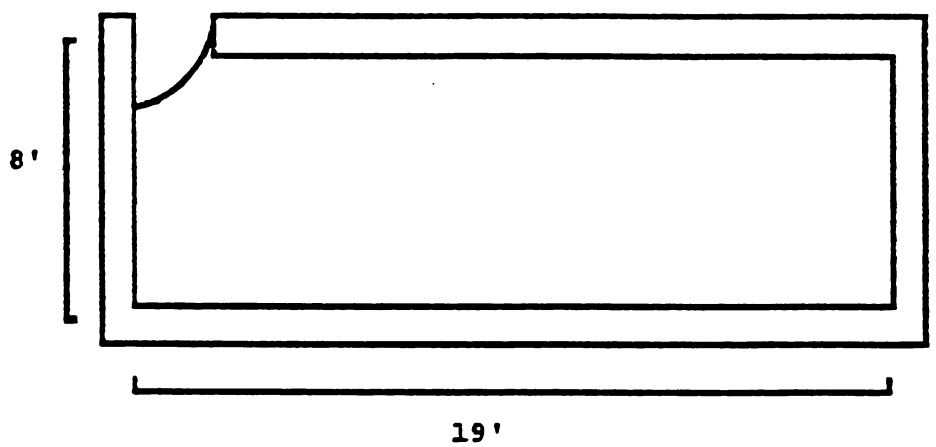

Figure 2. Control Room Dimensions

These instruments made up the basic foundation of each song to be recorded. Part of the producer's role in this area is figuring out how to coordinate the band so that all members can be available when needed for recording. It was decided that four Saturdays would be scheduled for recording just the basic tracks or "rhythm tracks" for all six songs. Saturdays were selected for recording basic tracks for a few reasons. First, the audio labs were closed to students on those days, making the entire lab available for use. Second, three of the four members held full time jobs including the drummer who would have had to travel sixty miles after a full days work if sessions were scheduled during the week. Third, these sessions tend to consume a lot of time and require much concentration, making it advantageous to start earlier in the day. Sessions were scheduled to last four to six hours each, not including set up time.

When all rhythm tracks were complete overdub sessions were established, again as time permitted with the studio schedule and band member schedule's. It is during these sessions when embellishments are added to the rhythm tracks. Such embellishments include lead guitar solo's, lead vocals, and back vocals. These sessions occurred during weekday nights primarily because the drummer wasn't needed and sessions were shorter in length lasting two to three hours each.

The final area considered during pre-production was the formulation of a budget. Because the project was performed partially for research purposes, use of the 24 track facility was free, thus there was no expense for recording or mixing. The artist and producer were responsible for purchasing the tape. The only major expense was the cost of pressing and releasing a product to the public. At the initial conception of the project it was decided that a record was going to be released but, the actual form the record would take was yet to be determined. Either a single,(one song chosen from the six tunes as a result of the testing) was to be released or, all six songs, would be pressed and released as an album. If a single was to be released the band and producer would be responsible for the cost. If the entire project was to be released, outside financial investors were to be sought, due to the expense.

A latter chapter of this thesis has been dedicated to the budgeting and financing of the entire project.

CHAPTER II

PRODUCTION

The actual production of an album is the most pressure filled, time consuming, and hopefully gratifying of all phases for a producer. It is during this stage that all the pre-production planning begins to materialize. The production stage of this project can be divided into five areas.

1. Recording Preparation
2. Rhythm Tracks
3. Overdubs
4. Mixing
5. Sequencing

Each of these stages will be discussed in this chapter.

Recording Preparation

This stage involves three activities, 1) studio set up, 2) equipment alignment, and 3) setting levels. Studio set up involved placing the musical instruments,

microphones and headphones in the studio in a logical comfortable manner. Because the artist performs live and had a stage set up, the same basic placement was maintained within the studio. The members were comfortable in their existing configuration and could easily see each other for cues. The first member to set up in the studio was the drummer. Because of the size of the drum kit it was easier for the kit to be placed in first and miked. The rest of the equipmentwas then brought in. The drum kit used was an electronic set manufactured by Simmons model SDS 8. The entire set consisted of a bass drum, also known as kick drum, high tom, mid tom, low tom, snare and Drumulator. The kit was completed with an acoustic snare drum, high hat, cymbal, ride cymbal, two crash cymbals and a "China Boy" or pang cymbal. Because of the electronic and acoustic characteristics of the kit, two types of sound pick up devices were required. First, the electronic Simmons kit utilized the method known as direct pick-up or direct injection. "When an instrument being recorded has an electrical output...it is possible to record that instrument without the use of a microphone" (Runstein and Huber, 1986, p. 77). Each component of the electronic kit has a pad that is struck with drum sticks. When a pad has been hit a sensor inside the pad detects the impact and routes a signal to the kits "brain". The

brain has individual channel inputs for every pad, each pad must be routed to the brain for it's signal to be processed. The brain adds processing such as equalization, and envelope shape and then electronically adjusts the output volume of each component of the kit. The electrical output of the brain, one for each pad, was then routed via cable directly to the mixing board. (See Figure 3 for Simmons Drum Kit) The acoustic components of the drum set required the placement of microphones for sound pick up. The acoustic snare drum and high hat cymbals were miked with one microphone placed between them. A Shure SM 57 Microphone was chosen for sound pick up because of it's durability, transient response and pick up pattern. The microphone has a moving coil generating element making it rugged enough to physically withstand miking a snare, and it also responds well to the snap of the sticks on the skin. In addition the microphone has a cardioid pick up pattern which rejects picking up unwanted sounds coming from behind the microphone. The microphone was initially placed about an inch above the snare and toward the tuning lug nut, where the sound is optimal. The microphone was then routed via mike cable to an input on the mixing board. The four cymbals were miked with an overhead stereo pair of AKG 452 condenser microphones. These microphones were chosen because of their ability to pick up high frequencies such

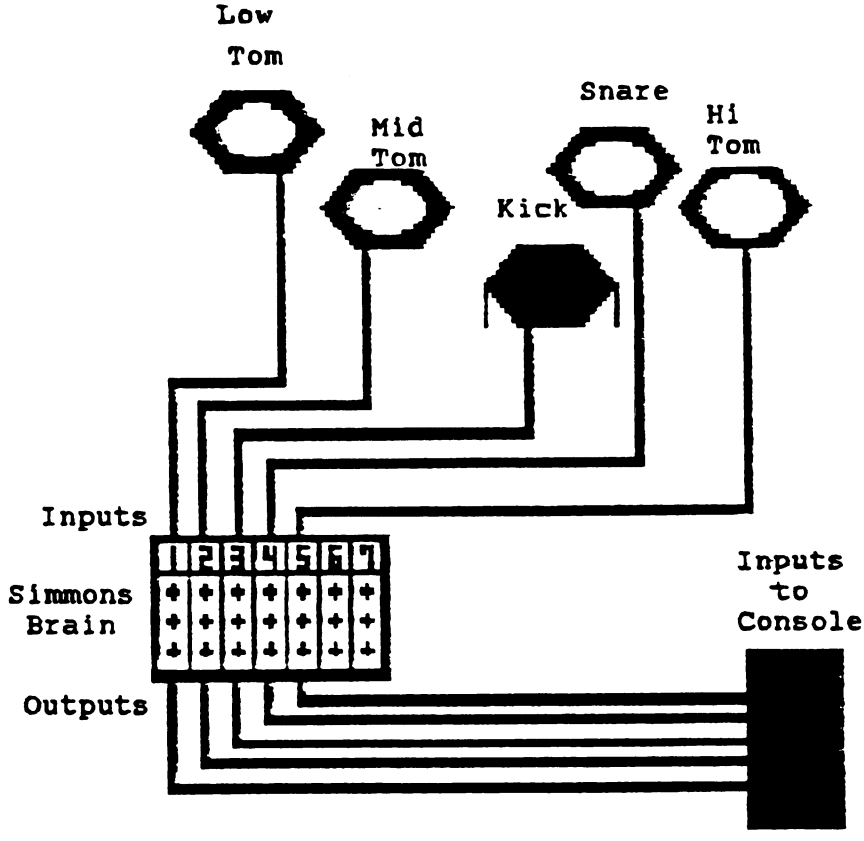

Figure 3. Simmons Drum Kit
Each component of the Simmons Drum Kit is routed to a channel input for the brain. Each channel processes it's corresponding component, then the outputs are routed to inputs on the mixing console.

as those created by cymbals. These microphones also have a cardioid pick up pattern. They were initially placed at approximately a 45 degree angle to each other and at a distance of about one and a half feet above the two cymbals each miked. The microphones were then routed via mike cable to two inputs on the mixing console. Because of the condenser nature of these microphones, phantom power from the console was required for operation. The three microphones discussed for the drum kit were the only ones required for recording the rhythm tracks.

Upon getting the drums miked the rest of the instruments, mainly keyboards, bass guitar, and rhythm guitars, were brought into the studio. These instruments also used the method of direct pick up or direct injection, but unlike the Simmons drum kit required the use of a direct box for sound pick up. "The D.I. Box serves two purposes; it reduces the line level of an instrument down to the microphone level and, if necessary, it electronically isolates the instruments from the console by way of an internal transformer or amplifier" (Runstein and Huber, 1986, p. 78). The impedance of the Simmons kit was low enough that the use of direct boxes was unnecessary. The outputs of the remaining instruments, however, are such that the impedance is higher than the mixing board's. The direct box, which contains a transformer lowers the impedance

level to match that of the mixing board. Without the use of a direct box, instruments with high impedance outputs would exhibit frequency losses. The output of each instrument is routed to the input of a direct box, the impedance is lowered, then the output is routed via microphone cable to an input on the mixing board. (See Figure 4 Studio Set Up)

After all instruments were in place and routed to the mixing board headphone feeds were established. Feeds were obtained by taking the mixing board's #1 cue output and feeding them to the studio headphone amplifiers. The amplifiers were then set near each band member along with a pair of headphones. This allowed each person to control the volume of their head sets independently of the others.

The next task in preparing to record was aligning the 24 track recorder . Aligning a machine properly insures that the signals routed to the recorder are recorded and played back correctly. Before alignment occurs all of the tape guides and heads need to be cleaned. This is usually accomplished by using a prescribed head cleaning solution or pure isopropyl alcohol. These fluids do not leave a film or residue behind. If the tape path is not cleaned or not cleaned properly, particles such as dirt or oxide can cause "drop out", a loss of signal on tape. Cleaning is accomplished

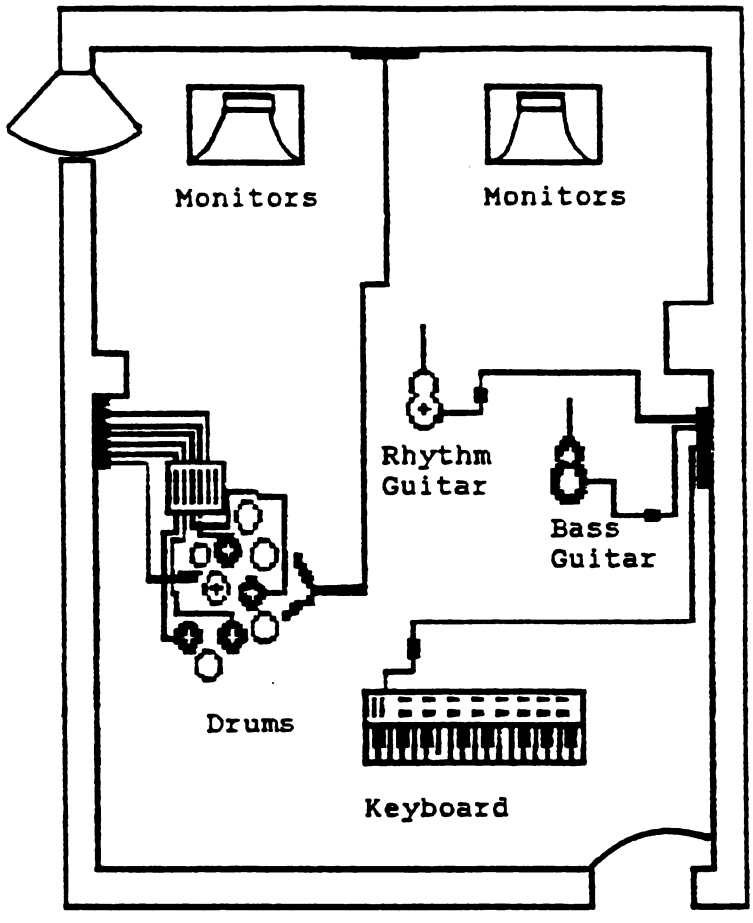

Figure 4. Studio Set Up

by applying the cleaning fluid to cotton swabs or lint free cloth and then applying it to the tape path surfaces. The tape path also requires a cleaning of any magnetization along the tape path. This requires the use of a demagnetizer, also called a degausser, which eliminates magnetic fields that may be found on the tape path surfaces. "The degausser works by subjecting the magnetized object to a magnetic field of sufficient strength to overcome that already present in the object" (Runstein and Huber, 1986, p. 136). The demagnetizer works in much the same way as an erase head of a recorder, leaving a random magnetic pattern with a magnetism of zero on the effected surfaces. If a tape path is left without being demagnetized tape passing by could be partially erased, high frequency losses could result, or distortions may occur. Demagnetization is accomplished by using a professional quality demagnetizer. Starting the unit at least three feet from the recorder, it is moved in slowly toward the recorder. Working from the left side to the right, or vice versa, each component along the tape path is subjected to the degausser, keeping it about 1/8" from the surfaces. The unit should remain on continuously until all parts have been demagnetized. The demagnetizer should then be slowly pulled away from the recorder and shut off at least three feet away. If the degausser is shut off

while near the recorder a magnetic charge may be left on the tape path which would require a stronger degaussing unit to remove.

Having cleaned the tape path alignment procedures can begin. To align the multi-track recorder required the use of a test tape which is, " A tape containing a series of test tones at a standard reference fluxivity. The test tape is used to verify the performance of the tape recorder's playback system" (Woram, 1982, p. 463). The first step occurred on the reproduce heads, also called the playback heads. With the machine in the "all reproduce" mode a 1000 hz test tone at 0 VU was played. The tape speed was fifteen inches per second. Any of the 24 channels not reproducing a 0 VU reading required adjustment of the reproduce gain control on the corresponding channels circuit board, until proper 0 VU reading was obtained. Next, equalization of the reproduce section was checked. A 10khz test tone at 0 VU was played. Any of the 24 channels not reading 0 VU required adjustment of the low speed (for 15 ips) eq on the corresponding channels circuit board, until a proper 0 VU reading was obtained. Readings were also checked at 15khz, any channels not reading with in 1 db of 0 VU would require further adjustment. The low frequency equalization readings were then observed with the test tone at 63 hz. Any channels deviating from 0VU were

adjusted to obtain proper readings.

Alignment of the syncronization head frequency response followed the same procedure as the reproduce alignment. Monitoring of the syncronization mode was obtained by placing the machine into the "selective reproduce" position and playing the test tones as before. Adjustments were made on the synchronization section of the channels circuit boards as needed to obtain proper 0 VU readings. Alignment of the synchronization playback is necessary for properly reproducing levels during overdub sessions, and for proper reproduction if a track's signal is to be bounced to another track of the recorder.

Having aligned the playback modes of the recorder the next procedure was to bias and align the recorder. Bias is "A very high frequency current applied to the record head to linearize the transfer characteristics of magnetic recording tape" (Woram, 1982, p. 502). The bias frequency of the Otari MTR 90 is 246,000 hz. The amount of bias frequency added to recording is dependent on the type of tape being used. Some brands of tape require more bias signal added than others. To bias the Otari, a reel of Agfa 468 tape was threaded on the machine. A 10 khz test tone was plugged into the Otari test signal input jack, the bias select switch was set to position #1, and the machine set to "all input" to monitor the

test input signal. The machine was then switched to "all reproduce" and recording of the test tone initiated. The bias levels for all 24 channels were then set by adjusting the bias circuit board. Bias settings were obtained by turning each bias control counter-clockwise until the VU meter level started to drop. It was then turned clockwise until the VU meter peaked, rotation continued until a 3db drop, below whatever peak reading, was obtained. These adjustments became the Otari's #1 master bias setting. To bias the Otari for Scotch 226, on which the project was to be recorded, required adjustment of only one control. A 10 khz test signal was routed to the machine and the bias select switch placed in position #2. The tape was threaded and recording of the test tone initiated. The bias control for position #2 was then adjusted to obtain the master bias for bias select #2.

After acquiring the correct bias, the record alignment was ready to be set. A 1000 hz tone at 0 VU was fed to every channel from the mixing boards oscillator. The machine was placed in the "reproduce" mode and the test tone recorded. If any of the channels did not read 0 VU the record gains were adjusted until a 0 VU reading was obtained. The same procedure was followed for setting the record equalization with test tones of 10 khz and 15 khz being used. Next the "all

input" switch on the machine was pushed and the monitor control on each audio card adjusted (if needed) to obtain a 0 VU reading. This matched the input level of the tape machine to the output level sent from the mixing console.

When alignment and adjustments of the multi-track recorder were completed a series of test tones were recorded onto the beginning of the two inch tape. Thirty seconds of 1khz, 10 khz, and 100 hz were recorded, at 0 VU on all twenty four tracks. These tones serve to indicate the proper operating level of the tape should the recorder later need realignment or should the tape be used at another facility with different equipment.

Once the 24 track recorder was aligned, the process of setting recording levels, deriving headphone mixes and obtaining control room monitor mixes began. The process of setting recording levels involved the routing of all instruments through their respective inputs on the mixing console and the assignment to individual channels on the 24 track recorder. As stated by Runstein and Huber (1986),

> The function of a recording console is to provide control of volume, tone, blending, and spatial positioning of the signals that are applied to its inputs by microphones, electronic instruments and tape recorders, as well as also providing a means of routing these signals quickly and reliably

to the appropriate devices (tape machines or monitor systems) so they can be heard and recorded." (p. 205)

Inputs were switched to the microphone position to receive incoming signals from corresponding instruments. Microphone pre-amp gain called "trims" were used to adjust the amount of signal flowing into each channel. Trims were set at the point below which each inputs peak light was out. Peak lights indicate when there is too much signal flowing through a channel. If a peak light flashes frequently the input's microphone trim needs to be lowered to prevent the channel from overloading and distorting. In addition, each input module's equalization and high pass filter was placed in the "off" position. All tracks were recorded "dry" or void of processing such as equalization and reverberation. These activities were left for the mix down stages. To route signals to channels on the 24 track recorder the push buttons labelled 1-24 were depressed. Each button is responsible for routing a signal to a console output buss which in turn sends the signal to the corresponding track on the recorder. Each input signal was routed to it's own output channel to facilitate independent control of each during mixdown. The faders located at the bottom of each input control how much signal is outputed to it's selected channel on the recorder. (See Figure 5 for Input

Module) The desired recording level for each channels signal is between -5 db to +1 db on a VU meter. Attaining levels which average between -5db and +1db help to insure a proper recording level above the inherent noise floor found in analogue recording. If levels are set too low the signal recorded will be close to the noise floor, thus sounding "hissy" when played back. If levels are set too high the signal recorded could distort or saturate the tape, resulting in a distorted sound when played back.

