Scully
Recording Instruments

OPERATION AND SERVICE MANUAL

Scully
Model 250/255 Series
Recorders/Reproducers

AUDIO/ELECTRONICS DIVISION OF DICTAPHONE CORPORATION
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August 1978
Catalog No. 203080-02
Printed in U.S.A.

Serial No.: _____

Date Received: _____

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SCULLY RECORDING INSTRUMENTS

DICTAPHONE VOICE FREQUENCY COMMUNICATIONS INSTRUMENTS

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b. Identify the type, model number and serial number of the unit in which it is used, giving the date of purchase and name of distributor or supplier.
c. Describe the nature of the defect and reason for replacement or service.

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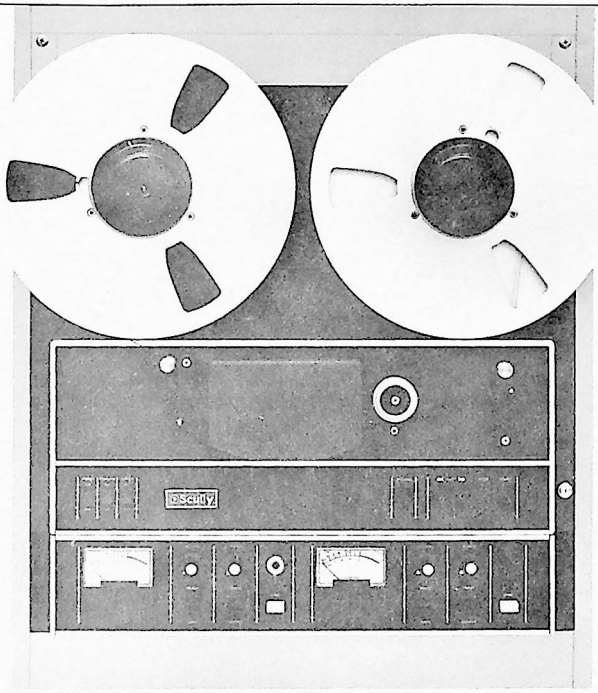
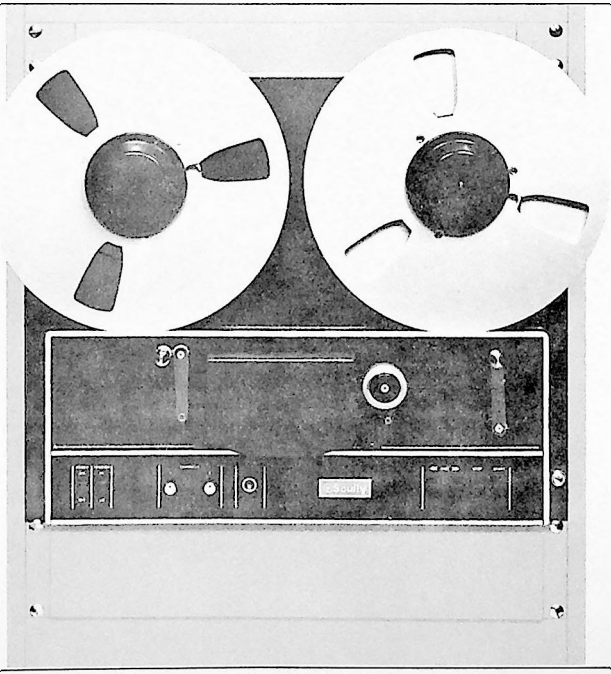


Scully 250 Series Recorder/Reproducer



Scully 255 Series Reproducer

SECTION 1
GENERAL DESCRIPTION

1.0 GENERAL

1.1 This manual describes the installation, operation, and maintenance for all Scully 250/255 Series Recorders/Reproducers. These units are professional quality recorders and reproducers designed for use in broadcast stations and recording studios, and incorporate the latest state-of-the-art. The 250/255 Series can be mounted in standard 19-inch (48.25 cm) equipment racks, or in a portable case for field coverage of any events where professional quality recording is required. Table 1-1 lists the different models available of the 250/255 Series. Table 1-2 lists the accessories and options available for these models, and Table 1-3 lists the complete specifications.

1.2 TAPE TRANSPORT

1.3 The tape transport is designed to handle 1/4-inch (6.35 mm) wide magnetic tape on 7-inch (17.78 cm) EIA, or 10-1/2 inch (26.67 cm) NAB diameter reels. The tape transport function controls include REWIND, FAST FORWARD, STOP, START, and RECORD* pushbutton switches; a TENSION HI-LO switch for selection of the appropriate tape tension when using large or small tape reels; and a capstan HI-LO SPEED* select switch. An automatic tape lifter (ATL) is provided to minimize tape and head wear during fast forward or rewind modes. A 2-speed direct drive hysteresis synchronous capstan motor is used for the recorders, while a similar capstan motor but having a single speed is used for the reproducers. All 250 Series Recorders/Reproducers incorporate a Cue mode in Wind and Rewind modes for shuttling tape. This mode is activated by pressing and holding down the WIND or REWIND switches for more than 1/4 or 1/2 seconds. When the Cue mode is used an ATL defeat feature automatically defeats the tape lifter solenoid, allowing the tape to come in contact with the playback head in the Wind and Rewind modes.

*Recorders only

1.4 ELECTRONICS ASSEMBLY

1.5 The electronics assembly for the 250 Series Recorder/Reproducer is a self-contained unit that houses a 2-channel record/playback amplifier, and a bias supply on a single PWB. This assembly mounts directly below the tape transport and interconnects to the head assemblies via shielded cables, and a power interconnect cable to J111 to the power supply assembly. The 255 Series Reproducers do not have an electronics assembly like the recorders do, but have a 2-channel playback amplifier mounted directly behind the tape transport. Adjustment controls and the board are accessible by pulling off the transport control panel, and the card can be removed through an opening in the transport casting. A Cue Tone detector is available as an accessory for the 255 Reproducers for detecting prerecorded 25 Hz tones as end-of-tape warning. For example, the output from the detector can be used as a signal for activating a second transport when end-of-tape is detected. After the second transport is activated and after a user adjustable time delay, a "stop" command from the detector places the first transport in a Stop mode. This "stop" command can be defeated by the user if desired.

1.6 HEAD ASSEMBLIES

1.7 The head assemblies for the 250 Series consist of three individual head stacks; erase, record, and playback. The head assembly for the 255 Series consists of only one playback head and one guide in place of the erase and record head stacks. The head stacks in either of the 250/255 Series can be configured for a full track, half track, 2-track, or 1/4-track as desired by the user. The head stacks are easily accessible for adjustments or replacement, simply by removing the head cover. Electrical connection to each head stack is via plug-in connector type cables. Each head stack is mounted on an individual plate assembly, which in turn mounts to the transport casting.

1.8 SPECIFICATIONS

1.9 The specifications for the 250/255 Recorder/Reproducer are listed in Table 1-3. All listed specifications are subject to change without prior notice.

Table 1-1. Models of the 250/255 Series

Model No.		
Recorder/ Reproducer	Reproducer	Description
250-FT	255-FT	Full Track Mono
250-1	255-1	Half Track Mono
250-2	255-2	Two Channel, Two Track (Stereo)
250-24	255-24	Two Channel, Quarter Track (Stereo)

Table 1-2. Accessories and Options

Accessories	Part Number	250	255
Cue Tone Detector	202986-01		X
Remote Control	202987-01	X	
Remote Control	202987-02		X
Portable Case	203002-01	X	X
Microphone Preamp	202993-01	X	
Input Transformer	202994-01	X	
Output Transformer	203017-01	X	
	203017-02		X
Options			
Capstan			
7-1/2, 15 in/sec	203005-01 (60 Hz)	X	
3-3/4, 7-1/2 in/sec	203005-02 (60 Hz)	X	
7-1/2, 15 in/sec	203005-03 (50 Hz)	X	
3-3/4, 7-1/2 in/sec	203005-04 (50 Hz)	X	
7-1/2 in/sec	202944-01 (60 Hz)		X
3-3/4 in/sec	202944-02 (60 Hz)		X
7-1/2 in/sec	202944-03 (50 Hz)		X
3-3/4 in/sec	202944-04 (50 Hz)		X
Power Transformer	203038-01 (115 Vac)	X	X
	203038-02 (220 Vac)	X	X

Table 1-3. Specifications

SCULLY 250 SERIES RECORDER/REPRODUCER

HEAD CONFIGURATIONS	Full track, half track, 2-track, quarter track, 1/4" (6.35 mm).
TAPE SPEEDS	3.75 and 7.5 in/s (9.52 and 19.05 cm/s) or 7.5 and 15 in/s (19.05 and 38.1 cm/s).
FREQUENCY RESPONSE	15 in/s (38.1 cm/s) ±2 dB, 50 Hz-18 kHz 7.5 in/s (19.05 cm/s) ±2 dB, 50 Hz-15 kHz 3.75 in/s (9.52 cm/s) ±2 dB, 50 Hz-10 kHz
SIGNAL-TO-NOISE RATIO	(Using 3M206 tape or equivalent) peak record level to NAB weighted noise (NAB equalization – 500 nWb/m).

	Full Track	Half Track	Stereo Two Track
15 in/s	70 dB	66 dB	66 dB
7.5 in/s	70 dB	66 dB	66 dB
3.75 in/s	66 dB	63 dB	65 dB

DISTORTION	500 Hz 3rd harmonic (500 nWb/m): less than 3%. Standard operating level (250 nWb/m): less than 0.7%.
FLUTTER AND WOW	Weighted peak flutter (ANSI S 4.3-1972; IEC 386-1972) 15 in/s 0.08% or better; 7.5 in/s 0.1%; 3.75 in/s 0.2% or better.
SPEED ACCURACY	±0.2% at all speeds
BRAKES	Differential "fail safe" spot brakes.
WINDING TIME	Approximately 90 seconds for 2400 ft. (731.5 m) NAB reels.
START TIME	Less than 0.5 seconds at 15 in/s.
REEL SIZE	5"-7" (12.7-17.8 cm) EIA, and 10.5" (26.67 cm) NAB.
EQUALIZATION	NAB or IEC.
BIAS/ERASE FREQUENCY	125 kHz.
ERASE EFFICIENCY	Greater than 70 dB.
INPUTS	10K ohms, level (min.) 200 mV. (Accessory plug-in balanced bridge transformer or 250-600 ohms mic preamp.)
OUTPUTS	600 ohm unbalanced, 17 dBm (balanced transformer available). Monitor earphone jack on front panel, 8 ohms impedance (min).
MOTORS	Capstan – Direct Drive Hysteresis Synchronous, plus two torque motors.
CONTROL LOGIC	TTL with mode-to-mode protection.
TRANSPORT CONTROLS	Power, Hi-Lo tension, fast FWD, fast RWD, Stop, Start, Record.
POWER REQUIREMENTS	105-125V or 220-240 Vac, 50 or 60 Hz.
ACCESSORIES	Microphone preamp, balanced bridge input transformer, Balanced Line Output transformer, remote control, portable case.

SCULLY 255 SERIES REPRODUCER

HEAD CONFIGURATIONS	Full track, half track, 2-track, quarter track, 1/4" (6.35 mm).
TAPE SPEED	7.5 in/s (19.05 cm/s) standard 3.75 in/s (9.52 cm/s) available.
FREQUENCY RESPONSE	(3M206 or equivalent.) 7.5 in/s (19.05 cm/s) ±2 dB, 50 Hz-16 kHz 3.75 in/s (9.52 cm/s) ±2 dB, 50 Hz-16 kHz
AMPLIFIER NOISE	–74 dB, ANSI weighted below 500 nWb/m (Half Track).
DISTORTION	0.2%, 1000 Hz at +4 dBm, 3rd harmonic
EQUALIZATION	NAB or IEC
LINE OUTPUT	600 ohms unbalanced + 17 dBm (balanced transformer available).
PHONES OUTPUT	Front panel phone jack, 8 ohms impedance (min.)
LINE OUT CONNECTIONS	XLR type
AMPLIFIER CONTROLS	Front panel gain knobs equalization adjustments accessible from front.
HEAD ADJUSTMENTS	Pull-off head cover and Mumetal shield gives full access to plug-in heads for all adjustments and cleaning.
FLUTTER AND WOW	Weight peak flutter: 7.5 in/s 0.1%; 3.75 in/s 0.2%.
SPEED ACCURACY	±0.2%.
WINDING TIME	Less than 90 seconds for 2400 ft. (731.5 m) NAB reel.
REEL SIZES	5"-7" (12.7-17.78 cm) EIA and 10.5" (26.67 cm) NAB reel.
MOTOR(S)	Single speed direct drive hysteresis plus two torque motors.
BRAKES	Long life differential spot brakes
CONTROL LOGIC	TTL with mode-to-mode protection
TRANSPORT CONTROLS	Power, Hi-Lo tension, fast FWD, fast RWD, Stop, Start.
REMOTE CONTROL	(Accessory) contains all mode controls including lifter defeat.
POWER CONSUMPTION	120 watts, 117V or 220 Vac, 50 Hz or 60 Hz
RACK SPACE*	19" wide x 15-3/4" high (48.26 cm x 40 cm) x 1.5" (3.81 cm). Reel overhang at top using NAB reel.
OPTIONS. ACCESSORIES	3.75 in/s (9.52 cm/s) speed; 25 Hz tone sensor; Balanced output (600 ohm) transformers; Remote control; Portable case.

*For both 250 & 255 Series

SECTION 2
INSTALLATION

2.0 GENERAL

2.1 All Scully 250/255 Series tape transports are mounted on a wood frame (for shipping purposes only) and the 255 Series Reproducers are shipped fully assembled in a single packing carton. The 250 Series Recorder/Reproducer is shipped fully assembled except for the electronics assembly, which is shipped in a separate carton. The power cable, mounting hardware and flywheel are all inside a plastic package and are packed with the transport. A 10-1/2 inch tape reel is also included. Figure 2-1 shows the mounting dimensions of the 250/255 Series.

2.2 UNPACKING

2.3 Unpack the equipment and make a visual inspection for signs of obvious damage. Carefully go through all packing material to assure that small packages are not inadvertently discarded. In the event of damage to the equipment, retain all packing material and shipping cartons, and notify the freight carrier. Save all packing material, support frame and shipping cartons in the event the equipment has to be returned to the factory. Remove the equipment from the shipping carton as follows:

CAUTION

DO NOT lift the transport by its motors or its motor shafts.

a. Lift the tape transport out of the carton using the two shipping straps provided for this purpose. Remove the straps.

b. On 250 Series equipment remove the electronics assembly from its shipping carton.

c. Install the equipment in accordance with the following paragraphs.

2.4 RACK MOUNTING

INSTALLING THE MODEL 250 SERIES RECORDER/REPRODUCER

2.5 Mount the recorder/reproducer in accordance with the following procedure.

a. Mount the tape transport at the desired position on the equipment rack.

b. Secure the transport to the equipment rack using the 10-32 screws/washers supplied with the shipping hardware. (Two on the right-hand side and one on the left-hand side.) Tighten screws.

c. Mount the electronics assembly mounting chassis directly below the tape transport. Secure in place with 10-32 screws/washers (two on each side). Slide the assembly inside the housing all the way in until it locks in place.

d. Connect the loose end of the head cable to J107 on the record/playback electronics chassis. (See Figure 2-2 and interconnect diagram Figure 2-4.)

e. Connect one end of the power interconnect cable to J108 on the record/playback electronics chassis and the other end to J111 at the bottom of the Power Supply and Control assembly chassis. (See Figure 2-2 and interconnect diagram Figure 2-4.)

f. Connect the ac power cable from J102 on the Power Supply and Control assembly chassis to the appropriate external ac voltage source. (See Figure 2-2 and 2-4.)

g. Install the flywheel onto the capstan motor shaft as follows.

1. Rotate the capstan motor (by hand) until the flat part of the shaft is facing upwards.

2. Install the flywheel, supplied with the shipping hardware package, onto the shaft with the setscrew hole facing upward. Continue sliding the flywheel forward toward the motor until the rear flat side of the flywheel is flush with the end of the shaft. Tighten setscrew.

h. This completes the installation procedure.

INSTALLING THE MODEL 255 REPRODUCER

2.6 Mount the reproducer in accordance with the following procedure.

a. Mount the tape transport at the desired position on the equipment rack.

b. Secure the transport to the equipment rack using the 10-32 screws/washers supplied with the shipping hardware package. (Two on the right-hand side and one on the left-hand side.) Tighten screws.

c. Install the flywheel onto the capstan motor shaft as follows:

1. From the rear of the transport, rotate the capstan motor shaft (by hand) until the flat part of the shaft is facing upward.

2. Slide the flywheel, supplied with the shipping hardware package, onto the shaft with the setscrew hole facing upward.

3. Continue sliding the flywheel forward toward the motor until the rear flat side of the flywheel is flush with the end of the shaft. Tighten setscrew.

d. Connect the ac power cable from J102 on the power supply and control assembly to the appropriate external ac voltage source. (See Figures 2-3 and 2-5.)

e. This completes the installation procedure.

2.7 POWER SUPPLY VOLTAGE JUMPERS

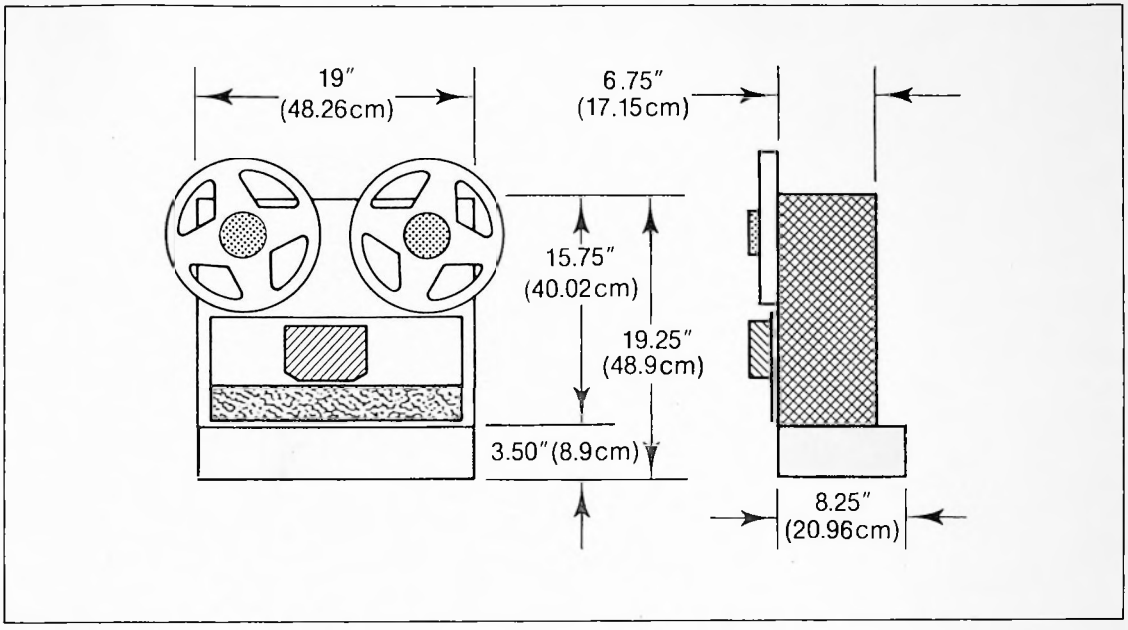
2.8 Two different jumper plugs are supplied with the equipment; HI LINE (P108-01) and LO LINE (P108-02). One of the two plugs is inserted into J108 on the power supply assembly, depending upon the reading obtained on the main ac line voltage. To determine which plug to use, proceed as follows:

DOMESTIC INSTALLATION

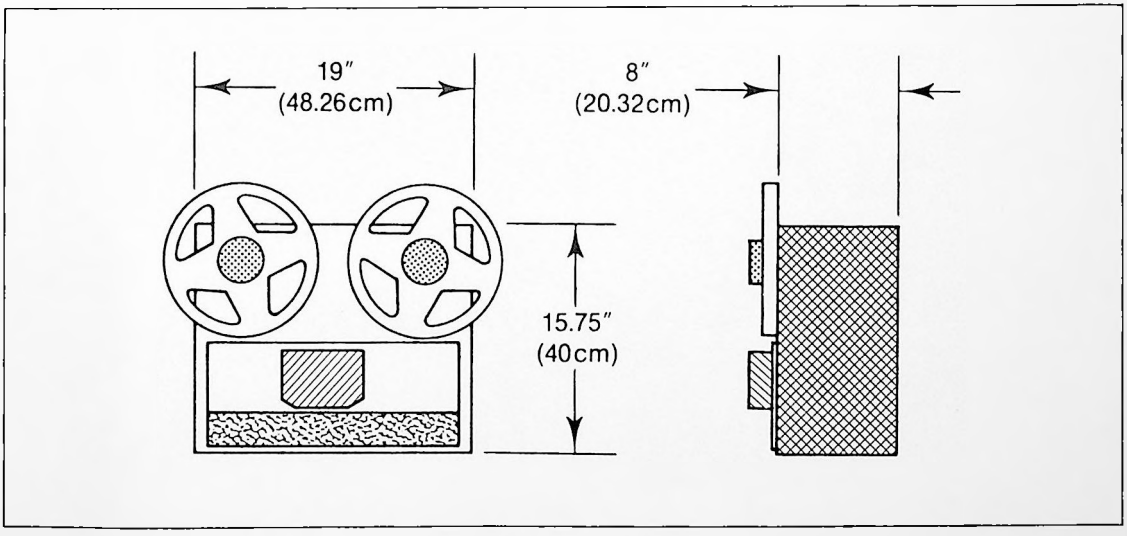
2.9 Measure the main ac power at its external source (wall receptacle). If the voltage is 105 Vac or less use LO LINE (P108-02) plug and insert into J108, or HI LINE (P108-01) if the voltage is 105 Vac or higher.

INTERNATIONAL INSTALLATION

2.10 Measure the main ac power at its external source (wall receptacle). If the voltage is 210 Vac or less use LO LINE (P108-02) plug and insert into J108, or HI LINE (P108-01) if the voltage is 210 Vac or higher.



Model 250 Series Recorder/Reproducer



Model 255 Series Reproducer

Figure 2-1. Mounting Dimensions

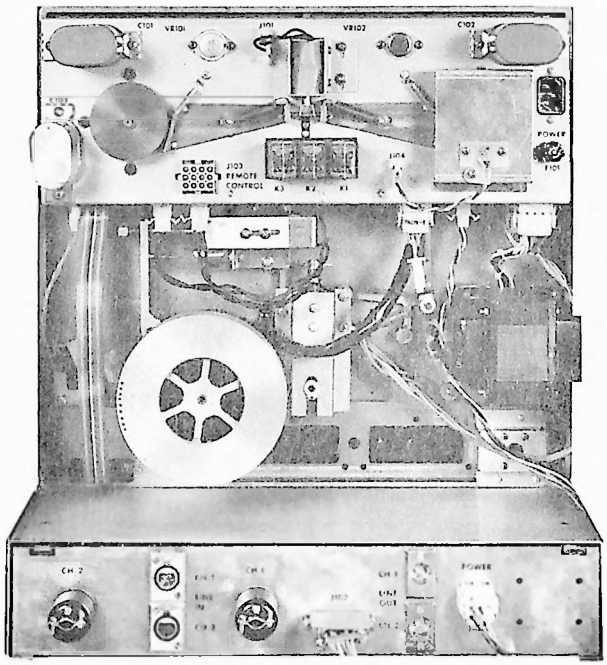


Figure 2-2. 250 Series Recorder/Reproducer (Rear View)

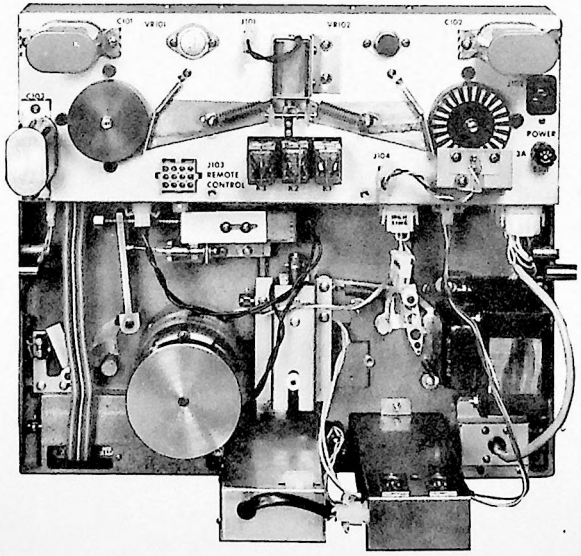


Figure 2-3. 255 Series Reproducer (Rear View)

250 SERIES INTERCONNECT DIAGRAM (1of2)

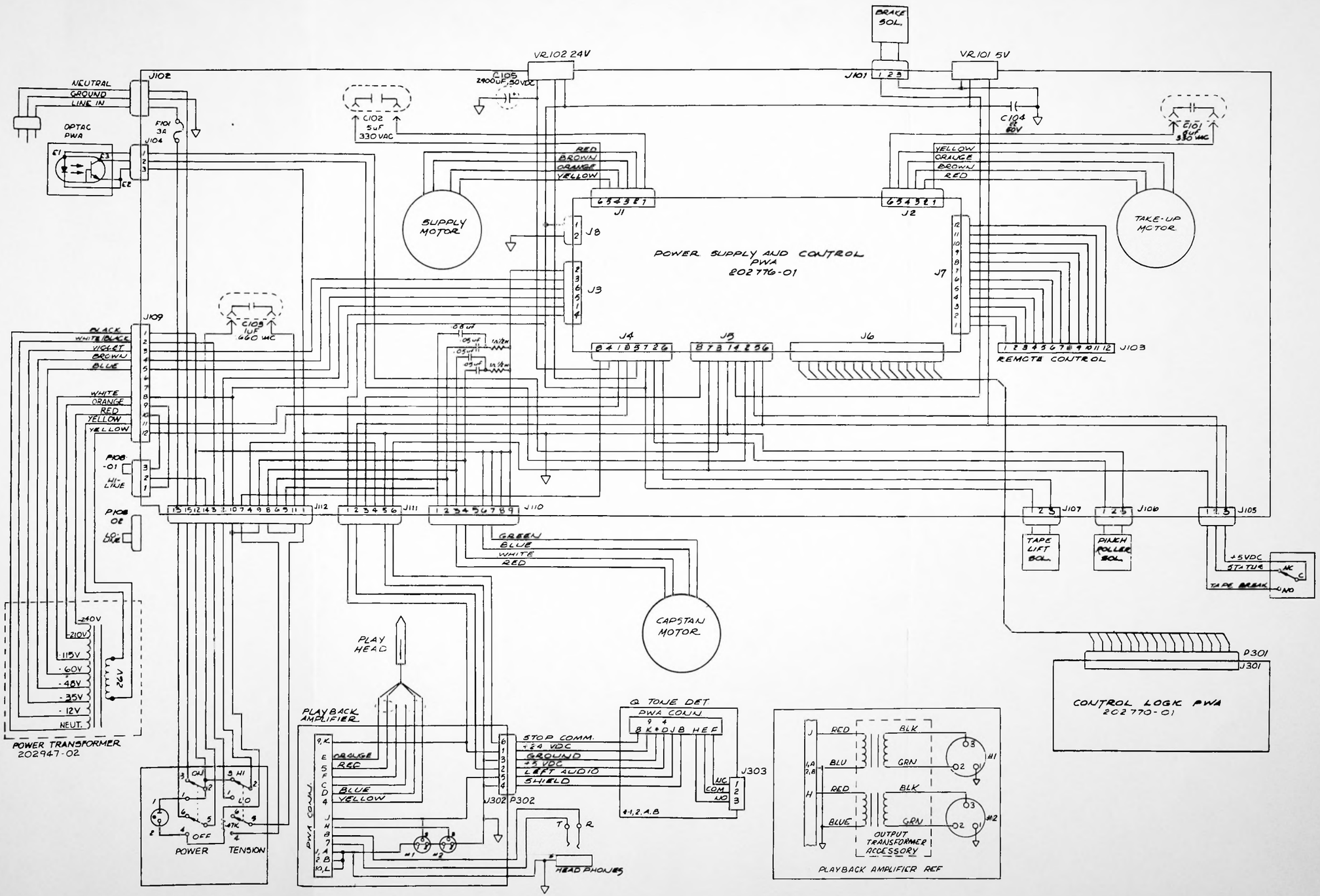
203001A

250 SERIES INTERCONNECT DIAGRAM (2 of 2)

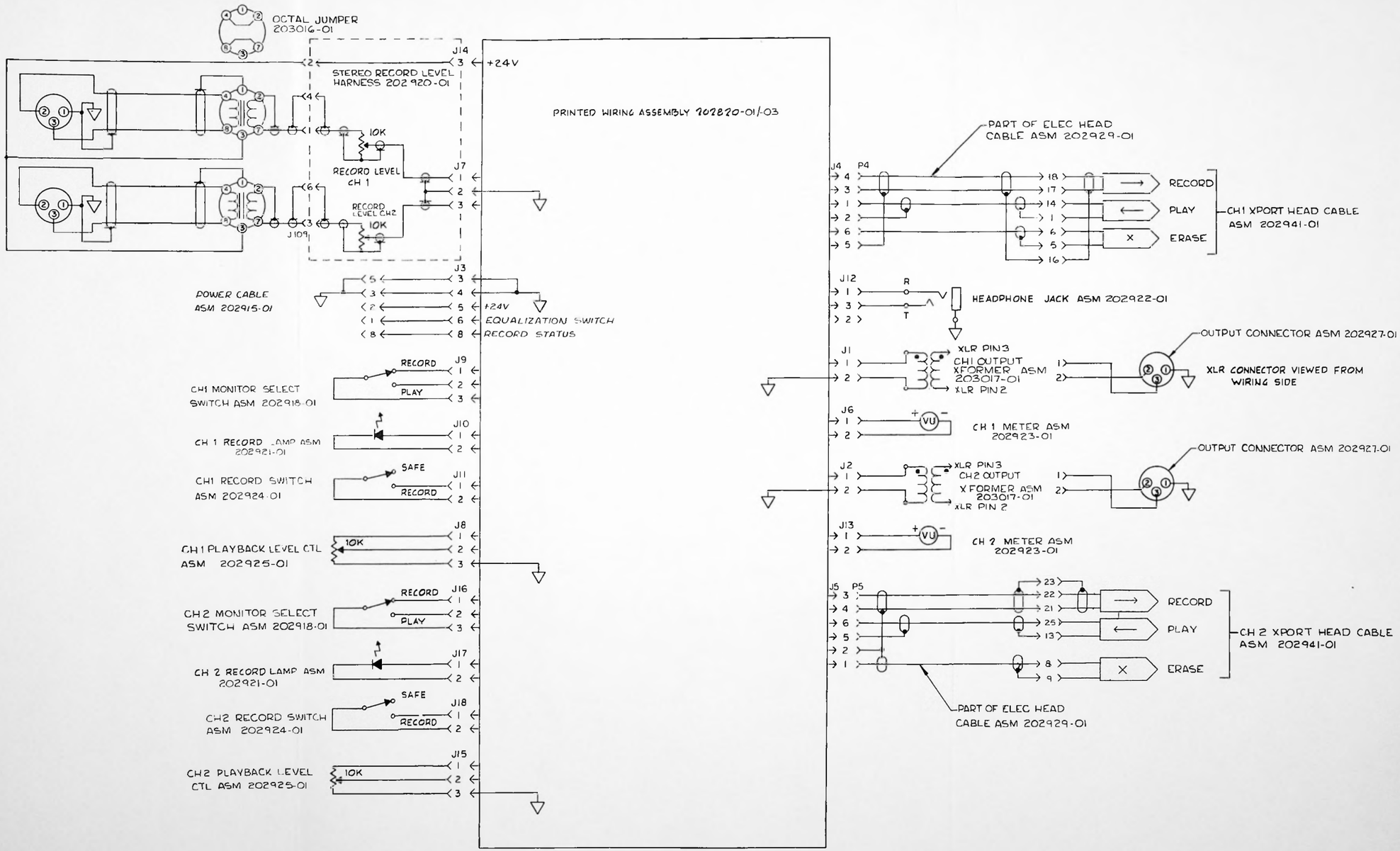
255 SERIES INTERCONNECT DIAGRAM (1 of 2)

202999A

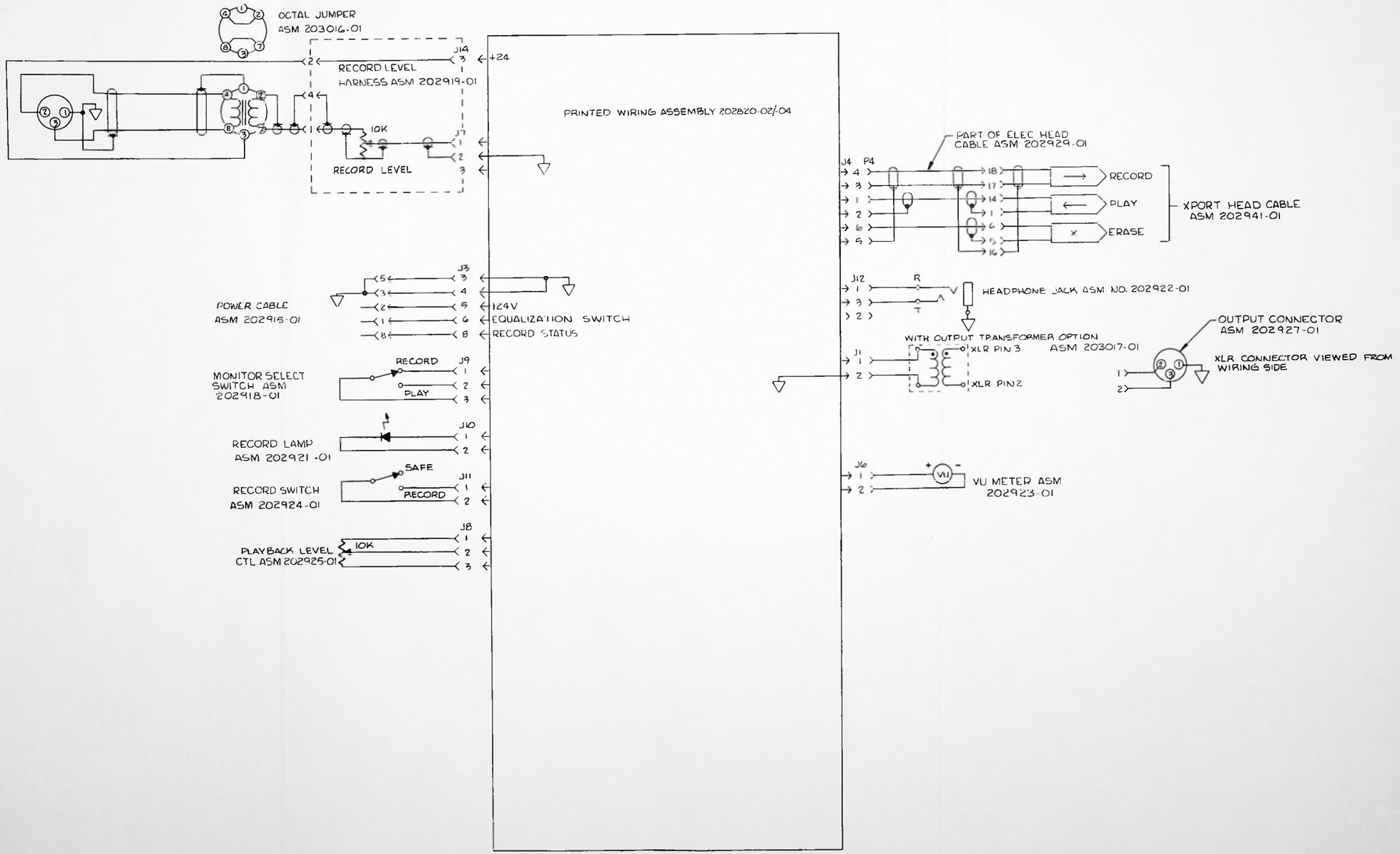
255 SERIES INTERCONNECT DIAGRAM (2 of 2)



2-6 Record Electronics INTERCONNECT DIAGRAM-STEREO



Record Electronics INTERCONNECT DIAGRAM-MONO



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SECTION 3
OPERATION

3.0 GENERAL

3.1 The transport function controls for the Scully 250 Series are located on the tape transport control panel, and its operating controls and vu meters for the record/playback electronic are located on the electronics assembly front panel. These controls and indicators are listed on Tables 3-1, 3-2 and shown on Figures 3-1, 3-2 respectively. All function controls for the Scully 255 Series are located on the transport control panel, and are listed on Table 3-3 and shown on Figure 3-3.

3.2 TAPE THREADING

3.3 Before installing and threading the tape, perform routine tape path maintenance in accordance with paragraph 4.2 in Section 4. See Figure 3-4 for the tape threading path. Set the TENSION control to HI position when using large reels (10-1/2 inches) and LO position when using small reels (7-1/2 inches).

3.4 SELECTING TAPE SPEED AND APPLYING POWER

3.5 Select tape speed and apply power as follows:

a. Select the desired capstan speed by placing the SPEED HI/LO switch to either HI (7-1/2 or 15 in/sec) position, or LO (3-3/4 or 7-1/2 in/sec) position. (For recorders only the SPEED switch automatically changes electronic equalization.)

b. Turn the POWER switch on. Observe that its neon lamp indicates that power is on.

3.6 PLAYBACK MODE

3.7 To place the transport in Play mode, proceed as follows:

a. Thread the prerecorded tape on the transport.

b. Set the READY/SAFE switch to SAFE position.

c. Press START switch. Observe that tape starts moving.

3.8 RECORD MODE (RECORDERS ONLY)

3.9 To place the recorder/reproducer in Record mode, proceed as follows:

a. Thread a reel of blank tape or prerecorded tape whose audio recording is no longer required.

CAUTION

If the previously recorded tape was recorded with a different head configuration, best results are obtained by bulk erasing the tape before recording.

b. Set the READY/SAFE switch to READY position.

c. Simultaneously press START and RECORD switches. Observe that the RECORD LED lights and tape starts moving.

d. Adjust the record level by using the RECORD control.

3.10 STOP MODE

3.11 Tape motion can be stopped from any transport function mode by simply pressing the STOP switch. The transport will automatically go into a STOP mode when tape breaks, or when end-of-tape is reached.

3.12 MONITOR MODE

3.13 The operator has the option of monitoring either record or playback while the recorder is in any mode. To monitor the desired signal, proceed as follows:

a. To monitor the audio signal at the input to the record amplifier, set the front panel INPUT/OUTPUT switch to INPUT position. (The operator can now monitor the input signal at the PHONE jack using a headset.)

b. To monitor the recorded signal off the tape, set the INPUT/OUTPUT switch to OUTPUT position. (The operator can now monitor the playback signal at the PHONE jack using a headset.)

3.14 SYNC MODE

3.15 The Sync mode allows the operator to playback previously recorded audio signals on one channel while recording on another channel without time delay. This is accomplished by pushing and latching the SYNC button on the channel to be monitored, and recording as normal on the other channel.

3.16 REMOTE CONTROL

3.17 A Remote Control unit is available as an accessory for both 250 and 255 Series. The Remote Control unit plugs into J103 REMOTE CONTROL connector located on the rear of the Power Supply and Control chassis. The Remote Control unit for the 255 Series contains identical function control switches that are on the transport control panel. When the remote control unit is plugged in its control switches are connected in parallel with the transport control panel switches, and the transport can be controlled from either the local panel or remote unit. The Remote Control unit for the 250 Series is identical to the remote control unit for the 255 Series except it has an added switch - RECORD, which functions in parallel with the RECORD switch on the recorder transport control panel. Figure 3-5 shows a typical Remote Control unit for the 250 Series.

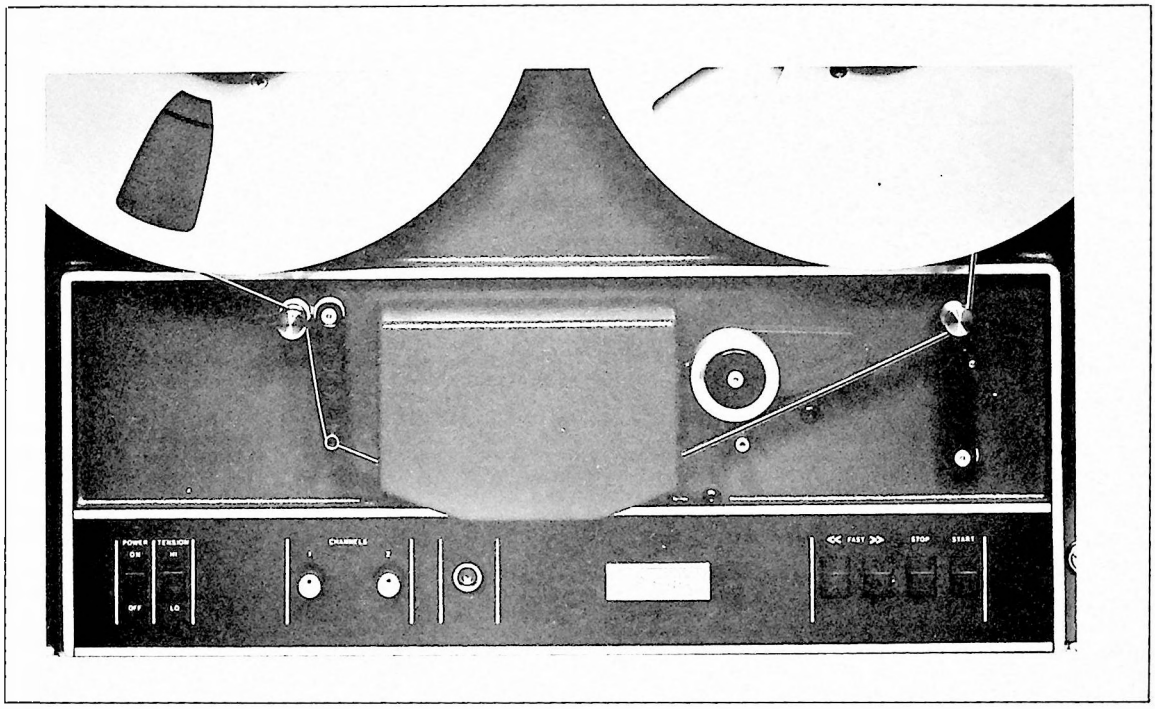


Figure 3-4. Tape Threading Path

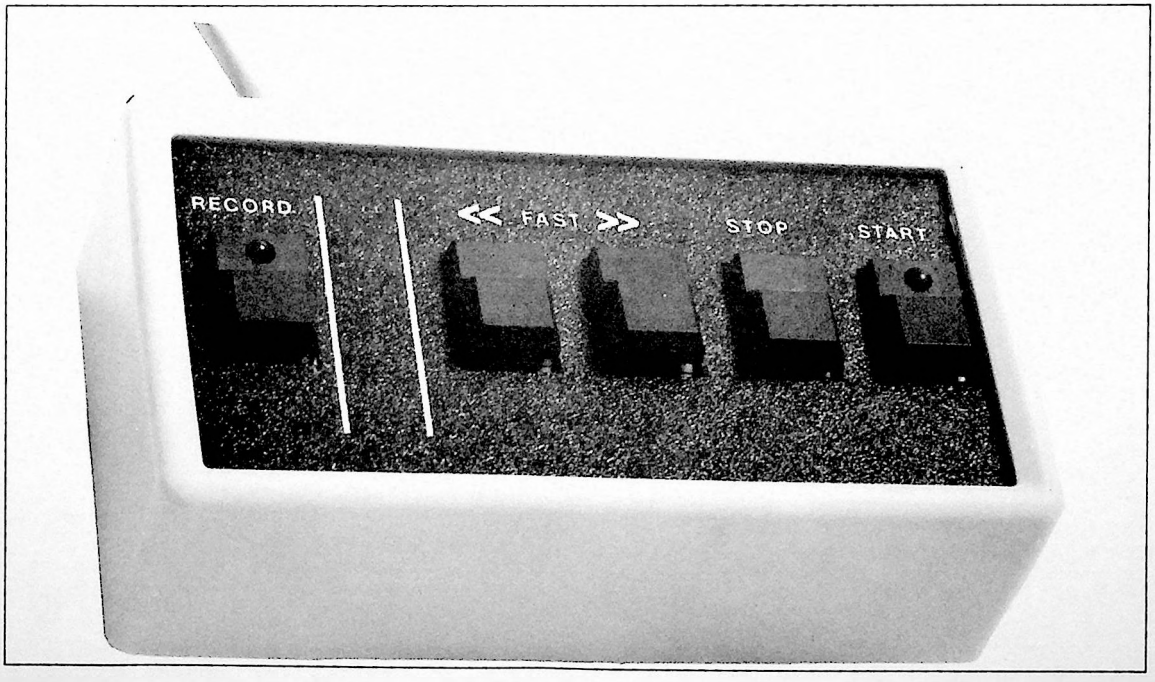


Figure 3-5. Remote Control Unit (250 Series)

Table 3-1. Recorder/Reproducer Electronics Controls and Indicators

ITEM	CONTROLS/INDICATORS	FUNCTION
1	VU (Meter)	This meter is used for monitoring record and playback levels for channel 1. (An identical vu meter is used for channel 2, see Figure 3-1.)
2	RECORD* (Potentiometer)	Used for adjusting the record level for channel 1.
3	REPRO* (Potentiometer)	Used for adjusting the playback level for channel 1.
4	PHONE (Jack)	The PHONE jack allows the operator to monitor the input signal or playback signal by simply plugging a headset ino the jack.
5	SYNC* (Latching Type Switch)	When this switch is pushed in and latched, it allows the operator to playback previously recorded signals on one channel while recording on another channel without time delay. The Sync mode is not active when the switch is unlatched.
6	INPUT/OUTPUT* (Toggle Type Switch)	Allows the operator to monitor either record or playback while the recorder is in any mode.
	INPUT	In the INPUT position the operator can monitor the input signal via the PHONE jack.
	OUTPUT	In the OUTPUT position the operator can monitor the playback signal (recorded signal off the tape) via the PHONE jack.
7	READY (Indicator Lamp)	This lamp lights when the READY/SAFE switch is in the READY position and the transport is in Record mode, which indicates the channel is in Record mode.
8	READY/SAFE* (Toggle Type Switch)	This switch places the channel in either Ready Record mode, or Safe mode depending on the position of the switch.
	READY	When the switch is placed in the READY position, the channel is in Ready Record mode.
	SAFE	When the switch is placed in the SAFE position, the channel is in Ready Play mode.

*Identical controls and indicators for channel 2, see Figure 3-1.

Table 3-2. Recorder/Reproducer Transport Controls and Indicators

ITEM	CONTROLS/INDICATORS	FUNCTION
1	Lamp (Indicator)	Lamp light goes on and off as power switch is turned on and off. Indicates whether power is on or off.
2	POWER ON/OFF (Rocker Type Switch)	Turns power on and off to the recorder/reproducer.
3	TENSION HI/LO (Rocker Type Switch)	Used for selecting appropriate tape tension when using large or small tape reels.
	HI	HI position is selected when 10-1/2 inch diameter reels are used.
	LO	LO position is selected when 5-inch to 7-1/2 inch diameter reels are used.
4	SPEED H/LO (Rocker Type Switch)	Used for selecting record and playback speed.
	HI	HI position is selected for recording and playing back at 7-1/2 or 15 in/sec.
	LO	LO position is selected for recording and playing back at 3-3/4 or 7-1/2 in/sec.
5	RECORD (Momentary Pushbutton Type Switch)	When this switch is simultaneously pressed with the START switch, the transport is placed in the Record mode.
	Lamp (Indicator)	This lamp lights when the recorder/reproducer is placed in the Record mode, and provides a visual indication when the transport is in Record mode. Light goes out when the transport is in any mode other than Record.
6	FAST REWIND (Momentary Pushbutton Type Switch)	This switch places the transport in a full rewind speed.
7	FAST FORWARD (Momentary Pushbutton Type Switch)	This switch places the transport in a full wind speed.
8	STOP (Momentary Pushbutton Type Switch)	Pressing this switch places the transport in Stop mode.
9	START (Momentary Push-button Type Switch)	This switch places the transport in a playback mode. However, when this switch is pressed simultaneously with the RECORD switch the transport is placed in the Record mode.

Table 3-3. Reproducer Transport Controls and Indicators

ITEM	CONTROLS/INDICATORS	FUNCTION
1	Lamp (Indicator)	Lamp light goes on and off as the power switch is turned on and off. Indicates whether power is on or off.
2	POWER ON/OFF (Rocket Type Switch)	Turns power on and off to the reproducer.
3	TENSION HI/LO (Rocker Type Switch)	Used for selecting appropriate tape tension when using large or small tape reels.
	HI	HI position is used when 10-1/2 inch diameter tape reels are used.
	LO	LO position is used when 5-inch to 7-1/2 inch diameter tape reels are used.
4	CHANNEL 1,2 (Potentiometers)	Used for adjusting the playback level for respective channel.
5	PHONE (Jack)	The PHONE jack allows the operator to monitor the playback signal by simply plugging a headset into the jack.
6	FAST REWIND (Momentary Pushbutton Type Switch)	This switch places the transport in a full rewind speed.
7	FAST FORWARD (Momentary Pushbutton Type Switch)	This switch places the transport in a full wind speed.
8	STOP (Momentary Push-button Type Switch)	This switch places the transport in a Stop mode.
9	START (Momentary Push-button Type Switch)	This switch places the transport in a playback mode.

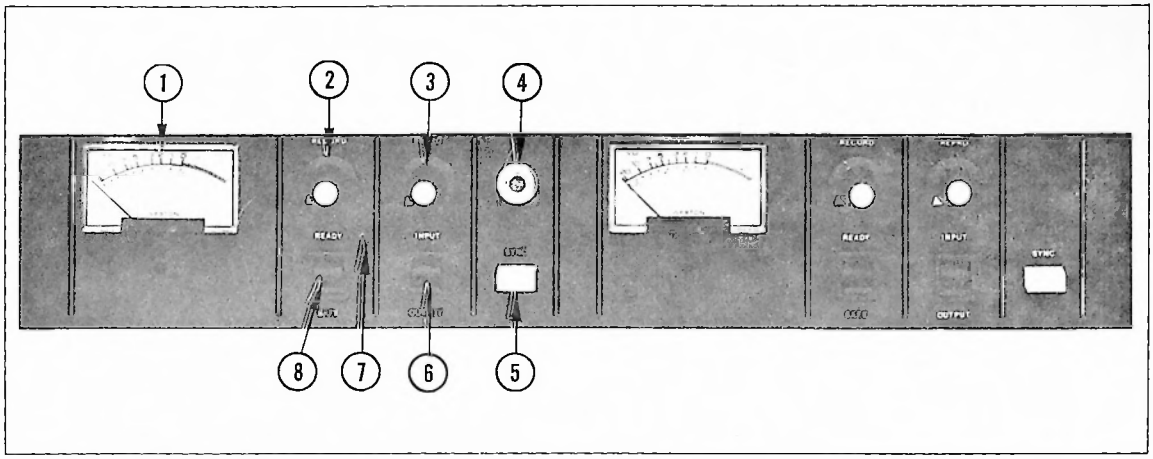


Figure 3-1. Recorder/Reproducer Electronics Controls and Indicators

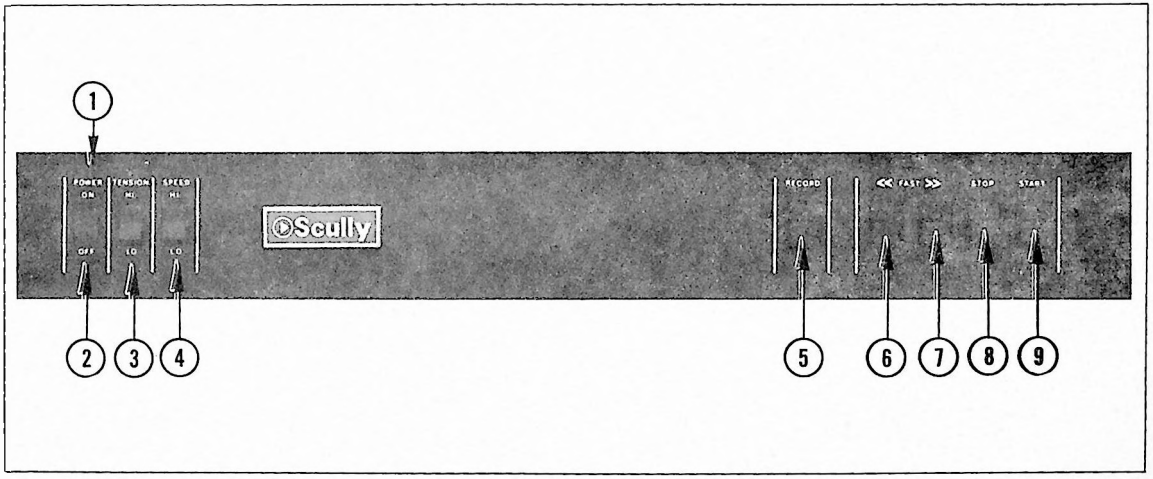


Figure 3-2. Recorder/Reproducer Transport Controls and Indicators

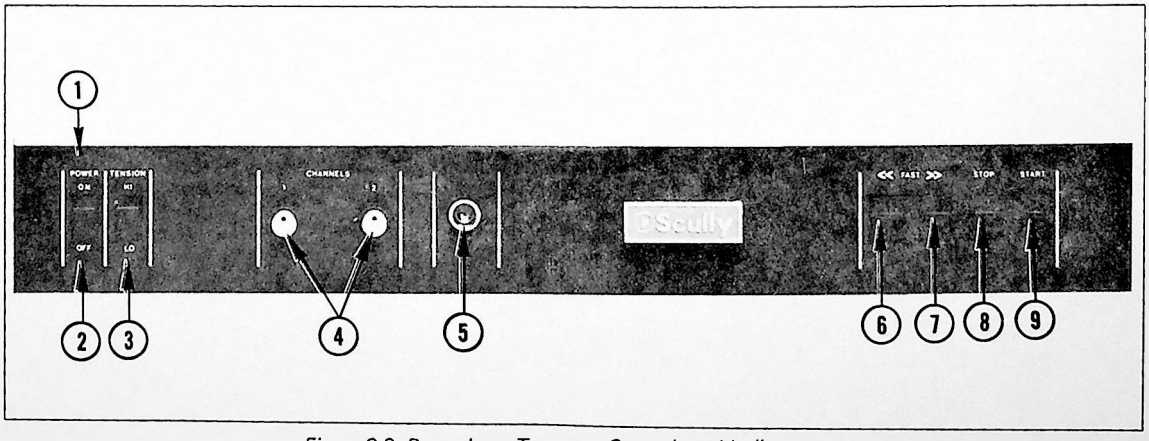


Figure 3-3. Reproducer Transport Controls and Indicators

SECTION 4
PREVENTIVE MAINTENANCE

4.0 GENERAL

4.1 Preventive maintenance on the Scully 250/255 Recorders/Reproducers consists primarily of performing visual inspection of components and wiring, cleaning heads and components in the tape threading path, and degaussing the heads. Inspect for loose connectors, broken or bent contact, frayed or broken wires, or for visible signs of potential trouble. Verify that printed circuit boards are firmly seated in their connectors. Remove any accumulation of dust, dirt, and foreign matter. However, DO NOT use a blower of any type to remove dust or dirt, because these particles may be forced into rotating parts, causing damage to the rotating parts.

4.2 CLEANING HEADS AND TAPE THREADING PATH COMPONENTS

CAUTION

DO NOT use too much isopropyl alcohol and never use a metallic tool as a cleaning tool. Excess alcohol dripping into critical components, or minor scratches on components in the tape path, may seriously degrade the performance of the equipment. DO NOT use a blower of any type to remove dust or dirt, because these particles may be forced into rotating parts causing damage to the rotating parts.

4.3 The frequency of cleaning the heads and components in the tape threading path depends upon how much usage the equipment is subject to. Obviously, if the equipment is subjected to heavy usage, then the components should be cleaned more frequently in relation to equipment that is not used as often. To clean the heads and related components, proceed as follows:

a. Remove all tape from the transport.

b. Moisten a "Q" tip applicator sparingly with isopropyl alcohol and clean all components in the tape path; e.g., tape guides, capstan shaft, pinch roller, tension arm, and heads. Carefully remove any accumulation of dust, dirt, and oxide build-up.

c. After the cleaning process is completed, visually check the tape threading path for cotton fibers, lint, and other material that may have been left during the cleaning process. Remove all such material.

LUBRICATION

4.4 No lubrication is required for any component on the tape transport under normal maintenance conditions. However, if the pinch roller assembly is replaced, the mounting shaft of the new assembly should be wiped clean with a lint-free cloth and lightly coated with a light weight lubricating oil before installing.

DEGAUSSING

4.5 Good practice requires that the heads be degaussed periodically if symptoms appear to indicate the need. A degausser with padded tips should be used, but extreme caution should be given to the actual technique used.

CAUTION

Remove all tape from the transport or any tape in close proximity to the transport. Recorded information can be lost or distorted if a tape is even remotely exposed to the strong ac field of the degausser. NEVER disconnect the heads while system power is on; otherwise, power surges and residual magnetic fields may form in the head circuitry.

4.6 Degauss the heads in accordance with the following procedure.

a. Turn off equipment power.

b. Hold the degausser two feet from the heads before turning on the degausser power switch. Slowly move the degausser toward the heads and place its tips against the poles (straddling the head gaps) in the center of the head stack.

c. Slowly rub the padded tips up and down against the face of the head stack a few times.

d. Without turning off power to the degausser, slowly move to the next head stack and repeat steps (b) and (c) until each head stack has been degaussed.

e. Very slowly pull the degausser away from the transport until the degausser is at least two feet away from the head assembly area, then turn off power to the degausser. This completes the degaussing procedure.

SECTION 5
FUNCTIONAL CHECKOUT

5.0 GENERAL

5.1 A brief functional checkout procedures is included to assist the operator in verifying proper functional operation of the 250/255 Series Recorders/ Reproducers. Should the equipment fail to perform properly on any of the following functional checks, refer to Section 7 - Maintenance for detailed test procedures to be performed by a qualified service engineer. Perform the functional checkout procedure as follows:

5.2 FUNCTIONAL CHECKOUT PROCEDURE

250 SERIES RECORDERS ONLY

5.3 Perform the functional checkout procedure in accordance with the following steps.

a. Turn on power switch. Observe that POWER LAMP lights and also that the vu meter lamps lights. Observe that the capstan starts to rotate.

b. Load and thread a reel of tape of the type normally used with the equipment.

c. Press START switch. Observe that tape moves in a forward direction.

d. Press STOP switch. Observe that tape motion stops.

e. Press FAST FORWARD switch. Observe that tape moves in a fast wind mode.

f. Press FAST REWIND switch. Observe that tape motion slows down and then goes into a fast rewind mode.

g. Press STOP switch.

h. Connect an audio oscillator to CHANNEL 1 LINE IN connector. Set oscillator for an output signal of 1 kH. Set READY/SAFE switch to READY position, and INPUT/OUTPUT switch to INPUT position. Adjust the RECORD control for the desired level on the vu meter. Press START and RECORD switches.

i. Set the INPUT/OUTPUT switch to OUTPUT position. Monitor the input signal on the vu meter and with a headset plugged into the PHONE jack listen that playback is satisfactory.

j. Repeat steps (h) and (i) for channel 2. Then remove oscillator.

k. This completes the functional checkout procedure for the recorder.

255 SERIES REPRODUCERS ONLY

5.4 Perform the functional checkout procedure in accordance with the following steps.

a. Turn on power switch. Observe that POWER LAMP lights. Observe that capstan starts to rotate.

b. Load and thread a reel of prerecorded tape.

c. Press START switch. Observe that tape moves in a forward direction.

d. Press STOP switch. Observe that tape motion stops.

e. Press FAST FORWARD switch. Observe that tape moves in a fast wind mode.

f. Press FAST REWIND switch. Observe that tape motion slows down and then goes into a fast rewind mode.

g. Press START switch. Observe that tape motion slows down and then goes into Play mode.

h. Using headphones, monitor the playback audio signal using the CHANNEL 1 or CHANNEL 2 controls to adjust for a satisfactory listening level.

i. This completes the functional checkout procedure.

SECTION 6
THEORY OF OPERATION

6.0 GENERAL

6.1 This section of the manual describes the theory of operation at a functional block diagram level for the following modules: (1) record/playback electronics (stereo; (2) playback amplifier (stereo); (3) power supply and control; (4) transport control logic; (5) cuetone detector; and (6) microphone preamplifier.

6.2 RECORD/PLAYBACK (STEREO),
250 Series Recorder/Reproducer

The record/playback electronics module is a fully self-contained model that includes 2-channel record/playback circuits. Provision is made for optional microphone preamplifier, input balancing transformers, and output transformers. The front panel includes all operating controls and vu meters for channels 1 and 2. Since the stereo record/playback electronics contains two identical channels, the following description is confined to channel 1 only. The record/playback electronics consists of: (1) record preamplifier U1; (2) record pre-emphasis network C29-R69, C30-R68; (3) constant current amplifier Q18-Q17; (4) 125 kHz bias trap L2-C35; (5) bias oscillator Q3 through Q8, T1; (6) playback preamplifier Q12-Q1; (7) equalization relay K1; (8) equalization network R9 through R12; (9) opto-coupled resistor DS-2, transistor Q9; (10) squelch circuit Q11, Q14; (11) record relay driver Q10; (12) record relay K2; (13) sync switch S1; (14) dual line amplifier U3; (15) vu meter rectifiers CR9 through CR 12; and associated components. Figure 6-1 shows a simplified functional block diagram of the record/playback electronics.

RECORD CIRCUITRY (Channel 1)

6.3 When the Record mode is selected via the front panel switches for channel 1, record relay K1 is energized by the "record enable" command from the transport control logic board. The input audio signal is amplified by one-half of a dual wideband op amp U1, and its output is fed to the record pre-emphasis network. A 3180 μ second curve for NAB is generated by R70 and a .47 μ F capacitor. However, if no 3180 μ second pre-emphasis is desired, a 10 μ F capacitor is substituted for the .47 μ F capacitor on the 16-pin DIP header. Equalization is switched automatically with speed change by relay K1. The HI-FREQ BOOST controls are C29 and C30.

6.4 The output of the pre-emphasis network is fed to the base of Q18, which is part of the constant current amplifier. The output of the amplifier provides the drive current for the record head. Record bias from the output of the bias oscillator is fed via opto-coupled resistor DS-2 and trim pot R109. The bias is adjustable with R109. The bias level is "ramped" by DS-2 to prevent a "pop" noise on the tape. To conserve bias drive requirements, capacitor C72 serves to resonate the erase head. When the Record mode is switched out, time constant network C5-R5 holds the relay in until the bias has been "ramped" down by DS-2. When the Recorder/Reproducer is not in Record mode, relay K2-6 N/C contact shorts one side of the record head to ground, and K2-9 N/C contact opens the circuit to the erase head.

PLAYBACK CIRCUITRY

6.5 When the Playback mode is selected by placing the front panel SAFE/RECORD switch in the SAFE position, the prerecorded audio signal at the playback head is fed to the base of Q12 in the playback preamplifier circuitry. Selection of playback equalization is automatically accomplished by relay K1-B section, and equalization is adjusted using trim pots R8, R9, R11 and R12. The playback head or Sync mode is selected via SYNC switch S1-R section, and the squelch circuit is activated when going in or out of Sync mode. Squelch time is preset by C20-R38 and is approximately 1/2 second duration. When Sync mode is selected, by pushing and latching the front panel SYNC switch, the unattenuated output of the playback preamplifier is fed to the line amplifier (U3) by switch S1-F pins 1, 2, 3 and the channel is taken out of Record mode – if it was previously in Record mode by S1-F pins 5 and 6. This allows a channel to be placed in or taken out of Record mode by simply latching or unlatching the SYNC switch when the recorder/reproducer is in Record mode.

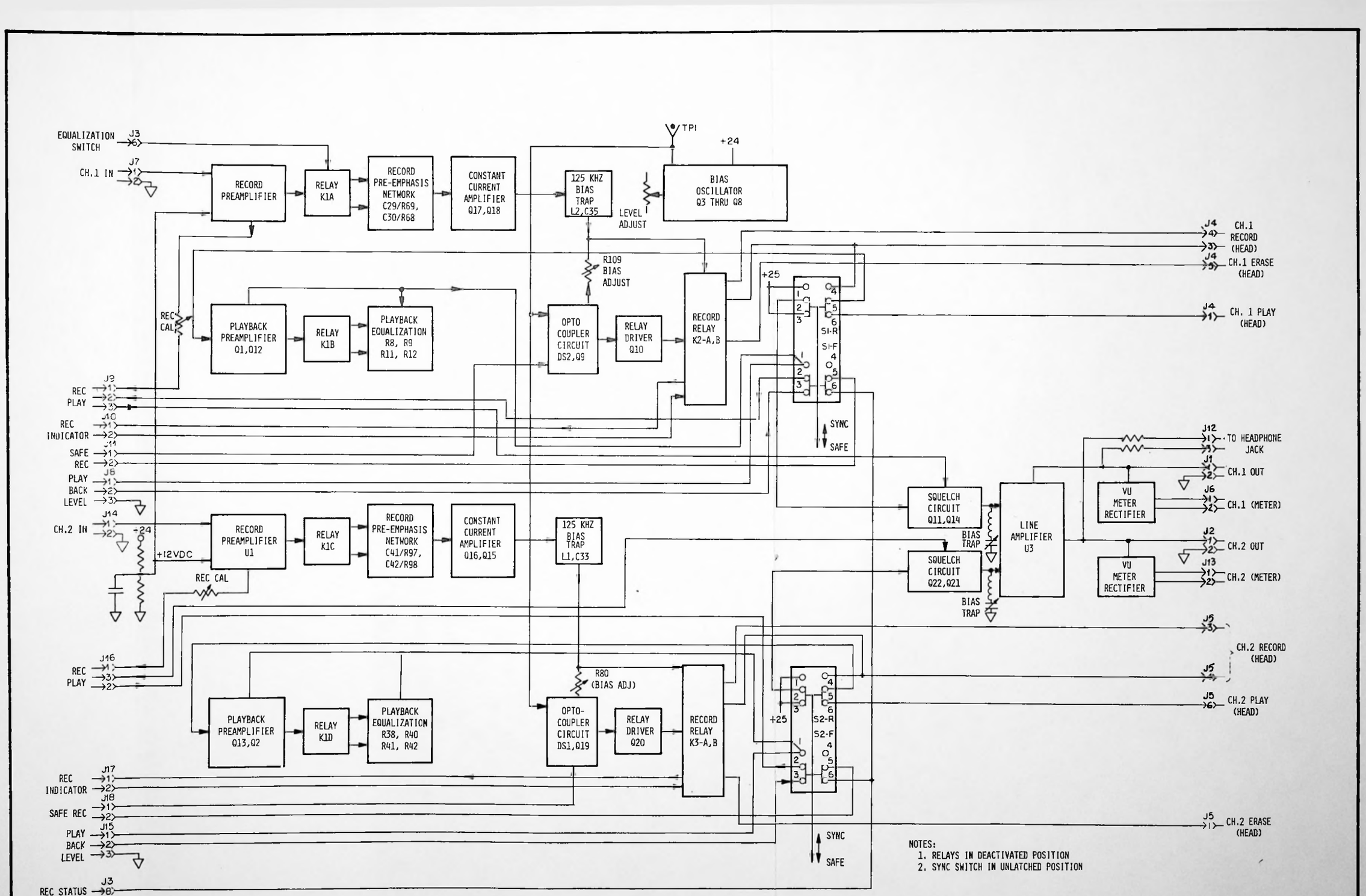


Figure 6-1. Record/Playback (Stereo) Functional Block Diagram

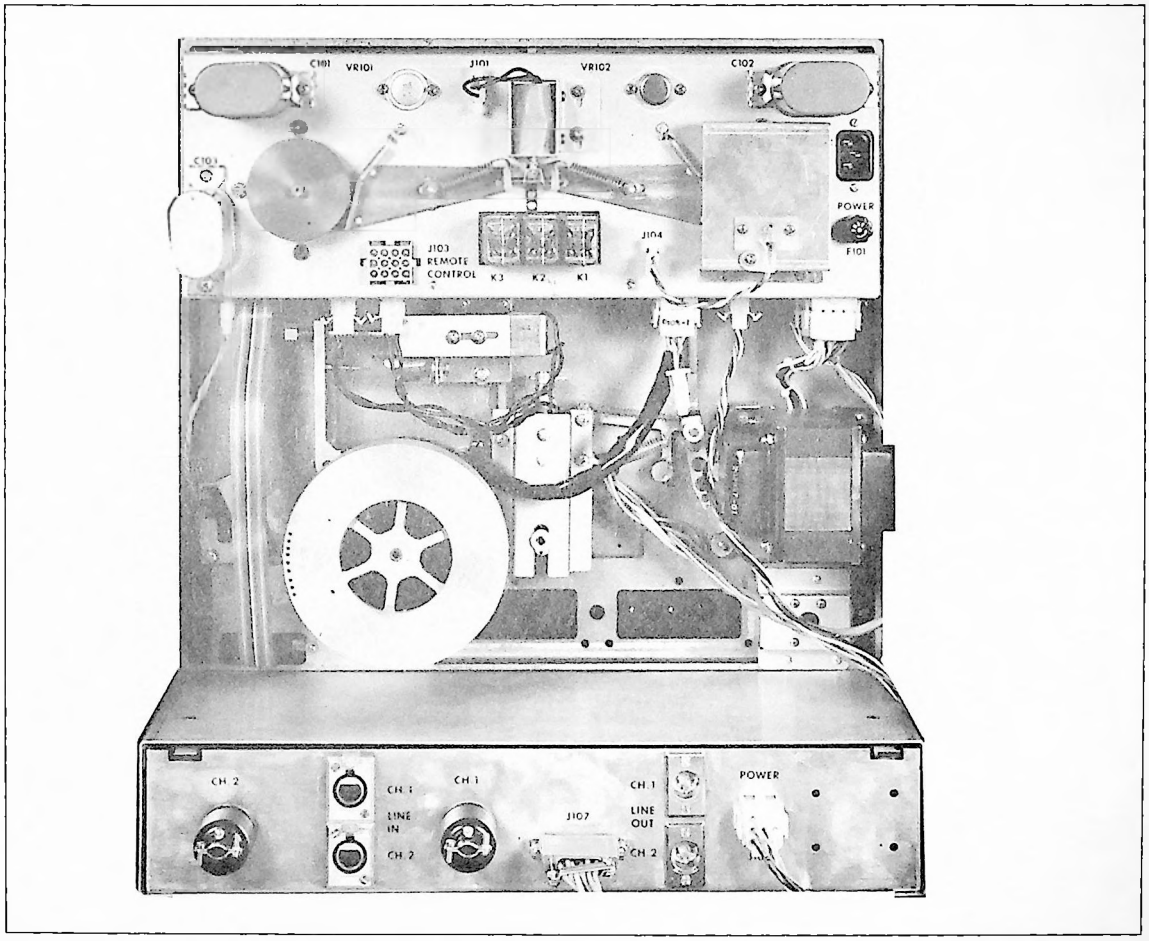


Figure 6-2. 250 Series Recorder/Reproducer (Rear View)

BIAS OSCILLATOR

6.6 The bias oscillator goes into self-oscillation when the POWER switch is turned on. The frequency of oscillation is determined by the Twin-T circuit consisting of R60, R62, R61 and C27, C16, C15. The circuit oscillates at 125 kHz and the output level is adjustable with R18. The proper output level, as measured at TP1 is 15 V peak-to-peak. Transformer T1 is a step-up transformer and its output is 60 V peak-to-peak, and is fed to opto-coupled resistor DS-2.

LINE AMPLIFIER

6.7 The line amplifier has a fixed gain of 34 dB, and its output is fed to vu meter rectifiers CR9 through CR12, front panel phone jack, and CH1 OUT connector J1. The output XLR connector is connected directly to J1 unless an output balance transformer has been provided. A bias trap is provided by L3-C55. (See Figure 6-2 for a rear view of components.)

6.8 RECORD/PLAYBACK (MONO), *250 Series Recorder/Reproducer*

6.9 Since some 250 Series Recorders/Reproducers are equipped with only a mono record/playback amplifier, i.e., one channel, no attempt will be made to describe its circuit function. The circuit function of a mono amplifier is identical to the circuit described in paragraph 6.3 through 6.7, except for the

component designations, and also the squelch circuit is omitted. See schematic diagram Figure 8-1 in the Schematics and Parts List section.

6.10 PLAYBACK AMPLIFIER (STEREO)

255 Series Reproducers

6.11 The playback amplifier for the 255 Series Reproducers is a fully self-contained module. Access to the playback amplifier board is accomplished by removing the front transport control panel, and using the finger hole provided on the board for adding accessories such as microphone preamplifiers, and output transformer. Since the playback amplifier board has two identical channels, the following description is confined to channel 1 only. The playback amplifier consists of: (1) preamplifier Q4, Q3; (2) level control R2; (3) line amplifier U1; and associated components. Figure 6-3 shows a simplified functional block diagram of the playback amplifier.

6.12 When the Playback mode is selected via the front panel START switch, the audio signal from the playback head is fed to the base of Q4 where the signal is amplified by Q4 and Q3. The output signal is fed via level control R2 to the line amplifier. The output signal level can be adjusted with R2, and is accessible from the front control panel. Playback equalization is preset at the factory via trim pot R5. See Figure 6-4 for location of trim pots and level controls. (See schematic diagram Figure 8-3.)

6.13 PLAYBACK AMPLIFIER (MONO)

255 Series Reproducers

6.14 Since some 255 Series Reproducers are equipped with only a mono playback amplifier, i.e., one channel, no attempt will be made to describe its circuit function. The circuit function of a mono playback amplifier is identical to the circuit described in paragraph 6.12, except for the component designations. See schematic diagram Figure 8-4 in the Schematics and Parts List section.

6.15 POWER SUPPLY AND CONTROL PWA

6.16 The Power Supply and Control PWA contains the relays that apply the appropriate voltages to the supply and takeup motors when a transport function mode is selected. This PWA is also responsible for activating and deactivating the solenoids for the pinch roller, tape lifter, and brakes. The Power Supply and Control PWA consists of: (1) function mode selection relays K1, K2, K3; (2) motion sensing circuit Q6; (3) motion sense inhibit circuit Q5; (4) ATL defeat/ATL enable circuit Q2, Q1; (5) bridge rectifier CR8/voltage regulator circuit C3, R3, C4, R2; (6) hot shot circuit Q4, C12, CR13, CR14; (7) ready threaded status circuit Q7; and associated components. Figure 6-5 shows a simplified functional block diagram of the Power Supply and Control PWA. (See schematic diagram Figure 8-7.)

FUNCTION MODE SELECTION RELAYS CIRCUIT

6.17 The purpose of the Function Mode Selection Relays circuit is to apply full wind and rewind voltage to the supply or takeup motor, depending upon which function mode is selected. For example, when the WIND switch is pressed, full 120 Vac is supplied to the takeup motor and a hold-back voltage of 35 Vac is applied to the supply motor. Conversely, when the REWIND switch is pressed, full 120 Vac is applied to the supply motor and 35 Vac is applied to the takeup motor. This is accomplished as follows:

6.18 When the WIND switch is pressed, a "WIND" command signal from the Control Logic PWA (J1 pin2) is fed to the Power Supply and Control PWA (J6 pin 2), which energizes relay K2. When relay K2 closes 35 Vac is applied to the supply motor via K2-7 N/O contact, and 120 Vac is applied to the takeup motor via K2-6 N/O contact. The Rewind mode is initiated in a similar manner as described above, except relay K3 is energized and 120 Vac is applied to the supply motor instead of to the takeup motor.

6.19 When the PLAY switch is pressed, a "PLAY" command signal, also from the Control Logic PWA

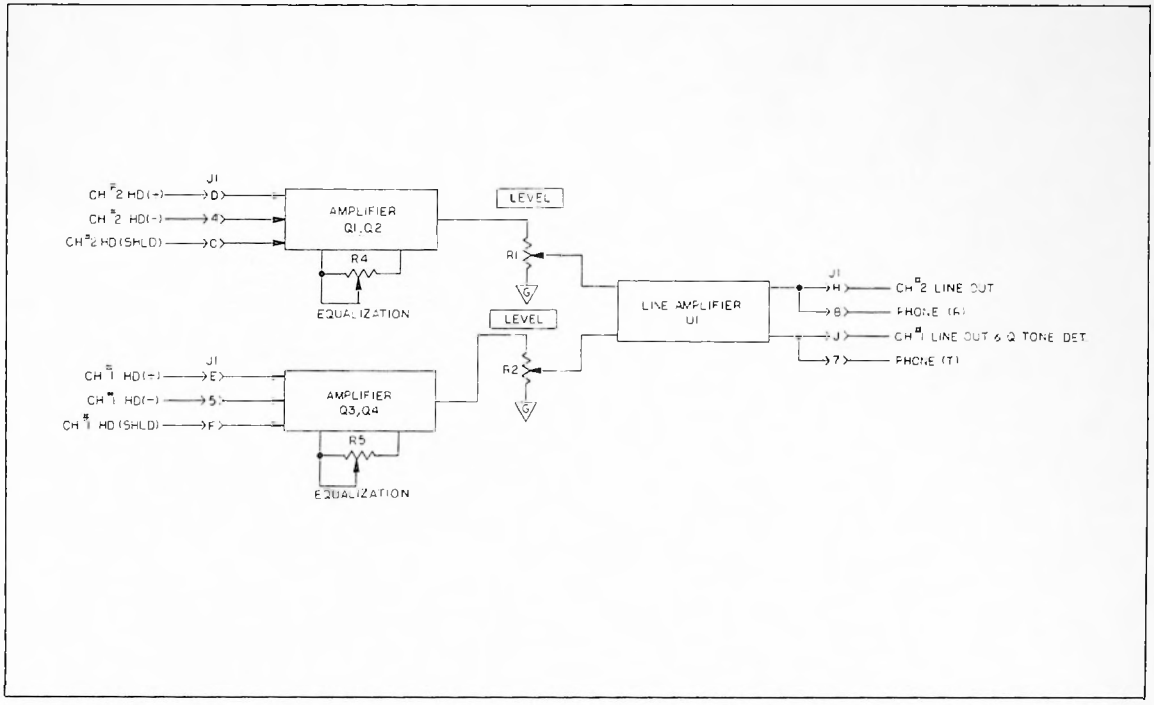


Figure 6-3. Playback Amplifier (Stereo) Functional Block Diagram

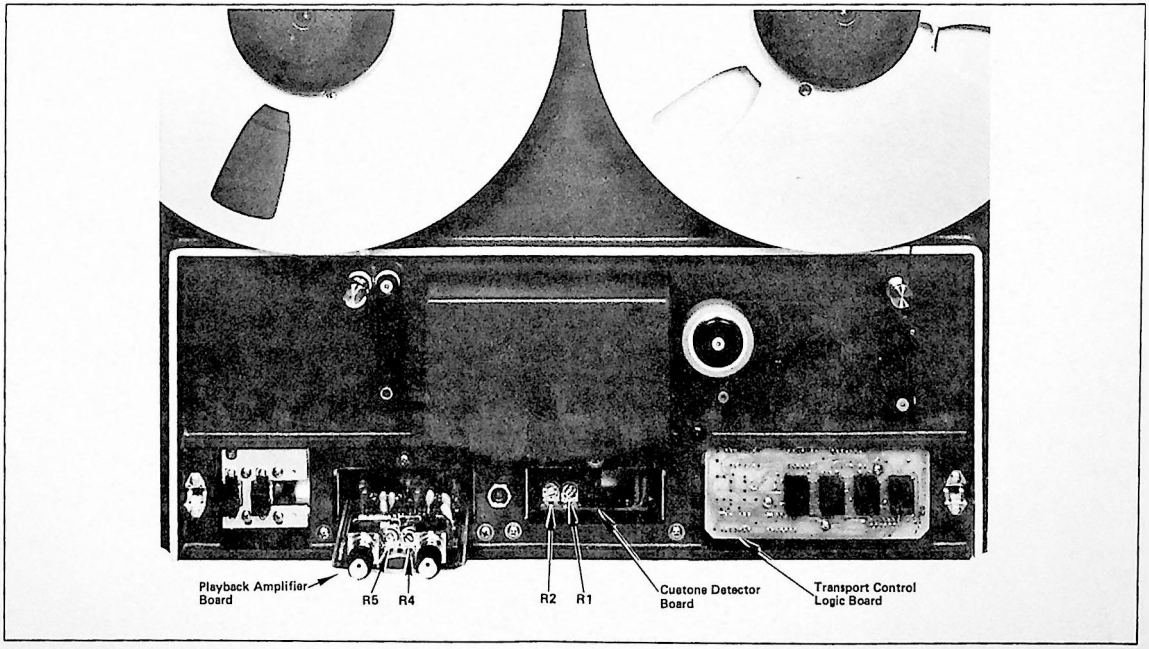


Figure 6-4. 255 Series Reproducer

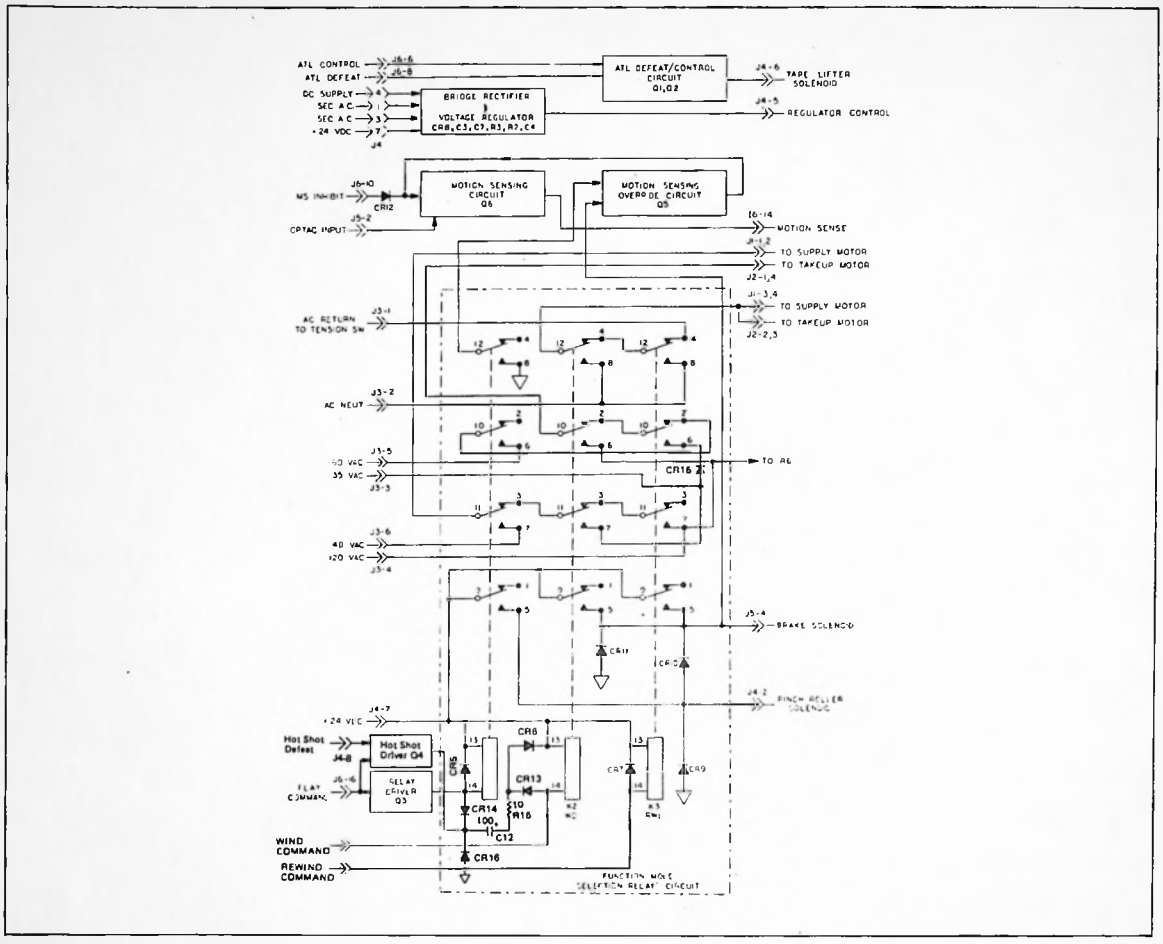


Figure 6-5. Power Supply and Control Functional Block Diagram

(J1 pin 16), is fed to the Power Supply and Control PWA (J6 pin 16) which turns on driver Q3 and energizes relay K1. When K1 is energized 60 Vac is applied to the takeup motor via K1-6 N/O contact and 48 Vac is applied to the supply motor via K1-7 N/O contact. Also the "MOTION SENSE" line is inhibited by the incoming "MS INHIBIT" signal from the Control Logic PWA. (The MS INHIBIT signal is the "motion sense" signal that is inverted in the Control Logic circuitry.) Inhibiting the "motion sense" line during Play mode assures that the tape lifter solenoid is not activated while the transport is playing back. The brakes are released when +24 Vdc is applied to the solenoid via CR10 to K2-5 N/O contact.

MOTION SENSING OVERRIDE CIRCUIT

6.20 The purpose of the Motion Sensing Override circuit is to sense motion in a Stopping mode and to energize the tape lifter solenoid, which lifts the tape away from the heads. However, there are times when it is desirable to inhibit motion sense, especially when searching for a particular audio signal(s) using the Wind or Rewind mode to locate rapidly the desired signal. (Refer to paragraph 6-24 for a detailed description of this function.)

6.21 When the Wind or Rewind switch is pressed and after the respective relay is energized, +24 Vdc

is applied to the base of Q5 in the Motion Sensing Override circuit, turning Q5 on. When Q5 is turned on, Q6 in the Motion Sensing circuit is turned off and its output "MOTION SENSE" is fed to inverters U5 in the Control Logic PWA. The output from the inverters "ATL CONTROL" is returned to the Power Supply and Control PWA and turns on Q1 in the ATL circuit, whose output energizes the tape lifter solenoid. Hence, when Wind or Rewind mode is selected, the tape lifter solenoid is immediately energized, lifting the tape away from the heads instead of waiting to sense motion before energizing the solenoid.

6.22 However, if the transport is in Wind or Rewind mode and the STOP or PLAY switch is pressed, all relays are de-energized and the transport goes into a stopping mode. While the motors are slowing down, the motion sense circuit Q6 is turned off and starts sensing motion, which is what keeps the tape lifter solenoid energized until the transport comes to a complete stop or goes into Play mode, depending upon which function mode is selected.

MOTION SENSING CIRCUIT

6.23 The purpose of the Motion Sensing circuit is to inhibit motion when the transport is in Play mode. This assures that the tape lifter solenoid is not energized during Play mode. This is accomplished as follows: For example, assume the transport is in Stop mode, the Play switch is pressed, and relay K1 is energized. Since there is no motion sense, the low "motion sense" output signal is fed via J6 pin 14 to inverter U5 in the Control Logic PWA. The inverted signal (logic "1") from U5 pin 10 is returned to the Power Supply and Control PWA as an "MS INHIBIT" signal. This high signal via CR12 holds the motion sensing line high, inhibiting motion sense.