Levels were obtained on all instruments starting first with the drum kit and proceeding through all of it's components. The 24 track recorder was set to the "All Input" position which allows the signals to flow from the console to the recorder. The drummer was asked to strike each pad and acoustic component of the kit so a proper record level could be set and a track assignment made. Track assignments do not necessarily have to follow the same number input, thus the kick drum found on input #14 was assigned to channel #9 on the recorder. After the drums were set, the bass guitar level was set by asking the musician to play, a track assignment was then made. The same procedures were followed for keyboards and rhythm guitar.

The control room listening levels were obtained from the monitor section of the mixing board. This section

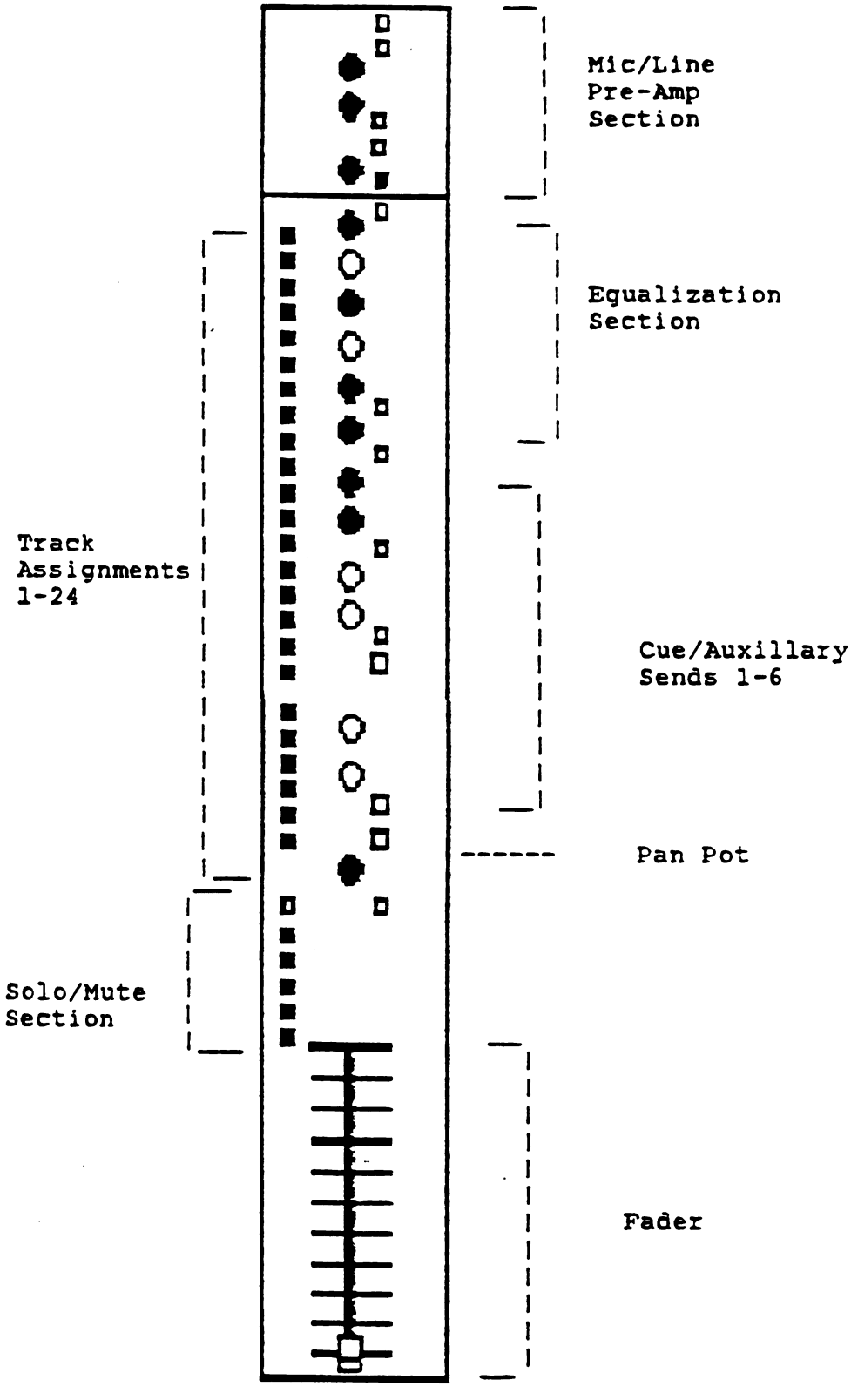

Figure 5. Input Module

allows for manipulation of each monitor channel. These channels correspond to track assignments and are used to derive a monitor mix for control room listening. Raising or lowering faders on this section manipulates how much signal is heard from each channel without disrupting the record levels being sent to the recorder. The kick drum found on input #14 is routed to output channel #9 and is sent to channel #9 on the recorder. The kick drum is then heard by raising monitor fader # 9. Raising or lowering faders on the monitor section will effect how much of each signal is heard in the monitor mix independent of the levels being sent to the recorder.

The headphone mix sent to the studio was also derived from the monitor section of the console. Turning up cue #1 on each monitor channel assigned with an instrument allowed those particular signals to be routed to the headphones in the studio. Individual cues were raised to where all band members were comfortable with the headphone mix.

Rhythm Tracks

The first step in the process of recording is acquiring the rhythm or basic tracks usually consisting of drums, bass guitar, rhythm guitar, and keyboard. These initial tracks are the foundation upon which further instrumentation and vocals will be added. The

basic tracks for the six songs on this project were acquired during four separate rhythm track sessions. The following is a list of the sessions and the order in which each song was recorded.

Session #1-Know Your Heart

Session #2-Guess Work

Survive (scrapped)

Session #3-New Day

Even If You Love Me

Session #4-The Way I Loved You

Survive (rerecorded)

"Know Your Heart" was the first song to be recorded because of the band's familiarity with the song. They were comfortable with the song and anxious to hear the new modifications in the studio. Rhythm instruments included Simmons drums, Fender Bass, Yamaha PF 10 keyboard, and Ovation guitar. Scratch vocals, which are lead vocals recorded for the purpose of keeping the musicians in time, were not recorded because it was felt unnecessary.

During the second session"Guess Work" was the first song recorded. Rhythm instruments included Simmons drums, Fender bass, Korg Poly 800 keyboard, and Ovation guitar. The song "Survive" was also attempted during this session but with much difficulty. The keyboard used was powered by batteries which started to die making the keyboard

sound out of tune. Since the song had never been recorded before it was decided that the rhythm tracks would be recorded anyway with vocals to serve as a demo of the tune. Everyone received a cassette copy to listen to and during another session the song would be rerecorded.

The third session attempted the recording of "New Day" and "Even If You Love Me." "New Day" rhythm instruments included Simmons drums, a pre-programmed Drumulator (a computerized drum synthesizer) sequence, Fender bass, Yamaha six string acoustic guitar miked with an AKG 452 for a crisp sound, and Korg Poly 800 keyboard. "Even If You Love Me" was the second song attempted for the session. This song brought in a guest bassist for the rhythm tracks because of the complexity of the part. Rhythm instruments included Simmons drums, Fender bass, Korg Poly 800 keyboard and Fender Stratocaster. Because of the faster tempo of the song a "click track", generated by the Drumulator was sent to the headphone mix as well as recorded to a track to keep everyone playing in proper time. A click track is a metronome beat recorded which is set at a predetermined tempo. The click track would also help in overdub sessions which would gradually replace all of the rhythm tracks except the drums.

During the last session "The Way I Loved You" and

"Survive" were recorded. Rhythm instruments played on "The Way I Loved You" included Yamaha RX 21 drum box, Simmons drums, Fender bass and Ovation guitar. "Survive" was also rerecorded, instruments included Simmons drums, Fender bass, Ovation guitar, and Yamaha PF 10 keyboard.

During the rhythm track sessions the utt most concern of the producer was directed toward obtaining good solid performances out of each band member. "The main concern of the producer and engineer is a precision performance from the musicians with exact pitch and tempo, especially during recording of basic tracks, since all overdubbed instruments will accompany them" (Rappaport, 1979, p. 91). From a technical standpoint, the engineering aspects are concerned with obtaining good levels recorded onto tape void of distortion and hiss, adjusting microphones to get desired sounds, making sure the band is comfortable with headphone mixes and taking care of technical problems which arise. In trying to obtain all of these goals it was necessary for the band to attempt numerous takes until one was recorded suitably. "The rhythm tracks are most often the driving backbone of a song and to record them improperly onto tape is just asking for a recording that is at best, of unacceptable standards" (Runstein, 1986, p. 206).

"Survive" were recorded. Rhythm instruments played on "The Way I Loved You" included Yamaha RX 21 drum box, Simmons drums, Fender bass and Ovation guitar. "Survive" was also rerecorded, instruments included Simmons drums, Fender bass, Ovation guitar, and Yamaha PF 10 keyboard.

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Overdubs

The process of overdubbing involves the playing back of the already existing tracks while new parts are performed and recorded onto unused tracks. Overdubbed parts usually include lead guitar, lead keyboard, lead vocal, back-up vocals and any other musical parts which embellish the already existing basic tracks. During these sessions the parts recorded are strictly critiqued for flaws and aesthetic value because the parts tend to be more prominently heard in the final mix. It is often necessary for an overdubbed part to be recorded several times before one is actually kept. Several tracks may even be recorded so as to keep the best takes until a final choice is made. In many instances overdubbed parts only occur during certain parts of a song. For example, back up vocals are sung only during choruses, while other parts may play throughout the entire song.

The procedure for studio set up, track assignment and headphone feed is basically the same as for recording rhythm tracks. Electronic outputs and microphones are routed to the console inputs via mike cable, track assignments are established (making sure the tracks selected are unused) and record levels set. To send the pre-existing tracks to the headphone mix requires raising of the cue control of each used monitor channel. The tape return buttons for those channels need to be

engaged, otherwise signals routed back through the monitor section will not be heard. As before the monitor faders are raised to derive a control room monitor mix of the basic tracks along with the new additions. To record the machine is placed into the "selective synchronization" also known as "selective reproduce" (on Otari machines) position and the safety record switches placed into record on those channels to be recorded on. Selective synchronization, "arises from the need to be able to hear previously recorded tracks while simultaneously being able to record another signal in sync with them on the same piece of tape" (Runstein, 1986, p. 122). This requires that each record head serve a dual purpose, 1) to record material and 2) playback material. In use, the selective syncronization heads will playback previously recorded material while those channels designated to record are recording the new material being performed. Selective synchronization allows the new material to be recorded in sync with existing tracks, because record and playback are occurring on the same physical plane. If selective reproduce is not utilized, existing material will be played back off of the reproduce head while the new material is recorded on the selective synchronization head. Although it would sound in proper time when recording, upon playback the newly recorded material will

actually lag the basic tracks. This occurs because of the distance between the record and reproduce heads. (See Figure 6 for Selective Synchronization Diagram)

As stated before, overdubbed parts may not play throughout an entire song. When recording such parts it's unnecessary to be in the record mode for the duration. The process of "punching in" is used to record only during those required segments. Performing this procedure requires that the tape be playing in the selective synchronization mode, a couple seconds before the overdubbed part begins the record button is depressed. The designated tracks will then record. When the part is complete the play button is pressed to drop the designated tracks out of the record mode. Such a procedure is valuable in reducing unwanted noise otherwise picked up in between segments recorded on a track. For instance, back-up vocals only occur during choruses, but in between singing the mike would still be picking up breathing, throat clearing, or body movement, such noises are undesirable. Punching in is also valuable for correcting parts which are performed wrong. Instead of rerecording the entire track, punching in allows for the incorrect parts to be replaced by recording over them. For example, if a lead vocal is sung perfectly except for a couple flat notes during a verse, it is possible to punch in and rerecord correct

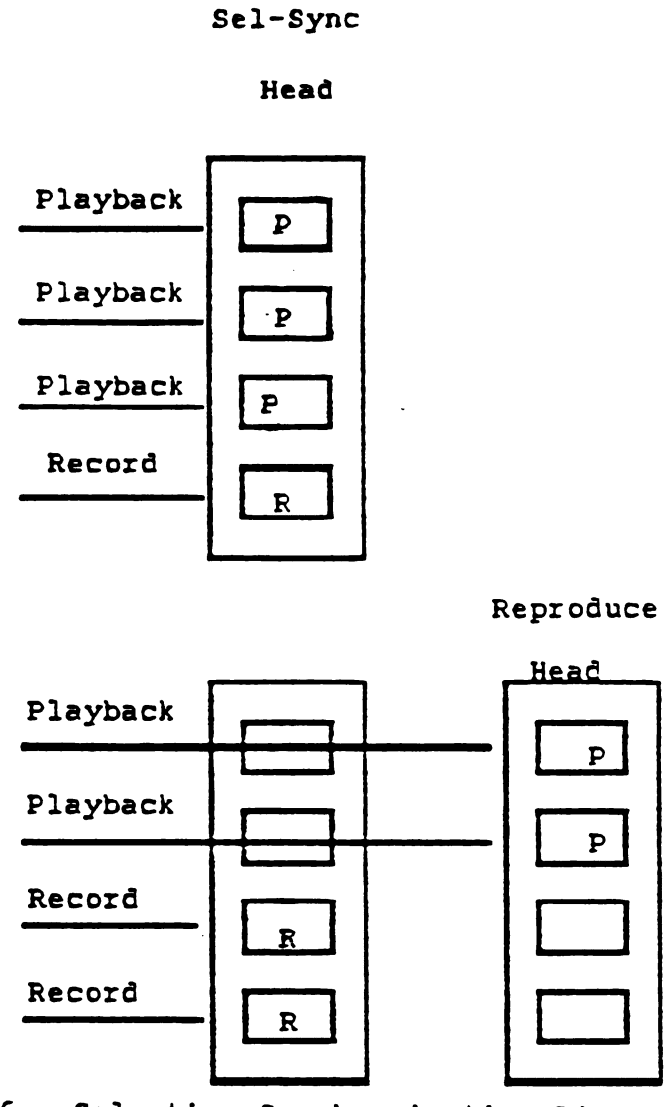

Figure 6. Selective Synchronization Diagram

Top Diagram: record and playback occur on the Selective Synchronization Head. Because they are on the same physical plane recorded material will be in sync with existing tracks.
Bottom Diagram: Existing tracks are played back off of the reproduce head while new tracks are being recorded at the selective synchronization head. Because there is distance between the heads newly recorded tracks will lag in time behind previously existing tracks.

vocals at the point where the incorrect vocals are located. In performing "punch ins" the engineer must be careful in getting in and out of record safely, otherwise the parts performed correctly before and after the punch spots may be erased.

The manner in which overdubs are recorded is determined by the producer. Some prefer to record several instrument overdubs at once, while others record one part at a time. For purposes of this study, overdubbed parts were done on an individual basis to dedicate as much concentration to each part as possible. Sessions were set up on an individual basis with each member. During these sessions it was unnecessary for all members to be present. For example, after the basic tracks were recorded the drummer was only required to show up for one overdub session. These sessions frequently occurred during early evening and lasted approximately two to four hours.

The first overdub sessions were centered around recording the different keyboard sounds necessary for each of the six songs. Some keyboards are capable of creating numerous types of sounds ranging from drums to a grand piano. During these sessions it was necessary to select keyboard sounds appropriate for the song at hand. In most instances this required listening or previewing many different types of sounds in the context of a song

before making a final decision. In one instance a particular string sound could not be created using one keyboard. Through MIDI (Musical Instrument Digital Interface) technology a suitable sound was obtained. MIDI allows for the linking of numerous instruments, in this project two keyboards, via MIDI cable. Interfacing of the two keyboards allowed for communication or "talking" to occur between the two keyboards via digital information. One keyboard was designated as the "master", which was played, while the other board served as the "slave". When the master was played information was sent via MIDI triggering the slave internally to play the same notes. Resulting was two keyboards playing the same notes simultaneously, but with two different sounds being created. The two sounds combined to create a lush string sound which neither keyboard could create alone. As before, the use of direct boxes was necessary for recording all overdubbed keyboard parts properly. All keyboard overdubs were recorded to fill out and enhance the existing basic tracks. Upon completing keyboard overdubs, recording of the guitar overdubs began.

As with the keyboard, it was necessary to preview many guitars and the sounds they could create before selecting those appropriate for the situation at hand. Methods of obtaining desired guitar sounds ranged from miking acoustic guitars to feeding the headphone output

of a "Rockman" (a small battery powered amplifier) to an input on the mixing console.

The variety of guitar overdubs required for the project ranged from bass guitar to twelve string acoustic fills, to lead guitar solos. The first guitar part to be overdubbed were the lead solos which were recorded on only three of the songs. Two of the solos were obtained using a direct box, as opposed to miking an amplifier, to acquire a clean undistorted sound. The remaining guitar solo was recorded using a "Rockman" which is a small guitar amplifier with only a headphone output, similar to Walkman radios. It was initially designed for guitarists to have a portable way to practice utilizing headphones instead of speakers to hear. One main advantage to using a Rockman for recording purposes was a chorusing function which gives the illusion of a stereo sound. To capture the stereo effect the headphone output was routed to a specially designed direct box which split the signal into two separate channels. Two outputs were then taken from the box, via mike cable, into two separate channels on the mixing console. This allowed for independent control of each guitar signal during recording and mixing.

Three rhythm guitar parts required overdubbing and were acquired in two ways. The traditional direct box was used to record two of the rhythm guitar tracks, again to obtain clean undistorted sounds. The second method

used was miking an acoustic twelve string with an AKG 452 condenser microphone. Placement of the microphone was toward the hole where the guitar sound seemed full. The part played was meant to give the song fullness but with a light feel, the microphone selected enhanced the sound desired. One of the songs "Even If You Love Me" required replacement of the original bass part recorded during the basic track sessions. The performance required a more soulful style which was inadequate on the first recording. A different bassist was brought in to perform the overdub. The part was recorded using a direct box for sound pick up. The last guitar overdub was acquired by miking an amplifier. The output of the guitar was connected to a a one second digital delay unit which was then controlled by a volume peddle, which was then routed to the amplifier. The amplifier was then miked with a Sennheiser MD 421 microphone, which is a rugged moving coil microphone capable of producing a mellow sound. The microphone was placed approximately one foot from the amplifier and center of the speaker. This placement helped to achieve a bright but distant sounding signal with the use of the guitar processing units.

The final overdubs involved recording of all lead and back up vocals. These were acquired by using a Neumann U87 condensor microphone which has a flat frequency response. The microphone reproduces all

frequencies equally, adding little coloration to the sound source being recorded. Lead vocals of all six songs were recorded first. The microphone was set in a cardioid pick up pattern and placed approximately one foot from the vocalist with a windscreen covering the capsule. The placement and windscreen reduces the pick up of breath noises created from pronouncing "p's" or "b's" and mouth noises which could be quite distracting when listening to a vocalist.. Five of the songs required one lead vocal line to be recorded and the remaining song used the technique known as "double tracking". This procedure calls for the lead vocalist to sing the lead twice, with each one recorded on its own track. In double tracking it is important that the singer be capable of singing the part twice exactly the same way, otherwise a slight change in timing or pitch will be obvious to detect. The technique of double tracking is used to make a vocalist sound fuller. In recording lead vocals, use of a compressor was necessary to unify the dynamic range of the vocalist. A compressor is, "an amplifier whose gain decreases as its input level is increased" (Woram, 1982, p. 206). Decreasing the output of the louder signals helps prevent the channel from distorting and keeps the recorded signal within a more manageable level range.

Back up vocals were recorded last and were obtained

from a couple different methods. One song required three of the band members to sing back up harmonies. All were recorded together by placing the U87 into an omni directional pick up pattern, which allows the microphone to pick up sound virtually equally from all sides. In this manner the members stood in a circle around the microphone about one and a half feet away and sang together. All harmonies were recorded twice, double tracked, to fill out the sound. On the rest of the songs, back-up harmonies were sung by the lead vocalist. In these songs, all harmony parts were recorded onto their own tracks. The following is a list of the overdubs required for each song.

Know Your Heart

-lead guitar-direct box

-keyboard-string program-direct box

-keyboard-bell program-direct box

-lead vocal-U 87

-back up vocals-U 87-double tracked

-back up harmonies-U87-three tracks

Guess Work

-lead guitar-direct box

-keyboard-string program-direct box

-lead vocal-U 87

-back up vocals-U 87-two tracks

Survive

-lead vocal-U 87

-back up harmonies-U 87-four tracks

-keyboard-string program-direct box

-keyboard-low chords-direct box

Even If You Love Me

-lead guitar-Rockman-two tracks

-keyboard-bell program-direct box

-keyboard-low chords-direct box

-bass-direct box

-rhythm guitar-direct box

-twelve string acoustic

-lead vocal-U 87

-back up vocal-U 87

New Day

-keyboard-bird whistle program-direct box

-keyboard-steel drums-direct box

-lead vocal-U 87-double tracked

The Way I Loved You

-Keyboard-MIDI string program-direct box

-keyboard-bell program-direct box

-lead vocal-U 87

-back up vocal-U87-double tracked

-guitar-amp-Sennheiser MD 421

Part of the role of a producer during overdubs was to make decisions on the aesthetic value of the

performance and sound acquired for each song. In situations where appropriate overdubs could not be obtained from within the band, it was necessary to seek talent from outside the band. Such decisions were made only when it became obvious, after numerous attempts, that outside help was the only alternative in creating the best product possible. In these situations it was important that the band be aware of the reasons behind the decision. This situation arose during two of the songs, "Even If You Love Me" and "The Way I Loved You." On "Even If You Love Me" two outside performers were brought in to record, one on bass and the other on lead guitar. Because of the up tempo pace of the song these parts required a more active and sophisticated style of performance unobtainable from within the band. The song had a much different "feel" then the other five and needed a different edge to the performance of the parts. On "The Way I Loved You" a guest guitarist was also brought in. This song needed guitar fills to enhance the melodic ballad. Again the performance and sound needed was lacking from within the band. A style of playing was needed to help differentiate the ballad from the other ballads on the project. When all overdubs were completed the project was ready for the mixdown phase of production.

Mixdown

Mixdown sessions can be the most creative phase of production for a producer. It is during these sessions that all of the recorded tracks are processed and combined to derive a final stereo mix of the product. Processing or "sweentening" techniques used include equalization, reverberation, delay, compression, gating, flanging and panning of the individual tracks as desired into a stereo output. Because of the concentration needed to process every track and to configure them all sonically, it may take several hours to create a final mix. As stated by Rappaport (1979),

> The engineer and producer make literally hundreds of decisions-where to bring up the guitar a little more and bring down the piano, when to omit a third harmony, when to add just a little more reverb to the lead vocal. Just executing a fade properly can be painstakingly slow" (p. 83)

To begin mixing requires that the tracks are routed back through the inputs of the mixing console. The machine is placed in the reproduce mode and all mixing console input modules are switched to line and mix positions. All input modules should then be labelled with the instrument that each control. There are no set procedures to follow to obtain a mix, techniques will

vary from producer to producer. The most logical and systematic way to mix is in the order in which tracks were recorded, basic tracks, overdubbed instruments, and vocals.

To begin mixing, the basic track faders are brought up to obtain a rough mix. These tracks are then equalized to obtain desired tones and frequencies. When beginning to equalize, individual tracks are listened to, first alone out of context with the rest of the material. This is accomplished by pressing the "solo" button on the input corresponding to the track being equalized. By pushing the solo button the designated track is heard in the monitors while all others are muted. To equalize the signal the "eq" button is pressed. Tonal modification of the signal is then possible by adjusting the high, mid, and low frequency controls and boosting or reducing their gain in the signal. To determine the amount of change, the eq button is pressed off returning the signal to its original unaltered state. Pressing the eq button on and off allows the producer and engineer to hear how the signal has been changed from its "dry" state. The solo button is then released to return the track to the rest of the mix, the signal is then compared to the others. This procedure is followed for all tracks. Equalizing a group of tracks is also possible by pressing the solo buttons of more than one track. For example, it may be

advantageous to equalize all of the drum components in relation to each other before hearing them in context with the rest of the mix. By soloing all drum tracks, equalization giving each component its very own distinct tone can occur.

When the basic tracks have been equalized, positioning them in a stereo spread can begin. The pan pots located on every input are responsible for creating the stereo spread. A pan pot is, "A potentiometer used to vary the proportion of an audio signal routed to two or more locations" (Woram, 1982, p. 490). In a centered position the pan pot allows a signal to be heard in equal proportion from the left and right channels. The resulting effect is that the signal sounds like it's coming from the center. When the pan pot is turned fully left the signal will be heard only on the left channel, and, when turned fully right the opposite is true. If the pan pot is turned partially left or right of center, the signal will be louder in the directed position, but still heard to a lesser extent in the opposite side. There are no hard and fast rules for panning when creating a stereo spread. But, in panning the basic tracks, it is important to maintain a balance between the left and right channels. Instruments such as bass, kick drum, and snare are usually panned in the center, being heard equally from both left and right channels. Panning

these instruments drastically left or right of center may throw the balance between the left and right channels off by making the mix sound lopsided or heavy to one side and thereby making it sonically unpleasant to listen to. In addition, if the material were put to disc, such panning may cause improper stylus excursion when tracking because of the unbalanced mix. To sonically position the drums the stereo overhead cymbal tracks are panned left and right to recreate a stereo image. The toms are panned in the fashion in which they appear when set up, high tom panned right, mid tom center, and low tom left. To finish up the rhythm instruments the rhythm guitar and keyboard can be panned in opposite directions of one another to balance each side. (See Figure 7 for Stereo Spread Diagram) To check whether the instruments panned opposite each other are equal in volume, they are soloed together. Their levels are watched on the master left and right VU meters and the signals are listened to. If the volumes are unequal the faders are adjusted until the signals are balanced.

Once the basic tracks are equalized, panned and balanced in volume, the overdubbed instruments are ready to be added. Acquiring equalization, panning and volume follow the same procedure as with the basic tracks.

The last parts to be added are the lead and back up vocals, again equalization, panning, and volume follow

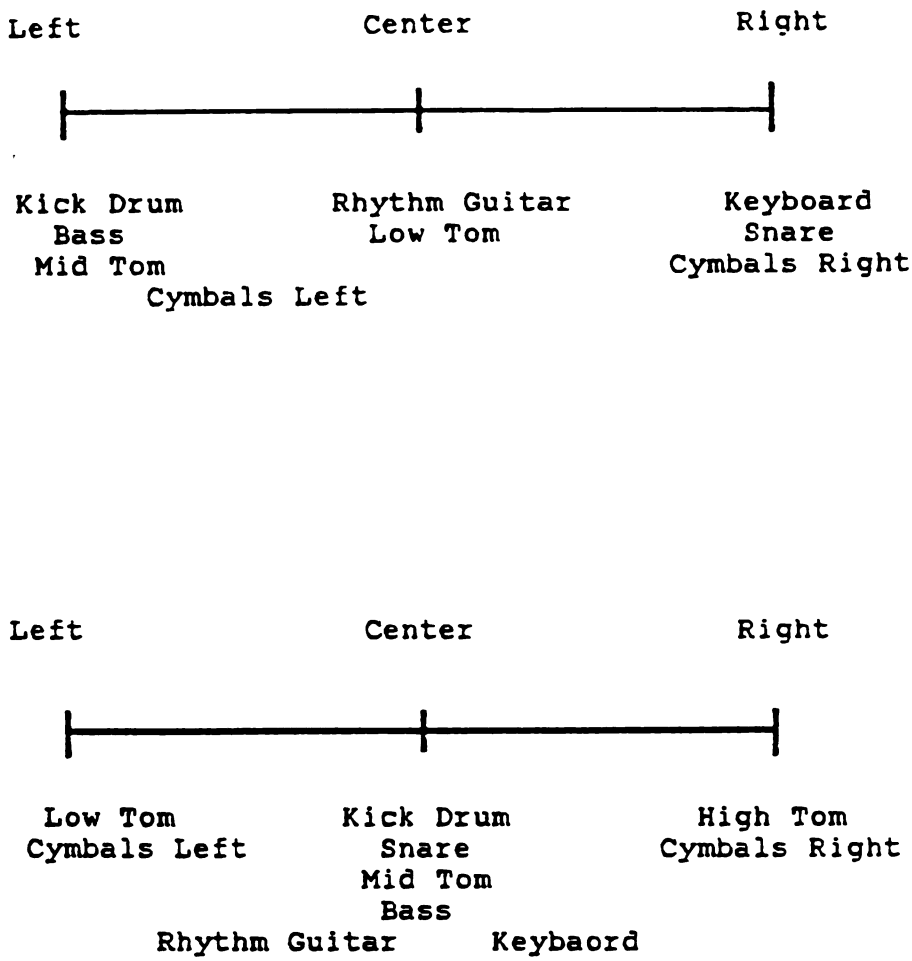

Figure 7. Stereo Spread Diagram
Top Diagram: The top diagram is an example of an unbalanced stereo spread. The kick drum, bass, mid tom, and high tom are all panned to the left, while the snare and keyboard are panned right. Panning of tracks such as bass, kick, and snare drastically left or right can cause improper stylus tracking in addition to sounding aesthetically unpleasant.
Bottom Diagram: The bottom diagram is an example of a balanced stereo spread. The kick drum, bass, and snare are placed in the center of the mix. The rest of the drum kit's components are panned right to left as found when played. The rhythm guitar and keyboard are panned left and right of center to balance the mix.

the same procedure. Generally the overdubbed instruments and vocals are increased in level in the mix because they are the more prominent parts of the song. Comparatively the basic tracks are mixed lower in level and provide the rhythm or foundation of the song. While tracks are being added and the desired levels of each determined, it is necessary to watch the overall level of the mix. When adding parts into the mix the overall level may get too high. There are two means of bringing the level back into an acceptable range, 1) bring each track down by equal increments until a desirable overall level is reached or, 2) bring the master fader, which controls the overall output of the console, down until a desirable output level is reached. For the best technical results, the first method is preferred.

The next step in mixing is to add processing effects, such as reverberation, delay, echo, flanging, compression and gating to the signals to enhance the mix. All of these are very common techniques used in the industry and should be used to embellish the material appropriately. Because material is recorded dry and in a controlled environment many of the characteristics of sound normally heard in a concert hall, bar, lounge, or other performing environments, are not present during a recording situation. These acoustical properties are brought to a minimum in the recording studio to obtain

the cleanest uncolored sounds possible. Instruments are recorded direct or at close proximity to a microphone, vocals are also obtained from close miking, all of which reduce the chance for sounds to be colored by the environment. Because of this situation a very dull unnatural sound results. By recording in this fashion the producer can decide, when mixing, what type of environment to recreate and what sweetening effects are appropriate for the material at hand. Certain processing effects can artificially restore or recreate the acoustical characteristics found in performing environments. Some reverberation units are capable of reproducing characteristics of large or small concert halls, rooms of different dimensions, as well as control the amount of reverberation and the depth or distance from the sound source. Reverberation is, "many repetitions of an audio signal, becoming closely spaced (denser) with time" (Woram, 1982, p. 497). It is applied to individual tracks as desired to fill out the sound and give it depth. Delay units can be used to thicken the sound of a signal, such as vocals or guitar. The time interval between the direct signal and its delay or echo is imperceptible, but results in a broadening of the sound. Obtaining a delay can be accomplished by analog or digital means, and unlike reverberation the time interval between the direct signal and delay remains constant.

The time length of delay can also be increased to obtain echo. Echo in it's crudest definition is a long delay, in which the direct signal and it's delay are perceived as two separate and distinguishable sounds.

Flanging is an effect added to signals which cancels some frequencies within the signal as others are reinforced. It is obtained by, "mixing a direct signal with the same signal slightly delayed. To create the effect the delay time is continuously varied" (Woram, 1982, p. 477). Such an effect is often used on instruments such as guitars.

Compression is also used during mixing. As with recording vocals compression is added to signals which have wide dynamic ranges to better manage their levels in the mix. "For example, some bass guitar strings are usually louder than others on the same guitar, and the use of compression produces a smoother bass line by matching the volumes of the different notes" (Runstein and Huber, 1986, p. 179).

Noise gates are also used during mixdown sessions. Their primary function is to reduce extraneous noise from a track while the signal on that track is not playing. A noise gate is, "an expander whose threshold is set to attenuate low level signals such as leakage, rumble, etc" (Woram, 1982, p. 393). Thus any low level signals present on a track will be attenuated when the primary

signal is not being played. Resulting from the use of a noise gate is a "cleaner" sounding mix. There are also creative uses for noise gates, such as the gated reverb sound on the snare, which is popular in current music. In a general description the sound is obtained by routing a snare and its reverb to a noise gate and setting the attenuation threshold at a point where some of the reverb is passed through and the rest cut out. The resulting sound is a snare with reverb that is shut off abruptly as opposed to hearing the reverbs natural decay. This technique can and often is used on the toms of the drum kit in addition to the snare.

It is important when adding any processing effects that it be done so as to improve the sound of that product, not just because the equipment is there. In addition different material will require different processing techniques, what worked on one song may not work or be appropriate for another. Experimenting is the best way to determine what is acceptable for the material at hand. Upon completing the addition of processing effects it is important to re-evaluate the mix as a whole. It may be necessary to make additional adjustments such as further equalization, adding or reducing processing effects, and manipulating further individual track levels, to fine tune the mix.

One of the most important considerations to keep in

mind while mixing is the type of monitor speakers being used to hear the mixes and what the environment is like. All monitors have their own specific characteristics and sound differently in various environments. In a recording studio, professional quality monitors are used and are designed to have a "flat" frequency response as set to the environment of the control room. A flat frequency response means that the audio frequency range is reproduced equally in level at all frequencies. The problem with this mixing situation is that listening audiences don't use studio monitors with flat frequency responses nor do they sit in control rooms to listen. Consumers will hear a final mix in a car, on a portable radio, walkman, or at home on a stereo. All of these sources possess their own individual frequency responses, thus all recreate the same mix differently. In the mixing situation it is advantageous to listen on various types of monitors ranging from professional line to cheap car speakers and in various environments. Studios will usually have a few different monitors set up in the control room to utilize while mixing. When a mix is close to being finalized, cassette copies of it will be dubbed and listened to over various consumer products and in numerous settings. This is done to get an idea of how the average listener would hear the mix. If there are deficiencies or changes required in the mix, they are

noted and made when mixing resumes. The ideal situation would be to obtain a mix that sounds good on a wide variety of monitoring systems and in different environments.

In addition to checking the mix on different systems it should also be listened to at different listening volumes. According to Woram (1982, p. 393) "Music mixed at a high listening level will sound quite different when played back later on at a lower level." This occurs because the ear perceives different frequencies at given listening volume differently. According to the Fletcher-Munson Equal Loudness Contours, human hearing is the most sensitive at the 3,000-4,000 hz range. At a given loudness level, frequencies below and above this range need to be increased in level to be perceived equally as loud. For example, if a 4khz signal is set at 70db an 800hz signal would need to be set at 80db to be perceived equally as loud. This has important implications when mixing, for not only are there differences in perceived loudness of frequencies at one listening volume, but the perceived loudness of signals changes as the entire mix volume is increased or decreased. Thus if a mix is obtained at a high listening level it will sound low and high frequency deficient when listened to at a low level. This occurs because at a lower listening volume it is harder for the ear to

perceive lower and higher frequency signals, inevitably they are the first to disappear. To bring about the best results it is suggested that mixing occur at moderate levels such as those used while listening at home, approximately 75 db to 85 db. "It appears that 85 db spl (sound pressure level) is the best monitoring level from the standpoint of minimum change in apparent frequency balance that is due to a change in playback loudness and softness" (Runstein and Huber, 1986, p. 282). For example if a mix is obtained at 85 db and listened back between 60db and 90db there is less than a 5 db change in response along the audio spectrum. Overall, monitoring at moderate levels is the best way to compromise with a difficult perception situation, and permits the consumer to listen at a range of volumes without severly altering the sound. When a mix is finally derived that the producer approves, it is ready to be dubbed onto a two track stereo master tape. It is from this tape that the master disc will be cut. As before, with the multi-track recorder, the two-track recorder needs to be properly aligned, cleaned, and biased for recording. Also, the same tones 1000hz,10khz, and 100hz, should be recorded at 0VU for 30 seconds each at the beginning of the tape. These tones will serve to let the mastering engineer know the proper operating level of the tape when the master disc is ready to be cut. When the mix is ready to be

dubbed, the two-track recorder is placed into the record mode and the multi track pressed to play. Often a mix requires adjustments during dubbing, such as increasing and decreasing the fader level of a lead guitar solo, panning signals from one channel to the other or performing a fade out at the end of a song. It is important that the producer and engineer practice these moves and remember when they occur in the mix. Because a mix may be very active, many takes may be required until a desirable two-track master has been recorded. Master mixes should be listened to carefully for errors, if it is approved a safety copy should be recorded immediately. The safety copy is also a two track dub recorded directly from the two track master mix, which serves as a back up copy if the master happens to get damaged. It is also possible to run a safety copy at the same time as the master dub is being recorded. Doing so may result in a better safety copy , it being a first generation recording as opposed to a second generation dub.