ATL DEFEAT/ATL ENABLE CIRCUIT

6.24 The purpose of the ATL Defeat circuit Q2 is to defeat (de-energize) the tape lifter solenoid so that tape will be in contact with the playback head during Wind or Rewind mode. This particular mode is used whenever the operator wants to listen to a tape while searching for a particular message, and uses the Wind or Rewind mode to locate the desired message rapidly. This is accomplished as follows:

6.25 To defeat the tape lifter solenoid when using Wind or Rewind mode, the appropriate switch must be pressed and held down for more than 1/4 or 1/2 seconds. When this is done an "ATL DEFEAT" signal is fed from the Control Logic PWA (J1 pin 8) to the Power Supply and Control PWA (J6 pin 8), which turns on Q2 whose output turns off Q1 (ATL Enable). When Q1 turns off it de-energizes the solenoid by removing ground from the solenoid which permits the lifter to retract and allow the tape to come in contact with the playback head.

BRIDGE RECTIFIER/VOLTAGE REGULATOR CIRCUIT

6.26 The bridge rectifier circuit consists of CR8, and load resistor R4 provides the dc supply to the +24 Vdc voltage regulator VR102. Input power to the rectifier is from the ac secondary of the power transformer via J4 pin 4. The +24 Vdc regulator VR102 is mounted to a heat sink on the electronics chassis, and its external components are mounted on the Power Supply and Control PWA. Figures 6-2 and 6-8 show the physical location of VR102. The external components consist of C3, R3, C4, R2 and C7. (See schematic diagram Figure 8-7.) The output of the regulator provides +24 Vdc regulated to the record/playback electronics, relays K1, K2, K3, all solenoids, and +5 Vdc voltage regulator VR101. A filter capacitor C105 on the input of VR102 is used for reducing ripple on the incoming power. See interconnect diagrams Figure 2-4 and 2-5. The +5 Vdc regulator VR101 provides +5 Vdc regulated to the motion sensor circuit via J5 pin 6, remote control via J7 pin 3, optack lamp driver via J5 pin 3, and to the control logic circuit via J6 pin 15. Regulator VR101 is also mounted on the electronics chassis. Figures 6-2 and 6-8 also show the physical location of VR101. A bypass capacitor C104 is used between the output and ground; see interconnect diagrams Figures 2-4 and 2-5. The interconnect diagram for the electronics chassis is shown on Figure 2-6.

HOT SHOT CIRCUIT

6.27 The function of the "hot shot" circuit, upon initial start-up, is to put the takeup motor in Fast

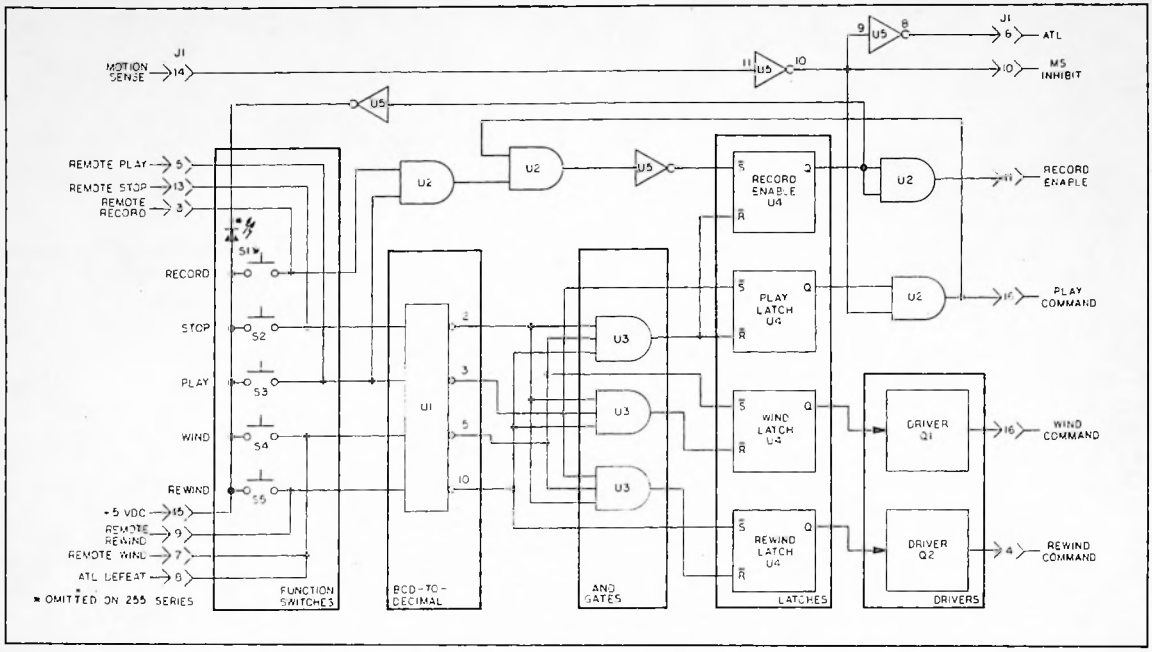


Figure 6-6. Control Logic Functional Block Diagram

Forward mode for about .25 seconds to take up tape slack that normally would be spilled out by pinch roller. This fast forward action is required only when large diameter reels are used. Hence, the hot shot feature is active only when the HI tension position is selected - which is normally selected when large diameter reels are used. When the transport is placed in Play mode, transistor Q4 turns on and capacitor C12 is charged via K2 Wind relay. C12 becomes fully charged in about .25 seconds; then relay K2 drops out and the transport continues in Play mode.

6.28 The incoming "hot shot defeat" signal is fed from the HI/LO tension switch on the transport control panel via J4 pin 8. When the HI/LO tension switch is placed in the LO position a ground is placed on base of Q4, which turns off Q4 and inhibits C12 from being charged. Hence, the *hot shot* feature is also inhibited. Diode CR13 functions as a steering diode so that when the Fast Wind mode is selected, CR12 is inhibited from being charged. Therefore, the only time C12 can be charged is when Q4 is turned on. CR14, another steering diode, is used to prevent C12 from being charged when relay driver Q3 is turned on. CR16 and R16 provide a discharge path for C12 in the event the +24 Vdc line is shorted out.

6.29 The "Ready Threaded Status" signal on J7 pin 9 (for remote control use) signals studio personnel via a visual indicator that this particular transport is fully threaded and is in the standby condition waiting for a command to go into operation. As soon as the transport goes into Play or any other function mode, the "ready threaded status" signal goes low (logic "0") alerting the studio personnel that the transport is not ready for remote operation. When a "tape load status" signal is received via J5 pin 5, transistor Q7 is turned on via R20. Q7 is turned off when the transport goes into Play mode, which activates the brake solenoid, and the incoming "brake solenoid" signal on J5 pin 4 goes high (+24 Vdc).

6.30 CONTROL LOGIC PWA

6.31 The function of the Control Logic circuitry is to decode pushbutton switch commands from either a local or remote control assembly from BCD-to-decimal format, and to provide appropriate command signals to the Power Supply and Control PWA to initiate the function selected. The Control Logic PWA consists of: (1) BCD-to-decimal U1; (2) R-S latches U4; (3) AND gates U2,U3; (4) inverters U5; (5) drivers Q1,Q2; and associated components. Figure 6-6 shows a simplified functional block diagram of the Control Logic PWA.

STOP MODE

6.32 When the STOP switch is pressed, from a local or remote control panel, a logic "1" is fed to U1 pin 15. Its decoded low output on pin 2 (U1 outputs are normally held high - logic "1") is fed to AND gate U3. However, since the output from U1 is fed to all three AND gates, the low output from the AND gates resets all three latches U4 with its Q outputs low. When all three latches are reset, all three relays (K1, K2, K3) on the Power Supply and Control PWA are de-energized, placing the transport in a Stopping mode. Each function switch has a line connection on the input side of U1 which is from a corresponding switch on a Remote Control Panel (option).

RECORD MODE

6.33 To initiate a Record mode, the RECORD and PLAY switches must be pressed simultaneously. When this happens, the low output from U1 (pin 3) sets the Q output on U4 (pin 13) high, which in turn conditions one input of AND gate U2 (pin 2). This gate is enabled (high output) if there is no motion sense; e.g., transport is in Stop mode. However, if the transport is in Wind or Rewind mode, motion must come to a stop before gate U2 is enabled. When this gate is finally enabled, its output is fed to two different points: (1) it provides a Play command to the Power Supply and Control PWA to energize the Play relay K1; and (2) it enables AND gate U2 (pins 10, 9, 8) whose output is inverted, and sets the Q output of latch U4 (pin 4) high. The high output is gated via U2 (pins 1, 2, 3) as a "record enable" signal to the record/playback electronics.

PLAY MODE

6.34 When the PLAY switch is pressed, from a local or remote control panel, the low decoded output from U1 (pin 3) is fed to two AND gates U3.

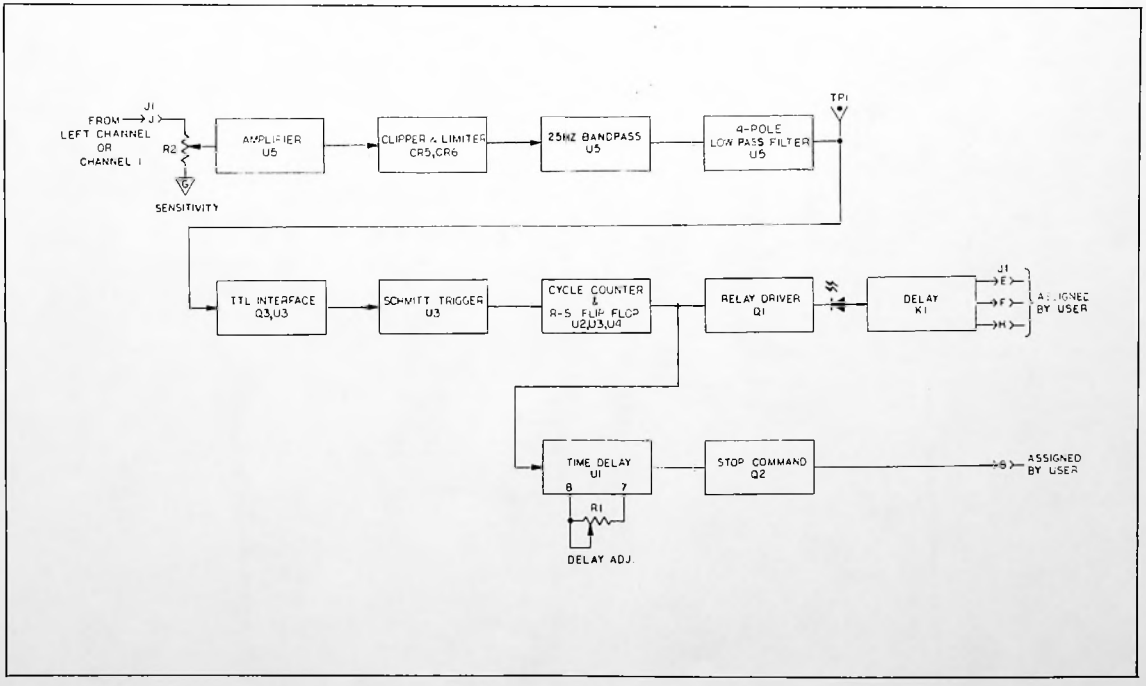


Figure 6-7. Cuetone Detector Functional Block Diagram

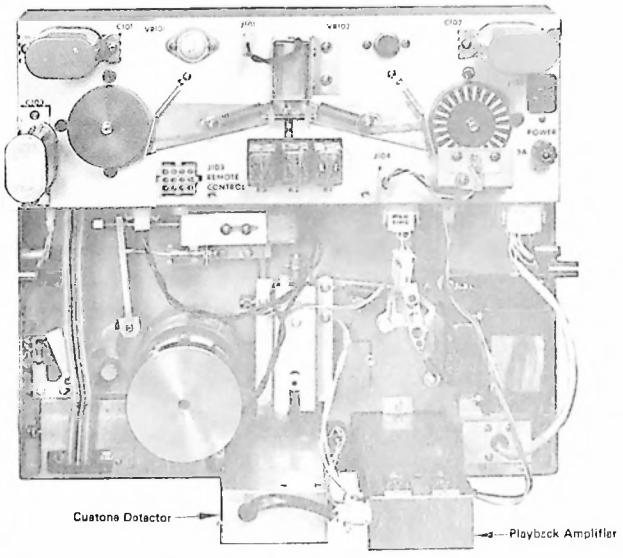


Figure 6-8. 255 Series Reproducer (Rear View)

The low output from gates U3 (pins 6 and 8) assures that the Wind and Rewind latches remain in a reset state (unlatched). The output from U1 (pin 3) directly sets the Q output of latch U4 (pin 13) high, which in turn conditions one input of AND gate U2 (pin 2). This gate is enabled (high output) if there is no motion sense; e.g., transport is in Stop mode. However, if the transport is in Wind or Rewind mode, motion sense must come to a stop before gate U2 (pin 11) is enabled. When this gate is finally enabled its output is fed to two different points: (1) provides a Play command to the Power Supply and Control PWA to energize the Play relay K1; and (2) conditions one input of AND gate U2 (pin 10), and this gate will be enabled whenever a Record mode is initiated.

WIND MODE

6.35 When the WIND switch is pressed, from a local or remote control panel, the low decoded output from U1 (pin 5) is also fed to two AND gates U3. The low output from gates U3 (pins 13 and 9) assures that the Wind and Rewind latches remain in a reset state (unlatched), while the output from U1 (pin 5) directly sets the Q output of Wind latch U5 (pin 7) high. This high output turns on driver Q1 whose output provides a "wind" command to the Power Supply and Control PWA to energize the Wind relay K2.

REWIND MODE

6.36 The Rewind mode is initiated in a similar manner as the Wind mode, as described in the preceeding paragraph, except rewind latch is set, all other latches are reset, and driver Q2 is turned on, which provides the "rewind" command to the Power Supply and Control PWA to energize the Rewind relay K3.

6.37 CUETONE DETECTOR (Accessory)

6.38 The Cuetone Detector, when installed on the 255 Series Reproducers, detects prerecorded 25 Hz tones as end-of-tape warning. The outputs from the detector can be used to sequentially start up additional reproducers and a Stop command to the reproducer that is running out of tape. The detector consists of: (1) amplifier U5, (2) clipper/limiter CR5 – CR6, (3) 25 Hz bandpass filter, (4) 4-pole lowpass filter, (5) TTL interface

Q3, (6) Schmitt trigger U3, (7) cycle counter and R-S flip-flop U2, U4, U3, (8) relay driver Q1, (9) relay K1, (10) delay circuit U1, (11) transistor Q2, and associated components. Figure 6-7 shows a simplified functional block diagram of the Cuetone Detector.

6.39 The input signal from channel 1 is amplified by U5 and the amplified signal is clipped by CR5 - CR6 to eliminate large audio peaks. Hence, the amplified audio signal is limited to about 1.5 volts p-p. The 1.5 volt p-p signal is fed to a 25 Hz bandpass filter (U5) which rolls off the high and low end of the bandpass, and the signal is then fed to a 4-pole lowpass filter (U5). The 25 Hz tone output from the lowpass filter can be monitored at TP1 and also turns on Q3, a TTL interface device. The output from Q3 is squared by U3, a Schmitt trigger, and its output signal is fed to cycle counter (U2, U4). When the counter counts eight cycles the high Q output (U4 pin 8) sets R-S flip-flop (U3). The output from the flip-flop turns on relay driver Q1 which causes the LED to light, energizes relay K1, and triggers the delay circuit (U1). When the 25 Hz tone is no longer available the Q output of U4 goes low and resets the R-S flip-flop, which turns off Q1 causing relay K1 to de-energize, its LED light goes out, delay circuit U1 is turned off, and transistor Q2 is also turned off.

6.40 Relay K1 can be used by the user to start up additional reproducer units, and the output from Q2 is used as a Stop command to turn off the reproducer that is running out of tape. However, the Stop command can be delayed, after the 25 Hz tone is detected, anywhere from 1/2 second to six seconds by adjusting trim pot R1. The sensitivity trim pot R2 is used to adjust at what point the relay is to energize. (Refer to paragraph 7.25, step (f), for the adjustment procedure on the cuetone detector.) See Figure 6-8.

6.41 MICROPHONE PREAMPLIFIER (Accessory)

6.42 The microphone preamplifier plugs into the selected channel octal connector located on the rear of the record/playback electronics chassis. No external wiring is required. The gain of the preamplifier can be adjusted via a trim pot accessible from a small hole on its chassis. The gain can be increased to the desired level for low-output microphones, amd decreased for high-output microphones.

SECTION 7
MAINTENANCE

7.0 GENERAL

7.1 This section of the manual is divided into two categories: (1) mechanical adjustment procedures, and (2) electronic alignment procedures for the 250/255 Series Recorders/Reproducers.

7.2 MECHANICAL ADJUSTMENT PROCEDURES

7.3 The mechanical adjustment procedures include adjustments for: (1) tape break arm, (2) pinch roller, (3) air pot, (4) dancer arm, (5) head assemblies, (6) automatic tape lifter (ATL), and (7) brakes.

TAPE BREAK ARM ADJUSTMENT PROCEDURE
(Figure 7-1)

7.4 To determine whether the tape break arm requires adjustment, proceed as follows:

a. Load and thread a reel of tape on the transport and pull tape taut.

b. Observe that the tape is in the center between pinch roller and capstan shaft. If it is proceed to paragraph 7.5. If not, continue with step (c) below.

c. Allow some slack on the tape until the tape break arm (looking at the front of the transport) is in the "*tape break*" position, i.e., 80°' to 90° to edge of deck. This is a preliminary check.

d. Take up tape slack and wind tape taut. From the rear of the transport loosen two 6-32 screws (1) on the switch actuating arm (2). (See Figure 7-1.)

e. Manually set arm to "*tape break*" position as described in step (c), then return actuating arm (2) to upright position (tape must be taut) until pad (3) on actuating arm touches boss. Recheck position of tape between pinch roller and capstan shaft. Tighten setscrews (1).

f. If necessary, repeat steps (c) thru (e) until correct tape position is attained.

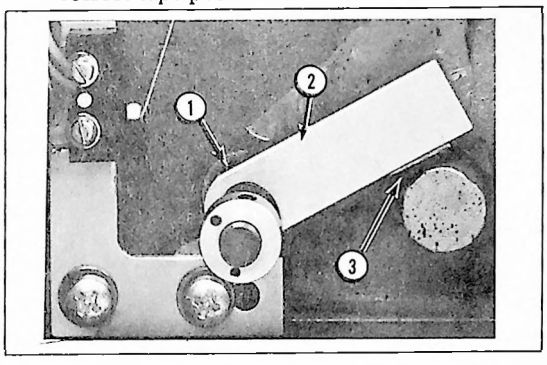


Figure 7-1

PINCH ROLLER ADJUSTMENT PROCEDURE
(Figures 7-2 and 7-3)

7.5 The pinch roller adjustment is made by means of adjusting nut (1) at the end of the threaded connecting rod (3), which provides the link between the solenoid (6) and the pinch roller actuating arm (7). Tightening the adjusting nut (1) increases the roller pressure. However, excessive pressure places an unnecessary and undesirable load on the upper (sleeve) bearing of the capstan motor, and a point is reached where further turning of the nut will prevent the solenoid plunger from "*bottoming*". At this point, roller pressure drops rapidly becoming inadequate to drive the tape without slippage. It is then necessary to back off the nut.

7.6 The pinch roller bearing has been selected for minimum radial runout. The radii of the inner and outer raceways of this bearing are larger than the ball; therefore, some rocking "*freedom*" can be felt. When the pinch roller is actuated, this freedom allows the face of the pinch roller to align with the capstan - minimizing tape distortion from any "*scrubbing*" action between these two components. Perform the pinch roller adjustment in accordance with the following steps.

a. Load a reel of tape onto the transport. Thread the tape so that the tape is on the bottom side (operator side) of the capstan when the equipment is in Play mode.

b. Loosen the set screws on both adjusting nuts (1 & 2). (See Figure 7-2.) NOTE: Adjusting nut 1 is the nut at the end of the threaded rod (3) and adjusting nut (2) is directly under and against the pinch roller actuating rod (7).

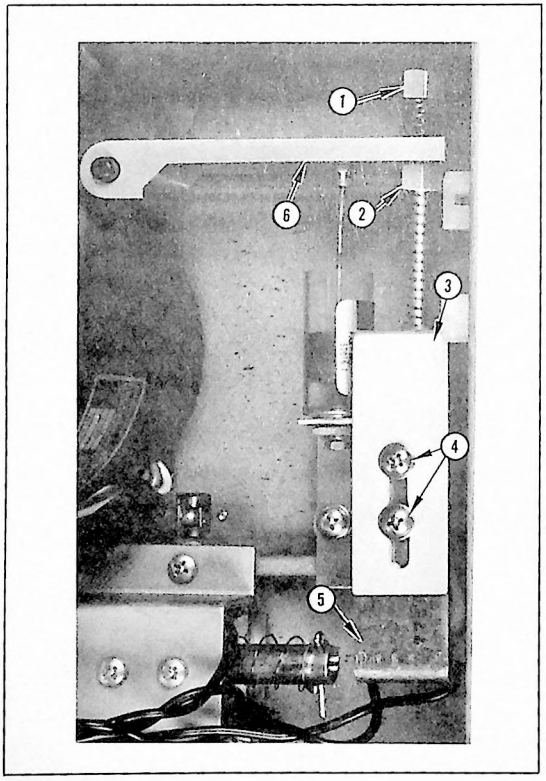


Figure 7-2

c. Place the transport in Play mode. Use a 0 to 15 lb. (6.81 kg) tension scale, and push the scale against the pinch roller arm in line with the capstan shaft. Align the scale pressure so that the force from the scale tends to remove pressure exerted from the pinch roller against the capstan shaft.

d. Continue pushing the scale until the pinch roller stops rotating, which indicates the has just broken contact with the capstan. Lightly touch the face of the pinch roller to determine the true stopping point.

e. For 15,7-1/2 ips capstan the tension reading should be 4.75 to 5 lbs (2.13 to 2.25 kg). For 7-1/2, 3-3/4 ips capstan the tension reading should be 4 to 4.25 lbs (1.8 to 1.91 kg). If not, adjust nut (2) so that a clearance of 1/32 inches (0.79 mm) between the adjusting nut (2) and the arm (7) is achieved with the pinch roller engaged with the capstan.

f. Carefully tighten the Allen setscrew on the adjusting nut.

g. Check the gap between the pinch roller and capstan. The gap should be about 0.20 to 0.25 inches (5.0 to 6.3 mm). (See Figure 7-3.)

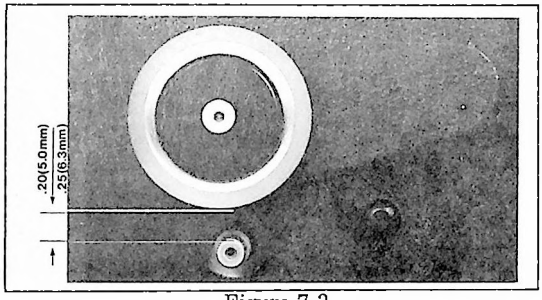


Figure 7-3

h. If necessary, readjust the gap clearance by moving the stop bracket (4) mounted to the face of the capstan solenoid. This is accomplished by loosening two screws (5) in slotted holes and moving the bracket as required. (See Figure 7-2.) Be sure that the connecting rod (3) does not bind in the slot on the bracket. Tighten screws.

i. If necessary repeat steps (b) through (h) until correct gap clearance is attained.

j. Place transport in Stop mode. Remove tape.

k. This completes the pinch roller adjustment procedure.

AIR POT ADJUSTMENT PROCEDURE
(Figure 7-4)

7.7 The pinch roller adjustment procedure (refer to paragraphs 7.5 through 7.6 must be performed

before adjusting the air pot. The air pot adjustment procedure is performed only when an air pot has to be replaced or re-adjusted. The purpose of this re-adjustment is to slow down (dampen) the forward motion of the pinch roller arm to the point where the pinch roller contacts the capstan without a loud noise. Perform the airpot adjustment in accordance with the following procedure.

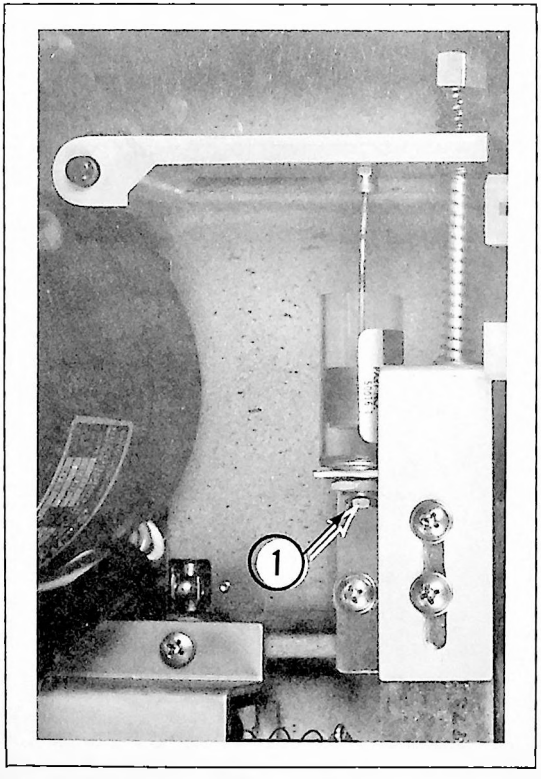


Figure 7-4

a. Disconnect the tape break switch cable connector J105 from its mating connector on the power supply and control assembly. This allows the machine to be placed in START mode without threading tape.

b. Turn on POWER switch.

NOTE

The airpot is sensitive only to small incremental turning of the adjust screw. Hence, turn the adjust screw a fraction at a time.

c. Release air pot pressure by slowly turning the adjust screw (1) in a counterclockwise (CCW) direction.

d. Slowly turn the adjust screw (1) in small increments in a clockwise (CW) direction, using either a ¼-inch (6.35 mm) open end wrench or a screwdriver, while pressing the START switch.

e. Listen to the noise when the pinch roller contacts the capstan.

f. Press STOP switch.

g. If a loud noise was heard, repeat steps (d) through (f) until the loud noise is eliminated.

h. Reconnect the tape break switch connector J105.

i. Thread tape.

NOTE

If the pinch roller engages too slowly, tape will drop away from the head(s). Full 7-inch (177.8 mm) supply reels present worst condition.

j. Press START switch. Observe if tape drops away from head(s). If it does, continue with step (k). If it does not, press STOP switch and this completes the air pot adjustment procedure.

k. Press STOP switch and slowly turn adjust screw in a counterclockwise (CCW) direction. Press START switch and observe if tape continues to drop away from the head(s). If it does, repeat this step until tape remains in contact with head(s).

l. This completes the air pot adjustment procedure.

DANCER ARM ADJUSTMENT PROCEDURE

(Figure 7-5)

7.8 Adjust the dancer arm in accordance with the following procedure.

a. Install an empty 7-inch (1.778 mm) reel with small hub (EIA Standard) onto supply reel motor, and a reel of tape on the takeup reel motor. Thread a tape through tape threading path and wind 2 to 3 turns of tape on the supply reel.

b. Manually turn the takeup reel to remove tape slack. Observe that tape is moved away from the inner diameter on the input guide, but is still guided on the edge of the input guide when the dancer arm is pulled to its *stop* position. If the tape setting is correct, proceed to step (d) to check spring tension; if setting is not correct, continue with step (c).

c. Correct setting by loosening No. 8 setscrew (1) on tension arm. (See Figure 7-5.) Adjust dancer arm until correct setting as described in step (b) is attained. Tighten setscrew and continue with step (d).

d. Remove tape from tape threading path.

e. Remove damper (2) from the dancer arm post.

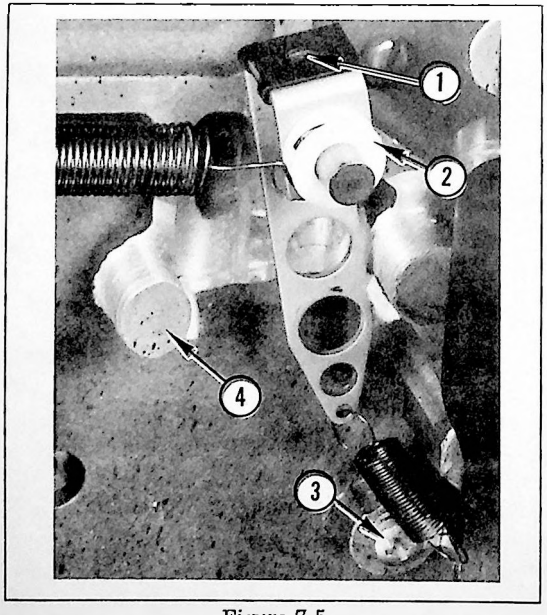


Figure 7-5

f. Using a 0 - 8 oz. (0 - 224 g) tension scale, push scale against dancer arm toward heads at the front of the transport.

g. Tension of the dancer arm should be 1/2 oz. (14 g) when initially starting to pull away from rest position, and 2-3/4 oz. (77 g) just before dancer arm reaches its stop post (4). If tension measurement is not correct, continue with step (h).

h. At the rear of the transport, loosen the screw that secures the dancer spring (3) mounting bracket. Slowly turn the spring mounting bracket either clockwise (CW) or counterclockwise (CCW) to attain correct tension. Tighten screw.

i. If necessary, repeat steps (f) through (h) until correct tension is attained.

j. Replace damper (2).

k. This completes the dancer arm adjustment procedure.

TAPE HEAD ASSEMBLY ADJUSTMENT PROCEDURE *(Figure 7-6)*

7.9 Each individual head assembly is completely aligned at the factory. No changes are necessary except for the azimuth alignment and head rotation, which should be checked periodically to assure continued peak performance. Replacement head assemblies are supplied completely assembled and prealigned. After installation, only the azimuth and head rotation is required. Proceed as follows:

a. On all 250/255 Series Recorders/Reproducers the left-hand screw (6), as viewed from the front, has a spring (5) which floats the left side of the head assembly. Only the right-hand screw (4) is used to adjust the azinuth.

ZENITH ADJUSTMENT

b. Zenith is adjusted by means of two Allen screws (2). Turn each setscrew one-half turn, then release the azimuth screws (4) an equal amount to prevent head clamp distortion and

damage. Repeat this procedure one-half turn at a time until proper head height is attained. Visually check head-to-tape alignment to determine proper head height.

HEAD ROTATION ADJUSTMENT, PLAY

c. Load and thread a standard alignment tape or test tape. Place the transport in Play mode.

d. Tangency of each head gap-to-tape is adjusted by loosening both screws (3) and very carefully rotate the head mounting (1). Gently tighten the front screw first and then gently tighten the rear screw so as not to move the head assembly. Adjust for maximum signal. (See Figure 7-6.)

e. Using the azimuth adjustment screw (4), adjust the playback head for maximum signal on the appropriate vu meter, (for 255 Series only connect a ACVM to channel 1 LINE OUT), while reproducing a high frequency signal. Place the transport in Stop mode and remove the tape. Remove ACVM.

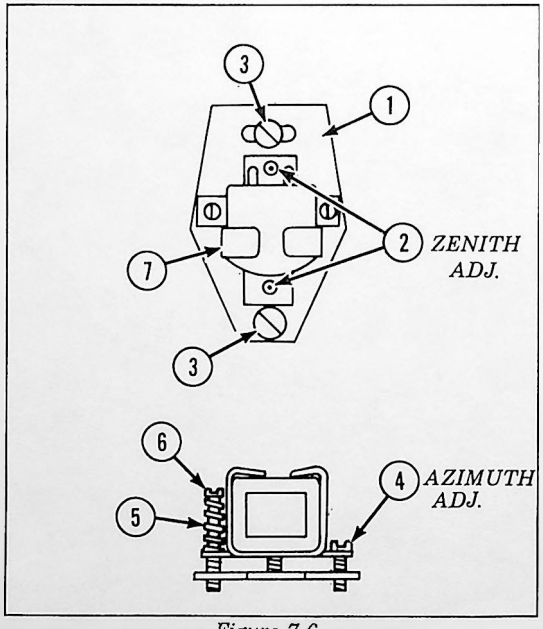


Figure 7-6

f. After the playback head has been adjusted, load and thread a reel of blank tape. Connect an audio oscillator to CHANNEL 1 LINE IN as shown in Figure 7-9. Place the transport in Record mode.

g. Adjust the record head in rotation and azimuth while recording a high frequency signal, and observe the output on the playback head via the vu meter. Remove audio oscillator.

h. Adjust the erase head in rotation and azimuth for maximum efficiency in erasing previously recorded audio signals.

i. The individual head assembly can be removed from its respective mounting position by removing both 4-40 screws (3), and disconnecting the head cable. The only realignment required upon re-installation when neither the azimuth nor zenith adjustment have been changed is the head rotation (step d).

j. This completes the head assembly adjustment procedure.

AUTOMATIC TAPE LIFTER ADJUSTMENT PROCEDURE *(Figure 7-7)*

7.10 Adjust the automatic tape lifter (ATL) in accordance with the following procedure.

a. Turn off power switch.

b. From the rear of the transport, push the plunger (1) down until it *bottoms.*

c. While holding the plunger all the way down check that the tape clears the play head by a maximum of .062" (1.6 mm).

d. If the tape does not clear the play head, again push and hold the plunger down until it bottoms. Then loosen the Allen setscrew which is accessible through hole in bottom tape lifter rod (4). Slowly move the plunger (3) up or down until the tape is lifted off the play head. Tighten setscrew. (See Figure 7-7.)

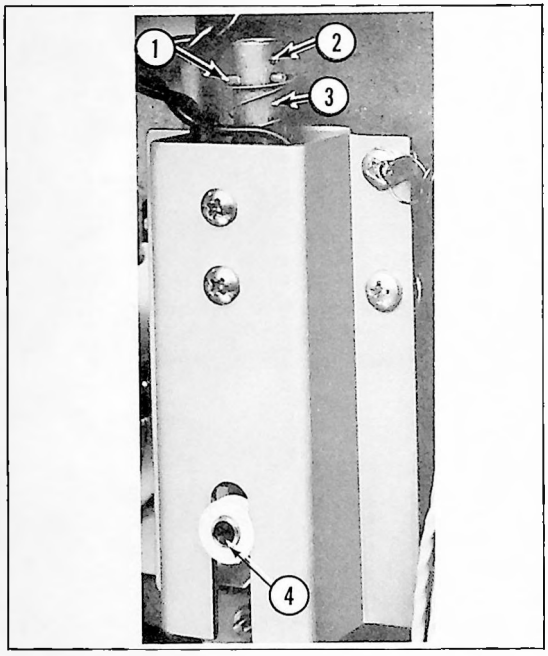


Figure 7-7

e. When mounting the transport in a vertical position, insert cotter pin in bottom hole (1) and top hole (2) for horizontal mounting.

f. This completes the ATL adjustment procedure.

BRAKE ADJUSTMENT PROCEDURE
(Figure 7-8)

7.11 Checkout and adjust the brake shoes in accordance with the following procedure.

a. Turn on power switch.

b. Thread a reel of tape onto the transport. Place the tape so that it rides on the bottom side (operator side) of the capstan when the transport is in Play mode.

c. Press START switch.

d. Using a flat gauge measure the gap between the drum and brake shoe (both brake shoes). Clearance should be between .020 and .030 (.508 and .762 mm). If clearance is correct for both brake shoes, proceed to paragraph 7.12. If not, continue with step (e).

e. Loosen two No. 6 screws (1) that secure solenoid mounting bracket (2) to chassis. (See Figure 7-8.) Move the solenoid assembly (3) up or down until desired clearance is attained. Tighten both screws.

f. Press STOP switch.

g. Turn off power switch. Verify that gap between top of cross pin (on end of plunger) and "*caterpillar insulator strip*" on each end of brake arm is 1/16 inches (1.6 mm) minimum. If not, carefully bend leaf spring (4) until correct clearance is attained.

h. Remove tape from transport.

i. This completes the brakes adjustment procedure.

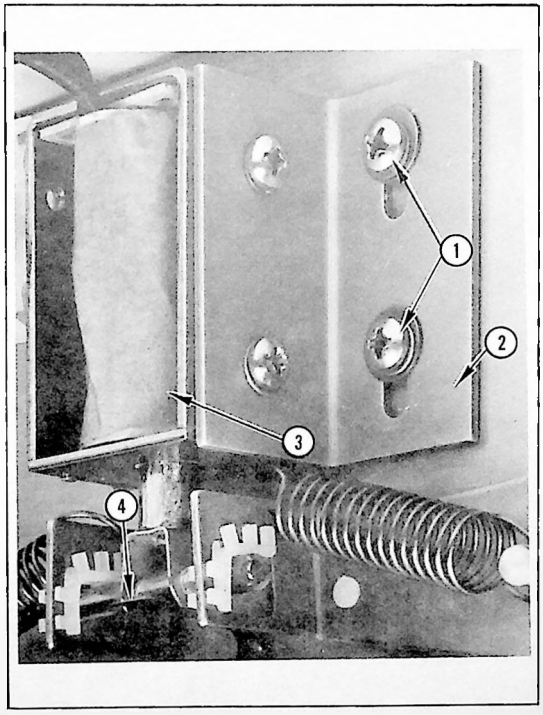


Figure 7-8

7.12 ALIGNMENT PROCEDURES

7.13 The following alignment procedures should be performed when the equipment is initially installed, whenever a record/playback board has been replaced, head assemblies have been replaced, or whenever the equipment fails to record or playback. The degaussing procedure described in Section 4, should be performed prior to starting any of the following alignment procedures.

7.14 TEST EQUIPMENT REQUIRED

Standard alignment or test tape	
Audio Oscillator	HP Model 204D or equivalent
AC Voltmeter	HP Model 400F or equivalent
Oscilloscope	Tektronix Model 502 or equivalent
400 Hz Filter	
Weighting Filter	ASA "A" Curve Standard S1.4 - 1961
Alignment Tool	Scully 162235 (Supplied w/amplifiers)
Speaker Amplifier Headset	

ALIGNMENT PROCEDURES FOR 250 SERIES RECORDERS/REPRODUCERS

INITIAL TEST SETUP PROCEDURE

7.15 Set up the test equipment and connect to CHANNEL 1 LINE IN as shown in Figure 7-9.

a. Thread a standard alignment tape on the transport.

b. Set front panel controls as follows:

1. SPEED HI/LO switch to HI position.
2. READY/SAFE switch to SAFE position.
3. INPUT/OUTPUT switch to OUTPUT position.

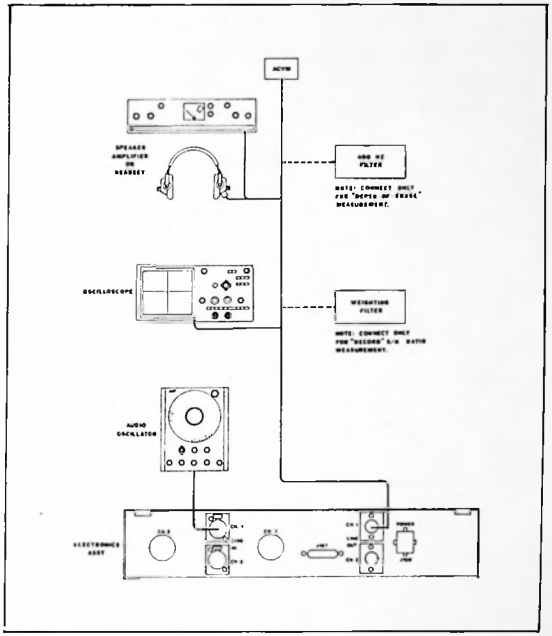


Figure 7-9

4. SYNC button to OUT (disengaged) position.
5. Set TENSION switch to correspond to size of tape reel being used.

c. Open the electronics drawer for access to calibration adjustments.

NOTE

It is extremely important that the following alignment procedures be performed in the order presented.

PLAYBACK ALIGNMENT PROCEDURE

7.16 Perform the playback alignment procedure as follows:

a. Press START switch. Observe that tape motion starts and monitors the output on the external ac voltmeter, vu meter, or speaker amplifier.

b. Adjust front panel CHANNEL 1 REPRO control for a reading of 0 vu (+4 dB)* at reference tone corrected to 250 nW/m on the vu meter at 15 ips or 7-½ ips or 200 nW/m at 3-¾ ips.

c. Adjust azimuth of playback head and check head rotation for proper gap contact.

d. After reading the instructions supplied with the alignment tape, adjust equalization for flattest response as follows:

1. Adjust R11 and R8 respectively for HI-LO speeds. See PWA on Figure 8-2 for location of trim pots. NOTE: Low frequency adjustments should be made in Record mode to compensate for "fringing" effects on multitrack equipment. Refer to paragraph 7.20 for low frequency adjustment procedure.

e. Press SYNC button in (latched).

f. At corrected (250 nW/m) reference tone from the standard alignment tape, observe that output is 0 vu or +4 dB* (-2 dB) on external meter.

g. Repeat steps (a) through (f) for CHANNEL 2 using R41 for high speed and R38 for low speed. Adjust front panel CHANNEL 2 REPRO control instead of CHANNEL 1 REPRO control.

h. This completes the playback alignment procedures.

RECORD ALIGNMENT PROCEDURE

7.17 Perform the record alignment procedure as follows:

a. Connect the oscilloscope to TP1 on the amplifier card.

b. Adjust bias level potentiometer R18 on the amplifier card for 15 volts p-p on the oscilloscope, as measured at TP1.

c. Load and thread 3M20b (or equivalent) tape on the transport.

d. Set READY/SAFE switch to READY position, and HI-LO SPEED switch to HI position.

e. Simultaneously press START and RECORD switches.

f. Visually align record head height to correspond to playback head height.

g. Set audio oscillator for an output signal of 15 kHz at -10 vu.

h. Adjust record head azimuth and check head rotation for proper gap contact.

i. Press STOP switch.

j. This completes the record head alignment procedure. Disconnect oscilloscipe.

RECORD BIAS SET ALIGNMENT PROCEDURE

7.18 Perform the record bias set alignment procedure as follows:

a. Set oscillator for an output signal of 10 kHz at 0 vu (-20 vu for 7½ - 3¾ in/sec machines).

b. Set INPUT/OUTPUT switches to OUTPUT position.

c. Simultaneously press START and RECORD buttons.

d. Adjust R109 BIAS until a peak reading is observed on the CHANNEL 1 vu meter.

e, Adjust R109 BIAS in a clockwise (CW) direction until the level reading on the vu meter drops exactly 2 dB. (See PWA on Figure 8-2 for location of trim pots.)

f. Repeat steps (a) through (e) for CHANNEL 2 using R80 bias set control.

g. Press STOP switch.

h. This completes the record bias set alignment procedure.

**0 dB = 0.775 vrms*

RECORD CALIBRATE ALIGNMENT PROCEDURE

7.19 Perform the record calibrate alignment procedure as follows:

a. Set REPRO controls for 0 vu (250 nW/m or 200 nW/m as appropriate).

b. Set INPUT/OUTPUT switch to OUTPUT position.

c. Set oscillator for an output signal of 1 kHz.

d. Simultaneously press START and RECORD switches.

e. Adjust front panel RECORD control until vu meter reads 0 vu.

f. Set INPUT/OUTPUT switch to INPUT position.

g. Adjust RECORD CAL potentiometers R100 and R111 on the amplifier card for a 1 vu reading. (See PWA on Figure 8-2 for location of trim pots.)

h. Set INPUT/OUTPUT switches to OUTPUT position. Input and output level readings on the vu meters should be equal.

i. Press STOP switch. This completes the record calibrate alignment procedure.

RECORD EQUALIZATION ALIGNMENT PROCEDURE

7.20 Perform the record equalization alignment procedure as follows:

a. Before performing the following procedural steps, it is extremely important that record bias set and record calibrate alignment procedure (paragraphs 7.18 and 7.19) have already been performed.

CAUTION

Record equalization adjustments are made at 0 vu operating level or less at 15 in/sec and at -20 vu or less at 7½ and 3¾ in/sec. (A convenient method is to rotate the REPRO control to maximum and adjust RECORD control to match 0 vu.)

b. Connect an audio oscillator to CH 1 LINE IN, and set the oscillator for an output signal of 500 Hz at a convenient reading on the vu meter.

c. Simultaneously press START and RECORD switches.

d. According to the speed selected (LO or HI) sweep the oscillator while adjusting C29 or C30 respectively for flattest response at the upper frequencies, and R9 or R12 at the lower frequencies. (See PWA on Figure 8-2 for location of trim pots.) Disconnect audio oscillator from CH 1 LINE IN and connect to CH 2 LINE IN.

e. Repeat steps (b) through (d) for channel 2 using C41 or C42 respectively for the upper frequencies, and R40 or R42 for the lower frequencies.

f. Press STOP switch.

g. This completes the record equalization alignment procedure. Disconnect audio oscillator.

ERASE ALIGNMENT PROCEDURE

7.21 Visually align erase head height to correspond to record and playback heads height.

DEPTH OF ERASE ALIGNMENT PROCEDURE

7.22 Perform the depth of erase alignment procedure as follows:

a. Connect audio oscillator to CH 1 LINE IN, and set oscillator for an output signal of 400 Hz at +6 vu (10 dB)* on voltmeter.

b. Simultaneously press START and RECORD switches. Record signal for several minutes. Remove input signal.

c. Rewind tape to beginning of 400 Hz tone.

d. Connect a 400 Hz filter in series with the ac voltmeter and connect to CHANNEL 1 LINE OUT.

* 0 dB = 0.775 VRMS

e. Place the recorder in Record mode, and check the erase head rotation for proper gap contact.

f. Erase should be ⩽-70 dB (from +10 dB)* as indicated on the ac voltmeter.

g. Press STOP switch. This completes the "depth-of-erase" alignment procedure.

h. Remove the 400 Hz filter from the ac voltmeter, and remove the audio oscillator.

RECORD SIGNAL-TO-NOISE RATIO PROCEDURE

7.23 Perform the record signal-to-noise ratio procedure as follows:

a. Connect a weighting filter (ASA Standard S1.4 - 1961) in series with the ac voltmeter and connect to CHANNEL 1 LINE OUT.

b. Place the recorder in Record mode with no input signal. The output should be as listed in Table 7-1, and correcting for the insertion loss of the filter.

Table 7-1. Record Signal-to-Noise Ratio

Speed	Full Track ¼"	Half Track ¼"	Two Track ¼"
15 in/sec	70 dB	66 dB	66 dB
7.5 in/sec	70 dB	66 dB	66 dB
3.75 in/sec	66 dB	63 dB	63 dB

c. Remove bias by pressing START switch. The noise should decrease about 5 dB (when using bulk erased tape only).

d. Press STOP switch. Remove all test equipment. Close the electronics drawer.

e. This completes the alignment procedure for the 250 Series Recorder/Reproducer.

* 0 dB = 0.775 VRMS

ALIGNMENT PROCEDURES FOR THE 255 REPRODUCERS ONLY *(Figure 7-10)*

PLAYBACK ALIGNMENT PROCEDURE

7.24 Perform the playback alignment in accordance with the following procedure.

a. Load and thread a standard alignment tape.

b. Set TENSION switch to correspond to size of tape reel being used.

c. Carefully pull off the transport control panel for access to the adjustment controls on the playback card. (See Figure 7-10.)

d. Connect an ac voltmeter and speaker amplifier to CHANNEL 1 LINE OUT.

e. Place the reproducer in Play mode.

f. Monitor the output on the ac voltmeter and speaker amplifier.

g. Adjust azimuth of playback head and check head rotation for proper gap contact.

h. Adjust front panel CHANNEL 1 level control for a reading of +4 dB* at reference tone corrected to 250 nW/m.

i. Following instructions supplied with the standard alignment tape, adjust equalization for flattest response. Adjust R5 for CHANNEL 1 and R4 for CHANNEL 2. (See PWA on Figure 8-3 for location of components.)

j. At corrected (250 nW/m) reference tone from the standard alignment tape, observe that output is 0 vu or +4 dB* on the ac voltmeter.

k. Press STOP switch. Remove test tape and test equipment.

l. This completes the playback alignment procedure.

CUETONE DETECTOR SENSITIVITY ADJUSTMENT
(Figure 7-10)

7.25 Perform the sensitivity adjustment in accordance with the following procedure.

a. Remove transport control panel.

b. Connect an ACVM to TP1 located on the front end of the board.

c. Load and thread a tape with prerecorded 25 Hz tone.

d. Turn on POWER switch.

e. Press START switch.

f. Set sensitivity control (R2) fully CCW position (see Figure 7-10) and slowly increase sensitivity (CW) until relay clicks in. Observe reading on ACVM and increase sensitivity an additional 6 dB. NOTE: The LED mounted on the front end of the board will light when 25 Hz tone is detected, and also when the relay energizes.

g. Adjust the time delay trim pot R1 for a time delay, after the 25 Hz tone is detected, to the desired delay - anywhere from 1/2 second to 6 seconds.

h. Press STOP switch. Remove ACVM from TP1.

i. Replace transport control panel. Remove tape.

j. This completes the Cuetone Detector Sensitivity Adjustment procedure.

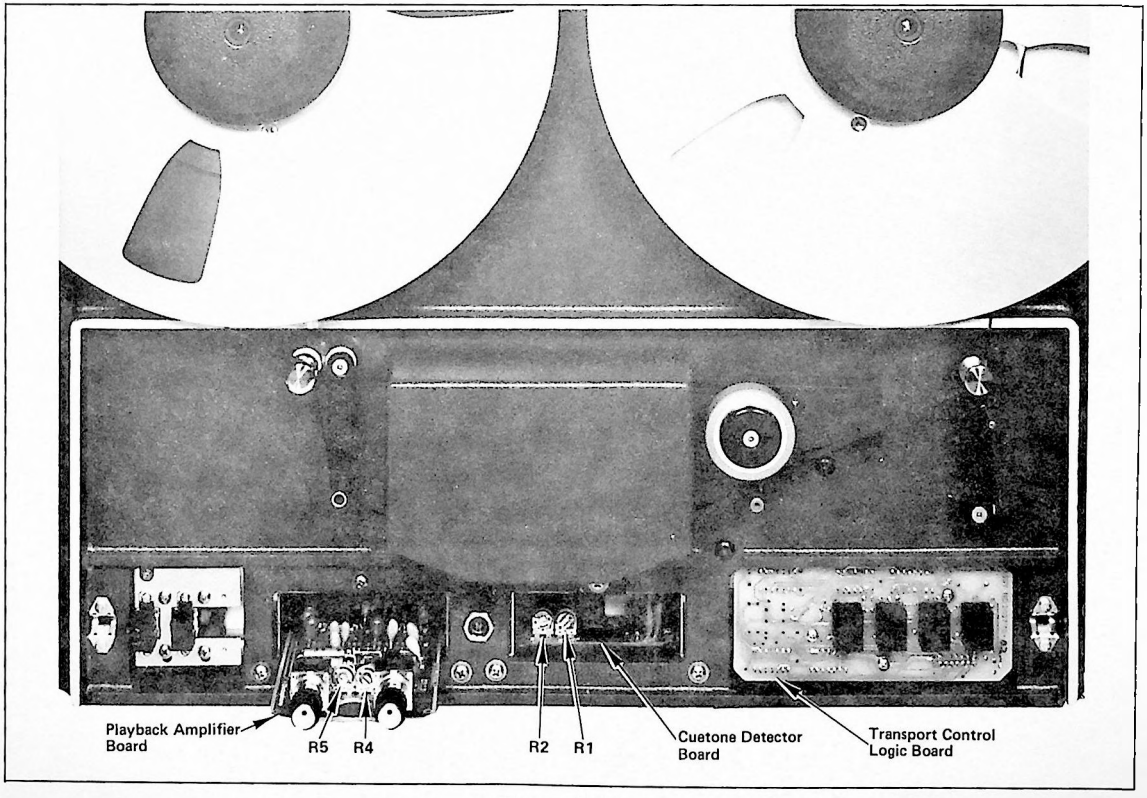


Figure 7-10

SECTION 8
SCHEMATIC DIAGRAMS AND PARTS LIST

LIST OF SCHEMATICS

250 SERIES PARTS LIST

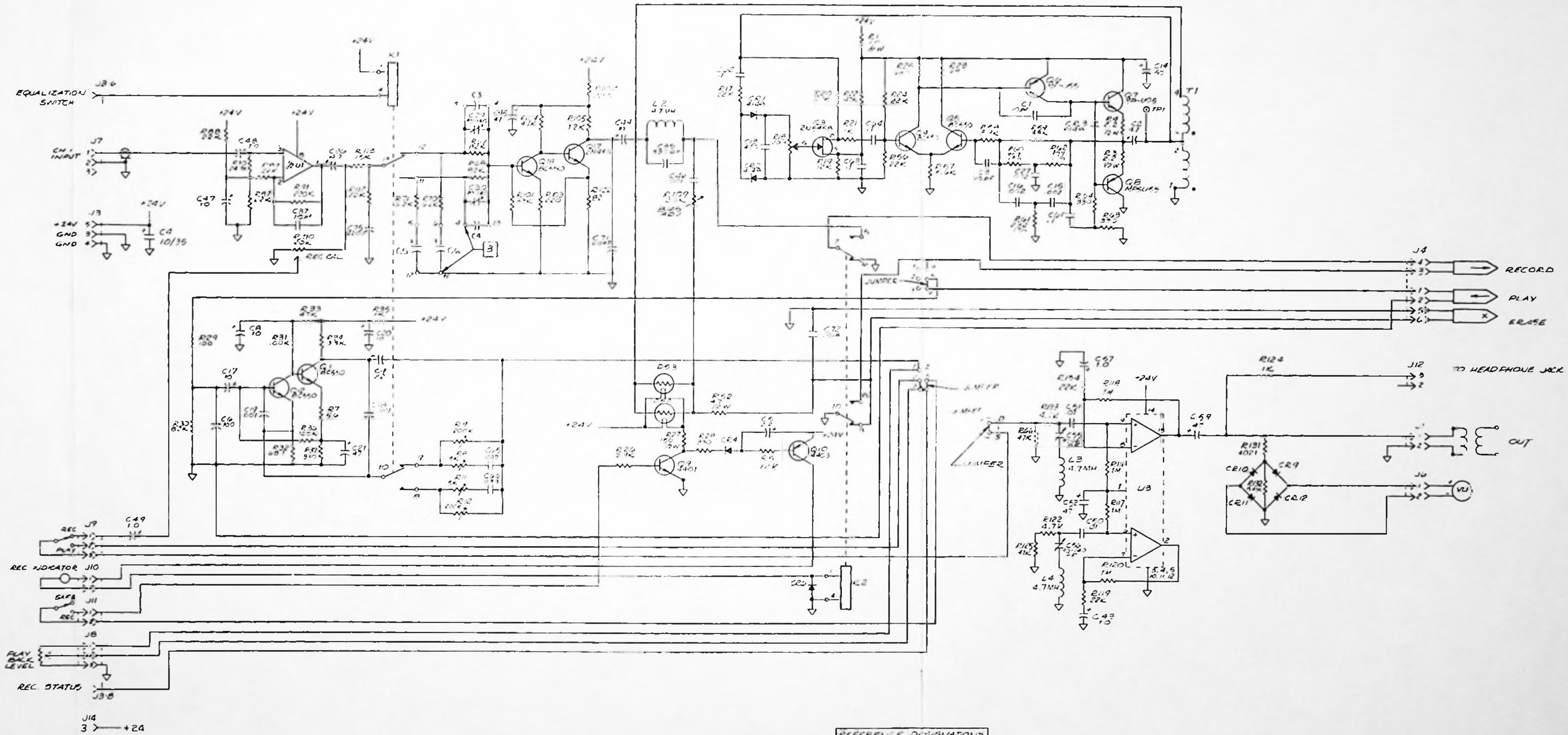
250 SERIES PARTS LIST (CONT)

*Common to both 250 and 255 Series

255 SERIES PARTS LIST

255 SERIES PARTS LIST (CONT)

RECORD/PLAYBACK (MONO) SCHEMATIC

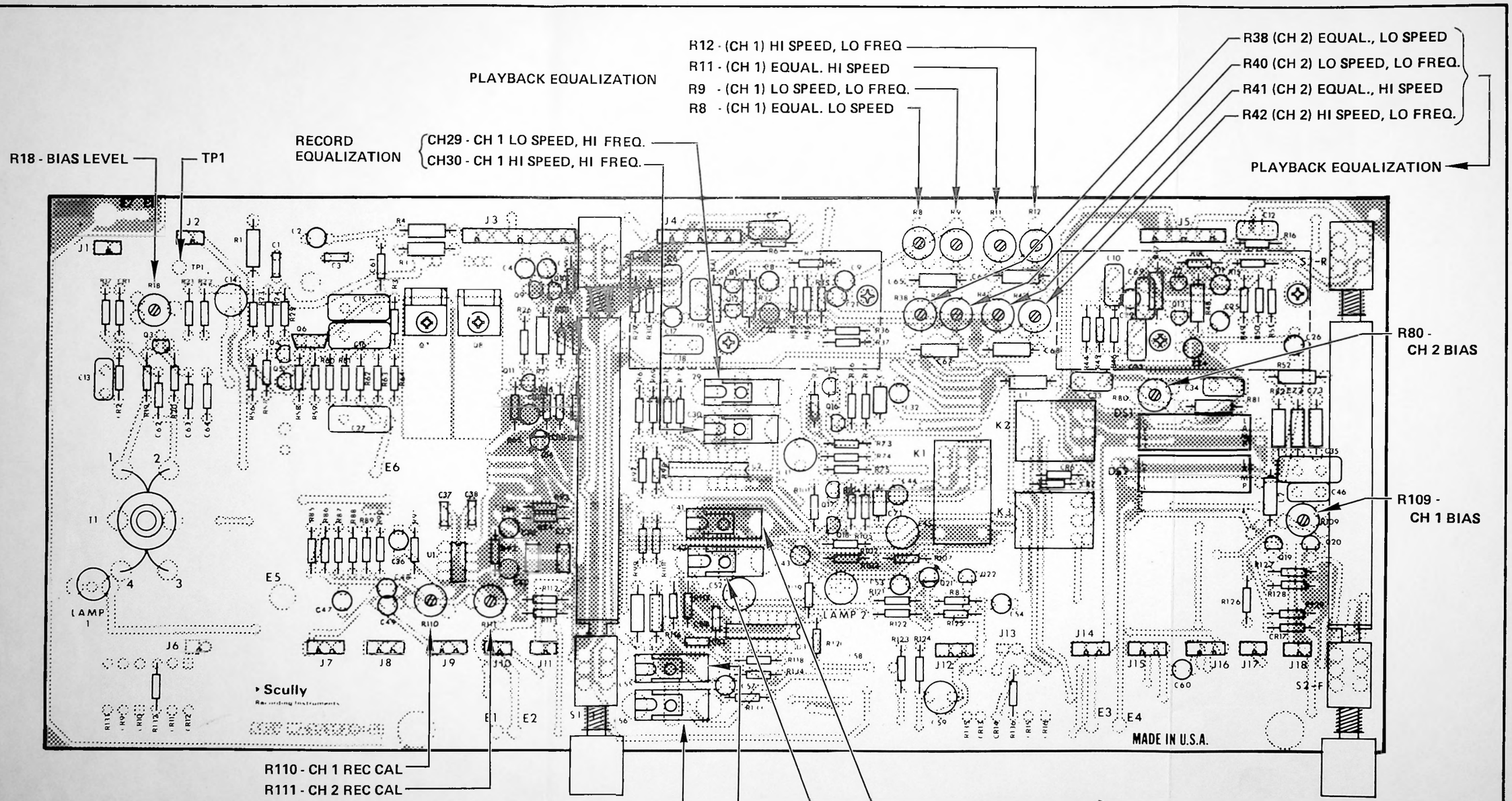


NOTES: UNLESS OTHER WISE SPECIFIED
1. ALL RESISTANCE VALUES ARE IN OHMS 1/4 W, 5%
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
[5] INDICATES PIN NO OF A 16 PIN DIP SOCKET (J2)

REFERENCE DESIGNATIONS	
LAST USED	NOT USED
C79	[illegible]
CR12	[illegible]
DS3	1
J12	2, 5
K2	
L4	[illegible]
[illegible]	[illegible]
R134	[illegible]
T1	
U3	

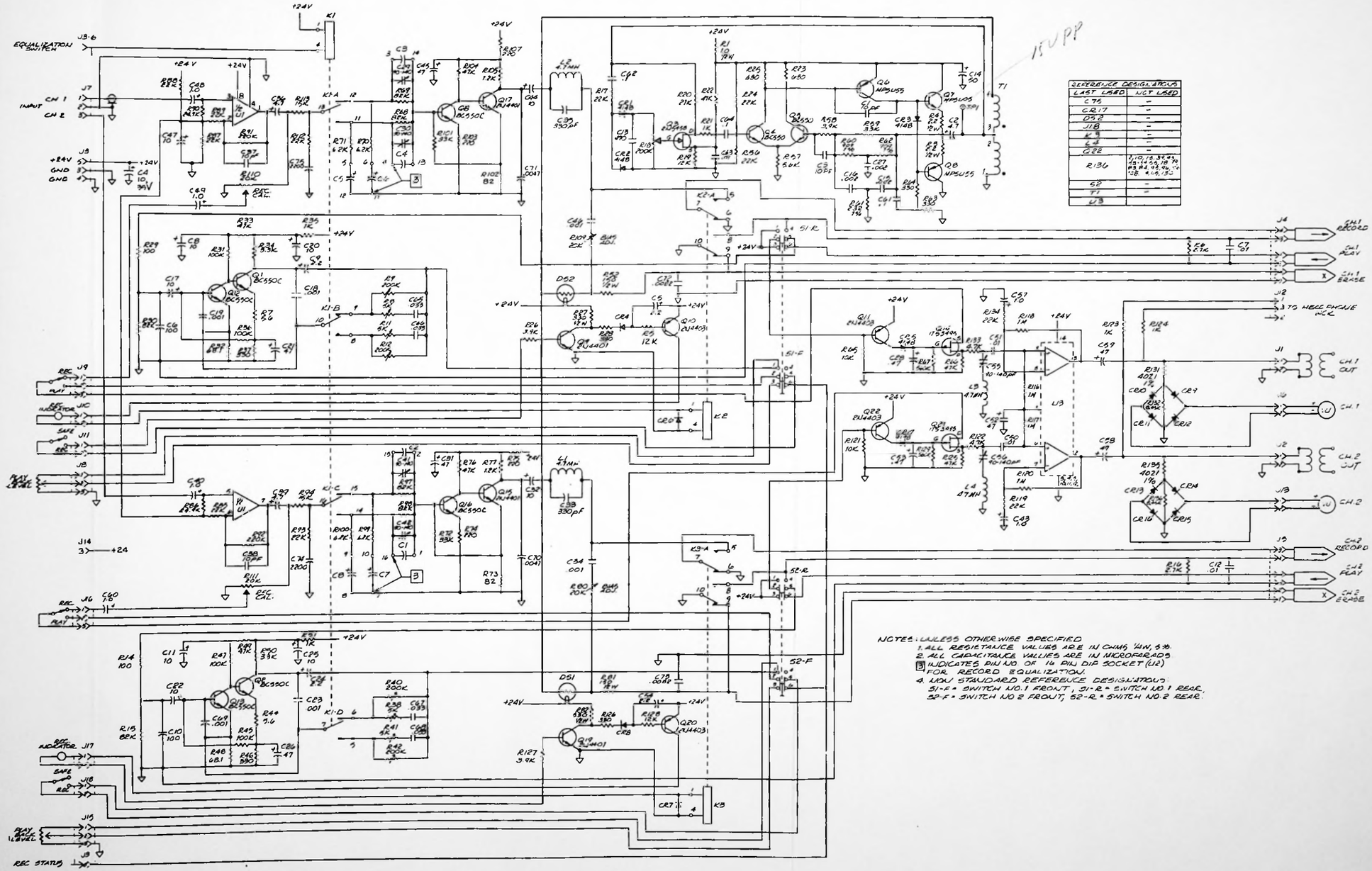
203102A

8-1

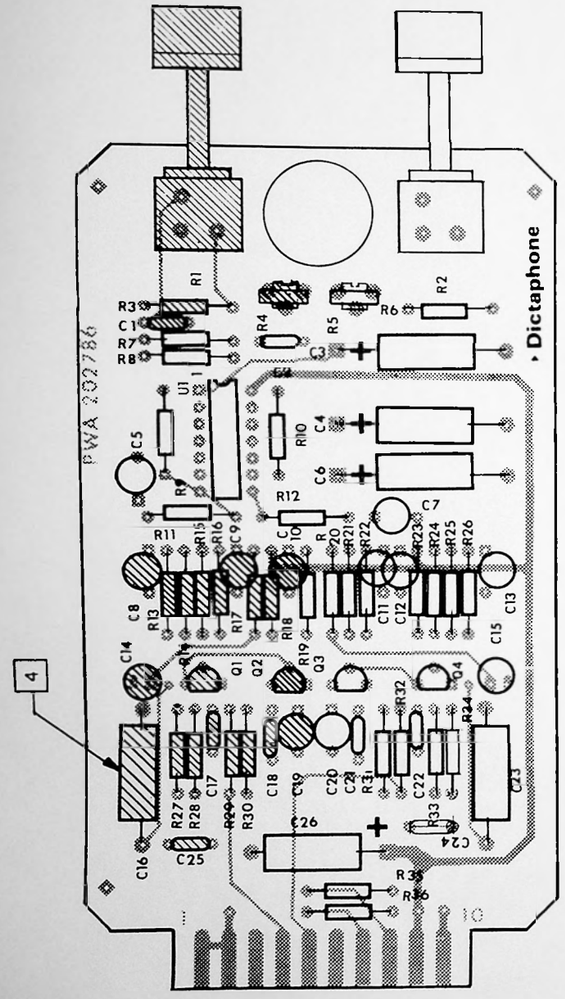


202820 (RECORD/PLAYBACK STEREO PWA)

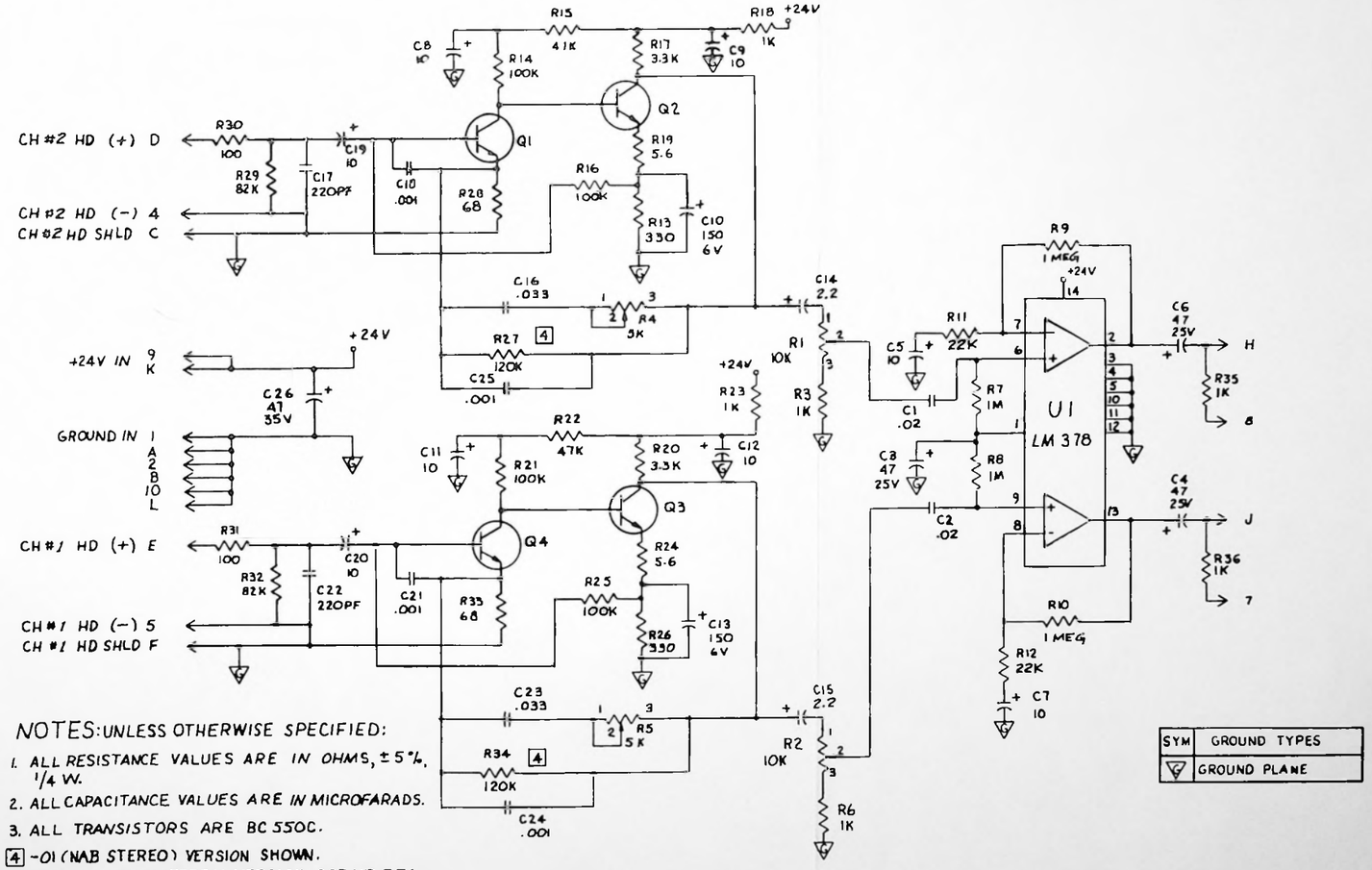
SCHEMATIC REF.: 202822A


REFERENCE DESIGNATIONS
LAST USED
NOT USED
NOTES: UNLESS OTHERWISE SPECIFIED
1. ALL RESISTANCE VALUES ARE IN OHMS, K=K, M=M.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS
3 INDICATES PIN NO. OF 14 PIN DIP SOCKET (U2)
FOR RECORD EQUALIZATION.
4. NON STANDARD REFERENCE DESIGNATIONS
S1-F = SWITCH NO.1 FRONT, S1-R = SWITCH NO.1 REAR
S2-F = SWITCH NO.2 FRONT, S2-R = SWITCH NO.2 REAR.

202822A



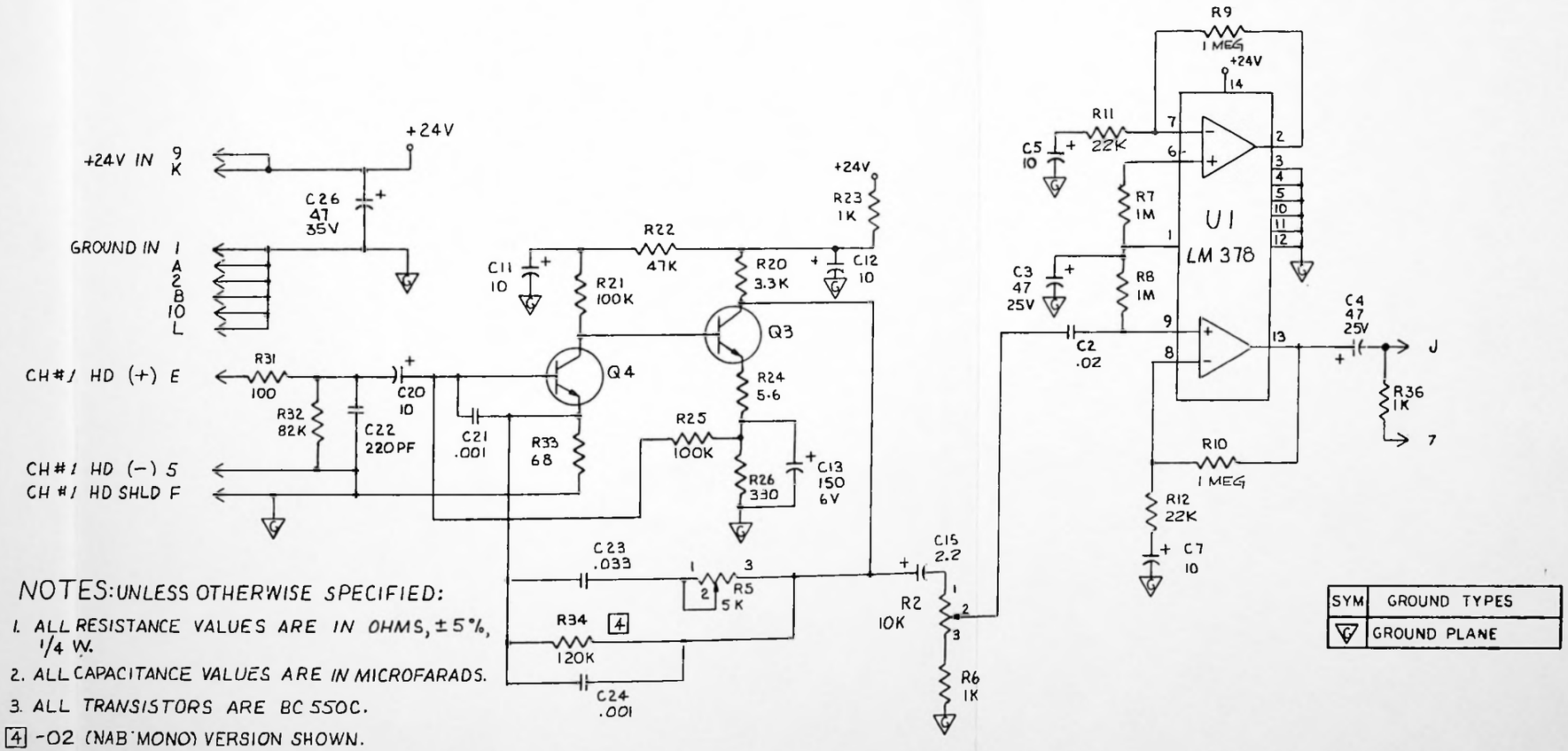
4 CROSS HATCHED COMPONENTS ARE USED FOR STEREO (-01 AND -03) VERSIONS ONLY. OMIT FOR MONO (-02 AND -04 VERSIONS.



202788A

8-3 PLAYBACK AMPLIFIER (STEREO) SCHEMATIC

REFERENCE DESIGNATIONS	
LAST USED	NOT USED
C26	C1, 6, 8, 9, 10, 14, 16, 17, 18, 19, 25
Q4	Q1, 2
R36	R1, 3, 4, 13, 14, 15, 16, 17, 18, 19, 27, 28, 29, 30, 35
U1	



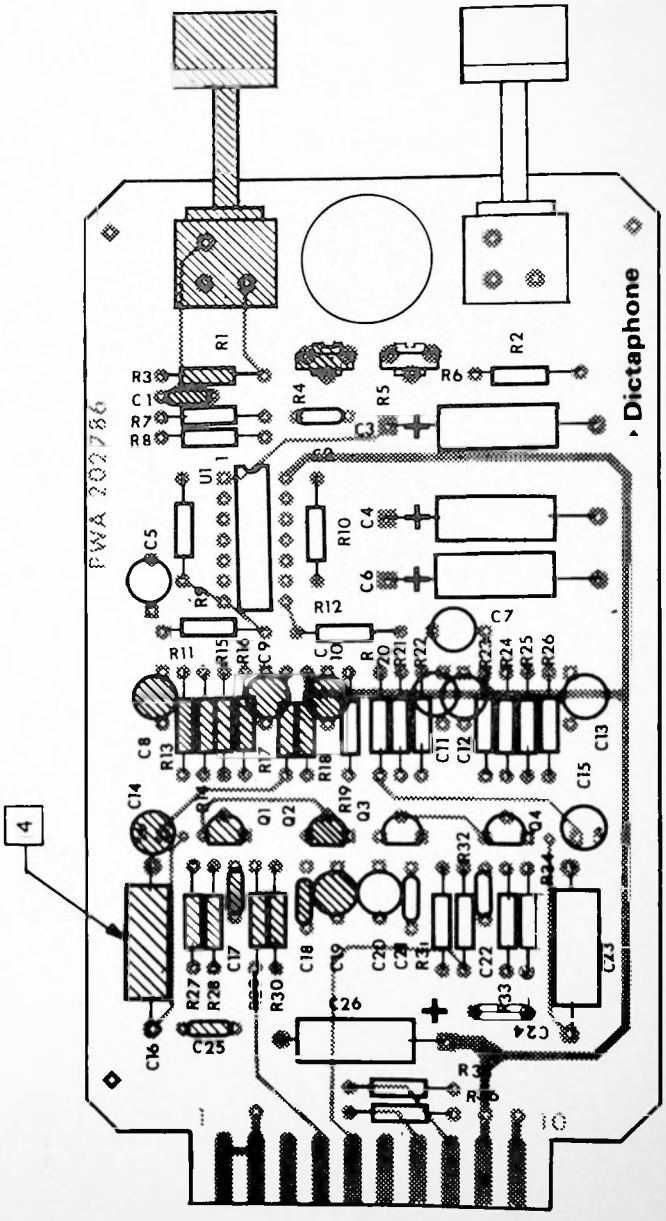
NOTES: UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, ±5%, 1/4 W.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL TRANSISTORS ARE BC550C.

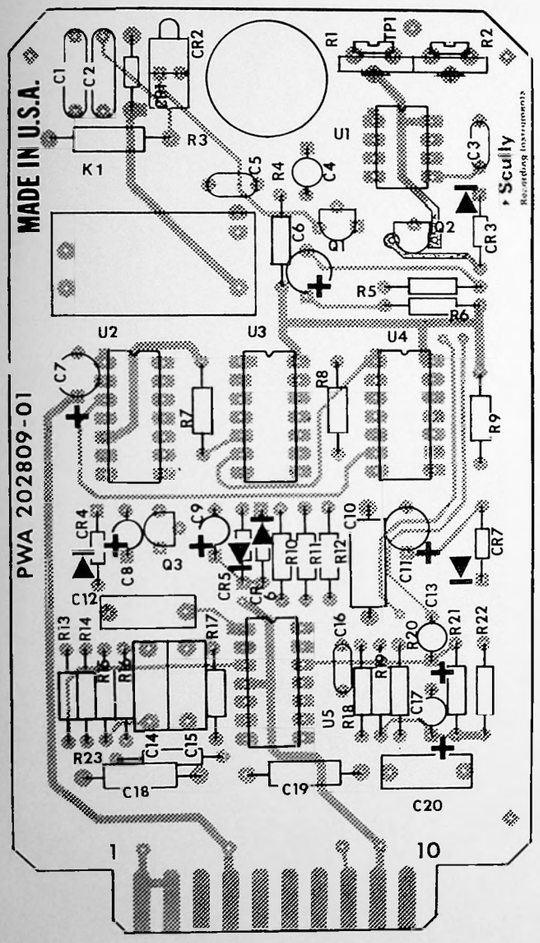
[4] -02 (NAB MONO) VERSION SHOWN.
FOR -04 (CCIR MONO) VERSION, R34 IS 330K.

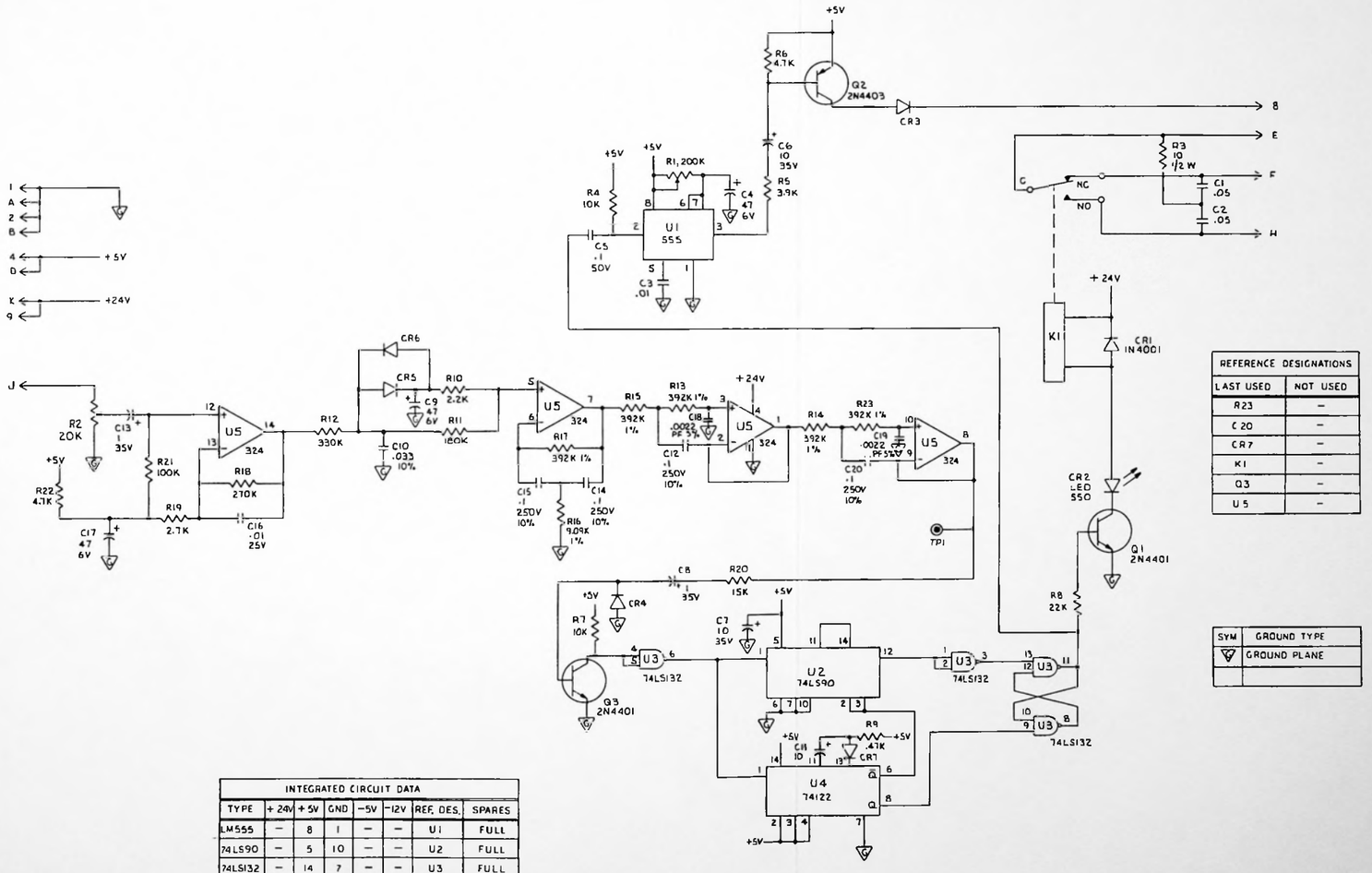
SYM	GROUND TYPES
▽	GROUND PLANE

PLAYBACK AMPLIFIER (MONO) SCHEMATIC



4 CROSS HATCHED COMPONENTS ARE USED FOR STEREO (-01 AND-03) VERSIONS ONLY. OMIT FOR MONO (-02 AND-04) VERSIONS.





REFERENCE DESIGNATIONS	
LAST USED	NOT USED
R23	–
C 20	–
CR7	–
K1	–
Q3	–
U 5	–

SYM	GROUND TYPE
▽	GROUND PLANE

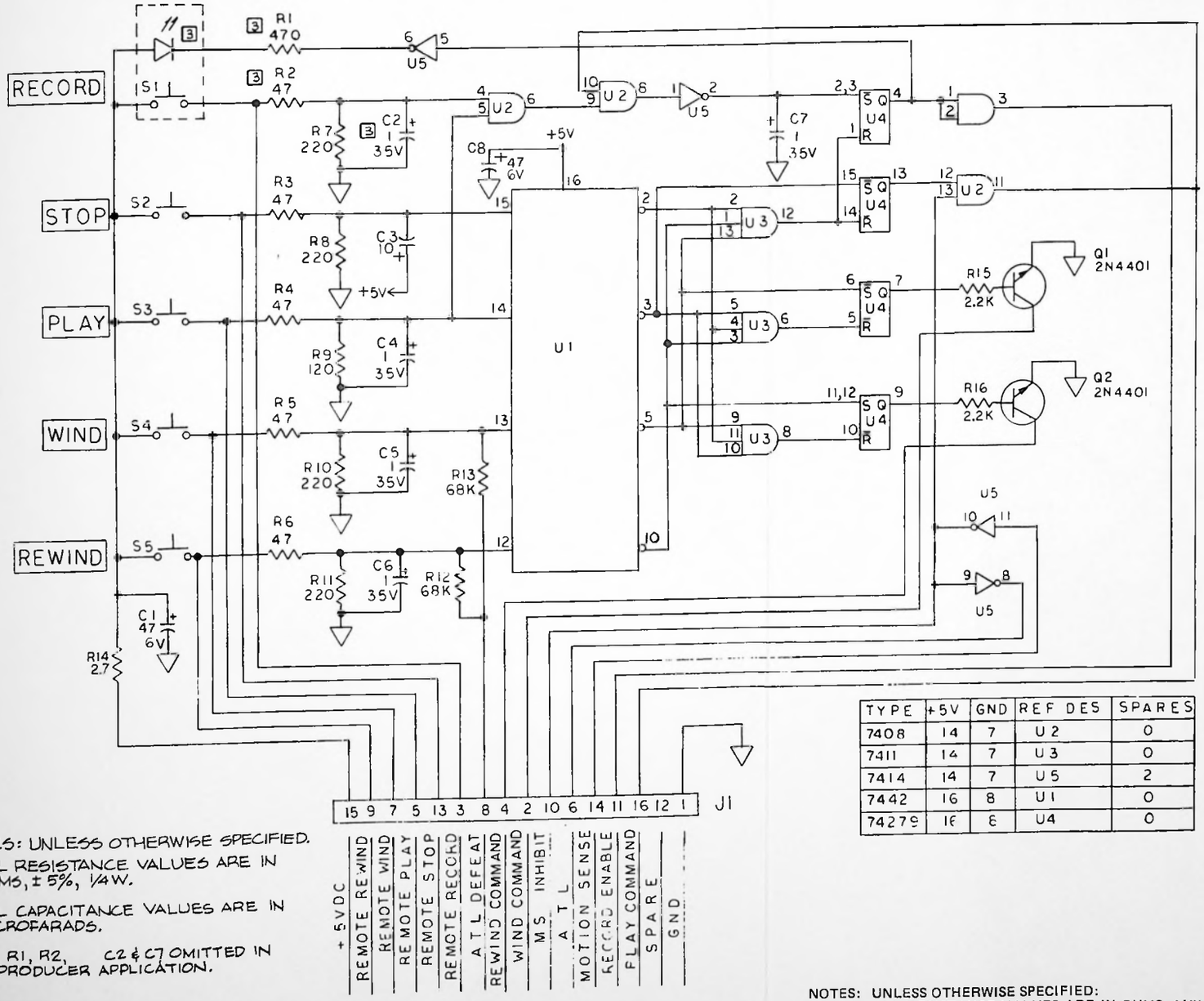
INTEGRATED CIRCUIT DATA							
TYPE	+24V	+5V	GND	−5V	−12V	REF. DES.	SPARES
LM555	–	8	1	–	–	U1	FULL
74LS90	–	5	10	–	–	U2	FULL
74LS132	–	14	7	–	–	U3	FULL
74122	–	14	7	–	–	U4	FULL
LM 324	4	—	11	–	–	U5	FULL

NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W.
2. ALL CAPACITANCE VALUES ARE MICROFARADS.
3. ALL DIODES ARE IN 4148.
4. ALL TRANSISTORS ARE AS NOTED.