The order in which the material is mixed is totally up to the producer. For this project songs were grouped together for mixing according to their instrumentation and style of playing. The following is a list of how the songs were grouped and the order in which they were mixed.

Group One	Group Two	Group Three
1. Know Your Heart	3. New Day	5. Even If You Love Me
2. Guess Work	4. Survive	6. The Way I Loved You

Mixing of the individual songs followed the procedure as previously discussed. First, equalization of the tracks and groups were obtained, then they were panned, and then track levels in the mix were set. To access some of the processing equipment required that the cue and auxiliary feeds, located on each input module, be turned up on those tracks needing an effect. On the particular mixing console used cue feed #1 sends the signal to the Prime Time delay unit and cue feed #2 sends the signal to the Eventide Harmonizer. Cue feeds #3 and #4 send the signal to the left and right channel of the Lexicon Reverberation unit. Turning up these feeds controls the amount of signal being sent to the respective equipment desired. Before the signals can leave the mixing console the master cue output controls must be turned up so each signal can flow to their output patch point. The patch panel located on the mixing board is used to route each feed to it's appropriate processing unit. This requires that a patch cord extend from each feeds output patch point and connect at the designated units patch point send. This allows signals outputed from the board for

processing to be inputed to the appropriate processing unit. To receive the processed signal, patch cords extending from the return patch point of each component to an input or monitor channel "line in" patch point must be completed. To bring the processed signals into the mix the faders of the channels designated as effects returns are raised. Raising or lowering these faders will determine how much of the processed effects are heard in the mix. The Prime Time and Harmonizer each had one send and return patch thus required one channel a piece for their respective processed effects. These returned effects were almost always panned in the center of the mixes to maintain a balance between channels. The Lexicon Reverberation unit had two send patches and two return patches for a left and right reverb effect. It required two inputs or monitor channels for the return effect which were always panned left and right to add to the dimension of the mix. Accessing the noise gates and compressor was done using a couple different methods, 1) gating or compressing tracks on an individual basis and 2) gating or compressing multiple tracks by sub grouping them when equipment was limited. The first method utilizes the track send patches for those tracks requiring such processing. Patch cords connected track patch point sends to the desired noise gate or compressor. The return patch point for the units was

then connected back to the appropriate track return patch point, allowing the signal to continue through it's input channel for equalization and level adjustment. The second method of compressing and gating involves sending multiple tracks to the same processing unit. In this production it was necessary to sub group the toms together on two tracks to conserve on noise gates. To sub group, the toms were taken out of the mix position on the input module section of the board. On each input with a tom, the same two track send buttons were depressed such as tracks 5 and 6. Each track was then panned to where it would be found in the mix. Because 5 and 6 were depressed the signals were then routed to the output or monitor section of the console. Raising monitor section faders 5 and 6 brought all drum toms up in level on those two channels, panning them left and right restored the original stereo spread. To gate the sub group the monitor send patch points for 5 and 6 were routed to the noise gates. The units return patch points were then connected to monitor return patch points for 5 and 6. Sub grouping allowed for just two noise gates to be used on three to four toms as opposed to routing each individually to their own noise gate. The same procedure could be and was used for sub grouping tracks to be compressed.

The following is a brief description of some of the

mixing techniques incorporated into each of the songs to derive their final mix.

Know Your Heart

Because the tune is a melodic love song a dense lush reverb program was used to enhance the mood. It was used in varying amounts on all tracks except kick drum and bass guitar, such processing tends to make these tracks sound "muddy" and indistinguishable in the total mix. To create a contemporary sound a gated reverb on the snare was used. It was obtained by selecting a dense "percussion plate" reverb program for the snare and routing the signal through a noise gate. A dense program, such as a percussion plate, is necessary because the fast reflections of the signal create a thick sound when gated. A reverb program with slow reflections of the signal sound sparse when gated because few reflections would be heard by the time the noise gate shut down the sound. The gated reverb sound was then routed to an input on the console and recorded onto an empty track of the tape. In recording the gated reverb sound allowed for a more lush reverb program to be used on the rest of the mix, and freed up a noise gate to be used on the other tracks. A short echo was then added to lead vocals and harmonies to thicken the sound. The toms were sub grouped and gated to tighten their sound and eliminate extraneous noise on the tracks, the kick was

routed through its own gate. Compression was added to lead vocal and bass guitar to control their dynamic range in the mix. The back-upharmonies were sub grouped and compressed on two tracks to even out the level in the mix. A stereo spread was obtained by panning the overhead stereo cymbal tracks, stereo keyboard tracks and stereo rhythm guitar tracks left and right. The back up harmonies which were double tracked were panned left and right of center. The drum toms were panned following from right to left, high tom, mid tom, and low tom, respectively. The remaining component of the kit, kick drum and snare, were centered in the mix. The remaining tracks including strings lead vocal, lead guitar, bass, keyboard, and windchimes were all centered in the mix. Below is a linear diagram of the stereo placement of the tracks.

Left	Center	Right
Cymbals Left	Snare/gated reverb	Cymbals Right
Ovation Left	Bass	Ovation Right
Keyboard Left	Lead Vocal	Keyboard Right
Low tom	Kick	High tom
Reverb Return Left	Mid tom	Reverb Return Right
	Keyboard	
Back-up Harmonies	Strings	back-up Harmonies
	Wing Chimes	
	Delay Return	

Guess Work

Comparatively "Guess Work" was mixed quite dry in relation to "Know Your Heart." While instrumentation and tempo are similar, this song was very percussionistic as opposed to melodic and flowing. The duration of the reverb was shortened and added conservatively to the tracks. This created acoustical depth while attempting to maintain a "tight" percussionistic feel. The reverb returns were panned totally left and right, adding to the stereo dimension. A short delay was added to the lead and two back up vocals to thicken the sound. As in "Know Your Heart" the drum toms were sub grouped and gated to tighten the sound and eliminate track hiss. Compression was used on the bass guitar and lead vocal tracks to control their dynamic range in the mix. The stereo spread obtained was similar to that used in "Know Your Heart." The overhead stereo cymbals, stereo keyboard, and rhythm guitar were panned totally left and right. The drum toms were panned right to left as follows, high tom, mid tom, and low tom, respectively. The tracks which were centered in the mix included snare, bass, kick, lead and back up vocals, lead guitar, shaker, cowbell, hand claps and delay return. The following is a linear diagram of the stereo spread for "Guess Work."

Left	Center	Right
Cymbals Left	Snare	Cymbals Right
Ovation Left	Bass	Ovation Right
Keyboard Left	Kick	Keyboard Right
Low tom	Mid Tom	High tom
Reverb return left	Lead Vocal	Reverb return right
	Back-up vocals	
	Shaker	
	Cowbell	
	Keyboard	
	Hand claps	
	Delay Return	

The second group of songs mixed included "Survive" and "New Day." Although quite different in tempo and mood both were relatively sparse in instrumentation.

Survive

"Survive" is a slow tempo, melodic love song and again used a lush reverb program to enhance the mood. The unique effect used to spice up this song was an echo effect applied to the snare. The snare signal was routed through the Eventide Harmonizer where a delayed echo was added which decayed over time. The length of the delay and decay were set to be in proper tempo with the song. Vocals and bass guitar were compressed and the toms sub grouped to two tracks and gated. Stereo spread was again similar to that of the first two mixes, overhead cymbals

and stereo keyboard, panned left and right. Double tracked high harmonies were panned left and right of center. Toms were panned as usual from right to left, high tom, mid tom, and low tom, respectively. Centered tracks include bass, kick, snare, keyboard, acoustic guitar,strings, lead vocal and melody line vocal. The following is a linear diagram of the stereo spread.

Left	Center	Right
Cymbals Left	Snare	Cymbals Right
Keyboard Left	Kick	Keyboard Right
Reverb Return Left	Bass	Reverb Return Right
High Vocal Harmonies	Mid tom	High Vocal Harmonies
Low tom	Acoustic Guitar	High tom
	Lead vocal	
	Melody line vocal	
	Keyboard	
	Strings	
	Keyboard	
	Delay Return	

New Day

"New Day" is an "up" happy song with a calypso feel. A short duration reverb setting was used and added in varying moderate proportion to the tracks. A short delay was added to both lead vocal tracks and the drumulator program to give a short echo effect to the

sound. A chorusing effect from the Eventide Harmonizer was also added to both vocals and was panned center to further fill out the sound. Panning of the tracks, because of the sparseness, was somewhat different on this song. Rhythm and acoustic guitars were panned left and right respectively. The toms were panned in their usual manner from right to left and gated. The double tracked lead vocals were panned slightly right and left of center with the chorusing effect centered. The bass, snare, kick, drumulator, and two keyboard lines were centered in the mix. Again the two lead vocal tracks and the bass guitar were compressed to control their dynamic range in the mix.

Left	Center	Right
Rhythm guitar	Snare	Acoustic Guitar
Low tom	Mid tom	High tom
Reverb Return Left	Kick	Reverb Return Right
Lead vocal	Drumulator	Lead vocal
	Bass	
	Keyboard	
	Keyboard	
	Eventide Chorus Return	
	Delay Return	

The last group of songs to be mixed included "The Way I Loved You " and "Even If You Love Me."

The Way I Loved You

This is another slow melodic love song. It was decided that this song needed a different style of mixing to distinguish it from the other two ballads, "Survive" and "Know Your Heart." To accomplish, this a shorter less dense reverb program was used and applied conservatively to the tracks. A short delay was added to lead and back up vocals and was panned in the center of the mix. The shorter, less dense reverb and the short delay gave the song a "cleaner" sound. This song was the only one which utilized a drum box to obtain snare, kick, and high hat, all of which were recorded to one track and thus centered in the mix. The toms were gated and panned in their usual mode from right to left. Compression was used on lead vocal, bass guitar, and back vocals. The acoustic guitar and overhead stereo cymbals were panned left and right in the mix. The double tracked back harmonies were panned slightly left and right of center. The bass guitar, strings, keyboards, and lead vocals were all centered in the mix. This was the first song which required a faded ending which was accomplished by lowering the master output fader until all sound was gone. The following is the stereo spread for "The Way I Loved You."

Left	Center	Right
Cymbals Left	Drum box	Cymbals Right
Acoustic guitar	Bass	Acoustic Guitar
Reverb Return Left	Strings	Reverb Return Right
Back Harmonies	Keyboard	Back Harmonies
	Keyboard	
	Lead vocal	
Low tom	Mid tom	High tom
	Guitar	
	Delay Return	

Even If You Love Me

This was by far the most difficult and active mix of the six songs, using up twenty three of the available tracks. This song has the fastest tempo and is the most pop oriented of the six songs and required processing to match. As in "Know Your Heart," a dense gated reverb sound was used on the snare and recorded to an empty track. Again this freed up a noise gate and allowed for a different reverb program to be used on the rest of the tracks. A short less dense reverb program was used and added moderately to the tracks. A short chorused delay was applied to the lead vocals and rhythm guitar to fill out the sound. The delay return was panned slightly right. This song used four toms all panned from right to left in their usual manner. The stereo overhead cymbal tracks, stereo keyboard high chords, keyboard bells, low

chords, and lead guitar solo were panned left and right. The twelve string guitar, low keyboard chords, kick, acoustic snare and gated reverb, and back up vocals were all centered in the mix. Again, vocals and bass were compressed and toms gated to eliminate noise and tighten the sound. This song also required a faded ending.

Left	Center	Right
Cymbal Left	Snare/gate reverb	Cymbal Right
Keyboard	Kick	Keyboard
Keyboard	Bass	Keyboard
Lead guitar	12 String	Lead Guitar
Reverb return Left	Keyboard	Reverb return Right
Rhythm guitar	Lead vocal	Delay Return
Low tom Mid tom	Back vocal High tom	Simmons snare
	Chorus Return	

Sequencing

After mixing all six songs into a two track stereo form was completed, the decision of how the material should be sequenced for testing and album purposes needed to be decided. In making such a decision several criteria need to be considered such as "tempo and key changes as well as thematic or musical continuity" (Rappaport, 1979, p. 84). In other words the songs should be sequenced in such a manner so that they flow

easily, in an aesthetic sense, from one song to the next. The first and probably most important decision in sequencing is determining what song should be awarded the number one spot on the first side. This song not only sets the mood or tone of the rest of the record but the song should also have strong hit potential. The first position placement is critical because it's where initial judgement of the artist and material is made by the listening audience. On a more technical note it is also advantageous that the stronger material be placed in the first position of either side of the record because the quality of the sound is more consistent. As the needle or stylus tracks closer to the center of a record there tends to be more distortion of the signal due to slowing groove velocity and because less groove space is being used for signal reproduction. Another general rule for sequencing material is to place relatively strong songs as the last cut on each side of the record. This is done in hopes that it will encourage the listener to either 1) turn the record over and listen to the second side or, 2) if at the very last song, to turn the record over to the first side and listen to the record again. The following is a basic sequencing strategy where hit potentials lead off each side, strong material ends each side and the weaker material is placed in the middle.

Side #1	Side #2
1. Hit song #1	1. Hit song #2
2. Strong song	2. Strong song
3. Weak song	3. Weak song
4. Strong song	4. Strong song

Sequencing of the material for this project was based, to a large degree, on the previously discussed points. Because the project had six songs some changes were necessary. The technical problem with distortion toward the center doesn't apply due to the shortness in length of the record. Below is the sequence strategy as determined for the testing stage to follow.

Side #1

1. Know Your Heart-Hit
2. Guess Work-Moderately strong
3. Survive-Moderately strong

Side #2

1. Even If You Love Me-Hit
2. New Day-Moderately strong
3. The Way I Loved You-Strong

"Know You Heart" was chosen to lead off the album because it was deemed a strong song from a performance and production standpoint. It was also viewed as being most representative of the type or style of music the artist leans toward performing and sets the mood desired for the rest of the album. "Guess Work" was chosen to

follow up "Know Your Heart" because it flowed well in terms of key and tempo change. In addition it was viewed as a moderately strong song and again was representative of the type of music the artist performs. "Survive" was chosen to end the first side of the album, while much slower in tempo it fit well next to "Guess Work" and stayed along the same theme. While viewed as a moderately strong song the slower pace was viewed as an ideal way to end the side. "Even If You Love Me" was chosen to start the second side of the record. It was deemed as a strong song in terms of performance and production and because of it's "pop" orientation seemed a strong hit potential. "New Day" was selected to follow "Even If You Love Me." This song flowed well in terms of tempo next to "Even If You Love Me," both songs being fairly up tempo. The album ended with "The Way I Loved You." This song is much slower in tempo when compared to the other to songs on the side. But, unlike "Even If You Love Me" and "New Day" it is much more characteristic of the style of music the artist tends to perform. For this reason it was placed last, in addition the song was viewed as strong in terms of performance and production. The song's slow faded ending was also viewed as an appropriate way to end the album.

The album and material overall tends to be directed toward an adult type audience and sequencing the material

was done to reinforce that direction. Although "Even If You Love Me" was viewed as the strongest song, with probably the strongest hit potential, leading the album with it would not have been representative of the style or mood of the rest of the music on the record.

When the sequence order of the songs was determined the songs were spun onto ten inch reels with three to five seconds of blank leader tape edited in between each song. This procedure was performed on the 30 ips stereo master tapes as well as the 15 ips stereo safety copies. The 30 ips masters required two ten inch reels, one for each side of the record, with the test tones located at the beginning of the first reel. The 15 ips safety copy was spun off onto one reel with test tones at the beginning. Upon completing the physical ordering of the songs the material was ready for the research and testing phase of the study.

CHAPTER III

RESEARCH

While the music industry is certainly one of creativity, the foremost important factor for it's existence is to make a profit. The music industry makes a profit by selling it's product to a listening audience. The product gets it's audience from exposure on the radio, television, advertising, and live performances. But, before most music is even heard by the general public it has first met the approval of gatekeeping bureaucracies such as record companies. Record companies are responsible for discovering and signing artists to make records. In most instances the record company decides the material to be recorded and of those songs which will end up on the record. In addition the record company selects which song from the record will be released as the single. The success of an album is largely due to a hit single or numerous hit singles contained on that particular record. These are the songs which are promoted by the record company to get airplay,

thus attracting an audience. These singles which influence album success are selected by record companies and done so based largely on gut level feelings of what the public will like. Little formal research exists on predicting success of released material or whether it would be accepted by the public to begin with. Artists which are already established and have a loyal following may not have to be concerned with public acceptance. But, this situation has serious implications for new artists. Because it is costly releasing an album and a gamble as to it's success, it would be advantageous for a producer, record company or artist to know before proceeding with a release what the potential for success might be. A record company or producer may have selected material that is not acceptable or the production of the material may be unappropriate. In addition they may select a single that may not meet with public acceptance. This being the case, the results is a loss economically for the record company, producer, and artist.

Purpose

The purpose of the research section of this thesis was to devise a means by which a producer, artist, or record company, could determine possible acceptibility of the material to be released. Specifically there were three questions which this study sought to answer.

1. What is the audiences acceptibility of the material.
2. Which song has the greatest potential for being a hit single.
3. Is the production and the production techniques used appropriate for the material.

Procedures

To attain this goal the material created for this project was tested on three groups of subjects.

Group #1

This group consisted of 33 college seniors from the Department of Telecommunication, Michigan State University. This group represented the general listening public.

Group # 2

This group consisted of nine college seniors also from the Department of Telecommunication. These subjects were classified as semi professional because they possess basic knowledge of music production and the music industry. This group was also used to represent the general listening public.

Group #3

This group consisted of a professional advisory panel members from the music and recording industry. Their primary purpose was to evaluate the album from a technical standpoint.

Testing was accomplished by administering surveys to each group of subjects. Group #1 and #2 received the same survey. The survey administered to these groups was based and designed on earlier research performed on music preference. Boyle, Hosterman, and Ramsey (1981) cite 11 reasons why people might like songs. These variables include melody, rhythm, harmony, instruments, mood, lyrics, singer or group, peer influence, hear it on radio, danceability, and sentiment (p. 51). In their study each subject used a five-point Likert scale to show the extent to which each variable had influenced song preference. For this study nine of the variables were used. The two omitted were "hear it on radio" and "peer influence." Because the six selections had not been released to the public these two categories were deemed irrelevant. Two categories were added they included "how much do you like this song" and "do you think this song has a potential to be a hit." The original nine variables utilized a seven-point Likert scale to indicate how well each was liked. The two new categories used the

same seven-point Likert scale to indicate how well the song was liked as a whole, and how strong a potential the song had to be a hit. Each song included the same set of questions to be answered. It was from these questions that information on acceptibility of the material and potential hit song was to be found. At the beginning of the survey were three open ended questions which were designed to determine the type of music the subject had a preference for. In addition, in listening to music, they were asked to rank in order of importance, the nine variables. At the end of the survey was a set of personal questions regarding age, sex, and occupational status. To determine music habits, subjects were also asked amount of time spent listening to music, music purchasing per year, and how likely they'd be to buy the tested material if released. (A copy of the Music Survey can be found in Appendix A)

The survey was designed to be completed as the master tape of the six songs was played. Subjects filled out each section of the questionnaire as it corresponded to the song being played. Testing of the material on these two groups was performed in July of 1986. Group #1, because of it's size, was tested in two sections, one in the morning and the other in the afternoon. The material was tested in a classroom and was played back through the same equipment for both sections. Group #2

was tested in the studio utilizing slightly better equipment.

Group #3, the professional advisory panel, was administered a survey as well but it was in the form of open ended questions. This was done to maximize responses made. The questions asked differed from the first two groups in that they addressed the technical aspects of the album in addition to potential hit, and acceptibility. Technical aspects addressed comments on the songs from a 1) musical standpoint including instrumentation, arrangement, and performance, 2) production techniques used, and 3) other comments that they might have. In addition this group addressed sequencing of the material, overall tone/feel of the album as a whole, and radio formats the material is suited for. (See Appendix B for Professional Advisory Panel survey)

Testing of this group was done in a different manner than the first two groups. Because subjects were located throughout the United States, cassette copies of the project were dubbed and mailed along with a survey. They were asked to perform the study at their earliest convenience and to return the survey in the self addressed envelope included.

Results

To facilitate analysis of the data obtained from group #1 and #2 an SPSS (Statistical Program for the Social Science) computer program was written. The raw data that was obtained was then entered to make calculations. The first tests run centered on finding the mean scores for all variables. From this data answers to two of the research questions posed could be obtained.

The first question that this study sought to answer was the audiences acceptance of the material presented. According to Group #1 and #2 the material as a whole faired well. Results found that the lowest rated song, in terms of how well it was liked, had a mean of 3.9 with the highest song at a mean of 4.7. In relation to the Likert scale used for testing all songs fell at the neutral point or above in the category of liking. Below is the break down of each song's mean rating in this category.(Means have been rounded)

Rank	Song	Mean
Song #1	"Even If You Love Me"	4.70
Song #2	"The Way I Loved You"	4.36
Song #3	"Survive"	4.33
Song #4	"New Day"	4.24
Song #5	"Know Your Heart"	4.17
Song #6	"Guess Work"	3.90

To determine if one group liked the material better than the other, a t-test was run. This test uses the means of both groups to establish whether a statistically "significant" difference exists. According to the findings there was one song, "Guess Work" which was liked more by Group #2 than Group #1. The t-value equalled 2.68 at a .05 significance level. Calculations obtained on the rest of the songs found no significant difference in one group liking the material better than the other. Also, run was a t-test to determine whether males or females liked the material better than the other. Results found that there was no statistical significant difference between males and females in terms of one gender liking the material better than the other.

According to the advisory panel the materials greatest audience acceptance would be found with listeners of Adult Contemporary radio formats. According to Garry Galloway, CBS Entertainment, "[The material] overall fits the A/C (Adult Contemporary) type format with "Even If You Love Me" fitting into Top 40."

The second question that this study sought to answer was, of the songs contained on the album which has the greatest potential of being the hit single. According to Group #1 and #2 the song that was found to have the greatest potential to be a hit was "Even If You Love Me."

This song had a mean rating of 4.9 among groups 1 and 2. Below is the break down of each song's rating in terms of potential to be a hit.(Means have been rounded) Songs "Survive" and "New Day" received the same exact mean, thus both overall were ranked #3.

Rank	Song	Mean
Song #1	"Even If You Love Me"	4.95
Song #2	"The Way I Loved You"	4.56
Song #3	"Survive"	4.14
Song #3	"New Day"	4.14
Song #5	"Know Your Heart"	3.87
Song #6	"Guess Work"	3.81

A t-test was run to determine if one group thought "Even If You Love Me" had a greater potential to be a hit than the other. Again there was no significant difference found. A t-test was then run to determine whether males or females thought that "Even If You Love Me" had a greater potential to be a hit. Again no significant difference was found. According to these two groups the highest rated variables of the song were beat with a 5.1 mean, rhythm with a 5.07 mean, and instrumentation with a mean of 4.81.

Among the members of the advisory panel "Even If You Love Me" was also chosen unanimously as the song with the greatest potential to be a hit. As stated by Galloway,

"[This song has] really good instrumentation, good arrangement, and performance [it's the] closest to a 'smash hit' potential." Comments from Dave Hayden, Hayden Sound, Livonia, MI, struck an important point as stated, "The intro [to the song] is excellent, it really grabbed me." The first moments of a song are very important in terms of getting a listeners attention and holding their interest. This element alone may have played a role in the songs rating as the greatest potential to be a hit. Pat Cyccone, Chief Engineer/Salty Dog Recording Studio, Van Nuys, CA, also brought up an important aspect of the songs ability for being a potential hit. As stated, "This song is a smash! It sounds very marketable, it could easily cross over into many formats, especially Dance or New Music type of formats." Many songs that are hits are able to cross over into numerous types of radio formats to obtain the largest possible listenership.

The final research question to be addressed was specifically addressed by Group #3. In terms of production of the material one major area of weakness was found, it being in the area of keyboard programs. According to Cyccone, "The only major criticism I can make is one that generally has been true for five of the songs, which is a lack of modern synthesizer sounds." This view was also held by Dave Hayden, who specifically

commented on three songs which were in need of modern synthesizer sounds. This point is well taken, and one which is important in attempting to produce contemporary sounding material. The deficiency was mainly due to the lack of more updated synthesizers available for use on the project at the time of production. The overall opinion of the advisory panel in terms of production techniques used was "appropriate." As stated by Cyccone,"The songs as a whole had a sound and balance and tonal structure that seemed to fit. I found myself enjoying the music rather than critiquing the sound which is a good sign." On the topic of "sequencing" views were split. Two of the panel members felt that the sequencing order was fine as presented. As stated by Cyccone, "As an album the sequence works well." The remaining view suggests placing "Even If You Love Me" as the first cut on the record. This is suggested because of it's implied hit potential. Beyond placing "Even If You Love Me" first the panel left the rest of the sequencing order up for debate. On the topic of "overall feel/tone of the album" views again varied. The comment from Cyccone on this topic was "appropriate." Coming from a different angle Galloway felt that while the "feel/tone" was "good to very good" the material had an element of "safeness." This safeness was viewed as limiting in terms of the material being innovative.

Discussion

The results of this research highlight some important information in terms of determining a direction to take with the recorded material. From the first research question posed (the issue of audience acceptance) it was found that the material as a whole was received well by the college seniors. This in itself could suggest a new audience that the artist has not normally targeted toward. In addition the advisory panel felt the material would find greatest acceptance on Adult Contemporary type radio formats. While this was viewed as an obvious format to approach, the suggestion that "Even If You Love Me" could cross over into younger targeted formats offers additional possibilities to wider audiences. Also found was no significant difference in acceptance of the material between males and females. This information is valuable in determining how to market the material. Some artists are targeted toward male audiences while others are targeted toward female. It was felt before the testing that the material would find greater acceptance with females but that wasn't the case.

The second research question posed was that of the song with the greatest hit potential. This song was unanimously found to be "Even If You Love Me." This information is valuable to know in determining what song should be released as the single. Because of this

testing there is little doubt as to which song would find the greatest acceptance with potential audiences. For an artist only able to release a single, due to financial limitations, this information suggests which song may find the greatest success in terms of sales or potential to get airplay. In considering sales of an album, this information could help in turning a profit. If the song gets airplay it helps to promote the entire album.

The final question posed addressed production of the material. Here the advisory panel discussed at length the more technical aspects of producing current album material. Such input is valuable in determining if the songs could stand to be stronger in terms of musical arrangement, performance, or production. With this group of subjects comments were highly individualized and subjective. In many instances suggestions on improving the material resulted in opposing views. But, there were a couple areas, referred to by all subjects, which suggested that the material could have been stronger. In these areas the subjects had the same suggestions for improvement. At this particular phase of record production it is still possible to go back to the master two inch tapes and make revisions. New keyboard parts, different lyrics, or more contemporary mixing techniques could be incorporated to make a stronger product.

This type of testing was designed to aid in pointing

to potential audience acceptance, the song with the greatest chance of being a hit, and areas for improving material. This is helpful for a producer, artist, or record company to know when assessing the possible financial risks of a release. It by no means insures that a successful outcome will be realized. In reality there are numerous outside factors influencing success of musical releases. Such factors include 1) promotion departments of record companies which are responsible for getting radio station to play their artists material, 2) established artists which are popular have an easier time maintaining their prominence, 3) artists which are signed to record labels are given financial backing to develop their careers, and finally 4) numerous radio stations are locked into specific playlists which are difficult for new artists to break, especially without the backing of a record company.

Other Findings

There were other findings obtained from the data which were not originally addressed by the proposed study. This section will review two of the findings.

In earlier research performed on music preference there have been opposing views as to the significance of lyrics. In his study on fifth graders LeBlanc found music preference to be determined based more on "beat or

"sound" than lyrics. Robinson and Hirsch (1969) also found that it was the beat and music and not the lyrics that drew attention to listenership.

The other view holds that lyrics are an important socializing element. As reported by Chaffee (1985) Lull argues that the verbal content of music offers a way for young people to "express deviant perspectives," to "resist authority," and be educated about "the outside world."

While this study did not center on the importance of lyrics in musical preference, subjects were asked to rank the nine variables in terms of importance when listening to music. According to this study, performed on 42 college seniors, the primary variable was lyrics. The following is a list of how the nine variables were ranked.

Rank	Variables
#1	Lyrics
#2	Beat
#3	Instrumentation
#4	Rhythm
#5	Mood
#6	Vocalist/Group
#7	Melody
#8	Sentiment
#9	Danceability

The other finding, as a result of this study, centered on the use of multiple regression to determine 1) the strongest variables responsible for subjects liking each song and 2) the strongest variables in terms of each songs potential to be a hit. The independent variables in this test were the nine categories and the dependent variables were 1) how much did you like this song and 2) the songs potential to be a hit. The following is a breakdown of the highest rated song "Even If You Love Me."

Dependent Variable	Independent Variables
How much do you like this song	Beat
	Lyrics
	Melody

Percentage: 85%

Dependent Variable	Independent Variable
Songs potential to be a hit	Beat

Percentage: 38%

The breakdown for the dependent variable "How much do you like this song" found three categories, beat, lyrics, and melody significantly responsible for 85% of why "Even If You Love Me" was liked. This left 15% unaccounted for. When tested using "Songs potential to

be a hit" as the dependent variable only one independent variable, beat, was found to be significant. This variable explained 38% of why the song was thought to have hit potential. This left 62% unaccounted for.

These same type findings occurred for the five remaining songs. When the dependent variable was "How much do you like this song" two to four variables accounted for 78%-86%. When the dependent variable was "Songs potential to be a hit" only one variable per song was found significant. These variables could only account for 20%-38% of why the song would be a hit. For the results of the remaining five songs see Appendix C.

These results raise a couple interesting points. First, while subjects could identify multiple variables in explaining why they liked each song, only single variables were found to explain why each song had a potential to be a hit. This was even found when testing the song they picked as having the greatest potential to be a hit. This raises the question, are there other factors influencing the reasons why subjects think songs have potential to be hits?

The percentage gaps found, in testing both dependent variables, raises another point. There appears to be some undefined variable or variables which were not tested for in this research. They account for the remaining unexplained percentages.

Suggestions For Further Research

The first suggestion for further research centers around listeners hearing tested material numerous times. The lay subjects of this study heard each selections only once and were asked to evaluate them based on those initial exposures. It would be interesting to find if there is a difference in evaluation over several listenings. As with material heard on the radio, songs sometimes "grow" on individuals after numerous listenings. This even occurs when individuals have negative initial reactions. Several listenings may result in individuals either 1) reinforcing their initial evaluation response or 2) changing their initial evaluation (whether positively or negatively) as they become more familiar with the material.

Another suggestion for further study is to test the material on a random sample population. This study was conducted on college seniors because of the convenience offered by a university setting. A true random sample would result in findings obtained from a wide cross section of the population. Represented would be a more accurate account of the materials true acceptance by the general public.

The last suggestion for further research is in the area of music preference. This study found major gaps, especially in identifying variables significant, for

predicting potential hits. There was obviously some variable(s) unaccounted for in the survey which created the deficiency. These variables could possibly be production oriented, of which only the Advisory Panel addressed. It is the authors speculation that audiences can determine between well produced and poorly produced material. The lack of the survey in this area may account for part of the gaps found from the data.

CHAPTER IV

RECORD MANUFACTURING

As a result of the testing it was decided that the project as a whole would be released in album form. The process of converting the master tapes into a product for sale to the public involved three areas:

1. Selecting a Manufacturer
2. Mastering and Manufacturing
3. Packaging

Selecting a Manufacturer

During this step it is important that the producer assess the needs of the project then seek an appropriate facility to cut the master lacquers and press the discs. For purposes of this study it was advantageous to select a manufacturer which dealt mainly with independent labels. "The major problems encountered by independents choosing major-label plants center around timing and service" (Rappaport, 1979, p.64). These facilities are block booked for extensive periods of time by major

labels and receive top priority for their work. Small labels are given low priority and scheduled in during slow periods, meaning it may very well take longer to receive a finished product. Manufacturers who deal with independent labels will provide greater attention, better scheduling priority, and possibly better quality control during pressing. Another consideration in selecting the proper facility is prices for their services. Many manufacturers offer package deals for projects requiring 1,000-5,000 albums. The package usually sets one price to include the cost of disc mastering, metalling, pressing, labels, sleeves, jackets, and shrink wrapping. The price is lower than pricing each item individually and helps bring down the price per unit. Finding a facility which provides all of these services helps save on time and expense. Obtaining information about manufacturers is relatively easy. Many facilities provide information, addresses, and phone numbers in industry related magazines and journals. Many manufacturers provide toll free numbers if additional information is desired. Sales representatives will discuss services and send brochures about their facilities. For this project A & R Record and Tape Manufacturer located in Dallas, Texas was selected. They are an independent record manufacturer with a good reputation. They provided a package deal for orders of

1000 albums. One price included mastering, metalling, pressing, jackets, labels, sleeves, and shrink wrapping.

Mastering and Manufacturing

Record manufacturing involves the process by which the master tapes are converted to disc form. To insure that the quality of the master disc is acceptable a reference disc, also known as an "acetate" should be cut prior to the master disc. This disc is ordered by the producer and is previewed for various problems. In transferring the material from tape to disc sounds may not be recreated properly. Situations such as inconsistencies in volume within each song and from cut to cut, distortions, pops, clicks, skips and equalization deficiencies may arise. In previewing the reference acetate the producer, engineer, and artist can note problems and discuss them with the mastering engineer. Cutting a reference acetate is also a step in which problems inherent within the mix on master tape can be solved. For example, one of the songs on this project had too much low-mid range frequency in comparison to the rest of the cuts. It was possible for the mastering engineer to adjust the equalization of that particular song when cutting the reference. Resulting was a song better matched in respect to the rest of the project. If any such equalization adjustments are required they are

noted by the producer and sent along with the master tapes to the mastering engineer.

When the mastering engineer receives a project it is listened to closely. Notes are made such as where the highest peaks occur, what cuts require equalization changes and at what frequencies, how much compression is needed and, how wide and deep to cut the grooves. After the project has been listened to carefully the reference acetate is ready to be cut. The adjustments noted are made while the reference disc is being cut. This disc is then sent back to the producer who listens to it carefully in a familiar setting. The disc may even be compared against the safety masters to determine the amount of change in sound. The most critical judgements upon listening to the reference should be made during the first few listenings. Because the reference is made of a soft laquer it loses frequency quality the more it is played. According to Runstein and Huber (1986), "At a tracking force of 1 to 2 grams, most references remain usable for 8 to 10 plays" (314). If the reference disc is approved by the producer the project is ready to be mastered and manufactured. If there are problems with the sound of the material the producer notes them and discusses further changes with the mastering engineer. The producer will then either 1) order another reference disc to be cut with the new modifications or 2) have the

changes incorporated into the master disc without having a reference cut. To be safe it is recommended that reference discs be cut until one is obtained which is completely acceptable. For this project it was necessary for two reference discs to be cut in attempting to obtain the desired sound.

The process of mastering and manufacturing a record involves three steps 1) cutting the master disc, 2) metalling, also known as plating or matrixing and 3) pressing.