202811A

CUETONE DETECTOR SCHEMATIC

CONTROL LOGIC SCHEMATIC



REF DESIG	
LAST USED	NOT USED
C8	
R16	
S5	
U5	
Q2	

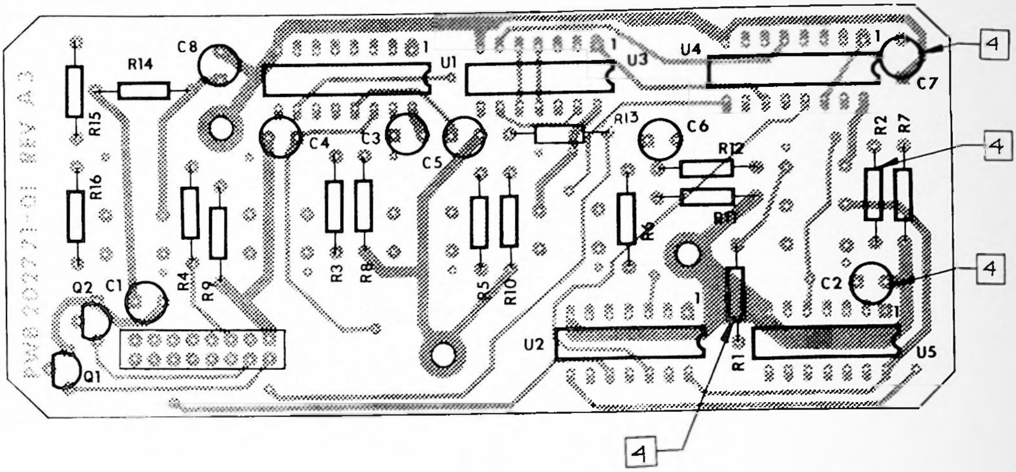
TYPE	+5V	GND	REF DES	SPARES
7408	14	7	U2	0
7411	14	7	U3	0
7414	14	7	U5	2
7442	16	8	U1	0
74279	16	8	U4	0

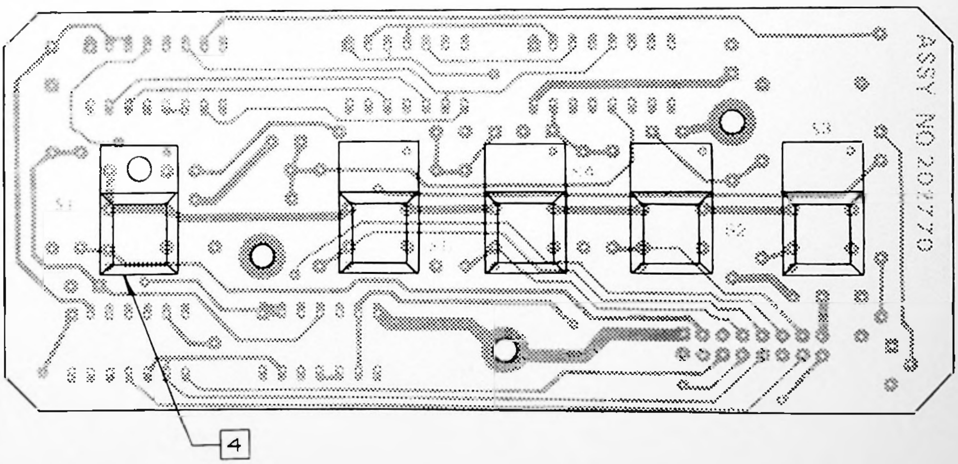
NOTES: UNLESS OTHERWISE SPECIFIED.

1. ALL RESISTANCE VALUES ARE IN OHMS, ± 5%, 1/4W.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. S1, R1, R2, C2 & C7 OMITTED IN REPRODUCER APPLICATION.

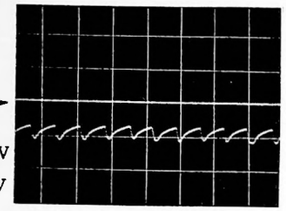
NOTES: UNLESS OTHERWISE SPECIFIED:

1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. S1, R1, R2, C2 & C7 OMITTED IN REPRODUCER APPLICATION.
4. OMIT C2, C7, R1, R2 AND S1 FOR -02 (REPRODUCER).
5. PART NO. IS 202770-XX.
   -01 (250 RECORD VERSION) SHOWN.
   -02 (255 REPRODUCER VERSION) SEE NOTE 4.

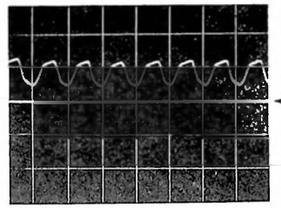

PWB 202771-01 REV A3
C8
R14
U1
U3
U4
C7
R15
C4
C3
C5
R13
C6
R12
R2
R7
R16
R4
R9
R3
R8
R5
R10
R6
R11
Q2
C1
Q1
U2
R1
C2
U5
4
4
4
4


ASSY NO 202770
4

BASE OF Q6 DURING A COAST-TO-STOP FUNCTION



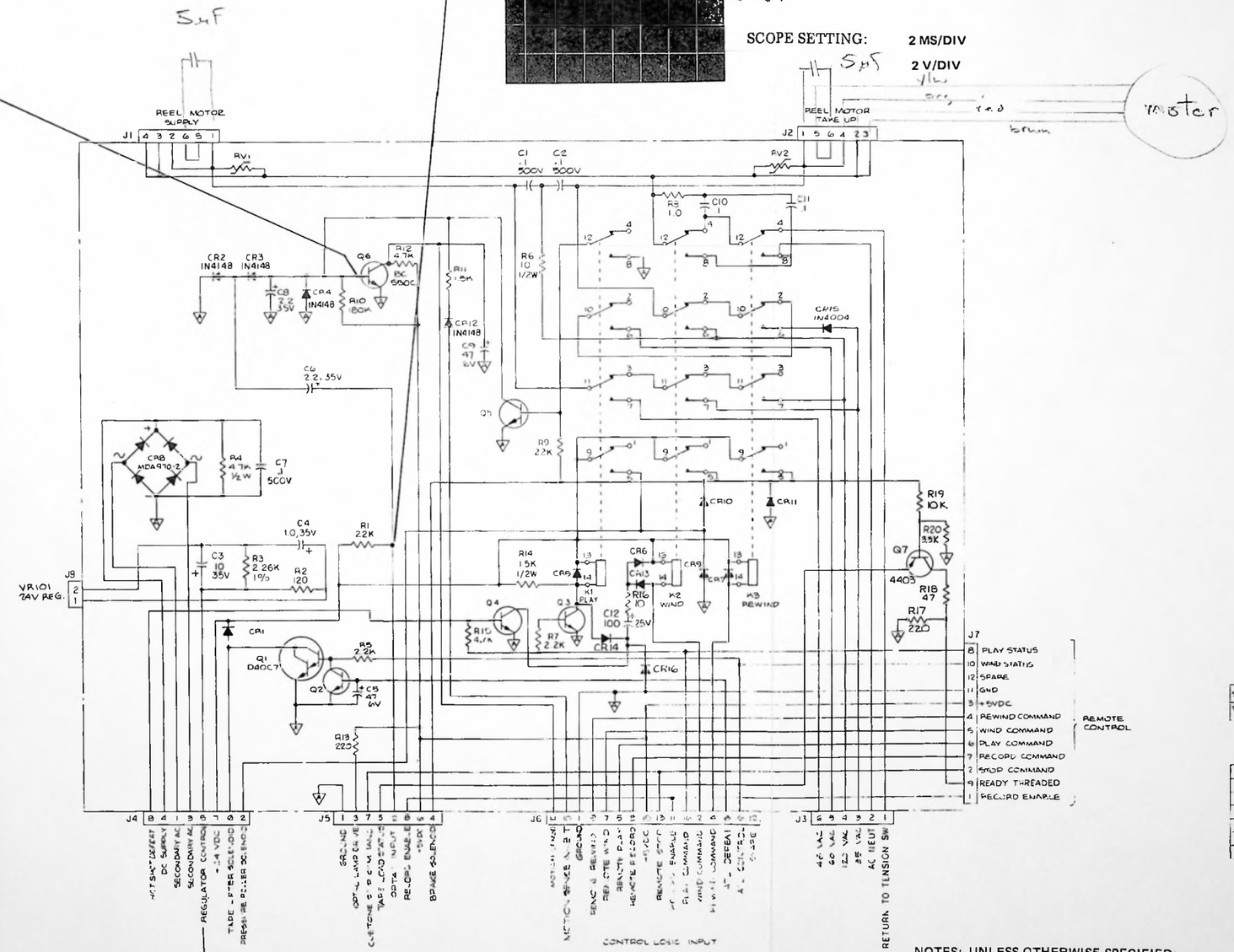
SCOPE SETTING: 5 MS/DIV
500 mV/DIV



OPTAC SIGNAL W/MOTOR RUNNING
AT 1200 rpm (J5 pin 2)

0 V

SCOPE SETTING: 2 MS/DIV
2 V/DIV



REGULATOR CONTROL (J4 pin 5) SHOULD BE 1.2V
LESS THAN OUTPUT OF REGULATOR OR ABOUT 22.8V.

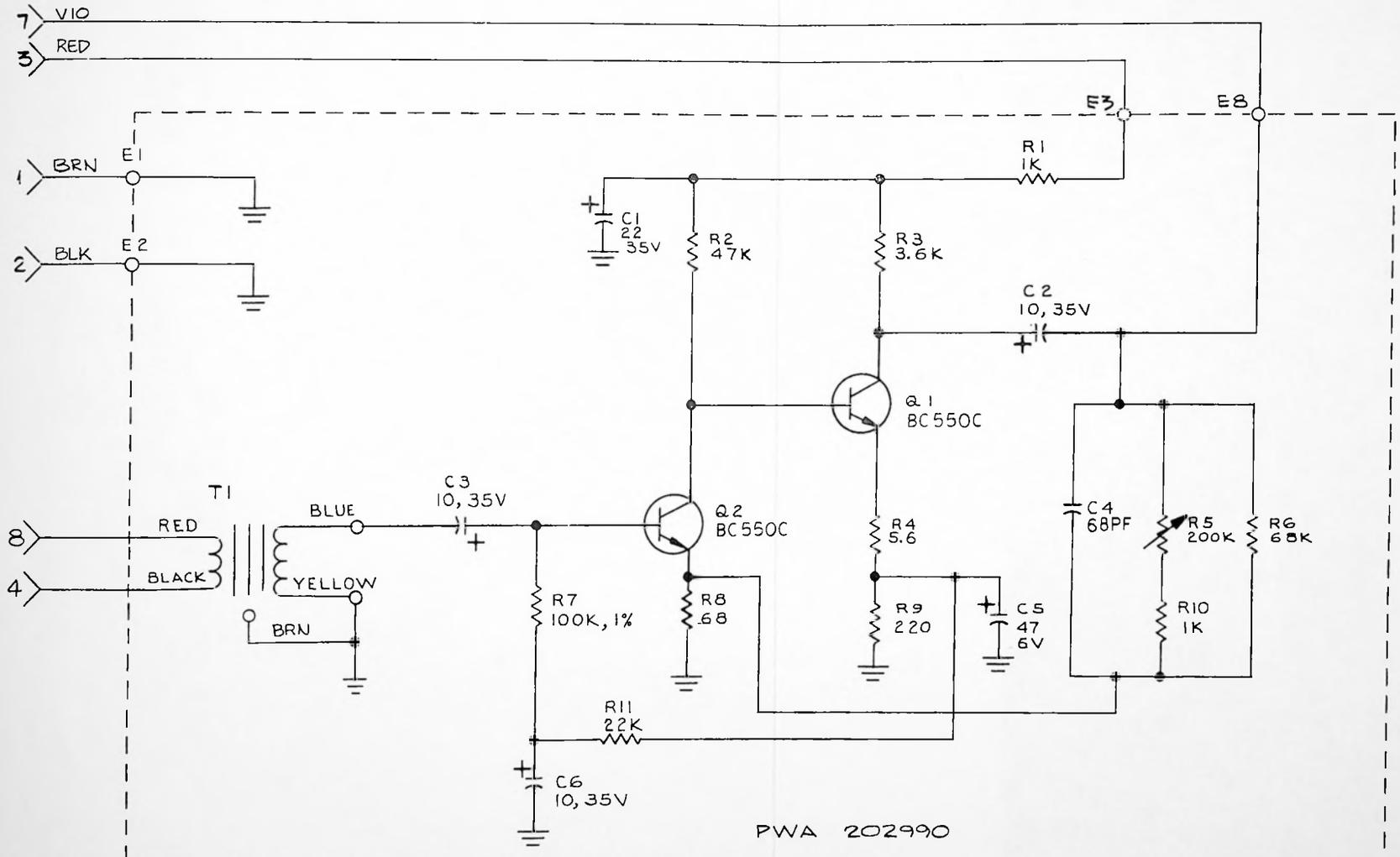
SYM	GROUND TYPE
▽	ANALOG GND

LAST USED	NOT USED
C12	
CR16	
R20	
RV2	
Q7	
K3	

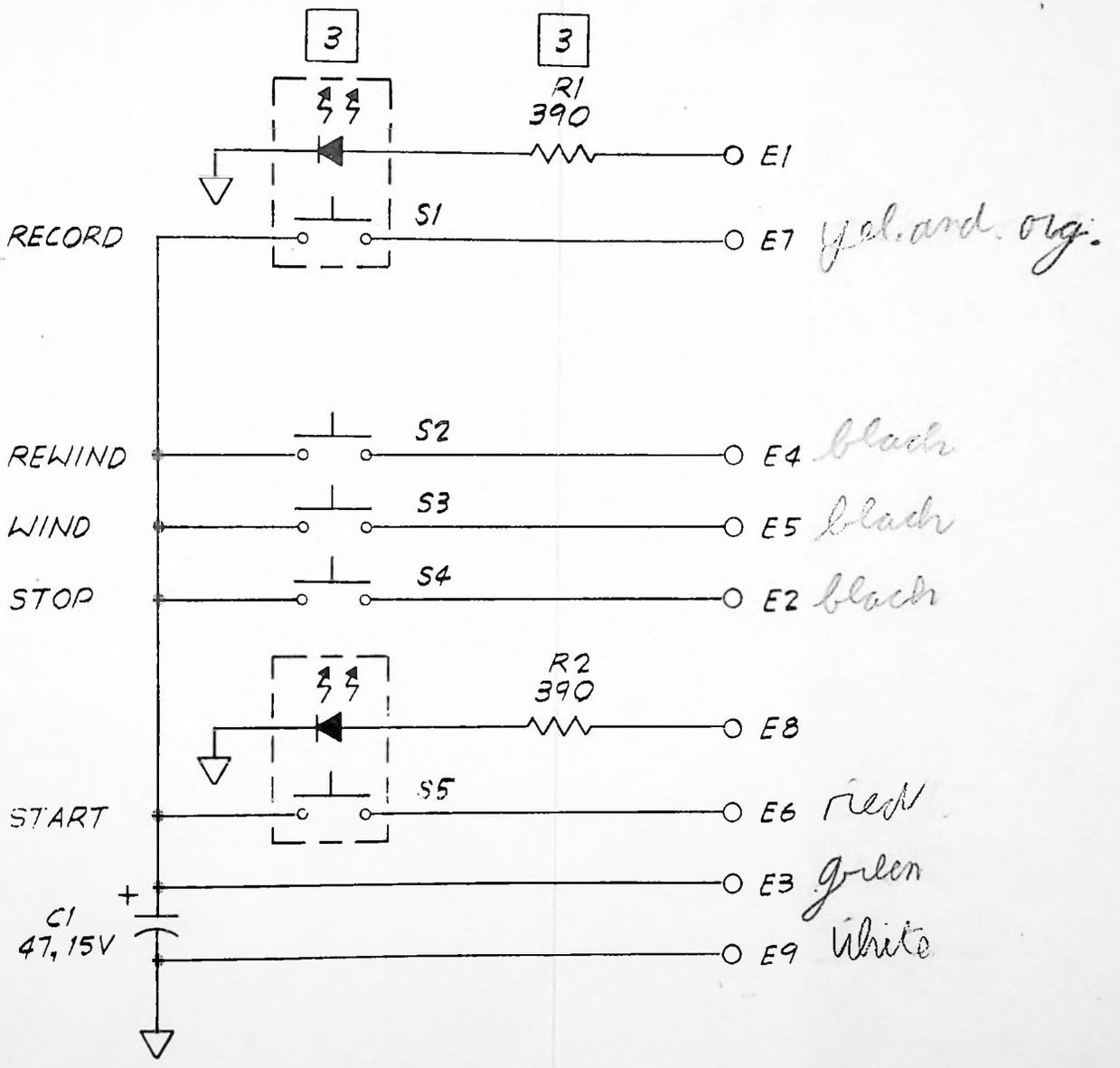
NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL DIODES ARE TYPE IN4001.
4. ALL TRANSISTORS ARE TYPE 2N4401.

2027788

▲ POWER SUPPLY AND CONTROL SCHEMATIC

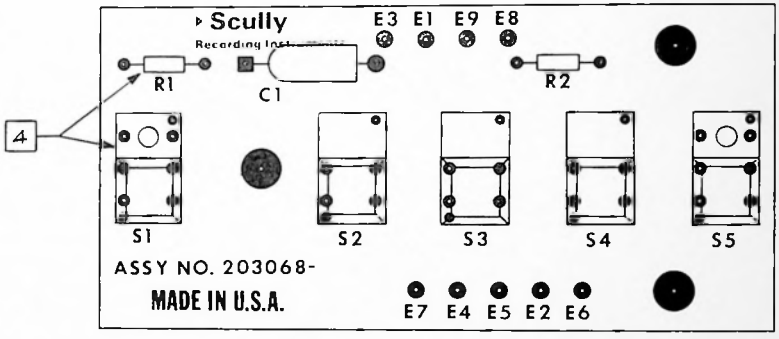


NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
3. ALL TRANSISTORS ARE TYPE BC550C.



NOTES: UNLESS OTHERWISE SPECIFIED:
1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4W, 5%.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
[3] -02 (REC) VERSION IS SHOWN. FOR -01 (REPRO) VERSION, OMIT R1 AND S1.

REFERENCE:
SCHEMATIC • 203070



4 -02 (RECORD) VERSION SHOWN.
-01 (REPRO) VERSION, OMIT R1 AND S1.

250 SERIES PARTS LIST

PARENT PART: 202950-05 ASM,RECORD/REPRO,21,STEREO,250-2 UM: EA ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	I Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	MZ	A	1	P	*	P	EA	1.00
002	202942-02	ASM,PANEL,FRONT,RECORD	A	MZ	A	1	P	A	P	EA	1.00
003	202943-02	ASM,POWER SWITCH,RECORD	C	MA	A	1	P	A	P	EA	1.00
004	202770-03	PWA,CONTROL LOGIC,RECORD	B	MA	A	1	P	A	P	EA	1.00
006	202945-01	ASM,HEAD,PLAY,1/2T	A	MZ	A	1	P	A	P	EA	1.00
009	202953-01	ASM,HEAD,ERASE,1/2T	A	MA	A	1	P	A	P	EA	1.00
012	202952-01	ASM,HEAD,RECORD,1/2T	A	MA	A	1	P	A	P	EA	1.00
016	202954-01	ASM,REC ELEX,STEREO,2T	C	MA	A	1	P	A	P	EA	1.00
017	202941-01	ASM,CABLE,XPORT HEAD	A	MA	A	1	P	A	P	EA	1.00
018	202957-01	ASM,CABLE,POWER,RECORD	B	MA	A	1	P	C	P	EA	1.00
019	203082-01	ASM,CPSTN MOTOR,7.5-15 IPS,60HZ NOTE 1	A	MA	A	1	P	A	P	EA	0.00
020	203083-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,60HZ NOTE 1	A	MA	A	1	P	A	P	EA	0.00
021	203084-01	ASM,CPSTN MOTOR,7.5-15 IPS,50HZ NOTE 1	A	MA	A	1	P	A	P	EA	0.00
022	203085-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,50HZ NOTE 1	A	MA	A	1	P	B	P	EA	0.00
023	202951-03	KIT,PARTS,RECORD	A	MA	A	1	P	A	P	EA	1.00
024	202946-01	ASM,COVER,HEAD	A	MB	A	1	P	B	P	EA	1.00
025	202987-02	ASM,REMOTE CONTROL,RECORD NOTE 2	C	MX	G	1	P	B	P	EA	0.00
026	203017-03	ASM,XFMR,OUTPUT NOTE 2	C	MY	A	1	P	B	P	EA	0.00
027	202993-01	ASM,MIC PREAMPLIFIER NOTE 2	B	MY	G	1	P	A	P	EA	0.00
028	202994-01	SPEC,TRANSFORMER,INPUT,LINE BALANCE NOTE 2	B	MY	F	1	P	A	P	EA	0.00
029	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	MZ	G	1	P	A	P	EA	0.00
030	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	MZ	G	1	P	B	P	EA	0.00
031	203002-01	CASE,PORTABLE NOTE 2	A	MZ	F	1	P	D	P	EA	0.00
033	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
034	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
035	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
036	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
037	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	MZ	P	1	P	C	P	EA	3.00
038	203115-01	MODULE,EQUALIZATION,7.5-15 NAB NOTE 1	D	MA	G	1	P	C	P	EA	0.00
039	203115-03	MODULE,EQUALIZATION,7.5-15 CCIR NOTE 1	D	MA	G	1	P	C	P	EA	0.00
040	203115-04	MODULE,EQUALIZATION,3.75-7.5 CCIR NOTE 1	D	MA	G	1	P	C	P	EA	0.00
041	203001	INTERCONNECT DIAGRAM,MODEL 250 REF DOCUMENT	1		D	*		*	U	EA	0.00
042	203456-01	LABEL,SYSTEM IDENTIFICATION,250	A	MA	X	1	P	D	P	EA	1.00
043	200290-01	FLYWHEEL,MACH,ALUM	E	ZZ	F	1	P	B	P	EA	1.00
044	202872-01	SHIELD,CAPSTAN MOTOR	A	MZ	F	1	P	B	P	EA	1.00

PARENT PART: 202950-05 ASM,RECORD/REPRO,21,STEREO,250-2 UM: EA
ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	SCE	ITYP	SPRC	ABC	PLN	UM	EXTENDED QTY PER
045	203115-02	MODULE,EQUALIZATION,3.75-7.5 NAB NOTE 1	D	HA	G	1	P	D	P	EA	0.00
046	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
047	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
048	110162	SCRW,SET,ALEN,10-32X1/2,OVAL,BLK OX	A	ZZ	X	1	P	C	P	EA	1.00
049	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
050	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
052	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	0.00
053	111104	WASHER,#10,"CA",PADDED BRASS		HZ	X	1	P	C	P	EA	3.00
055	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00
056	201049-01	LABEL SER # & CODE	C	ZZ	X	1	P	C	P	EA	1.00
057	151008	CAP,PAPR,50,370VAC,60HZ,(21L3005) C103 - NOTE 1 FOR 50 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
058	151016	CAP,PAPR,40,370VAC,60HZ,(21L3004) C103 - NOTE 1 FOR 60 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
059	203457	IDENTIFICATION DATA,NAMEPLATE,250 REF DOCUMENT	A	HA	*	*		*	P	EA	0.00
060	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
061	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00

NOTES:

1. OPTION - SELECT ONE.
2. ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202950-06 ASM,RECORD/REPRO,FT,MONO,250-FT UM: EA
ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S A P	A P B	P L C	N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	HZ	A	1	P	*	P	EA		1.00
002	202942-02	ASM,PANEL,FRONT,RECORD	A	HZ	A	1	P	A	P	EA		1.00
003	202943-02	ASM,POWER SWITCH,RECORD	C	HA	A	1	P	A	P	EA		1.00
004	202770-03	PWA,CONTROL LOGIC,RECORD	H	HA	A	1	P	A	P	EA		1.00
005	202945-02	ASM,HEAD,PLAY,FT	A	HZ	A	1	P	B	P	EA		1.00
008	202953-02	ASM,HEAD,ERASE,FT	A	HA	A	1	P	B	P	EA		1.00
011	202952-02	ASM,HEAD,RECORD,FT	A	HA	A	1	P	B	P	EA		1.00
016	202954-02	ASM,REC ELEX,MONO,FT	C	HA	A	1	P	A	P	EA		1.00
017	202941-01	ASM,CABLE,XPORT HEAD	A	HA	A	1	P	A	P	EA		1.00
018	202957-01	ASM,CABLE,POWER,RECORD	B	HA	A	1	P	C	P	EA		1.00
019	203082-01	ASM,CPSTN MOTOR,7.5-15 IPS,60HZ NOTE 1	A	HA	A	1	P	A	P	EA		0.00
020	203083-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,60HZ NOTE 1	A	HA	A	1	P	A	P	EA		0.00
021	203084-01	ASM,CPSTN MOTOR,7.5-15 IPS,50HZ NOTE 1	A	HA	A	1	P	A	P	EA		0.00
022	203085-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,50HZ NOTE 1	A	HA	A	1	P	B	P	EA		0.00
023	202951-03	KIT,PARTS,RECORD	A	HA	A	1	P	A	P	EA		1.00
024	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA		1.00
025	202987-02	ASM,REMOTE CONTROL,RECORD NOTE 2	C	HX	G	1	P	B	P	EA		0.00
026	203017-03	ASM,XFMR,OUTPUT NOTE 2	C	HY	A	1	P	B	P	EA		0.00
027	202993-01	ASM,MIC PREAMPLIFIER NOTE 2	B	HY	G	1	P	A	P	EA		0.00
028	202994-01	SPEC,TRANSFORMER,INPUT,LINE BALANCE NOTE 2	B	HY	F	1	P	A	P	EA		0.00
029	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA		0.00
030	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA		0.00
031	203002-01	CASE,PORTABLE NOTE 2	A	HZ	F	1	P	D	P	EA		0.00
033	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA		3.00
034	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA		3.00
035	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA		3.00
036	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA		3.00
037	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA		3.00
038	203115-01	MODULE,EQUALIZATION,7.5-15 NAB NOTE 1	D	HA	G	1	P	C	P	EA		0.00
039	203115-03	MODULE,EQUALIZATION,7.5-15 CCIR NOTE 1	D	HA	G	1	P	C	P	EA		0.00
040	203115-04	MODULE,EQUALIZATION,3.75-7.5 CCIR NOTE 1	D	HA	G	1	P	C	P	EA		0.00
041	203001	INTERCONNECT DIAGRAM,MODEL 250 REF DOCUMENT	1		D	*		*	U	EA		0.00
042	203456-01	LABEL,SYSTEM IDENTIFICATION,250	A	HA	X	1	P	D	P	EA		1.00
043	200290-01	FLYWHEEL,MACH,ALUM	E	ZZ	F	1	P	B	P	EA		1.00
044	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA		1.00

PARENT PART: 202950-06 ASM,RECORD/REPRO,FT,MONO,250-FT UM: EA
ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CO	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
045	203115-02	MODULE,EQUALIZATION,5.75-7.5 NAB NOTE 1	D	MA	G	1	P	D	P	EA	0.00
046	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
047	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
048	110162	SCRW,SET,ALEN,10-32X1/2,OVAL,BLK OX	A	ZZ	X	1	P	C	P	EA	1.00
049	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
050	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
052	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
053	111104	WASHER,#10,"CA",PADDED BRASS		HZ	X	1	P	C	P	EA	3.00
055	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00
056	201049-01	LABEL SER # & CODE	C	ZZ	X	1	P	C	P	EA	1.00
057	151008	CAP,PAPR,50,370VAC,60HZ,(21L3005) C103 - NOTE 1 FOR 50 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
058	151016	CAP,PAPR,40,370VAC,60HZ,(21L3004) C103 - NOTE 1 FOR 60 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
059	203457	IDENTIFICATION DATA,NAMEPLATE,250 REF DOCUMENT	A	MA	*	*		*	P	EA	0.00
060	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
061	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00

NOTES:

1.OPTION - SELECT ONE.
2.ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202950-07 ASM,RECORD/REPRO,1/4T,STEREO,250-24 UM: EA ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	HZ	A	1	P	*	P	EA	1.00
002	202942-02	ASM,PANEL,FRONT,RECORD	A	HZ	A	1	P	A	P	EA	1.00
003	202943-02	ASM,POWER SWITCH,RECORD	C	HA	A	1	P	A	P	EA	1.00
004	202770-03	PWA,CONTROL LOGIC,RECORD	B	HA	A	1	P	A	P	EA	1.00
007	202945-03	ASM,HEAD,PLAY,1/4T	A	HZ	A	1	P	C	P	EA	1.00
010	202953-03	ASM,HEAD,ERASE,1/4T	A	HA	A	1	P	C	P	EA	1.00
013	202952-03	ASM,HEAD,RECORD,1/4T	A	HA	A	1	P	C	P	EA	1.00
015	202954-03	ASM,REC ELEX,STEREO,1/4T	C	HA	A	1	P	B	P	EA	1.00
017	202941-01	ASM,CABLE,XPORT HEAD	A	HA	A	1	P	A	P	EA	1.00
018	202957-01	ASM,CABLE,POWER,RECORD	B	HA	A	1	P	C	P	EA	1.00
019	203082-01	ASM,CPSTN MOTOR,7.5-15 IPS,60HZ NOTE 1	A	HA	A	1	P	A	P	EA	0.00
020	203083-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,60HZ NOTE 1	A	HA	A	1	P	A	P	EA	0.00
021	203084-01	ASM,CPSTN MOTOR,7.5-15 IPS,50HZ NOTE 1	A	HA	A	1	P	A	P	EA	0.00
022	203085-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,50HZ NOTE 1	A	HA	A	1	P	B	P	EA	0.00
023	202951-03	KIT,PARTS,RECORD	A	HA	A	1	P	A	P	EA	1.00
024	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA	1.00
025	202987-02	ASM,REMOTE CONTROL,RECORD NOTE 2	C	HX	G	1	P	B	P	EA	0.00
026	203017-03	ASM,XFMR,OUTPUT NOTE 2	C	HY	A	1	P	B	P	EA	0.00
027	202993-01	ASM,MIC PREAMPLIFIER NOTE 2	B	HY	G	1	P	A	P	EA	0.00
028	202994-01	SPEC,TRANSFORMER,INPUT,LINE BALANCE NOTE 2	B	HY	F	1	P	A	P	EA	0.00
029	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA	0.00
030	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA	0.00
031	203002-01	CASE,PORTABLE NOTE 2	A	HZ	F	1	P	D	P	EA	0.00
033	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
034	110172	SCRW,PAN,XREC,4-40X5/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
035	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
036	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
037	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA	3.00
038	203115-01	MODULE,EQUALIZATION,7.5-15 NAB NOTE 1	D	HA	G	1	P	C	P	EA	0.00
039	203115-03	MODULE,EQUALIZATION,7.5-15 CCIR NOTE 1	D	HA	G	1	P	C	P	EA	0.00
040	203115-04	MODULE,EQUALIZATION,3.75-7.5 CCIR NOTE 1	D	HA	G	1	P	C	P	EA	0.00
041	203001	INTERCONNECT DIAGRAM,MODEL 250 REF DOCUMENT	1		D	*		*	U	EA	0.00
042	203456-01	LABEL,SYSTEM IDENTIFICATION,250	A	HA	X	1	P	D	P	EA	1.00
043	200290-01	FLYWHEEL,MACH,ALUM	E	ZZ	F	1	P	B	P	EA	1.00
044	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA	1.00

PARENT PART: 202950-07 ASM,RECORD/REPRO,1/4T,STEREO,250-24 UM: EA
ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
045	203115-02	MODULE,EQUALIZATION,3.75-7.5 NAB ONOTE 1	D	HA	G	1	P	D	P	EA	0.00
046	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
047	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
048	110162	SCRW,SET,ALEN,10-32X1/2,OVAL,BLK OX	A	ZZ	X	1	P	C	P	EA	1.00
049	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
050	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
052	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
053	111104	WASHER,#10,"CA",PADDED BRASS		BZ	X	1	P	C	P	EA	3.00
055	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00
056	201049-01	LABEL SER # & CODE	C	ZZ	X	1	P	C	P	EA	1.00
057	151008	CAP,PAPR,50,370VAC,60HZ,(21L3005) C103 - NOTE 1 FOR 50 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
058	151016	CAP,PAPR,40,370VAC,60HZ,(21L3004) C103 - NOTE 1 FOR 60 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
059	203457	IDENTIFICATION DATA,NAMEPLATE,250 REF DOCUMENT	A	HA	*	*		*	P	EA	0.00
060	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
061	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00

NOTES:

1.OPTION - SELECT ONE.
2.ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202950-08 ASM,RECORD/REPRO,1/2T,MONO,250-1 UM: EA ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	HZ	A	1	P	*	P	EA	1.00
002	202942-02	ASM,PANEL,FRONT,RECORD	A	HZ	A	1	P	A	P	EA	1.00
003	202943-02	ASM,POWER SWITCH,RECORD	C	HA	A	1	P	A	P	EA	1.00
004	202770-03	PWA,CONTROL LOGIC,RECORD	B	HA	A	1	P	A	P	EA	1.00
006	202945-01	ASM,HEAD,PLAY,1/2T	A	HZ	A	1	P	A	P	EA	1.00
009	202953-01	ASM,HEAD,ERASE,1/2T	A	HA	A	1	P	A	P	EA	1.00
012	202952-01	ASM,HEAD,RECORD,1/2T	A	HA	A	1	P	A	P	EA	1.00
016	202954-04	ASM,REC ELEX,MONO,1/2T	C	HA	A	1	P	A	P	EA	1.00
017	202941-01	ASM,CABLE,XPORT HEAD	A	HA	A	1	P	A	P	EA	1.00
018	202957-01	ASM,CABLE,POWER,RECORD	B	HA	A	1	P	C	P	EA	1.00
019	203082-01	ASM,CPSTN MOTOR,7.5-15 IPS,60HZ NOTE 1	A	HA	A	1	P	A	P	EA	0.00
020	203083-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,60HZ NOTE 1	A	HA	A	1	P	A	P	EA	0.00
021	203084-01	ASM,CPSTN MOTOR,7.5-15 IPS,50HZ NOTE 1	A	HA	A	1	P	A	P	EA	0.00
022	203085-01	ASM,CPSTN MOTOR,3.75-7.5 IPS,50HZ NOTE 1	A	HA	A	1	P	B	P	EA	0.00
023	202951-03	KIT,PARTS,RECORD	A	HA	A	1	P	A	P	EA	1.00
024	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA	1.00
025	202987-02	ASM,REMOTE CONTROL,RECORD NOTE 2	C	HX	G	1	P	B	P	EA	0.00
026	203017-03	ASM,XFMR,OUTPUT NOTE 2	C	HY	A	1	P	B	P	EA	0.00
027	202993-01	ASM,MIC PREAMPLIFIER NOTE 2	B	HY	G	1	P	A	P	EA	0.00
028	202994-01	SPEC,TRANSFORMER,INPUT,LINE BALANCE NOTE 2	B	HY	F	1	P	A	P	EA	0.00
029	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA	0.00
030	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA	0.00
031	203002-01	CASE,PORTABLE NOTE 2	A	HZ	F	1	P	D	P	EA	0.00
033	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
034	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
035	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
036	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
037	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA	3.00
038	203115-01	MODULE,EQUALIZATION,7.5-15 NAB NOTE 1	D	HA	G	1	P	C	P	EA	0.00
039	203115-03	MODULE,EQUALIZATION,7.5-15 CCIR NOTE 1	D	HA	G	1	P	C	P	EA	0.00
040	203115-04	MODULE,EQUALIZATION,3.75-7.5 CCIR NOTE 1	D	HA	G	1	P	C	P	EA	0.00
041	203001	INTERCONNECT DIAGRAM,MODEL 250 REF DOCUMENT	1		D	*		*	U	EA	0.00
042	203456-01	LABEL,SYSTEM IDENTIFICATION,250	A	HA	X	1	P	D	P	EA	1.00
043	200290-01	FLYWHEEL,MACH,ALUM	E	ZZ	F	1	P	B	P	EA	1.00
044	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA	1.00

PARENT PART: 202950-08 ASM,RECORD/REPRO,1/2T,MONO,250-1 UM: EA ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	I Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
045	203115-02	MODULE,EQUALIZATION,3.75-7.5 NAB NOTE 1	D	HA	G	1	P	D	P	EA	0.00
046	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
047	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
048	110162	SCRW,SET,ALEN,10-32X1/2,OVAL,BLK OX	A	ZZ	X	1	P	C	P	EA	1.00
049	150126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
050	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
052	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
053	111104	WASHER,#10,"CA",PADDED BRASS		BZ	X	1	P	C	P	EA	3.00
055	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00
056	201049-01	LABEL SER # & CODE	C	ZZ	X	1	P	C	P	EA	1.00
057	151008	CAP,PAPR,50,370VAC,60HZ,(21L3005) C103 - NOTE 1 FOR 50 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
058	151016	CAP,PAPR,40,370VAC,60HZ,(21L3004) C103 - NOTE 1 FOR 60 HZ OPERATION	A	ZZ	P	1	P	B	P	EA	0.00
059	203457	IDENTIFICATION DATA,NAMEPLATE,250 REF DOCUMENT	A	HA	*	*		*	P	EA	0.00
060	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
061	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00

NOTES:

1. OPTION - SELECT ONE.
2. ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202789-01 ASM,KNOB,REEL HOLD DOWN UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S R	A B C	P L N	UM	EXTENDED QTY PER
001	410085-01	KNOB TOP REEL	A	ZZ	F	1	P	B	P	EA	1.00
002	410086-01	KNOB,BOTTOM REEL	A	ZZ	F	1	P	C	P	EA	1.00
003	410090-01	FLANGE,REEL HOLDDOWN	A	ZZ	F	1	P	C	P	EA	1.00
004	410093-01	RETAINER,SPRING	B	ZZ	F	1	P	B	P	EA	1.00
005	410092-01	RING,BALL SEAT	A	ZZ	F	1	P	B	P	EA	1.00
006	410096-01	PAD,RING,1.55 OD	B	ZZ	F	1	P	C	P	EA	1.00
007	410096-02	PAD,RING,3,34 OD	B	ZZ	F	1	P	C	P	EA	1.00
008	410098-01	SPRING,REEL KNOB	B	ZZ	F	1	P	C	P	EA	1.00
009	111208	WASHER,FLAT,.512X.691X.030,ST,CDPL		ZZ	X	1	P	C	P	EA	1.00
010	112532	RING,RET,EXT,.500D1A (5100-50)	A	ZZ	P	1	P	C	P	EA	1.00
011	112531	BALL,PRCN,3/16D,GR25		ZZ	P	1	P	C	P	EA	3.00
012	110394	SCRW,PAN,XREC,8X5/16,ST,CD,THD CUT		ZZ	X	1	P	C	P	EA	3.00
013	110395	SCRW,PAN,XREC,6X3/8,ST,CD,THD CUT		ZZ	X	1	P	C	P	EA	3.00

NOTES:

PARENT PART: 202931-03 ASM,TRANSPORT UM: EA
ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S R	A B C	P L N	UM	EXTENDED QTY PER
001	202906-01	DECK PLATE,FINISHED	D	HZ	F	1	P	A	P	EA	1.00
002	202789-01	ASM,KNOB,REEL HOLD DOWN	A	ZZ	A	1	P	A	P	EA	2.00
003	202827-01	ARM,SWITCH ACTUATING	A	HZ	F	1	P	C	P	EA	1.00
004	202839-01	GUIDE,TAPE INPUT	A	HZ	F	1	P	B	P	EA	1.00
005	202879-01	TABLE,REEL,MACHINED	D	HZ	A	1	P	A	P	EA	2.00
006	202932-01	ASM,TAPE LIFT	G	HZ	A	1	P	A	P	EA	1.00
007	202933-01	ASM,DANCER ARM	B	HZ	A	1	P	A	P	EA	1.00
008	202934-01	ASM,PRESSURE ROLLER ARM	A	HZ	A	1	P	A	P	EA	1.00
009	202935-01	ASM,TAPE BREAK SWITCH	A	HZ	A	1	P	B	P	EA	1.00
010	202936-01	ASM,PRESSURE ROLLER SOLENOID	B	HZ	A	1	P	A	P	EA	1.00
011	202937-01	ASM,TAPE BREAK ARM	B	HZ	A	1	P	A	P	EA	1.00
012	202938-03	ASM,POWER SUPPLY	K	HZ	A	1	P	*	P	EA	1.00
013	203003-01	ASM,ADAPTOR,NAB	A	ZZ	A	1	P	A	P	EA	2.00
014	203044-01	ARM,TENSION,DANCER	B	HZ	F	1	P	C	P	EA	1.00
015	203052-01	SPRING,EXTENSION,DANCER ARM	A	HZ	F	1	P	C	P	EA	1.00
016	203112-01	SPRING,EXTENSION,DAMPING	A	HZ	F	*		C	P	EA	1.00
020	501030102	SPRING,TENSION	A	ZZ	F	1	P	C	P	EA	1.00
021	501030103-02	COLLAR,SPRING ADJUST	F	ZZ	F	1	P	C	P	EA	1.00
022	502060404	BUSHING,TEFLON	G	ZZ	F	1	P	C	P	EA	1.00
025	112106	RING,RET,(FOR 1/4"SHAFT)	A	ZZ	P	1	P	C	P	EA	1.00
026	112554	CATCH,SPRING,.135D		ZZ	P	1	P	C	P	EA	4.00
028	112564	NYLINER,FLANGED,(NYLON BEARING)		HZ	P	1	P	C	P	EA	6.00
029	162075	LUG,SOLDER,INTERNAL TOOTH,BENT,#8		ZZ	X	1	P	C	P	EA	2.00
030	162193	CONN,PLUG,BANANA,1POS (3265)	A	ZZ	P	1	P	C	P	EA	1.00
031	161293	TUBING,NEOPRENE,.50 ID,.06 THK,BLK		HZ	P	1	P	C	P	LF	0.14
035	110086	SCRW,PAN,SLT,8-32X1.0,SST		HZ	X	3	P	C	P	EA	1.00
036	110113	SCRW,SET,ALEN,10-32X1/4,OVAL,ST,BO		ZZ	X	1	P	C	P	EA	4.00
037	110125	SCRW,SKT,SKT,10-24X5/8,ST,BLK OX		ZZ	X	1	P	C	P	EA	8.00
038	110136	SCRW,SET,ALEN,6-32X1/8,CUP,ST,BL OX		ZZ	X	1	P	C	P	EA	2.00
039	110184	SCRW,SET,ALEN,6-32X1/2,CUP,ST,BO		ZZ	X	1	P	C	P	EA	1.00
041	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	3.00
043	110389	SCRW,PAN,XREC,8-32X1/4,SST,THD CUT		ZZ	X	1	P	C	P	EA	1.00
044	110390	SCRW,PAN,XREC,8-32X3/8,SST,THD CUT		ZZ	X	1	P	C	P	EA	8.00
045	110397	SCRW,PAN,XREC,4-40X1/4,SST,THD CUT		ZZ	X	1	P	C	P	EA	8.00
047	111005	WASHER,FLAT,#10X.04THK,SST		ZZ	X	1	P	C	P	EA	8.00
048	111024	WASHER,LOCK,INT,#8,SST	A	ZZ	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202932-01 ASM,TAPE LIFT UM: EA
ERC: G

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202831-01	PLATE,TAPE LIFT SOLENOID MTG	C	HZ	F	1	P	C	P	EA	1.00
002	202830-01	ROD,TAPE LIFT	C	HZ	F	1	P	C	P	EA	1.00
003	202832-01	BRACKET,ROD SUPPORT	C	HZ	F	1	P	C	P	EA	1.00
004	110080	SCRW,PAN,SLT,8-32X1/4,SST	A	ZZ	X	1	P	C	P	EA	4.00
005	111024	WASHER,LOCK,INT,#8,SST	A	ZZ	X	1	P	C	P	EA	4.00
006	502010425-01	FELT BUMPER,SMALL	A	ZZ	F	1	P	C	P	EA	3.00
008	502060404	BUSHING,TEFLON	G	ZZ	F	1	P	C	P	EA	2.00
009	112124	PIN,COTTER		ZZ	P	1	P	C	P	EA	1.00
010	203036-01	SOLENOID,TAPE LIFTER	D	HZ	F	1	P	A	P	EA	1.00
011	111224	WASHER,FLAT,.453X.755X.016,AL		HZ	X	1	P	C	P	EA	2.00
012	203024-01	SPRING,COMPRESSION	A	HZ	F	1	P	C	P	EA	1.00
013	110112	SCRW,SET,ALEN,4-40X1/8,CUP,ST,BL OX		ZZ	X	1	P	C	P	EA	1.00
014	160035	CONN,PLUG,3POS,(03-06-2031)	A	ZZ	P	1	P	C	P	EA	1.00
015	160030	CONTACT,MALE,.062DIA,24-30GA	B	ZZ	X	1	P	C	P	EA	2.00
016	112573	RING,RET,EXT,.250DIA (5100-25)	A	HZ	P	1	P	C	P	EA	2.00
017	203148-01	WASHER,FELT,.37 OD X .09 ID X .03	B	HZ	F	1	P	C	P	EA	1.00