Cutting the master disc involves the same procedure as cutting the reference. It involves the transferring of music from the master tape into grooves on an aluminum blank disc coated with lacquer. The exact changes required for the reference acetate are duplicated while cutting the master disc. The master tape is routed through a disc mastering console where proper equalization and compression settings are recreated. The console in turn is connected to the disc cutting lathe which is responsible for cutting grooves, via cutting stylus, into the master lacquer. When preparing to master, a blank disc is placed on the lathe. Next the pitch, which is the number of grooves cut per inch, is set. It is based two variables 1) length of the side, and 2) volume of the signals to be cut. A long playing side will require more grooves per inch to be cut to fit

all of the material. Likewise a short side will require fewer grooves per inch. Volume also effects pitch setting because louder passages require more cutting space on the disc then quieter sections. These two variables present a problem. A louder, punchier disc is deemed a more preferable product. To obtain this more disc space is required, hence reducing total playing time. To resolve the problem the pitch is varied, allowing more grooves to be cut during quieter sections and fewer grooves during loud. Pitch varying is accomplished by what is termed "Computer Assisted Mastering." A preview head on the tape machine, located before the playback head, reads the signals from the tape and feeds the information to the computer in the lathe. The computer determines the pitch required for the previewed material and varies the lead screw motor speed accordingly. This occurs before the material reaches the playback head, allowing the pitch to be varied appropriately for proper groove spacing.

When the pitch has been set the mastering engineer makes test cuts on the outer portion of the lacquer to check groove depth and cutting stylus heat. The size of the master disc is 16 inches for a 12 inch album, this allows test cuts to be made and also allows for handling of the disc without damaging freshly cut grooves. Checking groove depth is important because grooves cut

too deeply may extend into the aluminum base of the disc resulting in distortion and possible damage to the stylus. Likewise if the depth is too shallow the stylus could totally rise off of the disc resulting in skips. "Ideally groove depth should not go below 2 mils for reliable tracking on all turntables. One mil is a standard compromise for the minimum depth needed to cut louder records" (Runstein and Huber, 1986, p. 292). The cutting stylus is heated to facilitate ease of cutting. When depth and stylus heat are set chip suction is started, it is responsible for removing the lacquer chips which are cut. The lathe is then moved to it's starting diameter, the starting spiral and lead grooves are cut, then the tape machine is started. As the side is cut the engineer makes the required setting changes on the console and introduces them between songs when blank grooves are cut. When the last selection is over lead out grooves are cut and the lathe is stopped. The grooves are then carefully inspected under a microscope to insure quality. Unlike the reference acetate the master disc is never played due to damage of the grooves which would result. In cutting master discs only one side per disc is cut. Thus two master discs are required, one for each side. When the discs have been cut they are ready for the metalling process.

The metalling stage is "usually a three step process

that converts the master lacquer into stampers or molds which can duplicate the grooves of the lacquers onto your records during pressings" (Rappaport, 1979, p. 60). This three step process is used when large numbers of discs are to be pressed. The stampers which are made of nickel can press approximately 1500-2000 albums if properly treated. There is also a two step process which is used for small pressing orders. This process uses the first negative or matrix disc to stamp out the vinyl disc. For pressing this project of 1,000 albums the three step process was used. The metalling process involves making a metal negative or mold of the master disc. This first negative disc is also called a matrix disc and may be obtained using a couple different metals. First, the metal silver in an alcohol based solution may be used. The master disc is coated with the silver solution. When the alcohol base has evaporated from the solution the resulting silver disc is carefully separated from the master disc. The separation damages the master disc making it no longer usable for further metalling. It is important that the silver matrix disc not be damaged during separation. Otherwise a new master disc will need to be cut and a new matrix disc made. The other metal used to create a matrix disc is nickel. The method of obtaining the disc is similar to that used with silver. Again great care must be taken when separating the discs

so as to avoid damaging the matrix. The resulting matrix disc is the exact negative form of the master disc. Instead of having grooves it has ridges.

The next step in the metalling stage is the creation of the mother disc. The matrix disc is coated with a fine oil then electroplated with nickel. When electroplating is complete the discs are separated. The newly created mother disc is in a positive form, having grooves exactly like the master disc. This nickel disc is strong enough to be played. Because the metal matrix is strong several mother discs can be created from just one matrix. The number created depends upon how carefully the matrix is handled during separations and approximates from two to four discs. The next step in metalling is creating the stampers. These discs are created from the mother discs and are responsible for stamping out the consumer vinyl records. The mother disc, like the matrix, is coated with fine oil and is electroplated with nickel. The resulting disc is the stamper, which is a negative form, possessing ridges. These ridges will form grooves into vinyl when pressing occurs. Mother discs can produce approximately 3 to 5 stampers if handled carefully.

Pressing records occurs in much the same way as how waffles are made. Two stampers, one for each side of the record, are used. As stated by Runstein (1986),"The

stampers for the two sides of the record are mounted on the top and bottom plates of a hydraulic press" (p. 317). A vinyl biscuit is placed in the press. The two stampers are then closed and heated to melt the vinyl and allow it to flow into the stampers grooves. The record is then quickly cooled by circulating cold water through the press. The pressure on the stampers is then released and the record removed. Any excess vinyl, called flashing, is then cut from around the outer circumference of the record.

Because of the many stages required from master disc to a pressed record many problems may arise. Complications such as frequency losses, damaged grooves or distortions may result. To insure quality of pressed records the producer orders test pressings to be run. These are the first records pressed and they are sent to the producer for approval. They are critically listened to just like the reference acetates and evaluated for quality. If there are problems with the test pressings they are noted and discussed with the record manufacturer. If the problems are severe enough a new master disc may need to be cut and the metalling process repeated. An expensive process which will hopefully not occur. If the test pressings are approved the order is ready to be filled.

Packaging

The remaining area of record manufacturing is deciding how the product will be packaged. This includes jackets, labels, sleeves, and inserts.

There are a couple of ways to obtain jackets. First, many record manufacturing plants offer jacket printing services. These services aid in decreasing time for a finished product in addition to decreasing cost per unit. The artwork for the jacket is sent to the manufacturing plant along with the master tapes. The other route is to have the jackets printed at a facility independent of the pressing plant and shipped to the record manufacturer when completed. This process can take longer because record pressing can not begin until the finished jackets have been delivered. This can make scheduling pressing dates difficult to determine. In addition there is the added expense of shipping the jackets.

Jacket artwork can be obtained through several different methods. First, ordering stock jackets supplied by the record manufacturer or an independent facility. This method requires that the client create personalizing information to be provided for the final printings. Such personalizing information may include name of the album, artist, song titles, and credits. This information is laid over the provided stock jacket

selected for the record. The advantage to selecting this method of jacket art is a decrease in price. The disadvantage is that many projects may have the same stock jacket.

The second method of obtaining jacket artwork is to have artwork created specifically for the record. Original artwork may take the form of a photograph, painting, drawing or any combination thereof. In creating original art the same personalizing information is usually supplied. The advantage to using original art is the ability to create an individualized visual concept of the album. The disadvantage is the cost. Creating original artwork can result in significant amounts of money being spent on artist fees and materials. In creating original jacket art it is important to determine whether black and white, 2 color, 3 color, or full color printings are going to be manufactured. There are significant price differences ranging between black and white (least expensive) and full color (most expensive) jackets, which needs to be considered when determining an artistic concept.

For this project creating original art was deemed an important factor. Being a first album for the artist it was necessary to portray an individualistic visual concept. The artwork took the form of two black and white photographs of the artist, one for the front of the

jacket the other for the back. Illustration was used to further highlight both photographs. The cover photo is a shot of the artist's face with the layout as follows. The picture was enlarged and cropped to fit in the center of the jacket somewhat closer to the top. A thin aqua type color, known as pantone 326, was used to border the photograph. The artist's name appears to the upper left side of the jacket, cropped directly above the photo. The title of the record appears along the right border of the picture toward the bottom. (For Layout of Album Front Cover see Figure 8)

The back of the jacket contains an enlarged waist up shot of the artist on the street in Chicago. This photograph is cropped fully center of the jacket. The photo is surrounded by the same thin colored border as the cover photo. The song titles for the first side of the record appear along the upper left border of the photo, with the second sides titles along the right border, toward the top of the photo. The names of the artist, musicians, executive producer, and producer/engineer appear along the bottom right border of the photo. Additional album credits appear along the left side of the picture toward the bottom. The same type style was used on the back of the jacket as the front. (For Layout of Album Back Cover see Figure 9)

Also included with the artwork was information for

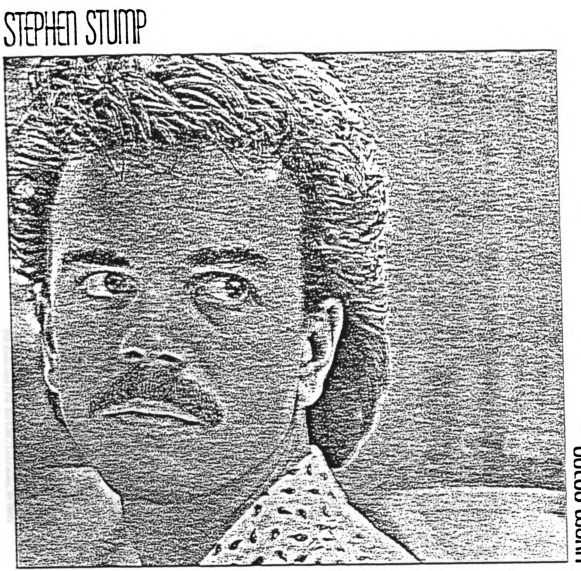

Figure 8. Layout of Album Front Cover.
The dotted line represents the top and bottom of the jacket. The border around the photo and lettering are pantone 326. The rest of the jacket is black and white.

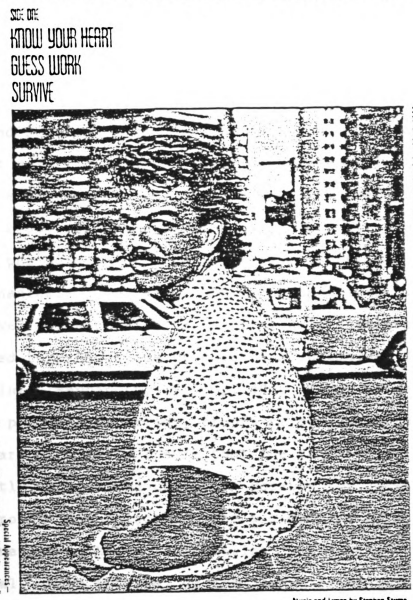

Figure 9. Layout of Album Back Cover.
The dotted line represents the top and bottom of the jacket. The border around the photo and lettering are pantone 326. The rest of the jacket is black and white.

the spine of the jacket. This included artist, album title, and record label album number. All of the art was assembled on "boards," also known as flats, in correct size and position. Because the jacket was two color all correct color information was clearly identified on the overlays of the artwork. All of the artwork must be camera-ready for printing to begin. When the process begins photographs of each layer of artwork, also known as mechanicals, are taken. "All the negatives-line art, each overlay, special bits of film, halftones-are then combined to produce one or more final negatives for each color ink" (Rappaport, 1979, p. 40). Then, if requested by the producer or artist, proofs of the jacket are made. These are ordered to insure that the jacket art is correctly cropped and colored. Because the jacket for this project was only two color a composite photo of the final negatives known as "blueline" was sent for approval. With approval of the jacket proof printing can begin. Each negative is exposed onto metal plates containing photographic emulsion. These plates are then responsible for picking up their designated color. The color is then transferred to rubber rollers which then roll it onto the jacket board.

Jacket labels are obtained by supplying the record manufacturer with desired label information (song titles, artist, song lengths, side, etc.). Usually the

manufacturer has stock label and ink colors from which to choose. Special colored labels and ink can be provided but usually at an increase in expense. The labels are then either created by the record manufacturer or contracted out to a facility for printing. The label color chosen for this project was white with black ink color. The label layout was included with the jacket artwork material. Proofs of the label were also ordered to insure accuracy. Labels are placed on the records immediately after the discs are stamped.

Special inserts were also created for the project. The inserts contained lyrics to all of the songs and additional special credits. The inserts were sent along with the master tapes and artwork to be placed in the finished jackets by the manufacturer.

It is important when sending a project to be manufactured to include all necessary materials and information. Otherwise there may be long delays in receiving a finished product. Record pressing will not even begin until the completed jackets, labels, and inserts have been delivered. The time required to manufacture this project was eleven weeks. This was free of major complications. It could possibly take up to several months to receive a finished project if unorganized or unaware of what is required.

CHAPTER V

PROMOTION AND MARKETING

While the materials for the album project have been sent away for manufacturing it is important to be divising and finalizing modes of promoting and marketing the record. As stated by Rappaport (1979), "The first key to putting together a promotional plan is to determine which people are potential purchasers of your record" (p. 5). The most obvious purchasers of any artist's record will be the family and friends of everyone involved with the project. This is the most loyal and attentive crowd the project will possess. Throughout every stage of creating an album it is important to keep relatives and friends abreast of new developments with the project. More often there will be considerable curiousity on their part as to when the record will be done and where it will be available. It is important that their interest in the project be maintained. When the project is complete they should be

the first to know. In promoting this project a "Premier Party" was planned to celebrate the record's long awaited release. A list was drawn up of everyone involved with the project, family and friends. All were sent specially created invitations anouncing the record's release, where the party was located, date, and time. One of the establishments at which the artist performs agreed to host the party and hired a D.J. for entertainment, all at no expense. The premier party was viewed as an excellent manner in which to create awareness and enthusiasm about the project while simultaneously making those first important sales.

The second most obvious way to determine potential purchasers of the record was to make general observations of who attends live performances and where performances occur. From initial observations the artist and musicians typically perform at night club type facilities attended by a "yuppie" (young urban professional) type crowd. The audience consists of young professionals, white male and female, approximately mid twenty to forty. The music performed tends to be adult oriented ranging from soft rock to ballads, consisting of cover and original material. The artist also performs at weddings and private parties. In addition the artist has performed for younger college crowds aging eighteen to early twenties.

The third way of determining potential purchasers of the record is to perform further research as the type set forth in this study. Testing a project on individuals may lead to identifying additional audiences not apparent through general observations.

Once potential purchasers have been identified a means of creating interest to get them to buy the product needs to be determined. An artist who performs live possesses an inexpensive and direct method of creating interest which will hopefully translate into sales. Performing live is the primary form of promoting an album, and is used for this project. "Performing is the most effective method for giving people a taste of your music, letting them know your record is available, and increasing sales" (Rappaport, 1979, p. 21). To aid in increased sales, a majority of the albums were set to be sold at live performances. This method of sales is advantageous for a couple reasons. First, doing so makes it more convenient for the audience to obtain a copy if they are so inclined. In addition some people may purchase a copy that would otherwise be uninclined to do so if the records were only available at retail stores. The second advantage is that the artist receives all money from those sold. This helps in quickly recouping money owed to investors.

If live performances are the main avenue for

promoting and selling a record it is important to forecast when the project will be completed and then establish dates soon after to perform. In the meantime, inform audiences that the album is forthcoming to increase their interest. To aid in promoting and selling this project four consecutive weekends were lined up for performances. They were set to begin two weeks following the premier party. Each weekend performance included three evening shows on Thursday, Friday, and Saturday.

The second method of selling the albums was to make them available in record stores. The main emphasis of store sales was in the local market. Before the project was completed several local outlets were contacted about carrying the albums. All four different outlets in the local area agreed to carry the albums. One of these outlets also provided distribution and sales of the project at their other chain store outlet outside of the immediate local market. One outlet outside of the local area also carried the record, this was in a market in which the artist performs routinely. The stores were provided with records and accounts were established to keep stock of inventory. One of the problems with selling the project at record stores was competition from hundreds of other artists. To draw attention to the album displays were set up. The displays were in the form of extra empty jackets provided by the printing

manufacturer. They were hung on the walls of each store and placed in the window of one to bring visual attention to the record.

Further promotion of the record's release will be accomplished by providing copies to local and regional radio stations. Seven stations in Lansing, three in Detroit, and five in Grand Rapids are scheduled to receive records including information about the artist, the project, and where it can be obtained. The chance of the material actually receiving airplay may be minimal. Because competition among radio stations is fierce most follow strict play lists which don't include "independent artist"(artists who are not signed to major recording labels). While receiving airplay may be almost impossible several radio stations do program "features" dedicated specifically to giving local artists exposure. It is hoped that cuts from the album will get airplay during programming such as this.

Another method of promoting the project is sending copies to record companies. A list of A and R (artist and repertoire) personnel working with large record lablels will be assembled. Each will receive copies of the record including information aout the artist and project. Often record labels will show interest in signing independent artists if they show some signs of potential success. This potential may be in the form of

strong musical material or a particular style of music. It may also present itself as a desirable type of vocal sound or in strong musical ability. Record companies will determine whether the artist is marketable and will bring in revenue. If sales of the project are going well, including such information may further chances of being signed by a major record label. Record companies are very cautious of who they sign, showing an ability to sell albums offers evidence of a proven track record. This may help to lower doubts as to whether an artist will be marketable. The advantages to being signed on by a major label are increased distribution of albums, increased money for promotion, and a promotion staff whose sole purpose is to get radio stations to give their artist's airplay.

In all, approximately 150 albums will be used solely as promotional tools for the project. "Giving your record away liberally is part of any promotional plan." (Rappaport, 1979, p.9). These promotional copies are designed to result in attaining certain goals be they increased sales, making a profit, receiving airplay, increased demand for performances, or signing onto a major label.

Included in the amount designated for promotional use are records which were given to those individuals involved with the project. First, all of the regular

musicians received two copies of the album. Second, individuals who appeared as special guests on the project received one copy each. Third, those that served on the professional advisory board to this study received copies. Fourth, individuals who supplied instruments and created the artwook for the jacket also received copies of the project. Giving copies to these individuals was viewed a good public relation method of showing appreciation and gratitude to those who contributed to the project.

CHAPTER VI

BUDGET AND FINANCING

Because the record industry is a business for profit, the talents of the record producer must not only exist in the musical realm, but financial as well. In most instances, especially when a producer works for a record company or is soliciting financial investors, it is the producers role to draw up a budget. As stated by Johnson and Lang (1981), "The recording budget is the projection of the aggregate cost of making an artist's record" (p. 154). This budget should accurately define what the needs for production will be so prospective investors will know where money will be spent. Financing for this project was obtained from three sources, 1) the artist and musicians, 2) the producer and 3) independent financial investors. The artist and musicians were responsible for purchasing the two inch mastering tape. The producer was responsible for purchasing the quarter inch mastering tape. Independent financial investors

were sought to cover the cost for record and jacket manufacturing, and shipping. Two independent investors did participate in the project. Both invested $1000 which covered shipping and manufacturing costs. The artist was responsible for covering jacket artwork and insert costs. The following is the budget for this project.