NOTES:

END OF REPORT

PARENT PART: 202933-01 ASM,DANCER ARM UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S A R	A P B C	P L N	UM	EXTENDED QTY PER
001	202531-01	ARM,DANCER	D	ZZ	F	1	P	B	P	EA	1.00
002	501030303	SHAFT,TENSION ARM	C	ZZ	F	1	P	B	P	EA	1.00
003	110410	SCRW,FLAT,SKT,6-32X3/8,SST	A	HZ	X	1	P	C	P	EA	1.00
004	113017	ADHESIVE,LOCTITE,RC35	A	HZ	P	1	P	C	P	OZ	0.01
005	113016	ADHESIVE,PRIMER,LOCTITE,(T)	A	HZ	P	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202934-01 ASM,PRESSURE ROLLER ARM UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
001	202686-01	ARM,PINCH ROLL,MACH	A	MZ	F	1	P	B	P	EA	1.00
002	501050200	ASM,PRESSURE ROLLER	E	ZZ	A	1	P	A	P	EA	1.00
003	112117	PIN,DOWEL,.2500IAX2.50LG,ALY STL	A	ZZ	P	1	P	C	P	EA	1.00
004	110385	SCRW,SET,ALEN,8-32X3/16,CUP,SST		ZZ	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202935-01 ASM,TAPE BREAK SWITCH UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202878-01	BRACKET,TAPE BREAK SW MTG	A	HZ	F	1	P	C	P	EA	1.00
002	160030	CONTACT,MALE,.062D1A,24-30GA	B	ZZ	X	1	P	C	P	EA	3.00
003	160035	CONN,PLUG,3POS,(03-06-2031)	A	ZZ	P	1	P	C	P	EA	1.00
004	162172	SWITCH,MICRO,5A,125V (E61) S1		ZZ	P	1	P	C	P	EA	1.00
005	161013	WIRE,S,VNYL,07X30,22GA,ORN	B	ZZ	X	1	P	C	P	LF	0.70
006	161015	WIRE,S,VNYL,07X30,22GA,GRN	B	ZZ	X	1	P	C	P	LF	0.70
007	161016	WIRE,S,VNYL,07X30,22GA,BLU	B	ZZ	X	1	P	C	P	LF	0.70
008	110164	SCRW,PAN,XREC,2-56X3/8,SST		HZ	X	1	P	C	P	EA	2.00
009	111001	WASHER,FLAT,#2X.025THK,SST		ZZ	X	1	P	C	P	EA	2.00
010	111021	WASHER,LOCK,INT,#2,SST		ZZ	X	1	P	C	P	EA	2.00

NOTES:

END OF REPOR

PARENT PART: 202936-01 ASM,PRESSURE ROLLER SOLENOID UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202840-02	ARM,PRESSURE ROLLER ACTUATING	B	HZ	F	1	P	C	P	EA	1.00
002	202841-01	BRACKET,STOP,PRESS ROLLER SOLENOID	A	HZ	F	1	P	C	P	EA	1.00
003	202843-02	PLATE,MTG,PRESSURE ROLLER SOLENOID	B	HZ	F	1	P	D	P	EA	1.00
004	203035-01	SOLENOID,PRESSURE ROLLER	A	ZZ	F	1	P	B	P	EA	1.00
005	203148-01	WASHER,FELT,.37 OD X .09 ID X .03	B	HZ	F	1	P	C	P	EA	1.00
006	203394-01	SPRING,COMPRESSION	A	HZ	F	1	P	C	P	EA	1.00
007	203395-01	SPRING,COMPRESSION,RETURN	A	HZ	F	1	P	C	P	EA	1.00
008	203396-01	ROD,CONNECTING,PRESSURE ROLLER	A	HZ	F	1	P	C	P	EA	1.00
010	200593-01	PAD,CORK	A	ZZ	F	1	P	C	P	EA	2.00
011	501050303	NUT,HEX,SPECIAL	B	ZZ	F	1	P	C	P	EA	2.00
012	502010425-01	FELT BUMPER,SMALL	A	ZZ	F	1	P	C	P	EA	2.00
015	110080	SCRW,PAN,SLT,8-32X1/4,SST		ZZ	X	1	P	C	P	EA	4.00
016	110113	SCRW,SET,ALEN,10-32X1/4,OVAL,ST,BO		ZZ	X	1	P	C	P	EA	2.00
017	110136	SCRW,SET,ALEN,6-32X1/8,CUP,ST,BL OX		ZZ	X	1	P	C	P	EA	2.00
018	111004	WASHER,FLAT,#8X.045THK,SST		ZZ	X	1	P	C	P	EA	2.00
019	111024	WASHER,LOCK,INT,#8,SST	A	ZZ	X	1	P	C	P	EA	4.00
020	111195	WASHER,FLAT,#10X.030THK,SST	A	ZZ	X	1	P	C	P	EA	1.00
022	112120	PIN,ROLL,.125DIAX.437LG,STL	A	ZZ	P	1	P	C	P	EA	1.00
023	112585	AIRPOT,PUSH DAMP		HZ	P	1	P	A	P	EA	1.00
024	160031	CONTACT,FEM,.062DIA,24-30GA	A	ZZ	X	1	P	C	P	EA	2.00
025	160045	CONN,RECEPT,3POS,(03-06-1031)	A	ZZ	P	1	P	C	P	EA	1.00
026	162080	ADHESIVE (STA-BOND C-111)		ZZ	X	1	P	C	P	OZ	0.01
027	162545	EYELET,BRS,.246 OD,.219 LG,.385FLNG	-	HZ	P	1	P	C	P	EA	2.00

NOTES:

PARENT PART: 202937-01 ASM,TAPE BREAK ARM UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CO	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
001	502160101-05	ARM,TAPE BREAK	F	ZZ	F	1	P	B	P	EA	1.00
002	501030303	SHAFT,TENSION ARM	C	ZZ	F	1	P	B	P	EA	1.00
003	502160102	GUIDE,TAPE BREAK	C	ZZ	F	1	P	C	P	EA	1.00
004	501030302-02	GUIDE,TAPE,TOP	B	ZZ	F	1	P	C	P	EA	1.00
005	501030302-01	GUIDE,TAPE,BASE	C	ZZ	F	1	P	C	P	EA	1.00
006	501030302-03	GUIDE,TAPE,SPACER	C	ZZ	F	1	P	C	P	EA	1.00
007	110410	SCRW,FLAT,SKT,6-32X3/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110222	SCRW,FLAT,XREC,4-40X5/8,SST		ZZ	X	1	P	C	P	EA	1.00
009	113017	ADHESIVE,LOCTITE,RC35	A	HZ	P	1	P	C	P	OZ	0.01
010	113016	ADHESIVE,PRIMER,LOCTITE,(T)	A	HZ	P	1	P	C	P	OZ	0.01
	NOTES:										

PARENT PART: 202938-02 ASM,POWER SUPPLY (OBS) UM: EA
ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202833-01	CHASSIS,POWER SUPPLY	B	HZ	F	1	P	A	P	EA	1.00
002	202776-03	PWA,PWR SPLY,SOLENOID & MOTOR CONT	D	HA	A	1	P	A	P	EA	1.00
003	202871-01	DRUM,BRAKE	A	HZ	F	1	P	A	P	EA	2.00
004	202970-01	ASM,BRAKE,LEFT	B	HZ	A	1	P	B	P	EA	1.00
005	202970-02	ASM,BRAKE,RIGHT	B	HZ	A	1	P	B	P	EA	1.00
006	202981-01	ASM,HARNESS,POWER SUPPLY	C	HZ	A	1	P	A	P	EA	1.00
007	202982-01	ASM,CABLE,CONT LOGIC	A	HZ	A	1	P	B	P	EA	1.00
008	202983-02	SPRING,EXTENSION,BRAKE TENSION	C	HB	F	1	P	C	P	EA	2.00
009	202985-01	SPRING,BRAKE RELEASE (OBS)	B	HZ	F	1	P	C	P	EA	1.00
010	2403009	SPRING,BRAKE	D	ZZ	F	1	P	C	P	EA	2.00
011	203015-01	ASM,HIGH/LOW LINE JUMPER	B	HZ	A	1	P	C	P	EA	1.00
013	203020-01	ASM,MOTION SENSE	A	HZ	A	1	P	B	P	EA	1.00
014	203029-01	ASM,REEL MOTOR	A	HZ	A	1	P	A	P	EA	2.00
015	203030-01	CLAMP,RIBBON CABLE	A	HZ	F	1	P	C	P	EA	2.00
016	203152-01	ASM,BRAKE SOLENOID (OBS)	B	HZ	A	1	P	C	P	EA	1.00
017	502010411	SPACER,LINK	B	ZZ	F	1	P	C	P	EA	2.00
020	149136	RES,CRB,1,1/2W,5%		ZZ	X	1	P	C	P	EA	2.00
021	151008	CAP,PAPR,5U,370VAC,60HZ,(21L3005) C101,102	A	ZZ	P	1	P	B	P	EA	2.00
022	152064	SOCKET,XSTR MTG,TO-3 REF VR101,102	A	ZZ	P	3	P	B	P	EA	2.00
023	154001	IC,L,309,REG,VOLT,5V,ETC2/EQ VR101	A	ZZ	P	1	P	B	P	EA	1.00
024	154043	IC,L,317K,REG,VOLT VR102	B	HZ	P	1	P	B	P	EA	1.00
027	160125	CONN,PLUG,AC POWER,(EAC-3011) J102		ZZ	P	1	P	C	P	EA	1.00
028	162000	SOCKET,FUSE,3AG,(342004 REF F101		ZZ	P	1	P	B	P	EA	1.00
029	162008	FUSE,3AG,3.0AMP REG F101		ZZ	P	1	P	C	P	EA	1.00
030	162074	LUG,SOLDER,6,11/16LX.02THK,BRS		ZZ	P	1	P	C	P	EA	4.00
031	162076	LUG,SOLDER,INTERNAL TOOTH,#4	A	ZZ	P	1	P	C	P	EA	1.00
032	162106	LUG,SOLDER,#10,LOCKING,BRS(1414-10)	A	ZZ	P	1	P	C	P	EA	2.00
033	162078	STRIP,TERMINAL,#2,4POS,(53F) TB1		ZZ	P	1	P	C	P	EA	1.00
034	162081	CLIP,CAPACITOR MTG REF C101,102		ZZ	P	1	P	C	P	EA	4.00
035	162433	INSULATOR,XSTR,TO-3 REF VR101,102	A	ZZ	P	1	P	C	P	EA	2.00
036	163089	CAP,MONO,.22U,50V,20%,RA,Z5U C104		ZZ	P	1	P	C	P	EA	1.00
037	164053	CAP,ELEC,2900U,50V (602D) C105	A	ZZ	P	1	P	B	P	EA	1.00
040	110149	SCRW,SET,ALEN,10-32X3/8,CUP,ST,CDPL		ZZ	X	1	P	C	P	EA	2.00
041	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	4.00
042	110170	SCRW,PAN,XREC,6-32X3/8,SST		ZZ	X	1	P	C	P	EA	2.00
043	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	2.00
044	110192	SCRW,PAN,XREC,4-40X3/16,SST		ZZ	X	1	P	C	P	EA	2.00
045	110174	SCRW,PAN,XREC,6-32X1/4,SST		ZZ	X	1	P	C	P	EA	5.00

PARENT PART: 202938-02 ASM,POWER SUPPLY (OBS) UM: EA ERC: K

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
046	110181	SCRW,PAN,XREC,6-32X5/16,SST		ZZ	X	1	P	C	P	EA	8.00
047	110418	SCRW,FLAT,SLT,4-40X1/2,NYL	A	HA	X	1	P	C	P	EA	2.00
048	110206	SCRW,PAN,XREC,6-32X5/8,SST		ZZ	X	1	P	C	P	EA	4.00
049	110207	SCRW,SKT,SKT,10-24X1/2,ST,BLK OX		ZZ	X	1	P	C	P	EA	6.00
050	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	4.00
051	111024	WASHER,LOCK,INT,#8,SST	A	ZZ	X	1	P	C	P	EA	4.00
052	111003	WASHER,FLAT,#6X.045THK,SST		ZZ	X	1	P	C	P	EA	4.00
053	111005	WASHER,FLAT,#10X.04THK,SST		ZZ	X	1	P	C	P	EA	6.00
054	111010	WASHER,SPRG,.190X.375X.010,BRZ(1457		ZZ	X	1	P	C	P	EA	2.00
055	111023	WASHER,LOCK,INT,#6,SST		ZZ	X	1	P	C	P	EA	10.00
056	111062	NUT,KEP,4-40,EXT LOCK		ZZ	X	1	P	C	P	EA	4.00
057	111063	NUT,KEP,6-32,EXT LOCK,5/16 HEX		ZZ	X	1	P	C	P	EA	4.00
059	111115	NUT,KEP,6-32,EXT LOCK,1/4 HEX		ZZ	X	1	P	C	P	EA	3.00
060	111022	WASHER,LOCK,INT,#4,SST		ZZ	X	1	P	C	P	EA	2.00
061	111210	WASHER,FLAT,#6X.03THK,BRASS		HZ	X	1	P	C	P	EA	2.00
062	111225	WASHER,FLAT,#10X.030THK,SST		HA	X	1	P	C	P	EA	2.00
063	112183	CLAMP,CAP,1.375X1.438,VERT MTG REF C105		ZZ	P	1	P	C	P	EA	1.00
064	112556	STUD,BALL,.570 HT	A	HZ	P	1	P	C	P	EA	2.00
065	203091-01	TARGET,MOTION SENSOR	A	HZ	F	1	P	C	P	EA	1.00

NOTES:

END OF REPOR

PARENT PART: 203029-01 ASM,REEL MOTOR UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202637-01	MOTOR, REEL	A	HZ	F	1	P	A	P	EA	1.00
002	160189	CONN,HSNG, 6POS,1 ROW,NYLON		ZZ	P	1	P	B	P	EA	1.00
003	160185	PIN,CONTACT,FEMALE,HIGH PRESSURE		ZZ	X	1	P	B	P	EA	6.00
004	160016	TERMINAL,GRIP,FEM,22-18GA,.25X.032		ZZ	P	1	P	C	P	EA	2.00
005	161018	WIRE,S,VNYL,07X30,22GA,GRA	B	ZZ	X	1	P	C	P	LF	0.70
006	161019	WIRE,S,VNYL,07X30,22GA,WHT	B	ZZ	X	1	P	C	P	LF	0.70
007	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00

NOTES:

PARENT PART: 202970-01 ASM,BRAKE,LEFT UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202875-01	ARM,BRAKE,LEFT	B	HZ	F	1	P	C	P	EA	1.00
002	202961-01	SHOE,BRAKE	A	HZ	F	1	P	C	P	EA	1.00
003	203019-01	INSERT,BRAKE ARM	A	HZ	F	1	P	B	P	EA	3.00
004	162080	ADHESIVE (STA-BOND C-111)		ZZ	X	1	P	C	P	OZ	0.01
005	161291	TUBING,EXTRUDED,#7,TEFLON,NATURAL	A	HZ	P	3	P	C	P	LF	0.10

NOTES:

PARENT PART: 202970-02 ASM,BRAKE,RIGHT UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202875-02	ARM,BRAKE,RIGHT	B	HZ	F	1	P	C	P	EA	1.00
002	202961-01	SHOE,BRAKE	A	HZ	F	1	P	C	P	EA	1.00
003	203019-01	INSERT,BRAKE ARM	A	HZ	F	1	P	B	P	EA	3.00
004	162080	ADHESIVE (STA-BOND C-111)		ZZ	X	1	P	C	P	OZ	0.01
005	161291	TUBING,EXTRUDED,#7,TEFLON,NATURAL	A	HZ	P	3	P	C	P	LF	0.10
	NOTES:										

PARENT PART: 202776-03 PWA,PWR SPLY,SOLENOID & MOTOR CONT UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202777-02	PWB,PWR SPLY,SOLENOID & MOT CONT	D	HA	F	1	P	B	P	EA	1.00
002	203233	SCHEM,PWR SPLY,SOLENOID & MOT CONT REF DOCUMENT	B	HA	D	1	P	*	U	EA	0.00
003	149013	RES,CRB,22K,1/4W,5% R1,9		ZZ	X	1	P	C	P	EA	2.00
004	149055	RES,CRB,10,1/4W,5% R16		ZZ	P	1	P	C	P	EA	1.00
005	149056	RES,CRB,4.7K,1/4W,5% R12,15		ZZ	X	1	P	C	P	EA	2.00
006	149070	RES,CRB,10K,1/4W,5% R19		ZZ	X	1	P	C	P	EA	1.00
007	149091	RES,CRB,3.3K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
008	149097	RES,CRB,180K,1/4W,5% R10		ZZ	X	1	P	C	P	EA	1.00
009	149098	RES,CRB,2.2K,1/4W,5% R5,7		ZZ	X	1	P	C	P	EA	2.00
010	149115	RES,CRB,47,1/4W,5% R18		ZZ	X	1	P	C	P	EA	1.00
011	149118	RES,CRB,220,1/4W,5% R13,17		ZZ	X	1	P	C	P	EA	2.00
012	149122	RES,CRB,1.5K,1/4W,5% R11	A	ZZ	X	1	P	C	P	EA	1.00
013	149136	RES,CRB,1,1/2W,5% R6,8		ZZ	X	1	P	C	P	EA	2.00
014	149152	RES,CRB,120,1/4W,5% R2		ZZ	P	1	P	C	P	EA	1.00
015	149423	RES,MF,2.26K,1/8W,1%,CLR/BND,100PPM R3	B	HZ	P	1	P	C	P	EA	1.00
017	150333	RES,CRB,1.5K,1/2W,5% R14		ZZ	P	1	P	C	P	EA	1.00
018	150339	RES,CRB,4.7K,1/2W,5% R4		ZZ	P	1	P	C	P	EA	1.00
020	152111	XSTR,X40K344,NPN,SI,AMPL,1.25W,X51C Q1	C	ZZ	P	1	P	C	P	EA	1.00
021	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q2,3,4,5	B	ZZ	P	1	P	C	P	EA	4.00
022	152051	XSTR,2N4403,PNP,SI,PWR,350MW,TO92 Q7	B	ZZ	P	1	P	B	P	EA	1.00
023	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q6	C	ZZ	P	1	P	B	P	EA	1.00
024	153001	DIODE,1N4001,RECT,50V,1A,75DEG CR1,5,6,7,9,10, 11,13,14,16	A	ZZ	P	1	P	B	P	EA	10.00
025	153002	DIODE,E4,RECT,400V,1A,55DEG CR15	A	ZZ	P	1	P	C	P	EA	1.00
026	153022	VARISTOR,VP130A10,130V,.5W RV1,2	B	ZZ	P	1	P	B	P	EA	2.00
027	153041	DIODE,MDA970-1,RECT BRIDGE,50V,4A CR8	A	HZ	P	1	P	B	P	EA	1.00

PARENT PART: 202776-03 PWA,PWR SPLY,SOLENOID & MOTOR CONT UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
028	153085	DIODE,JAN 1N4148-1,SW,100V,5.0 NS CR2,3,4,12	B	ZZ	X	1	P	B	P	EA	4.00
030	156008	RELAY,GP,4PDT,24VDC,.012 GAP MIN K1,2,3	A	ZZ	P	1	P	A	P	EA	3.00
031	156062	SPRING,HOLD DOWN REF K1,2,3	A	ZZ	P	1	P	C	P	EA	3.00
032	156123	SOCKET,RELAY,4 POLE W/O GROUND XK1,2,3		HZ	P	1	P	C	P	EA	3.00
033	160168	CONN,HDR,MALE,2POS,.156CT,(87160-4) J8		ZZ	P	1	P	C	P	EA	1.00
034	160170	CONN,HDR,MALE,6POS,.156CT,(87160-7) J1,2,3		ZZ	P	1	P	C	P	EA	3.00
035	160171	CONN,RECEPT,8POS,MALE,(87160-9) J4,5		ZZ	P	1	P	C	P	EA	2.00
036	160278	CONN,HDR,MALE,32POS,.1CT,(87227-8) J6		HZ	P	1	P	C	P	EA	1.00
037	160280	CONN,HDR,MALE,12POS,.156CT(1-87160 J7	A	HZ	P	1	P	C	P	EA	1.00
038	163036	CAP,CER,.1U,500V,20%,Z5U C1,2,7,10,11		ZZ	P	1	P	B	P	EA	5.00
039	164049	CAP,ELEC,100U,25V,-10/+50%,AX(30T1) C12	A	HZ	P	1	P	C	P	EA	1.00
041	171031	CAP,TA,47U,6V,20%,RA,(T362) C5,9		ZZ	P	1	P	C	P	EA	2.00
042	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C4	B	HZ	P	1	P	C	P	EA	1.00
043	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C6,8	B	ZZ	P	1	P	C	P	EA	2.00
044	171063	CAP,TA,10U,35V,10%,RA,(T362) C3	A	ZZ	P	1	P	B	P	EA	1.00
	NOTES:										

PARENT PART: 203020-01 ASM,MOTION SENSE UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	203009-01	PWA,MOTION SENSOR,OPTAC	A	HZ	A	1	P	B	P	EA	1.00
002	203011-01	BRACKET,MOTION SENSOR PWA MTG	A	HZ	F	1	P	C	P	EA	1.00
003	162522	CLAMP,CABLE,NYLON,1/8 DIA		HZ	P	1	P	C	P	EA	1.00
004	110170	SCRW,PAN,XREC,6-32X3/8,SST		ZZ	X	1	P	C	P	EA	1.00
005	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	2.00
006	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	2.00
007	111003	WASHER,FLAT,#6X.045THK,SST		ZZ	X	1	P	C	P	EA	1.00
008	111115	NUT,KEP,6-32,EXT LOCK,1/4 HEX		ZZ	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 203009-01 PWA,MOTION SENSOR,OPTAC UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT RFV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	203010-01	PWB,MOTION SENSOR,OPTAC	A	H7	F	1	P	C	P	EA	1.00
002	162500	PHOTO COND,OPTO REFLECTOR,(MCA7)		H7	P	1	P	B	P	EA	1.00
003	160035	CONN,PLUG,3POS,(03-06-2031)	A	Z7	P	1	P	C	P	EA	1.00
004	160030	CONTACT,MALE,.062DIA,24-30GA	B	ZZ	X	1	P	C	P	EA	3.00
005	161010	WIRE,S,VNYL,07X30,22GA,BLK	B	Z7	X	1	P	C	P	LF	0.40
006	161011	WIRE,S,VNYL,07X30,22GA,BRN	B	Z7	X	1	P	C	P	LF	0.40
007	161019	WIRE,S,VNYL,07X30,22GA,WHT	B	Z7	X	1	P	C	P	LF	0.40

NOTES:

PARENT PART: 202981-01 ASM,HARNESS,POWER SUPPLY UM: EA ERC: C

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
001	160035	CONN,PLUG,3POS,(03-06-2031) J106	A	ZZ	P	1	P	C	P	EA	1.00
002	160045	CONN,RECEPT,3POS,(03-06-1031) J101,104,105,107	A	ZZ	P	1	P	C	P	EA	4.00
003	160047	CONN,RECEPT,6POS,(03-06-1061) J111		ZZ	P	1	P	C	P	EA	1.00
005	160163	CONN,HSNG,9POS,NYL,(1-480707-0) J110		ZZ	P	1	P	C	P	EA	1.00
006	160174	CONN,HSNG,8POS,NYL,(87159-8) P4,5	A	HZ	P	1	P	C	P	EA	2.00
007	160189	CONN,HSNG, 6POS,1 ROW,NYLON P3		ZZ	P	1	P	B	P	EA	1.00
008	160165	CONTACT,MALE,.062D,(350561-1)	B	ZZ	X	1	P	C	P	EA	33.00
009	160016	TERMINAL,GRIP,FEM,22-18GA,.25X.032		ZZ	P	1	P	C	P	EA	2.00
010	160228	CONN,LOCK,CAP,15PIN J112		ZZ	P	1	P	C	P	EA	1.00
011	160172	CONN,HSNG,2POS,NYL,(87159-3) P8		ZZ	P	1	P	C	P	EA	1.00
012	160269	CONN,HSNG,12POS,(1-480709-0) J103,109		ZZ	P	1	P	C	P	EA	2.00
013	160281	CONN,HDR,FEM,12POS,.156CT(1-87159-2 P7		HZ	P	1	P	C	P	EA	1.00
014	160289	CONN,HSNG,3POS,(1-480701-0) J108		HZ	P	1	P	C	P	EA	1.00
017	160031	CONTACT,FEM,.062DIA,24-30GA	A	ZZ	X	1	P	C	P	EA	18.00
018	162106	LUG,SOLDER,#10,LOCKING,BRS(1414-10)	A	ZZ	P	1	P	C	P	EA	2.00
019	160185	PIN,CONTACT,FEMALE,HIGH PRESSURE		ZZ	X	1	P	B	P	EA	51.00
020	161110	WIRE,S,VNYL,16X30,18GA,BLK	B	ZZ	X	1	P	C	P	LF	6.50
021	161012	WIRE,S,VNYL,07X30,22GA,RED	B	ZZ	X	1	P	C	P	LF	5.00
022	161013	WIRE,S,VNYL,07X30,22GA,ORN	B	ZZ	X	1	P	C	P	LF	1.50
023	161015	WIRE,S,VNYL,07X30,22GA,GRN	B	ZZ	X	1	P	C	P	LF	1.50
024	161016	WIRE,S,VNYL,07X30,22GA,BLU	B	ZZ	X	1	P	C	P	LF	5.50
025	161017	WIRE,S,VNYL,07X30,22GA,VIO	B	ZZ	X	1	P	C	P	LF	4.00
026	161018	WIRE,S,VNYL,07X30,22GA,GRA	B	ZZ	X	1	P	C	P	LF	1.50
027	161019	WIRE,S,VNYL,07X30,22GA,WHT	B	ZZ	X	1	P	C	P	LF	2.00
029	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	40.00
030	163048	CAP,CER,.05U,500V,20%		ZZ	P	1	P	C	P	EA	4.00
031	161011	WIRE,S,VNYL,07X30,22GA,BRN	B	ZZ	X	1	P	C	P	LF	3.00
032	161014	WIRE,S,VNYL,07X30,22GA,YEL	B	ZZ	X	1	P	C	P	LF	4.00
033	161082	WIRE,S,VNYL,UL,07X30,22GA,WHT/RED	C	ZZ	X	1	P	C	P	LF	4.00
034	161087	WIRE,S,VNYL,UL,07X30,22GA,WHT/VIO	C	ZZ	X	1	P	C	P	LF	1.00
035	161081	WIRE,S,VNYL,UL,07X30,22GA,WHT/BRN	C	ZZ	X	1	P	C	P	LF	3.00
036	161083	WIRE,S,VNYL,UL,07X30,22GA,WHT/ORN	C	ZZ	X	1	P	C	P	LF	1.00
037	161084	WIRE,S,VNYL,UL,07X30,22GA,WHT/YEL	C	ZZ	X	1	P	C	P	LF	1.50
038	161086	WIRE,S,VNYL,UL,07X30,22GA,WHT/BLU	C	ZZ	X	1	P	C	P	LF	2.50
039	161085	WIRE,S,VNYL,UL,07X30,22GA,WHT/GRN	C	ZZ	X	1	P	C	P	LF	1.00
040	161088	WIRE,S,VNYL,UL,07X30,22GA,WHT/GRA	C	ZZ	X	1	P	C	P	LF	2.50
041	203807	W/L,POWER SUPPLY HARNESS ASSEMBLY REF DOCUMENT	A	HZ	*	1	P	*	P	EA	0.00

PARENT PART: 203015-01 ASM,HIGH/LOW LINE JUMPER UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	160290	CONN,HSNG,3POS,(1-480700-0) P108-1, P108-2		HZ	P	1	P	C	P	EA	2.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	6.00
004	161118	WIRE,S,VNYL,16X30,18GA,GRA	H	ZZ	X	1	P	C	P	LF	0.33
	NOTES:										

PARENT PART: 202924-01 ASM,RECORD SWITCH UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	160172	CONN,HSNG,2POS,NYL,(87159-3)		ZZ	P	1	P	C	P	EA	1.00
002	162484	SWITCH,TOGGLE,LEVER,BLK,(7101-J61)	A	MA	P	1	P	B	P	EA	1.00
003	160185	PIN,CONTACT,FEMALE,HIGH PRESSURE		ZZ	X	1	P	B	P	EA	2.00
004	161012	WIRE,S,VNYL,07X30,22GA,RED	B	ZZ	X	1	P	C	P	LF	0.30
005	161011	WIRE,S,VNYL,07X30,22GA,BRN	B	ZZ	X	1	P	C	P	LF	0.30

NOTES:

PARENT PART: 202943-02 ASM,POWER SWITCH,RECORD UM: EA ERC: C

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202829-01	PLATE,SWITCH	A	HZ	F	1	P	C	P	EA	1.00
002	162492	SWITCH,ROCKER,2PDT,(7201-021-J1) S1,S2		HZ	P	1	P	B	P	EA	2.00
003	162493	SWITCH,ROCKER,3PDT,(7301-031-J1) S3		HA	P	1	P	B	P	EA	1.00
004	202828-01	PLATE,MOUNTING	A	HZ	F	1	P	C	P	EA	1.00
005	162496	LAMP,NEON,1/7W,CLR DS1		HZ	P	1	P	C	P	EA	1.00
006	202758-01	CLAMP,NEON LAMP	A	HZ	F	1	P	C	P	EA	1.00
007	112048	SPACER,1.25X.250X4-40,HEX,AL		ZZ	P	1	P	C	P	EA	4.00
008	149012	RES,CAR,47K,1/4W,5% R1		ZZ	X	1	P	C	P	EA	1.00
009	161060	CABLE,15 COND,22GA		ZZ	X	1	P	C	P	LF	1.10
010	160227	CONN,LOCK,PLUG,15PIN P112		ZZ	P	1	P	C	P	EA	1.00
011	112557	BUSHING,SNUB,1/4"WIRE		HZ	P	1	P	C	P	EA	1.00
012	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	15.00
013	112514	RING,O,.176 IDX.070W,BUNA-N	B	ZZ	P	1	P	C	P	EA	1.00
014	110050	SCRW,PAN,SLT,2-56X1/4,SST		ZZ	X	1	P	C	P	EA	5.00
015	110175	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	8.00
016	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
017	111021	WASHER,LOCK,INT,#2,SST		ZZ	X	1	P	C	P	EA	7.00
018	111022	WASHER,LOCK,INT,#4,SST		ZZ	X	1	P	C	P	EA	11.00
019	111051	NUT,HEX,MACH,2-56UNC,SST	A	ZZ	X	1	P	C	P	EA	1.00
020	162222	STRIP,TERMINAL,2 POS (863) TB1	A	ZZ	P	1	P	C	P	EA	1.00
021	203809	A/L,POWER SWITCH ASM,RECORD REF DOCUMENT	A	HA	*	1	P	*	P	EA	0.00

NOTES:

PARENT PART: 202923-02 ASM,METER UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	162489	METER,VU BALLISTICS	B	HA	P	1	P	A	P	EA	1.00
002	203444-01	PWA,METER RECTIFIER	B	HA	A	1	P	C	P	EA	1.00
	NOTES:										

PARENT PART: 202770-01 PWA,CONTROL LOGIC,RECORD (OBS) UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202771-01	PWB,CONTROL LOGIC (OBS)	C	HZ	F	1	P	C	P	EA	1.00
002	202772	SCHEM,CONTROL LOGIC REF DOCUMENT	B	HZ	D	1	P	D	U	EA	0.00
003	149010	RES,CRB,470,1/4W,5% R1		ZZ	X	1	P	C	P	EA	1.00
004	149096	RES,CRB,2.2K,1/4W,5% R15,R16		ZZ	X	1	P	C	P	EA	2.00
005	149115	RES,CRB,47,1/4W,5% R2,3,4,5,6		ZZ	X	1	P	C	P	EA	5.00
006	149116	RES,CRB,220,1/4W,5% R7,8,10,11		ZZ	X	1	P	C	P	EA	4.00
007	149156	RES,CRB,68K,1/4W,5% R12,13		ZZ	X	1	P	C	P	EA	2.00
008	149462	RES,CRB,2.7,1/4W,5% R14		HZ	P	1	P	C	P	EA	1.00
009	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q1,2	B	ZZ	P	1	P	C	P	EA	2.00
010	155008	IC,D,7408N,AND,DUAL,ETC4/EQ U2	A	ZZ	P	1	P	C	P	EA	1.00
011	155019	IC,D,7442N,4-10LN,DEC U1		ZZ	P	1	P	C	P	EA	1.00
012	155035	IC,D,7414N,INV,HEX SCHMITT,ETC4/EQ U5	B	ZZ	P	1	P	C	P	EA	1.00
013	155041	IC,D,7411N,AND,DUAL,3 I/P,ETC4/EQ U3	A	ZZ	P	1	P	C	P	EA	1.00
014	155053	IC,D,74279N,FF,S-R,QUAD,ETC4/EQ U4	A	ZZ	P	1	P	C	P	EA	1.00
015	160278	CONN,HDR,MALE,32POS,.1CT,(87227-8) J1		HZ	P	1	P	C	P	EA	1.00
016	162494	SWITCH,PUSH BUT,SPDT,(DIGITAST#SR) S2,3,4,5		HZ	P	1	P	A	P	EA	4.00
017	162495	SWITCH,PUSH BUT,W/LED,(DIGITAST#SRL S1		HZ	P	1	P	B	P	EA	1.00
018	171031	CAP,TA,47U,6V,20%,RA,(T362) C1,8		ZZ	P	1	P	C	P	EA	2.00
019	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C2,4,5,6,7	D	HZ	P	1	P	C	P	EA	5.00
020	171063	CAP,TA,10U,35V,10%,RA,(T362) C3	A	ZZ	P	1	P	B	P	EA	1.00
021	149152	RES,CRB,120,1/4W,5% R9		ZZ	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202945-01 ASM,HEAD,PLAY,1/2T UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
001	180059	HEAD,PLAY,2CH,2TRK,.25 (200MH)	A	HZ	P	1	P	A	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202945-02 ASM,HEAD,PLAY,FT UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A b C	P L N	UM	EXTENDED QTY PER
002	180004	HEAD,PLAY,FT,.25	A	ZZ	P	1	P	A	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	b	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202945-03 ASM,HEAD,PLAY,1/4T UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CO	S C E	I Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
003	180058	HEAD,PLAY,2CH,4TRK,.25 (200MH)	A	HZ	P	1	P	C	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110163	SCRW,SET,ALEN,4-40X3/16,CONE,ST,80		HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202953-01 ASM,HEAD,ERASE,1/2T UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	180021	HEAD,ERASE,2CH,2TRK,.25	A	ZZ	P	1	P	A	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

END OF REPOR

PARENT PART: 202953-02 ASM,HEAD,ERASE,FT UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B L	P L N	UM	EXTENDED QTY PER
002	180020	HEAD,ERASE,FT,.25	A	ZZ	P	1	P	A	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202953-03 ASM,HEAD,ERASE,1/4T UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	I Y P	S P R	A b C	P L N	UM	EXTENDED QTY PER
003	180018	HEAD,ERASE,2CH,4TRK,.25	A	ZZ	P	1	P	C	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	P	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110163	SCRW,SET,ALEN,4-40X3/16,CONE,ST,SO		HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202952-01 ASM,HEAD,RECORD,1/2T UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	I Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	180056	HEAD,REC,2CH,2TRK,.25	A	HA	P	1	P	A	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	P	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/6,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202952-02 ASM,HEAD,RECORD,FT UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
002	022210102	HEAD,REC,FT,.25	A	ZZ	P	1	P	A	P	EA	1.00
004	112546	MRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110409	SCRW,SET,ALEN,4-40X1/8,CONE,SST	A	HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01
	NOTES:										

PARENT PART: 202952-03 ASM,HEAD,RECORD,1/4T UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
003	180019	HEAD,REC,2CH,4TRK,.25	A	ZZ	P	1	P	C	P	EA	1.00
004	112546	BRKT,HEAD MTG KIT		HZ	P	1	P	B	P	EA	1.00
005	202844-01	PLATE,HEAD MTG	A	HZ	F	1	P	C	P	EA	1.00
006	110407	SCRW,FIL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
007	110408	SCRW,FIL,SLT,2-56X5/8,SST	A	HZ	X	1	P	C	P	EA	1.00
008	110163	SCRW,SLT,ALEN,4-40X3/16,CONE,ST,80		HZ	X	1	P	C	P	EA	2.00
009	162274	ADHESIVE,EPOXY,2PART,CLR		ZZ	X	1	P	C	P	OZ	0.01

NOTES:

PARENT PART: 202941-01 ASM,CABLE,XPORT HEAD UM: EA
ENC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
001	161063	CABLE,W/PLUG,2 TWISTED PR,P139-621		ZZ	P	1	P	B	P	EA	3.00
002	160141	COVER,CONN,(DB24659)		ZZ	P	1	P	C	P	EA	1.00
003	160139	RETAINER,CONN,SLIDE LK,(DB51221-1)		ZZ	P	1	P	C	P	EA	1.00
004	160090	CONN,RECEPT,25POS,MALE,(DBM-25P)		ZZ	P	1	P	B	P	EA	1.00
005	160140	POST,CONN SLIDE LOCK,(D53018)	A	ZZ	P	1	P	C	P	PR	1.00

NOTES:

PARENT PART: 202957-01 ASM,CABLE,POWER,RECORD UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	160167	CONN,HSNG, 9POS,3ROW,NYLON P108	A	ZZ	P	1	P	C	P	EA	1.00
002	160047	CONN,RECEPT,6POS,(03-06-1061) P111		ZZ	P	1	P	C	P	EA	1.00
003	160050	CONTACT,MALE,.062DIA,24-30GA	B	ZZ	X	1	P	C	P	EA	4.00
004	160165	CONTACT,MALE,.062D,(350561-1)	B	ZZ	X	1	P	C	P	EA	5.00
005	161199	WIRE,S,VNYL,UL,07X30,22GA,RED	A	ZZ	X	1	P	C	P	LF	3.00
006	161197	WIRE,S,VNYL,UL,07X30,22GA,BLK	A	ZZ	X	1	P	C	P	LF	6.00
007	161200	WIRE,S,VNYL,UL,07X30,22GA,BRN	A	ZZ	X	1	P	C	P	LF	3.00
008	161084	WIRE,S,VNYL,UL,07X30,22GA,WHT/YEL	C	ZZ	X	1	P	C	P	LF	3.00
009	203806	W/L,POWER CABLE ASSEMBLY REF DOCUMENT	A	HA	*	1	P	*	P	EA	0.00

NOTES:

PARENT PART: 203082-01 ASM,CPSTN MOTOR,7.5-15 IPS,60HZ UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	041010702	MOTOR,CPSTN,H/S,60HZ	D	ZZ	F	1	P	A	P	EA	1.00
002	160167	CONN,HSNG, 9POS,5ROW,NYLON P110	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	8.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00

NOTES:

PARENT PART: 203083-01 ASM,CPSTN MOTOR,3.75-7.5 IPS,60HZ UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P K	A B C	P L N	UM	EXTENDED QTY PER
001	041010706	MOTOR,CAPSTAN,H/S,60HZ	D	ZZ	F	1	P	A	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON P110	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	8.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00

NOTES:

PARENT PART: 203084-01 ASM,CPSTN MOTOR,7.5-15 IPS,50HZ UM: EA
ENG: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	041010704	MOTOR,CPSTN,H/S,50HZ	D	ZZ	F	1	P	A	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON P110	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	8.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00

NOTES:

END OF REPORT

PARENT PART: 203085-01 ASM,CPSTN MOTOR,3.75-7.5 IPS,50HZ UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	041010705	MOTOR,CPSTN,H/S,50HZ	D	Z7	F	1	P	B	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON P110	A	Z7	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	Z7	X	1	P	C	P	EA	8.00
004	162198	STRAP,CABLE,NYLON	A	Z7	X	1	P	C	P	EA	4.00

NOTES:

PARENT PART: 202951-03 KIT,PARTS,RECORD UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202847-01	SHIELD,HEAD	A	HB	F	1	P	B	P	EA	1.00
002	202846-01	COVER,HEAD SHIELD	A	HB	F	1	P	A	P	EA	1.00
003	202949-01	GUIDE,TAPE	A	H7	F	1	P	C	P	EA	2.00
004	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	1.00
005	110184	SCRW,SET,ALEN,6-32X1/2,CUP,ST,BO		ZZ	X	1	P	C	P	EA	3.00
006	110413	SCRW,FLAT,XREC,4-40X1/4,SST	B	H7	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202946-01 ASM,COVER,HEAD UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P I N	UM	EXTENDED QTY PER
001	202880-01	COVER,HEAD,MACH	A	HR	F	1	P	B	P	EA	1.00
002	112552	STUD,BALL	A	H7	P	1	P	C	P	EA	2.00
	NOTES:										

PARENT PART: 202987-02 ASM,REMOTE CONTROL,RECORD UM: EA
ERC: C

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT RFV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
002	203068-02	PWA,REMOTE CONTROL,RECORD	B	HX	A	1	P	B	P	EA	1.00
003	203072-01	OVERLAY,REMOTE CONTROL,RECORD	B	HX	F	1	P	C	P	EA	1.00
004	161126	CABLE,ALPHA,1179		ZZ	X	1	P	C	P	LF	30.00
005	160266	CONN,HSNG,12POS,(1-480708-0)		ZZ	P	1	P	C	P	EA	1.00
006	162340	CLAMP,STRAIN RELIEF		ZZ	P	1	P	C	P	EA	2.00
007	110272	SCRW,PAN,XREC,6X5/8,ST,BLK OX,S MET		ZZ	X	1	P	C	P	EA	2.00
008	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	9.00
009	112557	BUSHING,SNUB,1/4"WIRE		HZ	P	1	P	C	P	EA	1.00
010	112022	SPACER,.375X.250X.140,RND,COPL/BRS	A	ZZ	P	1	P	C	P	EA	3.00
011	110222	SCRW,FLAT,XREC,4-40X5/8,SST		ZZ	X	1	P	C	P	EA	3.00
012	111062	NUT,KEP,4-40,EXT LOCK		ZZ	Y	1	P	C	P	EA	3.00
013	201372-01	BUMPER,SWITCH	A	ZZ	F	1	P	C	P	EA	4.00
014	203120-01	ENCLOSURE,REMOTE CONTROL ASM	B	HX	F	1	P	C	P	EA	1.00
015	201779-01	LABEL,IDENT,PART/SER	B	ZZ	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 203068-02 PWA,REMOTE CONTROL,RECORD UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	203069-01	PWB,REMOTE CONTROL	A	HX	F	1	P	C	P	EA	1.00
002	203070	SCHEM,REMOTE CONTROL PWA	B	HX	D	1	P	*	U	EA	0.00
003	162494	SWITCH,PUSH BUT,SPDT,(DIGITAST#SR) S2,S3,S4		H7	P	1	P	A	P	EA	3.00
004	162495	SWITCH,PUSH BUT,W/LED,(DIGITAST#SRL S1,S5		H7	P	1	P	B	P	EA	2.00
005	149054	RES,CRB,390,1/4W,5% R1,R2		Z7	X	1	P	C	P	EA	2.00
006	171077	CAP,TA,47U,6V,20%,AX,(T310) C1		Z7	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 203017-02 ASM,XFMR,OUTPUT (OBS) UM: EA
ERC: C