Tape Costs		Price
Scotch 226-2"	1 reel@ 15 ips	$120
AGFA-468-1/4"	Safties-2 reels-10"@ 15ips	$30
AGFA-468-1/4"	Masters-4 reels-10"@ 30ips	$60
Cassettes	10-30 minutes each	$20
		$230 Total

Packaging		
Jacket Artwork	Photo's, develop, enlarge	$120
Artwork	Illustration	$650
Typesetting	Inserts	$82
Inserts	Copying-1000	$65
		$917 Total

Manufacturing

Package deal includes:	A & R Record Manufacturing Mastering, metalling, pressing, jackets 2/color, labels, sleeves, shrink wrap, proofs, 1000 pressed	
		$1487
Options	Requested:	
	Reference Acetate 2@-$90ea.	$180
	Test Pressings	$25
	Inserts-to be stuffed 1000	$60
	Special pantone color-jacket	$20
	Picture on back of jacket	$20
		$1792 total
Shipping	1000 records	$184
		$1976

Tape Cost	$230
Packaging	$917
Manufacturing	$1792
Shipping	$184
	$3123 Total Budget

As stated in the Preproduction chapter, no recording or mixing expenses were incurred because use of the 24-track facility was free.

Royalties

Upon sales of the record the independent financers will be the first to recoup their investment. Monies spent toward the project by the producer, artist, and musicians, was from the outset determined unrecoupable from sales of the record. Royalties from sales were to be collected only when both of the independent financers had totally recouped their $1000 initial investment. At the writing of this theses the initial investment had not been fully recouped. In the future should the record turn a profit the royalties will be divided among the investors, producer, artist, and musicians. It was determined that the investors would receive 15% each of any royalties collected. This accounts for 30% of the total royalties earned. The remaining 70% will be divided among the artist, musicians, and producer based on a predetermined and agreed upon "point system." This method takes into account contributions of every person to the album. For example, if the artist writes all six songs he will receive six points, one for each song. If he sings on all six songs another six points will be awarded. All members will receive one point per contribution in each song. Likewise the producer/engineer will receive for each song one point for producing and one for engineering, in addition to any other contributions to the project. The total for each

person is then tallied and divided by the aggregate point total to determine each persons percentage. This percentage represents each members royalty from the remaining 70% profit. Although this point system may not fully reflect each persons actual contribution to the project, it is the best method for assigning a percentage of earnings based on overall participation. The following is the breakdown of percentages representing earnings to be paid to investors, artist, musicians, and producer, should the project turn a profit.

Investors	Percentage
A	15%
B	15%
	Remaining 70%
Artist	29%
Producer	18%
Musicians	
Keyboardist	19%
Drummer	17%
Guitarist	13%
Guest Bassist	1.3%
Guest Lead Guitarist	1.3%
Guest Fill Guitarist	1.3%

While recouping the initial investment a savings account at a local bank was established for the project. All money collected from album sales was deposited into this account. Every quarter copies of the account's statement are to be sent to all those with a financial interest in the project.

CHAPTER VII

LEGAL ISSUES

Some of the legal issues which needed to be addressed for this study included copyright ownership, publishing, performance rights, and mechanical licenses. These four areas spell out the legal rights the artist possesses over the material created for the album project.

Copyright Ownership

Because all six tunes recorded for this project were original works the material needed to be copyrighted in order to protect the rights of the creator. According to the Copyright Act of 1976, "copyright in a sound recording vests initially in the author or authors" (Shemel and Krasilovsky, 1985, p. 40). Defined by the Copyright Act, "copyrightable sound recording" means "original works of authorship comprising an aggregate of musical spoken, or other sounds that have been fixed in tangible form" (Shemel and Krasilovsky, 1985, p. 39).

Five of the six tunes recorded for this project were solely written by the artist, Stephen Stump. The remaining song was co-written by the artist and band member, Tony Fata. Each members contribution to this song was viewed fifty percent, the artist having contributed the lyrics and the band member the music. Upon registering and being granted copyright ownership exclusive rights to the material are realized by the authors. These exclusive rights include the right to publish the song, reproduce it, distribute it to the public, and to make derivative works of the song. These rights last the duration of the songwriters life plus fifty years. In the case of co-authorship the duration is fifty years past the death of the last surviving co-writer. To successfully protect these rights requires that the writer(s) register original works with the Copyright Office in Washington D.C. The material created for this project called for registration in two ways, 1) copyrighting of the individual songs as separate entities, and 2) copyrighting of the album as an entity in itself.

The first method of copyright registration called for completion of the PA Form, Application for Copyright Registration for a Work of the Performing Arts. (Appendix D) "Work of the Performing Arts includes works prepared for the purpose of being 'performed' directly before an

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audience or indirectly `by means of any device or process" (Shemel and Krasilovsky, 1985, p. 136). One form per song needed to be completed along with a $10 deposit for each song. In addition a form of song identification was required, which is usually supplied in lead sheet or tape form. For registering the six songs, six cassettes containing one song each were supplied.

The second method required completion of the SR Form, Application for Copyright Registration for a Sound Recording. (Appendix E) Copyright in this instance protects the actual sound recordings on the album to prevent illegal duplication. Registration of this copyright required the deposit of an SR Form, two complete records and a $10 deposit with the Copyright Office in Washington D.C.

Ownership of a copyrighted piece of work covers both published and unpublished works. The term "publication" is defined by the Copyright Act of 1976 as "the distribution of copies of phonorecords of a work to the public by sale or other transfer or ownership, or by rental, lease or lending" (Krasilovsky and Shemel, 1985, p. 131). It also includes distributing copies to "a group of persons for purpose of further distribution, public performance or public display" (Shemel and Krasilovsky, 1985, p. 130). Copyrighted works which are published are required to display a notice of copyright.

This must be displayed so as to notify the public of a protected work. In publishing records the notice is usually printed on the back of the jacket. More on publishing will be discussed under the next subtitle.

Registration of a work is not mandatory for protecting the work. It simply makes, "public record of statutory copyright already existing" (Shemel and Krasilovsky, 1985, p. 131). There is no set time in which a copyright registration must be filed for a published or unpublished work. But, without registration of copyright it is impossible to take legal action against someone infringing upon rights of the owner. Therefore it is important to register works, both published and unpublished, immediately notifying the public of protected works. In addition the longer it takes to register a work the more difficult it becomes to prove rightful authorship.

Publishing

As stated previously "publishing" is simply making a work available to the public. "The publisher of a song is simply the person or entity responsible for making it available for sale, whether, in the form of sheet music, a record, or tape" (Rappaport, 1979, p. 114). Some artists have their material distributed by existing publishing companies which take a part of the sales

profit for their services. Some publishing companies have extensive distribution networks offering artists wide spread coverage. In many instances an artist will form it's own publishing company under which copyrights are registered and royalties received. Doing so insures retainment of all sales money earned. For purposes of this project the band and producer served as publisher of the album, no formal publishing company was sought or created. It was deemed unnecessary for the comparatively few records which were pressed. Records were made available to the public through sales by the producer, artist, and band members. They were also made available through local and regional retail stores as set up by the producer and artist. In publishing the project it was the responsibility of the producer and artist to keep abreast of sales at all retail outlets and restock when inventories were low.

Performance Rights

Joining a performance rights society was a major consideration upon releasing the album. "The greatest source of revenue in the music industry comes from public performance payments collected and distributed by ASCAP and BMI" (Shemel and Krasilovsky, 1985, p. 182). There are currently three performance rights societies ASCAP (American Society of Composers, Authors, and Publishers),

BMI (Broadcast Music Incorporated) and SESAC. These are all non-profit societies which grant performance rights and collect fees for the use of their members material. Performance rights are rights granted for the performance of songs in public. "Since one of the rights granted to songwriters by the Federal Copyright Act is the right to perform the songs publicly you need to give a "user", such as a radio or television station, the right to do so" (Rappaport, 1979, p. 114). Performance societies are responsible for granting performance rights for their members and collecting compensation for material used. Performances in public places include radio, television, concerts, night clubs and other performance places. To join one of the societies a writer needs to have at least one song published or in recorded form and pay the respective membership fee. For this project the artist decided upon joining with BMI which is the largest of the performance rights societies, and charges a $25 membership fee. It is their responsibility to monitor performance of the material and administer the user a licensing fee. Performance rights organizations use sophisticated methods of determining amounts owed for usage. "ASCAP and BMI employ extensive systems of logging and statistical sampling of actual broadcasts to determine amounts to be paid to writers and publishers" (Shemel and Krasilovsky, 1985, p. 186).

Mechanical License

Once material has been released to the public, regardless of it's form (cassette, phonorecord, sheet music) it may be used by anyone for a fee to be paid to the author. This right also includes the right for another artist to record that material. If such an occasion arises the artist is required to file a "mechanical license" with the publishing company or authors. The license sets forth that the artist will pay a fee or "mechanical royalty " for the right to record and sell the material. A fee will be negotiated for the right to record, and payments made based on records actually sold. If someone decides to record another artists material they must serve a "notice of intention" in a form set down by the Copyright Office.

CHAPTER VIII

SUMMARY

The purpose of this thesis was twofold, 1) to investigate the role of the record producer/engineer in the process of creating an album and 2) to devise testing procedures for predicting a potential hit from the project and possible public acceptance of the material. This chapter will summarize these two aspects of this study.

The producer/engineer plays an integral role in the process of creating an album from it's initial conceptual stages to it's release. The undertaking of such a project involves numerous important decisions ranging from creative to financial. This thesis discussed six areas in which the producer/engineer performs an important role in the album creating process including 1) preproduction, 2) budget and financing,3) production, 4) manufacturing, 5) marketing and promotion, and 6) legal issues.

The preproduction stage found the producer involved

with making a number of decisions the first of which was selecting an artist for the project. Upon selecting the artist, material needed to be reviewed and chosen for production. The next decision was to select a recording studio. The studio selected needed to accomodated the needs of the artist and production required. With this in mind a studio must also be selected based on the budget available for the project.

The formulation of a budget is the responsibility of the producer, especially when working for a record company. The budget drawn should accurately define what the needs for production will be. For this project funding was provided by three sources, 1) artist and band members, 2) producer, 3) independent investors.

During production of the album the producer/engineer's role addressed involvement in recording preparation, recording rhythm tracks, recording overdubs, mixing, and sequencing. It is during the production stage that all of the preproduction plans materialize. It is the producer's role to see that material is recorded properly and mixed appropriately.

The manufacturing stage found the producer's role involved with three areas, 1) selection of a mastering and manufacturing facility, 2) insuring that the tapes are mastered and the discs manufactured with acceptable sound quality, and 3) packaging the project appropriately

to reflect the material recorded.

In marketing the project the producer was involved in getting records to retail outlets and radio stations in the local market. To generate publicity about the album's release, a premier party was held. Further publicity was given through a local music critic who reviewed the album in the local paper.

Legal issues addressed by the producer were copyright, publishing, performance rights, and mechanical license. These areas pertain to the right of authorship over the original material created for the project. Rights protected and granted to the author include the right to reproduce, publish, lease, and sell the material.

The second purpose of this study dealt with testing the material before the manufacturing stage. Testing centered on two areas, 1) predicting a potential hit from the presented material and 2) determining possible acceptance of the material as a whole. Additional testing was performed on a professional advisory panel of three individuals from the music/recording industry. Their role was to address the technical aspects of the project.

The purpose of the testing was to set forth testing procedures that any producer, artist, or record company might use when faced with releasing a product. While the

music industry is certainly one of creativity it exists to make a profit. Testing the product, as in this study, may help to indicate whether economic success may be forthcoming. Such testing suggests which of the songs has the strongest potential to be a hit, a factor which heavily influences album sales. It also suggests the audience type with which the album will find greatest acceptance. This information is valuable in determining a marketing strategy for the product. The advisory panel was used to indicate positive and negative aspects of the production. At this point, if the material is weak as indicated by the panel, it is possible to make instrument and vocal changes to obtain a stronger product.

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APPENDIX A

MUSIC SURVEY

For the next few minutes you will be listening to six songs. You will be hearing all of the songs in their entirety and asked to answer a set of questions regarding each selection. The questions are designed to be answered while the music is being played, to aid in response accuracy. After hearing the final song please complete the remaining few survey questions. Thank you for your cooperation.

WOULD YOU PLEASE TAKE A FEW MOMENTS TO ANSWER QUESTIONS 1-4, UPON COMPLETION WE'LL BEGIN THE MUSIC EVALUATION.

1. List five words to describe music you like.

_____ _____

_____ _____ _____

2. What kinds of music do you like?

3. What are your three favorite bands?

_____ _____ _____

4. When listening to music, which of the following components is most important to you? Please rank them in order, with #1 being the most important and #9 being the least.

Beat	_____	Rhythm	_____
Melody	_____	Sentiment	_____
Lyrics	_____	Instrumentation	_____
Mood	_____	Danceability	_____
		Vocalist/Group	_____

Please answer the following questions for songs #1-#6

WE ARE NOW GOING TO ASK YOU TO EVALUATE VARIOUS COMPONENTS OF MUSIC WHERE 7 MEANS YOU LIKE THAT COMPONENT VERY MUCH, 4 MEANS YOU HAVE A NEUTRAL RESPONSE, AND 1 MEANS YOU DON'T LIKE THAT COMPONENT AT ALL.

SONG #1	LVM			NTL			DLAA
A. Beat	7	6	5	4	3	2	1
B. Lyrics	7	6	5	4	3	2	1
C. Rhythm	7	6	5	4	3	2	1
D. Vocalist/Group	7	6	5	4	3	2	1
E. Danceability	7	6	5	4	3	2	1
F. Instrumentation	7	6	5	4	3	2	1
G. Melody	7	6	5	4	3	2	1
H. Mood	7	6	5	4	3	2	1
I. Harmony	7	6	5	4	3	2	1

J. Using the same scale, how much do you like this song?

7 6 5 4 3 2 1

K. Using the scale below where 7 means strong hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?

SHP						WHP
7	6	5	4	3	2	1

SONG #2		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist/Group	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?	7	6	5	4	3	2	1
K.	Using the scale below where 7 means strong hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?	SHP						WHP
		7	6	5	4	3	2	1

SONG #3		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist/Group	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?	7	6	5	4	3	2	1
K.	Using the scale below where 7 means stron hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?	SHP						WHP
		7	6	5	4	3	2	1

SONG #2		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist/Group	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?							
		7	6	5	4	3	2	1
K.	Using the scale below where 7 means strong hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?							
		SHP						WHP
		7	6	5	4	3	2	1

SONG #3		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist/Group	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?							
		7	6	5	4	3	2	1
K.	Using the scale below where 7 means stron hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?							
		SHP						WHP
		7	6	5	4	3	2	1

Song #4		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?							
		7	6	5	4	3	2	1
K.	Using the scale below where 7 means strong hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?							
		SHP						WHP
		7	6	5	4	3	2	1

SONG #5		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?							
		7	6	5	4	3	2	1
K.	Using the scale below where 7 means strong hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?							
		SHP						WHP
		7	6	5	4	3	2	1

SONG #6		LVM			NTL			DLAA
A.	Beat	7	6	5	4	3	2	1
B.	Lyrics	7	6	5	4	3	2	1
C.	Rhythm	7	6	5	4	3	2	1
D.	Vocalist	7	6	5	4	3	2	1
E.	Danceability	7	6	5	4	3	2	1
F.	Instrumentation	7	6	5	4	3	2	1
G.	Melody	7	6	5	4	3	2	1
H.	Mood	7	6	5	4	3	2	1
I.	Harmony	7	6	5	4	3	2	1
J.	Using the same scale, how much do you like this song?	7	6	5	4	3	2	1

K. Using the scale, below where 7 means strong hit potential and 1 means weak hit potential, do you think this song has a potential to be a hit?

SHP						WHP
7	6	5	4	3	2	1

PLEASE ANSWER THE FOLLOWING QUESTIONS TO COMPLETE THE SURVEY.

5. If the material just heard should show up on an album how likely would you be to buy it? Please use the scale below where 7 means very likely to buy and 1 means highly unlikely to buy.

VL						HU
7	6	5	4	3	2	1

6. What is your age?_____
7. What is your sex?_____
8. What is your occupational status?

_____ Student	_____ Management
_____ Skilled Worker	_____ Professional
_____ Laborer	_____ Other

9. How much time per day do you spend listening to music? (including radio, MTV, tapes, records, CD's, videocassettes)

10. How many records, discs, tapes do you buy per year? (Approx.)

Thank You For Completing The Survey!

APPENDIX B

PROFESSIONAL ADVISORY PANEL

MUSIC SURVEY

Song #1 Know Your Heart

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.)

Other comments-

Song #2 Guess Work

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.)

Other comments-

Song #3 Survive

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.)

Other comments-

Song #4 Even If You Love Me

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.d)

Other comments-

Song #4 Even If You Love Me

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.d)

Other comments-

Song #5 New Day

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.d)

Other comments-

Song #6 The Way I Loved You

Please comment on the song from a musical standpoint. (Instrumentation, arrangement, performance)

Please comment on the production techniques used. (Mix, eq, reverb, delay, etc.)

Other Comments-

Please comment on the sequence of the material.

Please comment on the overall tone/feel of the album.

Of the songs heard which do you think has the greatest potential to be a hit? Why?

What radio format do you think this material is best suited for? And what type of listeners would it attract?

APPENDIX C

* * * * M U L T I P L E R E G R E S S I O N * * * *

DEPENDENT VARIABLE.. S1J

VARIABLES ENTERED ON STEP NUMBER 4.. S1
MULTIPLE R .89361
R SQUARE .79854
ADJUSTED R SQUARE .63261

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S1B	.34596	.13171	.34787	2.627	.0131
S1C	.24051	.11066	.23607	2.173	.0373
S1D	.20430	.07814	.25227	2.615	.0135
S1G	.24839	.12027	.25227	2.615	.0471

KEY
SIJ = DEPENDENT VARIABLE "HOW MUCH DO YOU LIKE THIS SONG"
SI = SONG #1
SIB = LYRICS
SIC = RHYTHM
SID = VOCALIST
SIG = MELODY

FOUR VARIABLES, LYRICS, RHYTHM, VOCALIST AND MELODY = THE R SQUARE VALUE .79854. APPROXIMATELY 80% OF WHY SONG #1 WAS LIKED WAS DUE TO THESE VARIABLES.