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CO	S C F	T Y P	S P R	A P C	P L N	UM	EXTENDED QTY PER
001	157006	XFMR,LINE OUTPUT,(S-81-X)		Z7	P	1	P	A	P	EA	1.00
004	110070	SCRW,PAN,SLT,6-32X1/4,SST	A	Z7	X	1	P	C	P	EA	2.00
005	111115	NUT,KEP,6-32,EXT LOCK,1/4 HEX		Z7	X	1	P	C	P	EA	2.00
	NOTES:										

PARENT PART: 202990-01 PWA,MIC PREAMPLIFIER UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202991-01	PWB,MIC PREAMPLIFIER	B	HA	F	1	P	C	P	EA	1.00
002	202992	SCHEM,MIC PREAMPLIFIER REF DOCUMENT	A	HY	D	1	P	*	U	EA	0.00
003	149150	RES,CRB,68,1/4W,5% R8		ZZ	X	1	P	C	P	EA	1.00
004	149148	RES,CRB,5.6,1/4W,5% R4		ZZ	P	1	P	C	P	EA	1.00
005	149118	RES,CRB,220,1/4W,5% R9		ZZ	X	1	P	C	P	EA	1.00
006	149011	RES,CRB,1K,1/4W,5% R1,R10		ZZ	X	1	P	C	P	EA	2.00
007	149154	RES,CRB,3.6K,1/4W,5% R3		ZZ	P	1	P	C	P	EA	1.00
008	149013	RES,CRB,22K,1/4W,5% R11		ZZ	X	1	P	C	P	EA	1.00
009	149156	RES,CRB,68K,1/4W,5% R6		ZZ	X	1	P	C	P	EA	1.00
010	149012	RES,CRB,47K,1/4W,5% R2		ZZ	X	1	P	C	P	EA	1.00
011	149028	RES,MO,100K,1/2W,5% R7		ZZ	P	1	P	C	P	EA	1.00
012	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,Q2	C	ZZ	P	1	P	B	P	EA	2.00
013	157027	XFMR,MIC INPUT,200-47K,SHLD T1		HY	P	1	P	B	P	EA	1.00
014	149416	RES,VAR,200K,1/2W,(3359P) R5		HZ	P	1	P	C	P	EA	1.00
015	166016	CAP,MIC,68P,500V,5% C4	A	ZZ	P	1	P	C	P	EA	1.00
016	171063	CAP,TA,10U,35V,10%,RA,(T362) C2,3,6	A	ZZ	P	1	P	B	P	EA	3.00
017	171064	CAP,TA,22U,35V,10%,RA,(T362) C1		HY	P	1	P	C	P	EA	1.00
018	171031	CAP,TA,47U,6V,20%,RA,(T362) C5		ZZ	P	1	P	C	P	EA	1.00
019	161010	WIRE,S,VNYL,07X30,22GA,BLK	B	ZZ	X	1	P	C	P	LF	0.17
020	161012	WIRE,S,VNYL,07X30,22GA,RED	B	ZZ	X	1	P	C	P	LF	0.17
021	161011	WIRE,S,VNYL,07X30,22GA,BRN	B	ZZ	X	1	P	C	P	LF	0.17
022	161017	WIRE,S,VNYL,07X30,22GA,VIO	B	ZZ	X	1	P	C	P	LF	0.17

NOTES:

PARENT PART: 202940-03 ASM,CHASSIS,RCDR,STEREO UM: EA
ERC: G

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202803-01	CHASSIS,RECORDER	A	HA	F	1	P	A	P	EA	1.00
002	202804-01	TRIM,ENCLOSURE	A	HA	F	1	P	B	P	EA	2.00
003	202805-01	HANDLE	A	HA	F	1	P	B	P	EA	2.00
004	202915-01	ASM,POWER CABLE	B	HA	A	1	P	C	P	EA	1.00
005	202927-02	ASM,OUTPUT CONNECTOR,CHANNEL 2	B	HA	A	1	P	C	P	EA	1.00
006	202927-03	ASM,OUTPUT CONNECTOR,CHANNEL 1	B	HA	A	1	P	C	P	EA	1.00
007	202929-01	ASM,CABLE,FLEX HEAD,STEREO	B	HA	A	1	P	B	P	EA	1.00
008	203016-01	ASM,OCTAL JUMPER	A	HA	A	1	P	C	P	EA	2.00
009	110011	SCRW,FLAT,SLT,4-40X3/8,82DEG,SST		ZZ	X	1	P	C	P	EA	8.00
010	110060	SCRW,PAN,SLT,4-40X1/4,SST	A	ZZ	X	1	P	C	P	EA	4.00
011	110181	SCRW,PAN,XREC,6-32X5/16,SST		ZZ	X	1	P	C	P	EA	4.00
012	111115	NUT,KEP,6-32,EXT LOCK,1/4 HEX		ZZ	X	1	P	C	P	EA	4.00
013	202926-01	ASM,INPUT CONNECTOR,STEREO	B	HA	A	1	P	C	P	EA	1.00
014	110397	SCRW,PAN,XREC,4-40X1/4,SST,THD CUT		ZZ	X	1	P	C	P	EA	8.00
015	111062	NUT,KEP,4-40,EXT LOCK		ZZ	X	1	P	C	P	EA	8.00

NOTES:

PARENT PART: 202915-01 ASM,POWER CABLE UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	160174	CONN,HSNG,8POS,NTL,(87159-8) P3	A	HZ	P	1	P	C	P	EA	1.00
002	160163	CONN,HSNG,9POS,NYL,(1-480707-0) J108		ZZ	P	1	P	C	P	EA	1.00
003	161200	WIRE,S,VNYL,UL,07X30,22GA,ORN	A	ZZ	X	1	P	C	P	LF	0.50
004	161084	WIRE,S,VNYL,UL,07X30,22GA,WHT/YEL	C	ZZ	X	1	P	C	P	LF	0.50
006	161199	WIRE,S,VNYL,UL,07X30,22GA,RED	A	ZZ	X	1	P	C	P	LF	0.50
007	161197	WIRE,S,VNYL,UL,07X30,22GA,BLK	A	ZZ	X	1	P	C	P	LF	1.00
008	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	5.00
009	160185	PIN,CONTACT,FEMALE,HIGH PRESSURE		ZZ	X	1	P	B	P	EA	5.00
010	203805	W/L,POWER CABLE ASSEMBLY REF DOCUMENT	A	HA	*	1	P	*	P	EA	0.00

NOTES:

PARENT PART: 202820-05 PWA,REC/PLAY ELEX,STEREO,2T UM: EA
ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202821-02	PWB,RECORD/PLAY ELECTRONICS	D	HA	F	1	P	A	P	EA	1.00
002	202822	SCHEM,RECORD/PLAY ELEX (STEREO) REF DOCUMENT	C	HA	D	1	P	D	U	EA	0.00
003	202917-01	ASM,TRANSFORMER,BIAS T1	A	HA	F	1	P	B	P	EA	1.00
004	149011	RES,CRB,1K,1/4W,5% R21,35,51,123,124		ZZ	X	1	P	C	P	EA	5.00
005	149012	RES,CRB,47K,1/4W,5% R22,33,49,66, 76,104,125		ZZ	X	1	P	C	P	EA	7.00
006	149013	RES,CRB,22K,1/4W,5% R17,24,56,85,87, 88,89,119,134		ZZ	X	1	P	C	P	EA	9.00
007	149028	RES,MO,100K,1/2W,5% R31,47		ZZ	P	1	P	C	P	EA	2.00
008	149047	RES,CRB,27K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
009	149050	RES,CRB,12K,1/4W,5% R5,19,128		ZZ	X	1	P	C	P	EA	3.00
010	149051	RES,CRB,680,1/4W,5% R23,25		ZZ	X	1	P	C	P	EA	2.00
011	149052	RES,CRB,1.2K,1/4W,5% R77,105		ZZ	X	1	P	C	P	EA	2.00
012	149057	RES,CRB,6.8K,1/4W,5% R93,112		ZZ	X	1	P	C	P	EA	2.00
013	149063	RES,CRB,100,1/4W,5% R14,29		ZZ	X	1	P	C	P	EA	2.00
014	149065	INDUCTOR,4.7MH (2307-475) L1,2,3,4		ZZ	X	1	P	B	P	EA	4.00
015	149070	RES,CRB,10K,1/4W,5% R65,121		ZZ	X	1	P	C	P	EA	2.00
016	149072	RES,CRB,220K,1/4W,5% R91,92		ZZ	P	1	P	C	P	EA	2.00
017	149073	RES,CRB,100K,1/4W,5% R36,45		ZZ	X	1	P	C	P	EA	2.00
018	149086	RES,CRB,3.9K,1/4W,5% R26,58,127		ZZ	X	1	P	C	P	EA	3.00
019	149087	RES,CRB,1M,1/4W,5% R116,117,118,120		ZZ	X	1	P	C	P	EA	4.00
020	149091	RES,CRB,3.3K,1/4W,5% R34,50		ZZ	X	1	P	C	P	EA	2.00
021	149092	RES,CRB,5.6K,1/4W,5% R57		ZZ	X	1	P	C	P	EA	1.00
022	149093	RES,CRB,15K,1/4W,5% R94,113		ZZ	X	1	P	C	P	EA	2.00
023	149095	RES,CRB,330,1/4W,5% R28,37,46,63,64,126		ZZ	X	1	P	C	P	EA	6.00
024	149101	RES,CRB,33K,1/4W,5% R59,72,101		ZZ	X	1	P	C	P	EA	3.00
025	149112	RES,MF,68.1,1/4W,1%,CLR/BND,100PPM	B	ZZ	P	1	P	C	P	EA	2.00

PARENT PART: 202820-05 PWA,REC/PLAY ELEX,STEREO,2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
		R32,48									
026	149118	RES,CRB,220,1/4W,5% R74,75,103,107		Z7	X	1	P	C	P	EA	4.00
027	149123	RES,CRB,2.7K,1/4W,5% R6,16		Z7	X	1	P	C	P	EA	2.00
028	149125	RES,CRB,6.2K,1/4W,5% R70,71,99,100	A	Z7	P	1	P	C	P	EA	4.00
029	149136	RES,CRB,1,1/2W,5% R1		ZZ	X	1	P	C	P	EA	1.00
030	149147	RES,CRB,560K,1/4W,5% R67,129		HA	P	1	P	C	P	EA	2.00
031	149148	RES,CRB,5.6,1/4W,5% R7,44		Z7	P	1	P	C	P	EA	2.00
032	149151	RES,CRB,82,1/4W,5% R73,102		ZZ	P	1	P	C	P	EA	2.00
033	149157	RES,CRB,82K,1/4W,5% R15,30,68,69,97,98		ZZ	X	1	P	C	P	EA	6.00
034	149386	RES,CRB,2.2,1/2W,5% R3,4		HA	P	1	P	C	P	EA	2.00
035	149410	RES,MF,232,1/8W,1%,CLR/BND,100PPM R61	B	HA	P	1	P	C	P	EA	1.00
037	149412	RES,MF,24.9K,1/8W,1%,CLR/BND,100PPM R86,90	B	HA	P	1	P	C	P	EA	2.00
039	149415	RES,VAR,5K,1/2W (3359P) R8,11,38,41		HA	P	1	P	C	P	EA	4.00
040	149416	RES,VAR,200K,1/2W,(3359P) R9,12,18,40,42		H7	P	1	P	C	P	EA	5.00
041	149420	RES,MF,909,1/8W,1%,CLR/BND,100PPM R60,62	B	HA	P	1	P	C	P	EA	2.00
042	150325	RES,CRB,330,1/2W,5% R27,82		Z7	P	1	P	C	P	EA	2.00
043	152014	XSTR,2N5461,PCH,SI,FET,310MW,TO92 Q14,21	A	Z7	P	1	P	A	P	EA	2.00
044	152023	XSTR,2N5458,NCH,SI,FET,310MW,TO92 Q3	B	Z7	P	1	P	B	P	EA	1.00
045	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q9,15,17,19	B	Z7	P	1	P	C	P	EA	4.00
046	152051	XSTR,2N4403,PNP,SI,PWR,350MW,TO92 Q10,11,20,22	B	Z7	P	1	P	B	P	EA	4.00
047	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,2,4,5,12,13,16,18	C	Z7	P	1	P	B	P	EA	8.00
048	152141	XSTR,MPSU05,NPN,SI,AMPL,1W,X81 Q7	B	HA	P	1	P	C	P	EA	1.00
049	152142	XSTR,MPSU55,PNP,SI,AMPL,1W,X81 Q6,8	B	HA	P	1	P	C	P	EA	2.00
050	153085	DIODE,JAN 1N4146-1,SW,100V,5.0 NS CR1,2,3,4,5,8,17	B	Z7	X	1	P	B	P	EA	7.00
051	153001	DIODE,1N4001,RECT,50V,1A,75DEG CR6,7	A	Z7	P	1	P	B	P	EA	2.00
053	154034	IC,L,4558N,AMP,OP,ETC2/EQ	C	Z7	P	1	P	C	P	EA	1.00

PARENT PART: 202820-05 PWA,REC/PLAY ELEX,STEREO,2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
		U1									
054	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/	C	Z7	P	1	P	C	P	EA	1.00
		U3									
055	156061	RELAY,3.2K OHM,24 VDC		ZZ	P	1	P	A	P	EA	2.00
		K2,3									
056	156101	RES,VAR,20K,1/2W,20%,(3359P)		Z7	P	1	P	C	P	EA	4.00
		R80,109,110,111									
057	156125	RELAY,4 POLE,FORM D,24 VDC	A	HA	P	1	P	B	P	EA	1.00
		K1									
058	160168	CONN,HDR,MALE,2POS,.156CT,(87160-4)		Z7	P	1	P	C	P	EA	4.00
		J10,11,17,18									
059	160170	CONN,HDR,MALE,6POS,.156CT,(87160-7)		ZZ	P	1	P	C	P	EA	2.00
		J4,5									
060	160171	CONN,RECEPT,8POS,MALE,(87160-9)		ZZ	P	1	P	C	P	EA	1.00
		J3									
061	160260	SOCKET,BAYONET,PC MOUNT		HA	P	1	P	C	P	EA	2.00
		LAMP 1, LAMP 2									
062	160267	CONN,HDR,MALE,3POS,.156CT,(87160-5)		ZZ	P	1	P	C	P	EA	7.00
		J7,8,9,12,14,15,16									
063	149056	RES,CRB,4.7K,1/4W,5%		ZZ	X	1	P	C	P	EA	2.00
		R122,133									
064	162469	PHOTO COND,COUPLER/RES,50,(VTL3A17)		HA	P	1	P	B	P	EA	2.00
		DS1,2									
065	162481	SWITCH,PUSH BUT,FORM C,2 POLE(PB-1)		HA	P	1	P	C	P	EA	4.00
		S1F,S1R,S2F,S2R									
066	162482	BUTTON,PUSH,CREME		HA	P	1	P	C	P	EA	2.00
067	163001	CAP,CER,.001U,1KV,20%,RA,Z5U	A	ZZ	P	1	P	C	P	EA	6.00
		C18,19,23,34,46,69									
068	163021	CAP,CER,100P,1KV,10%,RA,X5F(JL)		ZZ	P	1	P	C	P	EA	2.00
		C6,10									
069	163025	CAP,CER,10P,100V,5%,		ZZ	P	1	P	C	P	EA	2.00
		C1,3									
070	163099	CAP,CER,.01U,50V,20%		HA	P	1	P	C	P	EA	2.00
		C7,12									
071	163106	CAP,MONO,.01U,50V,20%		HA	P	1	P	C	P	EA	2.00
		C50,51									
072	163120	CAP,MONO,.1U,50V,20%,AX,Z5U(203126)	B	ZZ	X	1	P	A	P	EA	4.00
		C61,62,63,64									
073	166003	CAP,MIC,330P,500V,5%	A	HA	P	1	P	C	P	EA	2.00
		C33,35									
074	166005	CAP,MIC,470P,500V,5	A	ZZ	P	1	P	C	P	EA	1.00
		C13									
075	166092	CAP,MIC,5100P,500V,5%	A	ZZ	P	1	P	C	P	EA	2.00
		C74,75									
076	166093	CAP,MIC,2000P,500V	A	HA	P	1	P	C	P	EA	3.00
		C15,16,27									
077	167026	CAP,POLY,.0047U,80V,10%,AX,(192P)		ZZ	P	1	P	C	P	EA	2.00
		C70,71									
078	167055	CAP,POLY,.0082U,80V,10%,AX,(192P)		HA	P	1	P	C	P	EA	2.00
		C72,73									

PARENT PART: 202820-05 PWA,REC/PLAY ELEX,STEREO,2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P I M	UM	EXTENDED QTY PER
079	171002	CAP,TA,.47U,35V,20%,RA (GBX) C28,53	A	ZZ	P	1	P	C	P	EA	2.00
080	171031	CAP,TA,47U,6V,20%,RA,(T362) C21,26		ZZ	P	1	P	C	P	EA	2.00
081	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C40,43,48,49,57,60	B	HZ	P	1	P	C	P	EA	6.00
082	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C5,9,24,54	B	ZZ	P	1	P	C	P	EA	4.00
083	171062	CAP,TA,4.7U,35V,10%,RA,(T362) C2,36,39	B	ZZ	P	1	P	C	P	EA	3.00
084	171063	CAP,TA,10U,35V,10%,RA,(T362) C4,8,11,17,20, 22,25,32,44,47	A	ZZ	P	1	P	B	P	EA	10.00
085	171065	CAP,TA,47U,35V,10%,RA,(T362) C14,31,45,52,58,59		HA	P	1	P	B	P	EA	6.00
086	172007	CAP,VAR,90-400P,175V,(429) C29,30,41,42		ZZ	P	1	P	B	P	EA	4.00
087	150321	RES,CRB,150,1/2W,5% R52,81		ZZ	P	1	P	C	P	EA	2.00
088	162203	TERMINAL,TEST,PC TP1		ZZ	P	1	P	C	P	EA	1.00
089	203529-01	CAP,POLY,.033U,MATCHED PAIR (C65,66) (C67,68)	A	HA	A	1	P	C	P	PR	2.00
090	110275	SCRW,PAN,XREC,4-40X1-1/8,SST		ZZ	X	1	P	C	P	EA	4.00
091	111062	NUT,KEP,4-40,EXT LOCK		ZZ	X	1	P	C	P	EA	6.00
092	112021	SPACER,.250X.250X.140,RND,CDPL/BRS	A	ZZ	P	1	P	C	P	EA	4.00
093	112023	SPACER,.500X.250X.140,RND,CDPL/BRS	A	ZZ	P	1	P	C	P	EA	4.00
094	162234	CLIP, FUSE		ZZ	P	1	P	C	P	EA	1.00
095	162235	ALIGNMENT,TOOL,DUPLEX	A	ZZ	P	1	P	C	P	EA	1.00
096	162490	LAMP,BAYONET,28V		HA	P	1	P	C	P	EA	2.00
097	200460-01	SHIELD,TOP,REC/PLBK AMPL	B	ZZ	F	1	P	C	P	EA	2.00
098	200506-01	SHIELD,BOTTOM,REC/PLBK AMPL	B	ZZ	F	1	P	C	P	EA	2.00
099	203000-01	ROD,PUSH,SYNC SWITCH	A	HA	F	1	P	C	P	EA	2.00
100	162343	SOCKET,IC,16POS,SLDR TAIL XU2	B	ZZ	P	1	P	C	P	EA	1.00
101	161016	WIRE,S,VNYL,07X30,22GA,BLU	B	ZZ	X	1	P	C	P	LF	0.30
102	161010	WIRE,S,VNYL,07X30,22GA,BLK	B	ZZ	X	1	P	C	P	LF	0.40
103	161040	CABLE,COAX,RG#174U		ZZ	X	1	P	B	P	LF	0.38
104	161045	TUBING,SHRNK,POLYO,.187 ID,BLK(HTX)	B	ZZ	X	1	P	C	P	LF	0.17
105	161031	WIRE,BUS,1X22GA (TTN)		ZZ	X	1	P	C	P	LF	0.10
106	112297	DISC,PHENOLIC,.015 THK REF T1		ZZ	P	1	P	C	P	EA	1.00
107	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	5.00
108	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	2.00
109	160286	CONN,HDR,2 PIN,PC MT,MATE-N-LOCK J1,2		ZZ	P	1	P	C	P	EA	2.00
110	172010	CAP,VAR,130-500P,(4211) C55,56		HA	P	1	P	B	P	EA	2.00

PARENT PART: 202820-06 PWA,REC/PLAY ELEX,MONO,FT UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202821-02	PWR,RECORD/PLAY ELECTRONICS	D	HA	F	1	P	A	P	EA	1.00
002	203102	SCHEM,RECORD/PLAY ELEX (MONO) REF DOCUMENT	C	HA	D	1	P	*	U	EA	0.00
003	202917-01	ASM,TRANSFORMER,BIAS T1	A	HA	F	1	P	B	P	EA	1.00
004	149011	RES,CRB,1K,1/4W,5% R21,35,124		ZZ	X	1	P	C	P	EA	3.00
005	149012	RES,CRB,47K,1/4W,5% R22,33,66,104,125		ZZ	X	1	P	C	P	EA	5.00
006	149013	RES,CRB,22K,1/4W,5% R17,24,56,87, 88,89,119,134		ZZ	X	1	P	C	P	EA	8.00
007	149028	RES,MO,100K,1/2W,5% R31		ZZ	P	1	P	C	P	EA	1.00
008	149047	RES,CRB,27K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
009	149050	RES,CRB,12K,1/4W,5% R5,19		ZZ	X	1	P	C	P	EA	2.00
010	149051	RES,CRB,680,1/4W,5% R23,25		ZZ	X	1	P	C	P	EA	2.00
011	149052	RES,CRB,1.2K,1/4W,5% R105		ZZ	X	1	P	C	P	EA	1.00
012	149057	RES,CRB,6.8K,1/4W,5% R112		ZZ	X	1	P	C	P	EA	1.00
013	149063	RES,CRB,100,1/4W,5% R29		ZZ	X	1	P	C	P	EA	1.00
014	149065	INDUCTOR,4.7MH (2307-475) L2,3,4		ZZ	X	1	P	B	P	EA	3.00
016	149072	RES,CRB,220K,1/4W,5% R91		ZZ	P	1	P	C	P	EA	1.00
017	149073	RES,CRB,100K,1/4W,5% R36		ZZ	X	1	P	C	P	EA	1.00
018	149086	RES,CRB,3.9K,1/4W,5% R26,58		ZZ	X	1	P	C	P	EA	2.00
019	149087	RES,CRB,1M,1/4W,5% R116,117,118,120		ZZ	X	1	P	C	P	EA	4.00
020	149091	RES,CRB,3.3K,1/4W,5% R34		ZZ	X	1	P	C	P	EA	1.00
021	149092	RES,CRB,5.6K,1/4W,5% R57		ZZ	X	1	P	C	P	EA	1.00
022	149093	RES,CRB,15K,1/4W,5% R113		ZZ	X	1	P	C	P	EA	1.00
023	149095	RES,CRB,330,1/4W,5% R28,37,63,64		ZZ	X	1	P	C	P	EA	4.00
024	149101	RES,CRB,33K,1/4W,5% R59,101		ZZ	X	1	P	C	P	EA	2.00
025	149112	RES,MF,68.1,1/4W,1%,CLR/BND,100PPM R32	B	ZZ	P	1	P	C	P	EA	1.00
026	149118	RES,CRB,220,1/4W,5% R103,107		ZZ	X	1	P	C	P	EA	2.00

PARENT PART: 202820-06 PWA,REC/PLAY ELEX,MONO,FT UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
028	149125	RES,CRB,6.2K,1/4W,5% R70,71	A	ZZ	P	1	P	C	P	EA	2.00
029	149136	RES,CRB,1,1/2W,5% R1		ZZ	X	1	P	C	P	EA	1.00
031	149148	RES,CRB,5.6,1/4W,5% R7		ZZ	P	1	P	C	P	EA	1.00
032	149151	RES,CRB,82,1/4W,5% R102		ZZ	P	1	P	C	P	EA	1.00
033	149157	RES,CRB,82K,1/4W,5% R30,68,69		ZZ	X	1	P	C	P	EA	3.00
034	149386	RES,CRB,2.2,1/2W,5% R3,4		HA	P	1	P	C	P	EA	2.00
035	149410	RES,MF,232,1/8W,1%,CLR/BND,100PPM R61	B	HA	P	1	P	C	P	EA	1.00
036	149411	RES,MF,8.45K,1/8W,1%,CLR/BND,100PPM R132	B	HA	P	1	P	C	P	EA	1.00
037	149412	RES,MF,24.9K,1/8W,1%,CLR/BND,100PPM R90	B	HA	P	1	P	C	P	EA	1.00
039	149415	RES,VAR,5K,1/2W (3359P) R8,11		HA	P	1	P	C	P	EA	2.00
040	149416	RES,VAR,200K,1/2W,(3359P) R9,12,18		HZ	P	1	P	C	P	EA	3.00
041	149420	RES,MF,909,1/8W,1%,CLR/BND,100PPM R60,62	B	HA	P	1	P	C	P	EA	2.00
042	150321	RES,CRB,150,1/2W,5% R27		ZZ	P	1	P	C	P	EA	1.00
043	150315	RES,CRB,47,1/2W,5% R52		ZZ	P	1	P	C	P	EA	1.00
044	152023	XSTR,2N5458,NCH,SI,FET,310MW,TO92 Q3	B	ZZ	P	1	P	B	P	EA	1.00
045	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q9,17	B	ZZ	P	1	P	C	P	EA	2.00
046	152051	XSTR,2N4403,PNP,SI,PWR,350MW,TO92 Q10	B	ZZ	P	1	P	B	P	EA	1.00
047	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,4,5,12,18	C	ZZ	P	1	P	B	P	EA	5.00
048	152141	XSTR,MPSU05,NPN,SI,AMPL,1W,X81 Q7	B	HA	P	1	P	C	P	EA	1.00
049	152142	XSTR,MPSU55,PNP,SI,AMPL,1W,X81 Q6,8	B	HA	P	1	P	C	P	EA	2.00
050	153085	DIODE,JAN 1N4148-1,SW,100V,5.0 NS CR1,2,3,4	B	ZZ	X	1	P	B	P	EA	4.00
051	153001	DIODE,1N4001,RECT,50V,1A,75DEG CR6	A	ZZ	P	1	P	B	P	EA	1.00
053	154034	IC,L,4558N,AMP,OP,ETC2/EQ U1	C	ZZ	P	1	P	C	P	EA	1.00
054	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/ U3	C	ZZ	P	1	P	C	P	EA	1.00
055	156061	RELAY,3.2K OHM,24 VDC K2		ZZ	P	1	P	A	P	EA	1.00

PARENT PART: 202820-06 PWA,REC/PLAY ELEX,MONO,FT UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
056	156101	RES,VAR,20K,1/2W,20%,(3359P) R109,110		ZZ	P	1	P	C	P	EA	2.00
057	156125	RELAY,4 POLE,FORM D,24 VDC K1	A	HA	P	1	P	B	P	EA	1.00
058	160168	CONN,HDR,MALE,2POS,.156CT,(87160-4) J10,11		ZZ	P	1	P	C	P	EA	2.00
059	160170	CONN,HDR,MALE,6POS,.156CT,(87160-7) J4		ZZ	P	1	P	C	P	EA	1.00
060	160171	CONN,RECEPT,8POS,MALE,(87160-9) J3		ZZ	P	1	P	C	P	EA	1.00
061	160260	SOCKET,BAYONET,PC MOUNT LAMP 1		HA	P	1	P	C	P	EA	1.00
062	160267	CONN,HDR,MALE,3POS,.156CT,(87160-5) J7,8,9,12,14		ZZ	P	1	P	C	P	EA	5.00
063	149056	RES,CRB,4.7K,1/4W,5% R122,133		ZZ	X	1	P	C	P	EA	2.00
064	162469	PHOTO COND,COUPLER/RES,50,(VTL3A17) DS2,3		HA	P	1	P	B	P	EA	2.00
067	163001	CAP,CER,.001U,1KV,20%,RA,Z5U C18,19,46	A	ZZ	P	1	P	C	P	EA	3.00
068	163021	CAP,CER,100P,1KV,10%,RA,X5F(JL) C6		ZZ	P	1	P	C	P	EA	1.00
069	163025	CAP,CER,10P,100V,5%, C1,3		ZZ	P	1	P	C	P	EA	2.00
071	163106	CAP,MONO,.01U,50V,20% C50,51		HA	P	1	P	C	P	EA	2.00
072	163120	CAP,MONO,.1U,50V,20%,AX,Z5U(203126) C61,62,63,64	B	ZZ	X	1	P	A	P	EA	4.00
073	166003	CAP,MIC,330P,500V,5% C35	A	HA	P	1	P	C	P	EA	1.00
074	166005	CAP,MIC,470P,500V,5 C13	A	ZZ	P	1	P	C	P	EA	1.00
075	166092	CAP,MIC,5100P,500V,5% C75	A	ZZ	P	1	P	C	P	EA	1.00
076	166093	CAP,MIC,2000P,500V C15,16,27	A	HA	P	1	P	C	P	EA	3.00
077	167026	CAP,POLY,.0047U,80V,10%,AX,(192P) C71		ZZ	P	1	P	C	P	EA	1.00
078	167064	CAP,POLY,.018U,80V,10%,AX,(192P) C72		ZZ	P	1	P	C	P	EA	1.00
080	171031	CAP,TA,47U,6V,20%,RA,(T362) C21		ZZ	P	1	P	C	P	FA	1.00
081	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C43,48,49,57,60	B	H7	P	1	P	C	P	EA	5.00
082	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C5,9	B	ZZ	P	1	P	C	P	EA	2.00
083	171062	CAP,TA,4.7U,35V,10%,RA,(T362) C2,36	B	ZZ	P	1	P	C	P	EA	2.00
084	171063	CAP,TA,10U,35V,10%,RA,(T362) C4,8,17,20,44,47	A	ZZ	P	1	P	B	P	EA	6.00

PARENT PART: 202820-06 PWA,REC/PLAY ELEX,MONO,FT UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
085	171065	CAP,TA,47U,35V,10%,RA,(T362) C14,45,52,59		HA	P	1	P	B	P	EA	4.00
086	172007	CAP,VAR,90-400P,175V,(429) C29,30		ZZ	P	1	P	B	P	EA	2.00
088	162203	TERMINAL,TEST,PC TP1		ZZ	P	1	P	C	P	EA	1.00
091	162343	SOCKET,IC,16POS,SLDR TAIL XU2	B	ZZ	P	1	P	C	P	EA	1.00
092	203529-01	CAP,POLY,.033U,MATCHED PAIR (C65,66)	A	HA	A	1	P	C	P	PR	1.00
093	110275	SCRW,PAN,XREC,4-40X1-1/8,SST		ZZ	X	1	P	C	P	EA	2.00
094	111062	NUT,KEP,4-40,EXT LOCK		ZZ	X	1	P	C	P	EA	4.00
095	112021	SPACER,.250X.250X.140,RND,CDPL/BRS	A	ZZ	P	1	P	C	P	EA	2.00
096	112023	SPACER,.500X.250X.140,RND,CDPL/BRS	A	ZZ	P	1	P	C	P	EA	2.00
097	162234	CLIP, FUSE		ZZ	P	1	P	C	P	EA	1.00
098	162235	ALIGNMENT,TOOL,DUPLEX	A	ZZ	P	1	P	C	P	EA	1.00
099	162490	LAMP,BAYONET,28V		HA	P	1	P	C	P	EA	1.00
100	200460-01	SHIELD,TOP,REC/PLBK AMPL	B	ZZ	F	1	P	C	P	EA	1.00
101	200506-01	SHIELD,BOTTOM,REC/PLBK AMPL	B	ZZ	F	1	P	C	P	EA	1.00
102	161010	WIRE,S,VNYL,07X30,22GA,BLK	B	ZZ	X	1	P	C	P	LF	0.40
103	161040	CABLE,COAX,RG#174U		ZZ	X	1	P	B	P	LF	0.38
104	161045	TUBING,SHRNK,POLYO,.187 ID,BLK(HTX)	B	ZZ	X	1	P	C	P	LF	0.17
105	161031	WIRE,BUS,1X22GA (TIN)		ZZ	X	1	P	C	P	LF	0.20
106	112297	DISC,PHENOLIC,.015 THK REF T1		ZZ	P	1	P	C	P	EA	1.00
107	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	5.00
108	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	2.00
109	160286	CONN,HDR,2 PIN,PC MT,MATE-N-LOCK J1		ZZ	P	1	P	C	P	EA	1.00
110	161016	WIRE,S,VNYL,07X30,22GA,BLU	B	ZZ	X	1	P	C	P	LF	0.30
111	172010	CAP,VAR,130-500P,(4211) C55,56		HA	P	1	P	B	P	EA	2.00

NOTES:

PARENT PART: 202820-07 PWA,REC/PLAY ELEX,STEREO,1/4T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EOT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202821-02	PWB,RECORD/PLAY ELECTRONICS	D	HA	F	1	P	A	P	EA	1.00
002	202822	SCHEM,RECORD/PLAY ELEX (STEREO) REF DOCUMENT	C	HA	D	1	P	D	U	EA	0.00
003	202917-01	ASM,TRANSFORMER,BIAS T1	A	HA	F	1	P	B	P	EA	1.00
004	149011	RES,CRB,1K,1/4W,5% R21,35,51,123,124		ZZ	X	1	P	C	P	EA	5.00
005	149012	RES,CRB,47K,1/4W,5% R22,33,49,66,76 104,125		ZZ	X	1	P	C	P	EA	7.00
006	149013	RES,CRB,22K,1/4W,5% R17,24,56,85,87, 88,89,119,134		ZZ	X	1	P	C	P	EA	9.00
007	149028	RES,MO,100K,1/2W,5% R31,47		ZZ	P	1	P	C	P	EA	2.00
008	149047	RES,CRB,27K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
009	149050	RES,CRB,12K,1/4W,5% R5,19,128		ZZ	X	1	P	C	P	EA	3.00
010	149051	RES,CRB,680,1/4W,5% R23,25		ZZ	X	1	P	C	P	EA	2.00
011	149052	RES,CRB,1.2K,1/4W,5% R77,105		ZZ	X	1	P	C	P	EA	2.00
012	149057	RES,CRB,6.8K,1/4W,5% R93,112		ZZ	X	1	P	C	P	EA	2.00
013	149063	RES,CRB,100,1/4W,5% R14,29		ZZ	X	1	P	C	P	EA	2.00
014	149065	INDUCTOR,4.7MH (2307-475) L1,2,3,4		ZZ	X	1	P	B	P	EA	4.00
015	149070	RES,CRB,10K,1/4W,5% R65,121		ZZ	X	1	P	C	P	EA	2.00
016	149072	RES,CRB,220K,1/4W,5% R91,92		ZZ	P	1	P	C	P	EA	2.00
017	149073	RES,CRB,100K,1/4W,5% R36,45		ZZ	X	1	P	C	P	EA	2.00
018	149086	RES,CRB,3.9K,1/4W,5% R26,58,127		ZZ	X	1	P	C	P	EA	3.00
019	149087	RES,CRB,1M,1/4W,5% R116,117,118,120		ZZ	X	1	P	C	P	EA	4.00
020	149091	RES,CRB,3.3K,1/4W,5% R34,50		ZZ	X	1	P	C	P	EA	2.00
021	149092	RES,CRB,5.6K,1/4W,5% R57		ZZ	X	1	P	C	P	EA	1.00
022	149093	RES,CRB,15K,1/4W,5% R94,113		ZZ	X	1	P	C	P	EA	2.00
023	149095	RES,CRB,330,1/4W,5% R28,37,46,63,64,126		ZZ	X	1	P	C	P	EA	6.00
024	149101	RES,CRB,33K,1/4W,5% R59,72,101		ZZ	X	1	P	C	P	EA	3.00
025	149112	RES,MF,68.1,1/4W,1%,CLR/RND,100PPM	B	ZZ	P	1	P	C	P	EA	2.00

PARENT PART: 202820-07 PWA,REC/PLAY ELEX,STEREO,1/4T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
		R32,48									
026	149118	RES,CRB,220,1/4W,5% R74,75,103,107		ZZ	X	1	P	C	P	EA	4.00
027	149123	RES,CRB,2.7K,1/4W,5% R6,16		ZZ	X	1	P	C	P	EA	2.00
028	149125	RES,CRB,6.2K,1/4W,5% R70,71,99,100	A	ZZ	P	1	P	C	P	EA	4.00
029	149136	RES,CRB,1,1/2W,5% R1		ZZ	X	1	P	C	P	EA	1.00
030	149147	RES,CRB,560K,1/4W,5% R67,129		HA	P	1	P	C	P	EA	2.00
031	149148	RES,CRB,5.6,1/4W,5% R7,44		ZZ	P	1	P	C	P	EA	2.00
032	149151	RES,CRB,82,1/4W,5% R73,102		ZZ	P	1	P	C	P	EA	2.00
033	149157	RES,CRB,82K,1/4W,5% R15,30,68,69,97,98		ZZ	X	1	P	C	P	EA	6.00
034	149386	RES,CRB,2.2,1/2W,5% R3,4		HA	P	1	P	C	P	EA	2.00
035	149410	RES,MF,232,1/8W,1%,CLR/BND,100PPM R61	B	HA	P	1	P	C	P	EA	1.00
037	149412	RES,MF,24.9K,1/8W,1%,CLR/BND,100PPM R86,90	B	HA	P	1	P	C	P	EA	2.00
039	149415	RES,VAR,5K,1/2W (3359P) R8,11,38,41		HA	P	1	P	C	P	EA	4.00
040	149416	RES,VAR,200K,1/2W,(3359P) R9,12,18,40,42		HZ	P	1	P	C	P	EA	5.00
041	149420	RES,MF,909,1/8W,1%,CLR/BND,100PPM R60,62	B	HA	P	1	P	C	P	EA	2.00
042	150325	RES,CRB,330,1/2W,5% R27,82		ZZ	P	1	P	C	P	EA	2.00
043	152014	XSTR,2N5461,PCH,SI,FET,310MW,TO92 Q14,21	A	ZZ	P	1	P	A	P	EA	2.00
044	152023	XSTR,2N5458,NCH,SI,FET,310MW,TO92 Q3	B	ZZ	P	1	P	B	P	EA	1.00
045	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q9,15,17,19	B	ZZ	P	1	P	C	P	EA	4.00
046	152051	XSTR,2N4403,PNP,SI,PWR,350MW,TO92 Q10,11,20,22	B	ZZ	P	1	P	B	P	EA	4.00
047	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,2,4,5,12,13,16,18	C	ZZ	P	1	P	B	P	EA	8.00
048	152141	XSTR,MPSU05,NPN,SI,AMPL,1W,X81 Q7	B	HA	P	1	P	C	P	EA	1.00
049	152142	XSTR,MPSU55,PNP,SI,AMPL,1W,X81 Q6,8	B	HA	P	1	P	C	P	EA	2.00
050	153085	DIODE,JAN 1N4148-1,SW,100V,5.0 NS CR1,2,3,4,5,8,17	B	ZZ	X	1	P	B	P	EA	7.00
051	153001	DIODE,1N4001,RECT,50V,1A,75DEG CR6,7	A	ZZ	P	1	P	B	P	EA	2.00
053	154034	IC,L,4558N,AMP,OP,ETC2/EQ	C	ZZ	P	1	P	C	P	EA	1.00

PARENT PART: 202820-07 PWA,REC/PLAY ELEX,STEREO,1/4T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
		U1									
054	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETCP/	C	ZZ	P	1	P	C	P	EA	1.00
		U3									
055	156061	RELAY,3.2K OHM,24 VDC		ZZ	P	1	P	A	P	EA	2.00
		K2,3									
056	156101	RES,VAR,20K,1/2W,20%,(3359P)		ZZ	P	1	P	C	P	EA	4.00
		R80,109,110,111									
057	156125	RELAY,4 POLE,FORM D,24 VDC	A	HA	P	1	P	B	P	EA	1.00
		K1									
058	160168	CONN,HDR,MALE,2POS,.156CT,(87160-4)		ZZ	P	1	P	C	P	EA	4.00
		J10,11,17,18									
059	160170	CONN,HDR,MALE,6POS,.156CT,(87160-7)		ZZ	P	1	P	C	P	EA	2.00
		J4,5									
060	160171	CONN,RECEPT,8POS,MALE,(87160-9)		ZZ	P	1	P	C	P	EA	1.00
		J3									
061	160260	SOCKET,BAYONET,PC MOUNT		HA	P	1	P	C	P	EA	2.00
		LAMP 1, LAMP 2									
062	160267	CONN,HDR,MALE,3POS,.156CT,(87160-5)		ZZ	P	1	P	C	P	EA	7.00
		J7,8,9,12,14,15,16									
063	149056	RES,CRB,4.7K,1/4W,5%		ZZ	X	1	P	C	P	EA	2.00
		R122,133									
064	162469	PHOTO COND,COUPLER/RES,50,(VTL3A17)		HA	P	1	P	B	P	EA	2.00
		DS1,2									
065	162481	SWITCH,PUSH BUT,FORM C,2 POLE(PB-1)		HA	P	1	P	C	P	EA	4.00
		S1F,S1R,S2F,S2R									
066	162482	BUTTON,PUSH,CREME		HA	P	1	P	C	P	EA	2.00
067	163001	CAP,CER,.001U,1KV,20%,RA,Z5U	A	ZZ	P	1	P	C	P	EA	6.00
		C18,19,23,34,46,69									
068	163021	CAP,CER,100P,1KV,10%,RA,X5F(JL)		ZZ	P	1	P	C	P	EA	2.00
		C6,10									
069	163025	CAP,CER,10P,100V,5%,		ZZ	P	1	P	C	P	EA	2.00
		C1,3									
070	163099	CAP,CER,.01U,50V,20%		HA	P	1	P	C	P	EA	2.00
		C7,12									
071	163106	CAP,MONO,.01U,50V,20%		HA	P	1	P	C	P	EA	2.00
		C50,51									
072	163120	CAP,MONO,.1U,50V,20%,AX,Z5U(203126)	B	ZZ	X	1	P	A	P	EA	4.00
		C61,62,63,64									
073	166003	CAP,MIC,330P,500V,5%	A	HA	P	1	P	C	P	EA	2.00
		C33,35									
074	166005	CAP,MIC,470P,500V,5	A	ZZ	P	1	P	C	P	EA	1.00
		C13									
075	166092	CAP,MIC,5100P,500V,5%	A	ZZ	P	1	P	C	P	EA	2.00
		C74,75									
076	166093	CAP,MIC,2000P,500V	A	HA	P	1	P	C	P	EA	3.00
		C15,16,27									
077	167026	CAP,POLY,.0047U,80V,10%,AX,(192P)		ZZ	P	1	P	C	P	EA	2.00
		C70,71									
078	167055	CAP,POLY,.0082U,80V,10%,AX,(192P)		HA	P	1	P	C	P	EA	2.00
		C72,73									