DEPENDENT VARIABLE.. S1K

VARIABLES ENTERED ON STEP NUMBER 1.. SI
MULTIPLE R .57669
R SQUARE .33257
ADJUSTED R SQUARE .31294

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S1D	.50234	.12205	.57669	4.116	.0002

KEY
SIK = DEPENDENT VARIABLE "DO YOU THINK THIS SONG HAS A POTENTIAL TO BE A HIT?"
SI = SONG #1
S1D = VOCALIST

ONE VARIABLE, VOCALIST, = THE R SQUARE VALUE .33257. APPROXIMATELY 33% OF WHY THIS SONG HAS A POTENTIAL TO BE A HIT IS DUE TO THIS VARIABLE.

* * * * M U L T I P L E R E G R E S S I O N * * * *

DEPENDENT VARIABLE.. S2J

VARIABLES ENTERED ON STEP NUMBER 3.. S2
MULTIPLE R .89546
R SQUARE .80185
ADJUSTED R SQUARE .78534

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S2H	.45764	.11258	.44083	4.063	.0003
S2B	.34594	.12282	.32806	2.817	.0078
S2C	.29810	.11725	.25048	2.542	.0155

KEY
S2J = DEPENDENT VARIABLE "HOW MUCH DO YOU LIKE THIS SONG?"
S2 = SONG #2
S2H = MOOD
S2B = LYRICS
S2C = RHYTHM

THREE VARIABLES, MOOD, LYRICS, AND RHYTHM = THE R SQUARE VALUE .80185. APPROXIMATELY 80% OF WHY THIS SONG WAS LIKED WAS DUE TO THESE VARIABLES.

DEPENDENT VARIABLE.. S2K

VARIABLES ENTERED ON STEP NUMBER 1.. S2
MULTIPLE R .61402
R SQUARE .37702
ADJUSTED R SQUARE .36105

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S2G	.65416	.13465	.61402	4.858	.0000

KEY
S2K = DEPENDENT VARIABLE "DO YOU THINK THIS SONG HAS A POTENTIAL TO BE A HIT?"
S2 = SONG #2
S2G = MELODY

ONE VARIABLE, MELODY, = THE R SQUARE VALUE . 37702. APPROXIMATELY 37% OF WHY THIS SONG HAS A POTENTIAL TO BE A HIT IS DUE TO THIS VARIABLE.

* * * * M U L T I P L E R E G R E S S I O N * * * *

DEPENDENT VARIABLE.. S3J

VARIABLES ENTERED ON STEP NUMBER 2.. S3
MULTIPLE R .83573
R SQUARE .69844
ADJUSTED R SQUARE .69029

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S3H	.47832	.11614	.48722	4.118	.0002
S3A	.49686	.12820	.45852	3.876	.0004

KEY
S3J = DEPENDENT VARIABLE "HOW MUCH DO YOU LIKE THIS = SONG"
S3 = SONG #3
S3H = MOOD
S3A = BEAT

TWO VARIABLES, MOOD AND BEAT,= THE R SQUARE VALUE .69844. APPROXIMATELY 70% OF WHY THIS SONG WAS LIKED WAS DUE TO THESE VARIABLES.

DEPENDENT VARIABLE.. S3K

VARIABLES ENTERED ON STEP NUMBER 1.. S3
MULTIPLE R .44886
R SQUARE .20147
ADJUSTED R SQUARE .17989

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S3A	.40184	.13152	.44886	3.055	.0042

KEY
S3K = DEPENDENT VARIABLE "DO YOU THINK THIS SONG HAS A POTENTIAL TO BE A HIT"
S3 = SONG #3
S3A = BEAT

ONE VARIABLE, BEAT, = THE R SQUARE VALUE 20%. APPROXIMATELY 20% OF WHY THIS SONG HAS A POTENTIAL TO BE A HIT IS DUE TO THIS VARIABLE.

* * * * M U L T I P L E R E G R E S S I O N * * * *

DEPENDENT VARIABLE.. S5J
VARIABLES ENTERED ON STEP NUMBER 3.. S5
MULTIPLE R .92116
R SQUARE .84854
ADJUSTED R SQUARE .83517

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLES	B	SE B	BETA	T	SIG T
S5C	.55136	.12597	.42887	4.377	.0001
S5I	.38786	.11676	.31624	3.322	.0021
S5H	.30679	.10110	.29909	3.034	.0046

KEY
S5J = DEPENDENT VARIABLE "HOW MUCH DO YOU LIKE THIS SONG"
S5 = SONG #5
S5C = RHYTHM
S5I = HARMONY
S5H = MOOD

THREE VARIABLES, RHYTHM, HARMONY, AND MOOD, = THE R SQUARE VALUE .84854. APPROXIMATELY 80.5% OF WHY THIS SONG WAS LIKED WAS DUE TO THESE VARIABLES.

DEPENDENT VARIABLE.. S5K
VARIABLES ENTERED ON STEP NUMBER 1.. S5
MULTIPLE R .52879
R SQUARE .27962
ADJUSTED R SQUARE .25961

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLE	B	SE B	BETA	T	SIG T
S51	.71221	.19052	.52879	3.738	.0006

KEY
S5K = DEPENDENT VARIABLE "DO YOU THINK THIS SONG HAS A POTENTIAL TO BE A HIT?"
S5 = SONG #5
S5I = HARMONY

ONE VARIABLE, HARMONY, = THE R SQUARE VALUE .27962. APPROXIMATELY 28% OF WHY THE SONG HAS A POTENTIAL TO BE A HIT IS DUE TO THIS VARIABLE.

* * * * M U L T P L E R E G R E S S I O N * * * *

DEPENDENT VARIABLE.. S6J

VARIABLES ENTERED ON STEP NUMBER 4.. S6
MULTIPLE R .93192
R SQUARE .86847
ADJUSTED R SQUARE .85343

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLES	B	SE B	BETA	T	SIG T
S6H	.34669	.09155	.38014	3.787	.0006
S6D	.22040	.07443	.25471	2.961	.0055
S6A	.26937	.09068	.27059	2.970	.0053
S6I	.20129	.09438	.27059	2.133	.04000

KEY
S6J = DEPENDENT VARIABLE "HOW MUCH DO YOU LIKE THIS SONG?'
S6 = SONG #6
S6H = MOOD
S6D = VOCALIST
S6A = BEAT
S6I = HARMONY

FOUR VARIABLES, MOOD, VOCALIST, BEAT, AND HARMONY = THE R SQUARE VALUE .86847. APPROXIMATELY 86% OF WHY THE SONG WAS LIKED WAS DUE TO THESE VARIABLES.

DEPENDENT VARIABLE.. S6K

VARIABLES ENTERED ON STEP NUMBER 1.. S6
MULTIPLE R .57309
R SQUARE .32843
ADJUSTED R SQUARE .31028

* * * * VARIABLES IN THE EQUATION * * * *

VARIABLES	B	SE B	BETA	T	SIG T
S6D	.46438	.10917	.57309	4.254	.0001

KEY
S6K = DEPENDENT VARIABLE "DO YOU THINK THIS SONG HAS A POTENTIAL TO BE A HIT?"
S6 = SONG #6
S6D = VOCALIST

ONE VARIABLE, VOCALIST, = THE R SQUARE VALUE .32843. APPROXIMATELY 33% OF WHY THE SONG HAS A POTENTIAL TO BE A HIT IS DUE TO THIS VARIABLE.

APPENDIX D

CERTIFICATE OF COPYRIGHT REGISTRATION

THE UNITED STATES COPYRIGHT OFFICE • THE LIBRARY OF CONGRESS •

OFFICIAL SEAL

This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

REGISTER OF COPYRIGHTS
United States of America

FORM PA
UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER
PAu 871 268
PA PAU

EFFECTIVE DATE OF REGISTRATION
AUG 6 1986
Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼
"KNOW YOUR HEART"

PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF THIS WORK ▼ See instructions
WORDS AND MUSIC

2 NAME OF AUTHOR ▼
a STEPHEN JOSEPH STUMP

DATES OF BIRTH AND DEATH
Year born ▼ 1962 Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes
☒ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR Citizen of ▶ U.S.A
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☒ No
Pseudonymous? ☐ Yes ☒ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼
WORDS AND MUSIC

NOTE
Under the law, the "author" of a "work made for hire" is generally the employer.

NAME OF AUTHOR ▼
b

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes
☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR Citizen of ▶
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

NAME OF AUTHOR ▼
c

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes
☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR Citizen of ▶
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

00816395

3 YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED This information must be given in all cases.
1983 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.
Month ▶ Day ▶ Year ▶
◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2. ▼
STEPHEN JOSEPH STUMP
4635 ARDEN RD.
LANSING, MICHIGAN 48917

See instructions before completing this space.

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

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CERTIFICATE OF COPYRIGHT REGISTRATION

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This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

REGISTER OF COPYRIGHTS
United States of America

FORM PA
UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER
PAu 871 296
PA / PAU

EFFECTIVE DATE OF REGISTRATION
AUG 6 1986
Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼
"GUESS WORK"

PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF THIS WORK ▼ See instructions
WORDS AND MUSIC

2 NAME OF AUTHOR ▼
a STEPHEN JOSEPH STUMP

DATES OF BIRTH AND DEATH
Year born ▼ 1962 Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☒ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ USA / Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☒ No
Pseudonymous? ☐ Yes ☒ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼
WORDS AND MUSIC

NOTE
Under the law, the "author" of a "work made for hire" is generally the employer, not the employee (see instructions). For any part of this work that was "made for hire" check "Yes" in the space provided, give the employer (or other person for whom the work was prepared) as "Author" of that part, and leave the space for dates of birth and death blank.

NAME OF AUTHOR ▼
b

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ / Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

NAME OF AUTHOR ▼
c

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ / Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

3 YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED This information must be given in all cases.
1984 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.
Month ▶ Day ▶ Year ▶ ◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2.▼
STEPHEN JOSEPH STUMP
4636 ARDEN RD.
LANSING MICHIGAN 48917

See instructions before completing this space.

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright.▼

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FORM PA
UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER

PAu 871 295

PA (PAU)

EFFECTIVE DATE OF REGISTRATION
Aug 6 1986
Month Day Year

OFFICIAL SEAL

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REGISTER OF COPYRIGHTS
United States of America

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼

"SURVIVE"

PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF THIS WORK ▼ See instructions

WORDS AND MUSIC

2 a NAME OF AUTHOR ▼

STEPHEN JOSEPH STUMP

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼
1962

Was this contribution to the work a "work made for hire"?
☐ Yes
☒ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ USA
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☒ No
Pseudonymous? ☐ Yes ☒ No
If the answer to either of these questions is "Yes," see detailed instructions.

NOTE
Under the law, the "author" of a "work made for hire" is generally the employer, not the employee (see instructions). For any part of this work that was "made for hire" check "Yes" in the space provided, give the employer (or other person for whom the work was prepared) as "Author" of that part, and leave the space for dates of birth and death blank.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

WORDS AND MUSIC

b NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes
☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

c NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes
☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

3 YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED This information must be given in all cases.
1985 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.
Month ▶ Day ▶ Year ▶
◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2. ▼

See instructions before completing this space

STEPHEN JOSEPH STUMP
4355 ARDEN RD.
LANSING MI 48917

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

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UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER
PAu 871 294

PA PAU

EFFECTIVE DATE OF REGISTRATION
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UNITED STATES COPYRIGHT OFFICE • THE LIBRARY OF CONGRESS

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REGISTER OF COPYRIGHTS
United States of America

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1

TITLE OF THIS WORK ▼

"EVEN IF YOU LOVE ME"

PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF THIS WORK ▼ See instructions

WORDS AND MUSIC

2

a NAME OF AUTHOR ▼ STEPHEN JOSEPH STUMP

DATES OF BIRTH AND DEATH Year Born ▼ 1962 Year Died ▼

Was this contribution to the work a "work made for hire"? ☐ Yes ☒ No

AUTHOR'S NATIONALITY OR DOMICILE Name of Country: OR { Citizen of ▶ USA / Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK: Anonymous? ☐ Yes ☒ No; Pseudonymous? ☐ Yes ☒ No. If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼ WORDS AND MUSIC

NOTE Under the law, the "author" of a "work made for hire" is generally

b NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH Year Born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"? ☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE Name of Country: OR { Citizen of ▶ / Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK: Anonymous? ☐ Yes ☐ No; Pseudonymous? ☐ Yes ☐ No. If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

c NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH Year Born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"? ☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE Name of Country: OR { Citizen of ▶ / Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK: Anonymous? ☐ Yes ☐ No; Pseudonymous? ☐ Yes ☐ No. If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

008164120

3

YEAR IN ~~WHICH CREATION~~ON OF THIS WORK WAS COMPLETED This information must be given in all cases. 1985 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK Complete this information ONLY if this work has been published. Month ▶ Day ▶ Year ▶ ◀ Nation

4

COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2.▼

STEPHEN JOSEPH STUMP
4685 ARDEN RD.
LANSING MI 48917

See instructions before completing this space

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright.▼

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CERTIFICATE OF COPYRIGHT REGISTRATION

FORM PA
UNITED STATES COPYRIGHT OFFICE

OFFICIAL SEAL

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REGISTER OF COPYRIGHTS
United States of America

REGISTRATION NUMBER
PAu 871 292
PA PAU

EFFECTIVE DATE OF REGISTRATION
Aug 6 1986
Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼
"HEY DAY"

PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF THIS WORK ▼ See instructions
WORDS AND MUSIC

2 a NAME OF AUTHOR ▼
ANTHONY FATA

DATES OF BIRTH AND DEATH
Year born ▼ 1960 Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☑ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ U S A
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☑ No
Pseudonymous? ☐ Yes ☑ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼
WORDS AND MUSIC

NOTE
Under the law, the "author" of a "work made for hire" is generally the employer, not the employee (see instructions). For any part of this work that was "made for hire" check "Yes" in the space provided, give the employer (or other person for whom the work was prepared) as "Author" of that part, and leave the space for dates of birth and death blank.

b NAME OF AUTHOR ▼
STEPHEN JOSEPH STUMP

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☑ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ U S A
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☑ No
Pseudonymous? ☐ Yes ☑ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼
WORDS [redacted]

c NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

00816"31

3 YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED This information must be given in all cases.
1986 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.
Month ▶ Day ▶ Year ▶
◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2. ▼
STEPHEN STUMP
4635 ARDEN RD
LANSING, MI 48917

ANTHONY FATA
4613 ADDISON
LANSING, MI 48917

See instructions before completing this space.

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

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CERTIFICATE OF COPYRIGHT REGISTRATION

FORM PA
UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER
PAu 871 293
PA PAU

EFFECTIVE DATE OF REGISTRATION
Aug 6 1986
Month Day Year

OFFICIAL SEAL

This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

REGISTER OF COPYRIGHTS
United States of America

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼
"THE WAY I LOVED YOU"
PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF THIS WORK ▼ See instructions
WORDS AND MUSIC

2 NAME OF AUTHOR ▼ — DATES OF BIRTH AND DEATH (Year born ▼ / Year Died ▼)

a. STEPHEN JOSEPH STUMP — 1962

Was this contribution to the work a "work made for hire"? ☐ Yes ☒ No
AUTHOR'S NATIONALITY OR DOMICILE (Name of Country) OR { Citizen of ▶ USA / Domiciled in ▶ }
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK — Anonymous? ☐ Yes ☒ No; Pseudonymous? ☐ Yes ☒ No. If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP briefly describe nature of the material created by this author in which copyright is claimed. ▼
WORDS AND MUSIC

NOTE Under the law, the "author" of a "work made for hire" is generally the employer, not the employee (see instructions). For any part of this work that was "made for hire" check "Yes" in the space provided, give the employer (or other person for whom the work was prepared) as "Author" of that part, and leave the space for dates of birth and death blank.

b. NAME OF AUTHOR ▼ — DATES OF BIRTH AND DEATH (Year born ▼ / Year Died ▼)

Was this contribution to the work a "work made for hire"? ☐ Yes ☐ No
AUTHOR'S NATIONALITY OR DOMICILE (Name of Country) OR { Citizen of ▶ / Domiciled in ▶ }
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK — Anonymous? ☐ Yes ☐ No; Pseudonymous? ☐ Yes ☐ No. If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP briefly describe nature of the material created by this author in which copyright is claimed. ▼

c. NAME OF AUTHOR ▼ — DATES OF BIRTH AND DEATH (Year born ▼ / Year Died ▼)

Was this contribution to the work a "work made for hire"? ☐ Yes ☐ No
AUTHOR'S NATIONALITY OR DOMICILE (Name of Country) OR { Citizen of ▶ / Domiciled in ▶ }
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK — Anonymous? ☐ Yes ☐ No; Pseudonymous? ☐ Yes ☐ No. If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP briefly describe nature of the material created by this author in which copyright is claimed. ▼

00816442

3 YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED This information must be given in all cases.
1986 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.
Month ▶ Day ▶ Year ▶ ◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2. ▼
STEPHEN JOSEPH STUMP
4635 ARDEN RD.
LANSING, MI 48917

See instructions before completing this space.

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

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APPENDIX E

FORM SR
UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER

SR SRU

EFFECTIVE DATE OF REGISTRATION

Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼

Guess Work by Stephen Stump

PREVIOUS OR ALTERNATIVE TITLES ▼

NATURE OF MATERIAL RECORDED ▼ See instructions

☒ Musical ☐ Musical-Dramatic
☐ Dramatic ☐ Literary
☐ Other

2 NAME OF AUTHOR ▼

a Stephen Stump

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?
☐ Yes ☒ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ United States
Domiciled in ▶

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? ☐ Yes ☒ No
Pseudonymous? ☐ Yes ☒ No
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NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

Author/Wrote music for Album

NOTE
Under the law, the "author" of a "work made for hire" is generally the employer, not the employee (see instructions). For any part of this work that was "made for hire" check "Yes" in the space provided, give the employer (or other person for whom the work was prepared) as "Author" of that part, and leave the space for dates of birth and death blank.

NAME OF AUTHOR ▼

b Lisa Cousino

DATES OF BIRTH AND DEATH
Year born ▼ Year Died ▼

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Producer of material created for Album

NAME OF AUTHOR ▼

c

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Year born ▼ Year Died ▼

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1987 ◀ Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.

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United States ◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2. ▼

Lisa Cousino
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Stephen Stump
1635 Arden
Lansing, MI 48917

See instructions before completing this space

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MORE ON BACK ▶ • Complete all applicable spaces (numbers 5-9) on the reverse side of this page • See detailed instructions. • Sign the form at line 8.

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