PARENT PART: 202820-07 PWA,REC/PLAY ELEX,STEREO,1/4T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
079	171002	CAP,TA,.47U,35V,20%,RA (GBX) C28,53	A	ZZ	P	1	P	C	P	EA	2.00
080	171031	CAP,TA,47U,6V,20%,RA,(T362) C21,26		ZZ	P	1	P	C	P	EA	2.00
081	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C40,43,48,49,57,60	B	H7	P	1	P	C	P	EA	6.00
082	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C5,9,24,54	B	Z7	P	1	P	C	P	EA	4.00
083	171062	CAP,TA,4.7U,35V,10%,RA,(T362) C2,36,39	B	Z7	P	1	P	C	P	EA	3.00
084	171063	CAP,TA,10U,35V,10%,RA,(T362) C4,8,11,17,20,22, 25,32,44,47	A	Z7	P	1	P	B	P	EA	10.00
085	171065	CAP,TA,47U,35V,10%,RA,(T362) C14,31,45,52,58,59		HA	P	1	P	B	P	EA	6.00
086	172007	CAP,VAR,90-400P,175V,(429) C29,30,41,42		Z7	P	1	P	B	P	EA	4.00
087	150324	RES,CRB,270,1/2W,5% R52,81		ZZ	P	1	P	C	P	EA	2.00
088	162206	TERMINAL,TEST,PC TP1		Z7	P	1	P	C	P	EA	1.00
089	203529-01	CAP,POLY,.033U,MATCHED PAIR (C65,66) (C67,68)	A	HA	A	1	P	C	P	PR	2.00
090	110275	SCRW,PAN,XREC,4-40X1-1/8,SST		Z7	X	1	P	C	P	EA	4.00
091	111062	NUT,KEP,4-40,EXT LOCK		Z7	X	1	P	C	P	EA	6.00
092	112021	SPACER,.250X.250X.140,RND,CDPL/BRS	A	Z7	P	1	P	C	P	EA	4.00
093	112023	SPACER,.500X.250X.140,RND,CDPL/BRS	A	Z7	P	1	P	C	P	EA	4.00
094	162234	CLIP, FUSE		Z7	P	1	P	C	P	EA	1.00
095	162235	ALIGNMENT,TOOL,DUPLEX	A	ZZ	P	1	P	C	P	EA	1.00
096	162490	LAMP,BAYONET,28V		HA	P	1	P	C	P	EA	2.00
097	200460-01	SHIELD,TOP,REC/PLBK AMPL	B	Z7	F	1	P	C	P	EA	2.00
098	200506-01	SHIELD,BOTTOM,REC/PLBK AMPL	B	Z7	F	1	P	C	P	EA	2.00
099	203000-01	ROD,PUSH,SYNC SWITCH	A	HA	F	1	P	C	P	EA	2.00
100	162343	SOCKET,IC,16POS,SLDR TAIL XU2	B	ZZ	P	1	P	C	P	EA	1.00
101	161016	WIRE,S,VNYL,07X30,22GA,BLU	B	Z7	X	1	P	C	P	LF	0.30
102	161010	WIRE,S,VNYL,07X30,22GA,BLK	B	ZZ	X	1	P	C	P	LF	0.40
103	161040	CABLE,COAX,RG#174U		Z7	X	1	P	B	P	LF	0.38
104	161045	TUBING,SHRNK,POLYO,.187 ID,BLK(HIX)	B	Z7	X	1	P	C	P	LF	0.17
105	161031	WIRE,BUS,1X22GA (TIN)		Z7	X	1	P	C	P	LF	0.10
106	112297	DISC,PHENOLIC,.015 THK REF T1		Z7	P	1	P	C	P	EA	1.00
107	111002	WASHER,FLAT,#4X.045THK,SST	A	Z7	X	1	P	C	P	EA	5.00
108	110173	SCRW,PAN,XREC,4-40X1/4,SST		Z7	X	1	P	C	P	EA	2.00
109	160286	CONN,HDR,2 PIN,PC MT,MATE-N-LOCK J1,2		Z7	P	1	P	C	P	EA	2.00
110	172010	CAP,VAR,130-500P,(4211) C55,56		HA	P	1	P	B	P	EA	2.00

PARENT PART: 202820-08 PWA,REC/PLAY ELEX,MONO,1/2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202821-02	PWB,RECORD/PLAY ELECTRONICS	D	HA	F	1	P	A	P	EA	1.00
002	203102	SCHEM,RECORD/PLAY ELEX (MONO) REF DOCUMENT	C	HA	D	1	P	*	U	EA	0.00
003	202917-01	ASM,TRANSFORMER,BIAS T1	A	HA	F	1	P	B	P	EA	1.00
004	149011	RES,CRB,1K,1/4W,5% R21,35,124		ZZ	X	1	P	C	P	EA	3.00
005	149012	RES,CRB,47K,1/4W,5% R22,33,66,104,125		ZZ	X	1	P	C	P	EA	5.00
006	149013	RES,CRB,22K,1/4W,5% R17,24,56,87, 88,89,119,134		ZZ	X	1	P	C	P	EA	8.00
007	149028	RES,MO,100K,1/2W,5% R31		ZZ	P	1	P	C	P	EA	1.00
008	149047	RES,CRB,27K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
009	149050	RES,CRB,12K,1/4W,5% R5,19		ZZ	X	1	P	C	P	EA	2.00
010	149051	RES,CRB,680,1/4W,5% R23,25		ZZ	X	1	P	C	P	EA	2.00
011	149052	RES,CRB,1.2K,1/4W,5% R105		ZZ	X	1	P	C	P	EA	1.00
012	149057	RES,CRB,6.8K,1/4W,5% R112		ZZ	X	1	P	C	P	EA	1.00
013	149063	RES,CRB,100,1/4W,5% R29		ZZ	X	1	P	C	P	EA	1.00
014	149065	INDUCTOR,4.7MH (2307-475) L2,3,4		ZZ	X	1	P	B	P	EA	3.00
016	149072	RES,CRB,220K,1/4W,5% R91		ZZ	P	1	P	C	P	EA	1.00
017	149073	RES,CRB,100K,1/4W,5% R36		ZZ	X	1	P	C	P	EA	1.00
018	149086	RES,CRB,3.9K,1/4W,5% R26,58		ZZ	X	1	P	C	P	EA	2.00
019	149087	RES,CRB,1M,1/4W,5% R116,117,118,120		ZZ	X	1	P	C	P	EA	4.00
020	149091	RES,CRB,3.3K,1/4W,5% R34		ZZ	X	1	P	C	P	EA	1.00
021	149092	RES,CRB,5.6K,1/4W,5% R57		ZZ	X	1	P	C	P	EA	1.00
022	149093	RES,CRB,15K,1/4W,5% R113		ZZ	X	1	P	C	P	EA	1.00
023	149095	RES,CRB,330,1/4W,5% R28,37,63,64		ZZ	X	1	P	C	P	EA	4.00
024	149101	RES,CRB,33K,1/4W,5% R59,101		ZZ	X	1	P	C	P	EA	2.00
025	149112	RES,MF,68.1,1/4W,1%,CLR/RND,100PPM R32	B	ZZ	P	1	P	C	P	EA	1.00
026	149118	RES,CRB,220,1/4W,5% R103,107		ZZ	X	1	P	C	P	EA	2.00

PARENT PART: 202A20-08 PWA,REC/PLAY ELEX,MONO,1/2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
028	149125	RES,CRB,6.2K,1/4W,5% R70,71	A	ZZ	P	1	P	C	P	EA	2.00
029	149136	RES,CRB,1,1/2W,5% R1		ZZ	X	1	P	C	P	EA	1.00
031	149148	RES,CRB,5.6,1/4W,5% R7		ZZ	P	1	P	C	P	EA	1.00
032	149151	RES,CRB,82,1/4W,5% R102		ZZ	P	1	P	C	P	EA	1.00
033	149157	RES,CRB,82K,1/4W,5% R30,68,69		ZZ	X	1	P	C	P	EA	3.00
034	149386	RES,CRB,2.2,1/2W,5% R3,4		HA	P	1	P	C	P	EA	2.00
035	149410	RES,MF,232,1/8W,1%,CLR/BND,100PPM R61	B	HA	P	1	P	C	P	EA	1.00
036	149411	RES,MF,8.45K,1/8W,1%,CLR/BND,100PPM R132	B	HA	P	1	P	C	P	EA	1.00
037	149412	RES,MF,24.9K,1/8W,1%,CLR/BND,100PPM R90	B	HA	P	1	P	C	P	EA	1.00
039	149415	RES,VAR,5K,1/2W (3359P) R8,11		HA	P	1	P	C	P	EA	2.00
040	149416	RES,VAR,200K,1/2W,(3359P) R9,12,18		HZ	P	1	P	C	P	EA	3.00
041	149420	RES,MF,909,1/8W,1%,CLR/BND,100PPM R60,62	B	HA	P	1	P	C	P	EA	2.00
042	150325	RES,CRB,330,1/2W,5% R27		ZZ	P	1	P	C	P	EA	1.00
043	150321	RES,CRB,150,1/2W,5% R52		ZZ	P	1	P	C	P	EA	1.00
044	152023	XSTR,2N5458,NCH,SI,FET,310MW,TO92 Q3	B	ZZ	P	1	P	B	P	EA	1.00
045	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q9,17	B	ZZ	P	1	P	C	P	EA	2.00
046	152051	XSTR,2N4403,PNP,SI,PWR,350MW,TO92 Q10	B	ZZ	P	1	P	B	P	EA	1.00
047	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,4,5,12,18	C	ZZ	P	1	P	B	P	EA	5.00
048	152141	XSTR,MPSU05,NPN,SI,AMPL,1W,X81 Q7	B	HA	P	1	P	C	P	EA	1.00
049	152142	XSTR,MPSU55,PNP,SI,AMPL,1W,X81 Q6,8	B	HA	P	1	P	C	P	EA	2.00
050	153085	DIODE,JAN 1N4148-1,SW,100V,5.0 NS CR1,2,3,4	B	ZZ	X	1	P	B	P	EA	4.00
051	153001	DIODE,1N4001,RECT,50V,1A,75DEG CR6	A	ZZ	P	1	P	B	P	EA	1.00
053	154034	IC,L,4558N,AMP,OP,ETC2/EQ U1	C	ZZ	P	1	P	C	P	EA	1.00
054	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/ U3	C	ZZ	P	1	P	C	P	EA	1.00
055	156061	RELAY,3.2K OHM,24 VDC K2		ZZ	P	1	P	A	P	EA	1.00

PARENT PART: 202820-08 PWA,REC/PLAY ELEX,MONO,1/2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
056	156101	RES,VAR,20K,1/2W,20%,(3359P) R109,110		ZZ	P	1	P	C	P	EA	2.00
057	156125	RELAY,4 POLE,FORM D,24 VDC K1	A	HA	P	1	P	B	P	EA	1.00
058	160168	CONN,HDR,MALE,2POS,.156CT,(87160-4) J10,11		ZZ	P	1	P	C	P	EA	2.00
059	160170	CONN,HDR,MALE,6POS,.156CT,(87160-7) J4		ZZ	P	1	P	C	P	EA	1.00
060	160171	CONN,RECEPT,8POS,MALE,(87160-9) J3		ZZ	P	1	P	C	P	EA	1.00
061	160260	SOCKET,BAYONET,PC MOUNT LAMP 1		HA	P	1	P	C	P	EA	1.00
062	160267	CONN,HDR,MALE,3POS,.156CT,(87160-5) J7,8,9,12,14		ZZ	P	1	P	C	P	EA	5.00
063	149056	RES,CRB,4.7K,1/4W,5% R122,133		ZZ	X	1	P	C	P	EA	2.00
064	162469	PHOTO COND,COUPLER/RES,50,(VTL3A17) OS2,3		HA	P	1	P	B	P	EA	2.00
067	163001	CAP,CER,.001U,1KV,20%,RA,Z5U C18,19,46	A	ZZ	P	1	P	C	P	EA	3.00
068	163021	CAP,CER,100P,1KV,10%,RA,X5F(JL) C6		ZZ	P	1	P	C	P	EA	1.00
069	163025	CAP,CER,10P,100V,5%, C1,3		ZZ	P	1	P	C	P	EA	2.00
071	163106	CAP,MONO,.01U,50V,20% C50,51		HA	P	1	P	C	P	EA	2.00
072	163120	CAP,MONO,.1U,50V,20%,AX,Z5U(203126) C61,62,63,64	B	ZZ	X	1	P	A	P	EA	4.00
073	166003	CAP,MIC,330P,500V,5% C35	A	HA	P	1	P	C	P	EA	1.00
074	166005	CAP,MIC,470P,500V,5 C13	A	ZZ	P	1	P	C	P	EA	1.00
075	166092	CAP,MIC,5100P,500V,5% C75	A	ZZ	P	1	P	C	P	EA	1.00
076	166093	CAP,MIC,2000P,500V C15,16,27	A	HA	P	1	P	C	P	EA	3.00
077	167026	CAP,POLY,.0047U,80V,10%,AX,(192P) C71		ZZ	P	1	P	C	P	EA	1.00
078	167055	CAP,POLY,.0082U,80V,10%,AX,(192P) C72		HA	P	1	P	C	P	EA	1.00
080	171031	CAP,TA,47U,6V,20%,RA,(T362) C21		ZZ	P	1	P	C	P	EA	1.00
081	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C43,48,49,57,60	B	HZ	P	1	P	C	P	EA	5.00
082	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C5,9	B	ZZ	P	1	P	C	P	EA	2.00
083	171062	CAP,TA,4.7U,35V,10%,RA,(T362) C2,36	B	ZZ	P	1	P	C	P	EA	2.00
084	171063	CAP,TA,10U,35V,10%,RA,(T362) C4,8,17,20,44,47	A	ZZ	P	1	P	B	P	EA	6.00

PARENT PART: 202820-08 PWA,REC/PLAY ELEX,MONO,1/2T UM: EA ERC: D

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S A P R	A P B C	P L N	UM	EXTENDED QTY PER
085	171065	CAP,TA,47U,35V,10%,RA,(T362) C14,45,52,59		HA	P	1	P	B	P	EA	4.00
086	172007	CAP,VAR,90-400P,175V,(429) C29,30		ZZ	P	1	P	B	P	EA	2.00
088	162203	TERMINAL,TEST,PC TP1		ZZ	P	1	P	C	P	EA	1.00
091	162343	SOCKET,IC,16POS,SLDR TAIL XU2	B	ZZ	P	1	P	C	P	EA	1.00
092	203529-01	CAP,POLY,.033U,MATCHED PAIR (C65,66)	A	HA	A	1	P	C	P	PR	1.00
093	110275	SCRW,PAN,XREC,4-40X1-1/8,SST		ZZ	X	1	P	C	P	EA	4.00
094	111062	NUT,KEP,4-40,EXT LOCK		ZZ	X	1	P	C	P	EA	2.00
095	112021	SPACER,.250X.250X.140,RND,COPL/BRS	A	ZZ	P	1	P	C	P	EA	2.00
096	112023	SPACER,.500X.250X.140,RND,COPL/BRS	A	ZZ	P	1	P	C	P	EA	2.00
097	162234	CLIP, FUSE		ZZ	P	1	P	C	P	EA	1.00
098	162235	ALIGNMENT,TOOL,DUPLEX	A	ZZ	P	1	P	C	P	EA	1.00
099	162490	LAMP,BAYONET,28V		HA	P	1	P	C	P	EA	1.00
100	200460-01	SHIELD,TOP,REC/PLBK AMPL	B	ZZ	F	1	P	C	P	EA	1.00
101	200506-01	SHIELD,BOTTOM,REC/PLBK AMPL	B	ZZ	F	1	P	C	P	EA	1.00
102	161010	WIRE,S,VNYL,07X30,22GA,BLK	B	ZZ	X	1	P	C	P	LF	0.40
103	161040	CABLE,COAX,RG#174U		ZZ	X	1	P	B	P	LF	0.38
104	161045	TUBING,SHRNK,POLYO,.187 ID,BLK(HIX)	B	ZZ	X	1	P	C	P	LF	0.17
105	161031	WIRE,BUS,1X22GA (TIN)		ZZ	X	1	P	C	P	LF	0.20
106	112297	DISC,PHENOLIC,.015 THK REF T1		ZZ	P	1	P	C	P	EA	1.00
107	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	5.00
108	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	2.00
109	160286	CONN,HDR,2 PIN,PC MT,MATE-N-LOCK J1		ZZ	P	1	P	C	P	EA	1.00
110	161016	WIRE,S,VNYL,07X30,22GA,BLU	B	ZZ	X	1	P	C	P	LF	0.30
111	172010	CAP,VAR,130-500P,(4211) C55,56		HA	P	1	P	B	P	EA	2.00

NOTES:

PARENT PART: 203038-01 ASM,XFMR,PWR,115V UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202947-01	ASM,TRANSFORMER,POWER,115V	B	HZ	F	1	P	A	P	EA	1.00
002	160268	CONN,HSNG,12POS,(1-480708-0)		ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	10.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	3.00

NOTES:

PARENT PART: 203038-02 ASM,XFMR,PWR,220V UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202947-02	ASM,TRANSFORMER,POWER,220V	B	HZ	F	1	P	B	P	EA	1.00
002	160268	CONN,HSNG,12POS,(1-480708-0)		ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	Z7	X	1	P	C	P	EA	11.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	3.00

NOTES:

255 SERIES PARTS LIST

PARENT PART: 202955-05 ASM,REPRO,2T,STEREO,255-2 UM: EA ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	F	HZ	A	1	P	*	P	EA	1.00
002	202942-01	ASM,PANEL,FRONT,REPRO	A	HB	A	1	P	B	P	EA	1.00
004	202943-01	ASM,POWER SWITCH,REPRO	C	HB	A	1	P	B	P	EA	1.00
005	202770-04	PWA,CONTROL LOGIC,REPRO	B	HA	A	1	P	B	P	EA	1.00
009	202945-01	ASM,HEAD,PLAY,1/2T	A	HZ	A	1	P	A	P	EA	1.00
011	203065-01	ASM,CPSTN MOTOR,REPRO,7.5 IPS,60HZ NOTE 1	A	HB	A	1	P	A	P	EA	0.00
012	203065-02	ASM,CPSTN MOTOR,REPRO,3.75 IPS,60HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
013	203065-03	ASM,CPSTN MOTOR,REPRO,7.5 IPS,50HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
014	203065-04	ASM,CPSTN MOTOR,REPRO,3.75 IPS,50HZ NOTE 1	A	HB	A	1	P	C	P	EA	0.00
015	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA	1.00
016	202951-01	KIT,PARTS,STEREO REPRO	A	HB	A	1	P	B	P	EA	1.00
018	202986-01	ASM,CUETONE DETECTOR NOTE 2	A	HY	G	1	P	B	P	EA	0.00
019	202987-01	ASM,REMOTE CONTROL,REPRO NOTE 2	C	HY	G	1	P	C	P	EA	0.00
021	203002-01	CASE,PORTABLE NOTE 2	A	HZ	F	1	P	D	P	EA	0.00
022	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA	0.00
023	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA	0.00
024	202786-01	PWA,P/B AMPL,REPRO,STEREO,NAB NOTE 1	E	HB	G	1	P	A	P	EA	0.00
025	202786-03	PWA,P/B AMPL,REPRO,STEREO,CCIR NOTE 1	E	HB	G	1	P	C	P	EA	0.00
027	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
028	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
029	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
030	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
031	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA	3.00
032	110170	SCRW,PAN,XREC,6-32X3/8,SST		ZZ	X	1	P	C	P	EA	6.00
033	203458-01	LABEL,SYSTEM IDENTIFICATION,255	A	HB	X	1	P	C	P	EA	1.00
034	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA	1.00
035	203004-01	FLYWHEEL,CAPSTAN MTR	B	HB	F	1	P	B	P	EA	1.00
036	151000	CAP,PAPR,1U,660VAC,6%,60HZ(21L6011) C103	B	ZZ	P	1	P	B	P	EA	1.00
037	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
038	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
039	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
040	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		H7	X	1	P	C	P	EA	3.00
045	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
046	111104	WASHER,#10,"CA",PADDED BRASS		B7	X	1	P	C	P	EA	3.00
048	203171-01	PWA,EXTENDER CARD NOTE 2	A	HB	A	3	S	C	P	EA	0.00
049	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
050	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00

PARENT PART: 202955-05 ASM,REPRO,2T,STEREO,255-2 UM: EA
ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
051	203459	IDENTIFICATION DATA,NAMEPLATE,255 REF DOCUMENT	A	HB	*	*		*	P	EA	0.00
052	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00
053	203013-01	ASM,CARD CAGE,PLAYBACK AMPL NOTE 1	B	HB	A	1	P	B	P	EA	0.00
054	203013-03	ASM,CARD CAGE,P/B AMP,STEREO W/XFMR NOTES 1 & 2	B	HB	A	1	P	*	P	EA	0.00

NOTES:

1.OPTION - SELECT ONE.
2.ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202955-06 ASM,REPRO,FT,MONO,255-FT UM: EA ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	HZ	A	1	P	*	P	EA	1.00
003	202942-01	ASM,PANEL,FRONT,REPRO	A	HB	A	1	P	B	P	EA	1.00
004	202943-01	ASM,POWER SWITCH,REPRO	C	HB	A	1	P	B	P	EA	1.00
005	202770-04	PWA,CONTROL LOGIC,REPRO	B	HA	A	1	P	B	P	EA	1.00
006	110282	SCRW,FLAT,SLT,4-40X.25,82DEG,SST		ZZ	X	1	P	C	P	EA	1.00
008	202945-02	ASM,HEAD,PLAY,FT	A	HZ	A	1	P	B	P	EA	1.00
011	203065-01	ASM,CPSTN MOTOR,REPRO,7.5 IPS,60HZ NOTE 1	A	HB	A	1	P	A	P	EA	0.00
012	203065-02	ASM,CPSTN MOTOR,REPRO,3.75 IPS,60HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
013	203065-03	ASM,CPSTN MOTOR,REPRO,7.5 IPS,50HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
014	203065-04	ASM,CPSTN MOTOR,REPRO,3.75 IPS,50HZ NOTE 1	A	HB	A	1	P	C	P	EA	0.00
015	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA	1.00
017	202951-02	KIT,PARTS,MONO REPRO	A	HB	A	1	P	C	P	EA	1.00
018	202986-01	ASM,CUETONE DETECTOR NOTE 2	A	HY	G	1	P	B	P	EA	0.00
019	202987-01	ASM,REMOTE CONTROL,RFPRO NOTE 2	C	HY	G	1	P	C	P	EA	0.00
021	203002-01	CASE,PORTABLE NOTE 2	A	HZ	F	1	P	D	P	EA	0.00
022	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA	0.00
023	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA	0.00
024	202786-02	PWA,P/B AMPL,RFPRO,MONO,NAB NOTE 1	E	HB	G	1	P	C	P	EA	0.00
025	202786-04	PWA,P/B AMPL,REPRO,MONO,CCTR NOTE 1	E	HB	G	1	P	C	P	EA	0.00
027	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
028	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
029	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
030	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
031	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA	3.00
032	110170	SCRW,PAN,XREC,6-32X3/8,SST		ZZ	X	1	P	C	P	EA	6.00
033	203458-01	LABEL,SYSTEM IDENTIFICATION,255	A	HB	X	1	P	C	P	EA	1.00
034	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA	1.00
035	203004-01	FLYWHEEL,CAPSTAN MTR	B	HB	F	1	P	B	P	EA	1.00
036	151000	CAP,PAPR,10,660VAC,6%,60HZ(21L6011) C103	B	ZZ	P	1	P	B	P	EA	1.00
037	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
038	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
039	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
040	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
045	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
046	111104	WASHER,#10,"CA",PADDED BRASS		BZ	X	1	P	C	P	EA	3.00
048	203171-01	PWA,EXTENDER CARD NOTE 2	A	HB	A	3	S	C	P	EA	0.00
049	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00

PARENT PART: 202955-06 ASM,REPRO,FT,MONO,255-FT UM: EA
ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
050	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00
051	203459	IDENTIFICATION DATA,NAMEPLATE,255 REF DOCUMENT	A	HB	*	*		*	P	EA	0.00
052	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00
053	203013-02	ASM,CARD CAGE,P/B AMP,MONO NOTE 1	B	HB	A	1	P	*	P	EA	0.00
054	203013-04	ASM,CARD CAGE,P/B AMP,MONO W/XFMR NOTES 1 & 2	B	HB	A	1	P	C	P	EA	0.00

NOTES:

1.OPTION - SELECT ONE.
2.ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202955-07 ASM,REPRO,1/4T,STEREO,255-24 UM: EA ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT RFV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	HZ	A	1	P	*	P	EA	1.00
002	202942-01	ASM,PANEL,FRONT,REPRO	A	HB	A	1	P	B	P	EA	1.00
004	202943-01	ASM,POWER SWITCH,REPRO	C	HB	A	1	P	B	P	EA	1.00
005	202770-04	PWA,CONTROL LOGIC,REPRO	B	HA	A	1	P	B	P	EA	1.00
010	202945-03	ASM,HEAD,PLAY,1/4T	A	HZ	A	1	P	C	P	EA	1.00
011	203065-01	ASM,CPSTN MOTOR,REPRO,7.5 IPS,60HZ NOTE 1	A	HB	A	1	P	A	P	EA	0.00
012	203065-02	ASM,CPSTN MOTOR,REPRO,3.75 IPS,60HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
013	203065-03	ASM,CPSTN MOTOR,REPRO,7.5 IPS,50HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
014	203065-04	ASM,CPSTN MOTOR,REPRO,3.75 IPS,50HZ NOTE 1	A	HB	A	1	P	C	P	EA	0.00
015	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA	1.00
016	202951-01	KIT,PARTS,STEREO REPRO	A	HB	A	1	P	B	P	EA	1.00
018	202986-01	ASM,CUETONE DETECTOR NOTE 2	A	HY	G	1	P	B	P	EA	0.00
019	202987-01	ASM,REMOTE CONTROL,REPRO NOTE 2	C	HY	G	1	P	C	P	EA	0.00
021	203002-01	CASE,PORTABLE NOTE 2	A	HZ	F	1	P	D	P	EA	0.00
022	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA	0.00
023	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA	0.00
024	202786-01	PWA,P/B AMPL,REPRO,STEREO,NAB NOTE 1	E	HB	G	1	P	A	P	EA	0.00
025	202786-03	PWA,P/B AMPL,REPRO,STEREO,CCIR NOTE 1	F	HB	G	1	P	C	P	EA	0.00
027	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
028	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
029	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
030	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
031	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA	3.00
032	110170	SCRW,PAN,XREC,6-32X3/8,SST		ZZ	X	1	P	C	P	EA	6.00
033	203458-01	LABEL,SYSTEM IDENTIFICATION,255	A	HB	X	1	P	C	P	EA	1.00
034	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA	1.00
035	203004-01	FLYWHEEL,CAPSTAN MTR	B	HB	F	1	P	B	P	EA	1.00
036	151000	CAP,PAPR,1U,660VAC,6%,60HZ(21L6011) C103	B	ZZ	P	1	P	B	P	EA	1.00
037	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
038	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
039	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
040	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
045	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
046	111104	WASHER,#10,"CA",PADDED BRASS		BZ	X	1	P	C	P	EA	3.00
048	203171-01	PWA,EXTENDER CARD NOTE 2	A	HB	A	3	S	C	P	EA	0.00
049	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
050	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00

PARENT PART: 202955-07 ASM,REPRO,1/4T,STEREO,255-24 UM: EA ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
051	203459	IDENTIFICATION DATA,NAMEPLATE,255 REF DOCUMENT	A	HB	*	*		*	P	EA	0.00
052	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00
053	203013-01	ASM,CARD CAGE,PLAYBACK AMPL NOTE 1	B	HB	A	1	P	B	P	EA	0.00
054	203013-03	ASM,CARD CAGE,P/B AMP,STEREO W/XFMR NOTES 1 & 2	B	HB	A	1	P	*	P	EA	0.00

NOTES:

1.OPTION - SELECT ONE.
2.ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202955-08 ASM,REPRO,1/2T,MONO,255-1 UM: EA ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S A P R	A P B C	P L N	UM	EXTENDED QTY PER
001	202931-03	ASM,TRANSPORT	E	H7	A	1	P	*	P	EA	1.00
003	202942-02	ASM,PANEL,FRONT,RECORD	A	HZ	A	1	P	A	P	EA	1.00
004	202943-01	ASM,POWER SWITCH,REPRO	C	HB	A	1	P	B	P	EA	1.00
005	202770-04	PWA,CONTROL LOGIC,REPRO	B	HA	A	1	P	B	P	EA	1.00
009	202945-01	ASM,HEAD,PLAY,1/2T	A	H7	A	1	P	A	P	EA	1.00
011	203065-01	ASM,CPSTN MOTOR,REPRO,7.5 IPS,60HZ NOTE 1	A	HB	A	1	P	A	P	EA	0.00
012	203065-02	ASM,CPSTN MOTOR,REPRO,3.75 IPS,60HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
013	203065-03	ASM,CPSTN MOTOR,REPRO,7.5 IPS,50HZ NOTE 1	A	HB	A	1	P	B	P	EA	0.00
014	203065-04	ASM,CPSTN MOTOR,REPRO,3.75 IPS,50HZ NOTE 1	A	HB	A	1	P	C	P	EA	0.00
015	202946-01	ASM,COVER,HEAD	A	HB	A	1	P	B	P	EA	1.00
017	202951-02	KIT,PARTS,MONO REPRO	A	HB	A	1	P	C	P	EA	1.00
018	202986-01	ASM,CUETONE DETECTOR NOTE 2	A	HY	G	1	P	B	P	EA	0.00
019	202987-01	ASM,REMOTE CONTROL,REPRO NOTE 2	C	HY	G	1	P	C	P	EA	0.00
021	203002-01	CASE,PORTABLE NOTE 2	A	H7	F	1	P	D	P	EA	0.00
022	203038-01	ASM,XFMR,PWR,115V NOTE 1	A	HZ	G	1	P	A	P	EA	0.00
023	203038-02	ASM,XFMR,PWR,220V NOTE 1	A	HZ	G	1	P	B	P	EA	0.00
024	202786-02	PWA,P/B AMPL,REPRO,MONO,NAB NOTE 1	F	HB	G	1	P	C	P	EA	0.00
025	202786-04	PWA,P/B AMPL,REPRO,MONO,CCTR NOTE 1	F	HB	G	1	P	C	P	EA	0.00
027	110022	SCRW,FLAT,SLT,6-32X1/2,82DEG,SST		ZZ	X	1	P	C	P	EA	3.00
028	110172	SCRW,PAN,XREC,4-40X3/8,SST	A	ZZ	X	1	P	C	P	EA	3.00
029	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
030	111002	WASHER,FLAT,#4X.045THK,SST	A	ZZ	X	1	P	C	P	EA	3.00
031	112581	SPACER,.50X.25X4-40,RND,NYL,INSUL	A	HZ	P	1	P	C	P	EA	3.00
032	110170	SCRW,PAN,XREC,6-32X3/8,SST		ZZ	X	1	P	C	P	EA	6.00
033	203458-01	LABEL,SYSTEM IDENTIFICATION,255	A	HB	X	1	P	C	P	EA	1.00
034	202872-01	SHIELD,CAPSTAN MOTOR	A	HZ	F	1	P	B	P	EA	1.00
035	203004-01	FLYWHEEL,CAPSTAN MTR	B	HB	F	1	P	B	P	EA	1.00
036	151000	CAP,PAPR,1U,660VAC,6%,60HZ(21L6011) C103	B	Z7	P	1	P	B	P	EA	1.00
037	110165	SCRW,PAN,XREC,8-32X1/2,SST	A	ZZ	X	1	P	C	P	EA	2.00
038	162081	CLIP,CAPACITOR MTG		ZZ	P	1	P	C	P	EA	2.00
039	160126	CORD,POWER,AC		ZZ	P	1	P	B	P	EA	1.00
040	110411	SCRW,BUT,SKT,10-32X5/8,ST,BLK OX		HZ	X	1	P	C	P	EA	3.00
045	110135	SCRW,OVAL,SLT,10-32X3/4,SST		ZZ	X	1	P	C	P	EA	3.00
046	111104	WASHER,#10,"CA",PADDED BRASS		BZ	X	1	P	C	P	EA	3.00
048	203171-01	PWA,EXTENDER CARD NOTE 2	A	HB	A	3	S	C	P	EA	0.00
049	203455-01	KIT,CONNECTOR PLUG,REMOTE CONTROL	A	HZ	A	1	P	C	P	EA	1.00
050	112171	REEL,EMPTY,1/4"X10"		ZZ	X	1	P	A	P	EA	1.00

PARENT PART: 202955-08 ASM,REPRO,1/2T,MONO,255-1 UM: EA ERC: J

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
051	203459	IDENTIFICATION DATA,NAMEPLATE,255 REF DOCUMENT	A	HB	*	*		*	P	EA	0.00
052	203080-02	TECH MANUAL,MODEL 250/255		HZ	X	1	P	A	P	EA	1.00
053	203013-02	ASM,CARD CAGE,P/B AMP,MONO NOTE 1	B	HB	A	1	P	*	P	EA	0.00
054	203013-04	ASM,CARD CAGE,P/B AMP,MONO W/XFMR NOTES 1 & 2	B	HB	A	1	P	C	P	EA	0.00

NOTES:

1. OPTION - SELECT ONE.
2. ACCESSORY - INCLUDE AS SPECIFIED BY SALES ORDER.

PARENT PART: 202942-02 ASM,PANEL,FRONT,RECORD UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202842-01	PANEL,FRONT	A	H7	F	1	P	B	P	EA	1.00
003	502010007-02	LOGO,SCULLY,BLUE	C	ZZ	F	1	P	B	P	EA	1.00
004	202849-01	OVERLAY,CONT PNL,REC	B	H7	F	1	P	C	P	EA	1.00
005	112553	STUD,BALL,.473HT	A	H7	P	1	P	C	P	EA	2.00
006	110020	SCRW,FLAT,SLT,6-32X1/4,82DEG,SST		ZZ	X	1	P	C	P	EA	2.00
007	162529	PAD,TRANSP RFD,SELF ADHESIVE	1	H7	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202943-01 ASM,POWER SWITCH,REPRO UM: EA ERC: C

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202829-01	PLATE,SWITCH	A	HZ	F	1	P	C	P	EA	1.00
002	162492	SWITCH,ROCKER,2PDT,(7201-U21-J1) S1,S2		HZ	P	1	P	B	P	EA	2.00
004	202828-01	PLATE,MOUNTING	A	H7	F	1	P	C	P	EA	1.00
005	162496	LAMP,NEON,1/7W,CLR DS1		H7	P	1	P	C	P	EA	1.00
006	202758-01	CLAMP,NEON LAMP	A	H7	F	1	P	C	P	EA	1.00
007	112048	SPACER,1.25X.250X4-40,HEX,AL		ZZ	P	1	P	C	P	EA	4.00
008	149012	RES,CRB,47K,1/4W,5% R1		ZZ	X	1	P	C	P	EA	1.00
009	161060	CABLE,15 COND,22GA		ZZ	X	1	P	C	P	LF	1.10
010	160227	CONN,LOCK,PLUG,15PIN P112		ZZ	P	1	P	C	P	EA	1.00
011	112557	BUSHING,SNUB,1/4"WIRE		HZ	P	1	P	C	P	EA	1.00
012	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	12.00
013	112514	RING,O,.176 IDX.070W,BUNA-N	B	ZZ	P	1	P	C	P	EA	1.00
014	110050	SCRW,PAN,SLT,2-56X1/4,SST		ZZ	X	1	P	C	P	EA	3.00
015	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	8.00
016	110407	SCRW,FTL,SLT,2-56X5/16,SST	A	HZ	X	1	P	C	P	EA	1.00
017	111021	WASHER,LOCK,INT,#2,SST		ZZ	X	1	P	C	P	EA	5.00
018	111022	WASHER,LOCK,INT,#4,SST		ZZ	X	1	P	C	P	EA	11.00
019	111051	NUT,HEX,MACH,2-56UNC,SST	A	ZZ	X	1	P	C	P	EA	1.00
020	162222	STRIP,TERMINAL,2 POS (863) TB1	A	ZZ	P	1	P	C	P	EA	1.00
021	203808	W/L,POWER SWITCH ASM,REPRO REF DOCUMENT	A	HB	*	1	P	*	P	EA	0.00

NOTES:

PARENT PART: 202770-02 PWA,CONTROL LOGIC,REPRO (OBS) UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202771-01	PWB,CONTROL LOGIC (OBS)	C	HZ	F	1	P	C	P	EA	1.00
002	202772	SCHEM,CONTROL LOGIC REF DOCUMENT	B	HZ	D	1	P	D	U	EA	0.00
003	149098	RES,CRB,2.2K,1/4W,5% R15,R16		ZZ	X	1	P	C	P	EA	2.00
004	149115	RES,CRB,47,1/4W,5% R3,4,5,6		ZZ	X	1	P	C	P	EA	4.00
005	149116	RES,CRB,220,1/4W,5% R7,8,10,11		ZZ	X	1	P	C	P	EA	4.00
006	149156	RES,CRB,68K,1/4W,5% R12,13		ZZ	X	1	P	C	P	EA	2.00
007	149462	RES,CRB,2.7,1/4W,5% R14		HZ	P	1	P	C	P	EA	1.00
008	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q1,2	B	ZZ	P	1	P	C	P	EA	2.00
009	155008	IC,D,7408N,AND,DUAL,ETC4/EQ U2	A	ZZ	P	1	P	C	P	EA	1.00
010	155019	IC,D,7442N,4-10LN,DEC U1		ZZ	P	1	P	C	P	EA	1.00
011	155035	IC,D,7414N,INV,HEX SCHMITT,ETC4/EQ U5	B	ZZ	P	1	P	C	P	EA	1.00
012	155041	IC,D,7411N,AND,DUAL,3 I/P,ETC4/EQ U3	A	ZZ	P	1	P	C	P	EA	1.00
013	155053	IC,D,74279N,FF,S-R,QUAD,ETC4/EQ U4	A	ZZ	P	1	P	C	P	EA	1.00
014	160278	CONN,HDR,MALE,32POS,.1CT,(87227-8) J1		HZ	P	1	P	C	P	EA	1.00
015	162494	SWITCH,PUSH BUT,SPDT,(DIGITAST#SR) S2,3,4,5		HZ	P	1	P	A	P	EA	4.00
016	171031	CAP,TA,47U,6V,20%,RA,(T362) C1,8		ZZ	P	1	P	C	P	EA	2.00
017	171060	CAP,TA,1.0U,35V,10%,RA,(T362) C4,5,6	B	HZ	P	1	P	C	P	EA	3.00
018	171063	CAP,TA,10U,35V,10%,RA,(T362) C3	A	ZZ	P	1	P	B	P	EA	1.00
019	149152	RES,CRB,120,1/4W,5% R9		ZZ	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202951-01 KIT,PARTS,STEREO REPRO UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202847-01	SHIELD,HEAD	A	HB	F	1	P	B	P	EA	1.00
002	202846-01	COVER,HEAD SHIELD	A	HB	F	1	P	A	P	EA	1.00
003	202949-01	GUIDE,TAPE	A	HZ	F	1	P	C	P	EA	3.00
004	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	1.00
005	110184	SCRW,SET,ALEN,6-32X1/2,CUP,ST,BO		ZZ	X	1	P	C	P	EA	3.00
006	110413	SCRW,FLAT,XREC,4-40X1/4,SST	B	HZ	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202986-01 ASM,CUETONE DETECTOR UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202809-01	PWA,CUETONE DETECTOR	B	HB	A	1	P	B	P	EA	1.00
003	203014-01	ASM,CARD CAGE,CUETONE	B	HB	A	1	P	C	P	EA	1.00
004	110175	SCRW,PAN,XREC,6-32X1/2,SST		ZZ	X	1	P	C	P	EA	3.00
005	111003	WASHER,FLAT,#6X.045THK,SST		ZZ	X	1	P	C	P	EA	3.00

NOTES:

PARENT PART: 202809-01 PWA,CUETONE DETECTOR UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202810-01	PWA,CUETONE DETECTOR	B	HB	F	1	P	C	P	EA	1.00
002	202811	SCHEMATIC,CUETONE DETECTOR REF DOCUMENT	C	HY	D	1	P	D	U	EA	0.00
003	149012	RES,CRB,47K,1/4W,5% R9		ZZ	Y	1	P	C	P	EA	1.00
004	149013	RES,CRB,22K,1/4W,5% R8		ZZ	X	1	P	C	P	EA	1.00
005	149056	RES,CRB,4.7K,1/4W,5% R22,6		ZZ	X	1	P	C	P	EA	2.00
006	149067	RES,CRB,330K,1/4W,5% R12		ZZ	P	1	P	C	P	EA	1.00
007	149070	RES,CRB,10K,1/4W,5% R4,7		ZZ	X	1	P	C	P	EA	2.00
008	149073	RES,CRB,100K,1/4W,5% R21		ZZ	X	1	P	C	P	EA	1.00
009	149086	RES,CRB,3.9K,1/4W,5% R5		ZZ	X	1	P	C	P	EA	1.00
010	149093	RES,CRB,15K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
011	149097	RES,CRB,180K,1/4W,5% R11		ZZ	X	1	P	C	P	EA	1.00
012	149098	RES,CRB,2.2K,1/4W,5% R10,24		ZZ	X	1	P	C	P	EA	2.00
013	149123	RES,CRB,2.7K,1/4W,5% R19		ZZ	X	1	P	C	P	EA	1.00
014	149128	RES,CRB,270K,1/4W,5% R18		ZZ	X	1	P	C	P	EA	1.00
015	149413	RES,MF,9.09K,1/8W,1%,CLR/BND,100PPM R16	B	HZ	P	1	P	C	P	EA	1.00
016	149422	RES,MF,392K,1/8W,1%,CLR/BND,100PPM R17,13,15,14,23	B	HY	P	1	P	C	P	EA	5.00
017	150307	RES,CRB,10,1/2W,5% R3		ZZ	P	1	P	C	P	EA	1.00
018	152050	XSTR,2N4401,NPN,SI,PWR,350MW,TO92 Q1,3	B	ZZ	P	1	P	C	P	EA	2.00
019	152051	XSTR,2N4403,PNP,SI,PWR,350MW,TO92 Q2	B	ZZ	P	1	P	B	P	EA	1.00
020	153085	DIODE,JAN 1N4148-1,SW,100V,5.0 NS CR3,4,5,6,7	B	ZZ	X	1	P	B	P	EA	5.00
021	153001	DIODE,1N4001,RECT,50V,1A,75DEG CR1	A	ZZ	P	1	P	B	P	EA	1.00
022	153079	LAMP,LED,RED,5V CR2	A	ZZ	P	1	P	C	P	EA	1.00
023	154017	IC,D,555,TIMER,OSC,ETC4/EQ U1	A	ZZ	P	1	P	C	P	EA	1.00
024	154018	IC,L,324N,AMP,OP,ETC2/EQ U5	B	ZZ	P	1	P	C	P	EA	1.00
025	155045	IC,D,74122N,MONOSTAB U4		ZZ	P	1	P	C	P	EA	1.00
026	155110	IC,D,74LS90N,COUNTER,DECADE,ETC4/EQ	A	HY	P	1	P	C	P	EA	1.00

PARENT PART: 202809-01 PWA,CUETONE DETECTOR UM: EA ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
		U2									
027	155120	IC,D,74LS132,NAND,POS,SCHMITT,FTC4/	C	ZZ	P	1	P	C	P	EA	1.00
		U3									
028	156036	RES,VAR,20K,1/2W,20%,(3359W)		ZZ	P	1	P	B	P	EA	1.00
		R2									
029	156043	RES,VAR,200K,1/2W,20%,(3359W)		ZZ	P	1	P	B	P	EA	1.00
		R1									
030	156119	RELAY,GP,25V,1C,PC,MTG	A	HB	P	1	P	C	P	EA	1.00
		K1									
031	163015	CAP,CER,.01U,25V,20%,X5U		ZZ	P	1	P	C	P	EA	2.00
		C16,3									
032	163048	CAP,CER,.05U,500V,20%		ZZ	P	1	P	C	P	EA	2.00
		C1,2									
033	163083	CAP,MONO,.1U,50V,15%,RA,X7R	B	ZZ	P	1	P	C	P	EA	1.00
		C5									
034	167024	CAP,POLY,.0022U,80V,10%,AX,(192P)		ZZ	P	1	P	C	P	EA	2.00
		C18,19									
035	167032	CAP,POLY,.033U,80V,10%,AX,(192P)		ZZ	P	1	P	C	P	EA	1.00
		C10									
036	167097	CAP,POLY,.1U,100V,10%,RA,(C280)		HY	P	1	P	C	P	EA	4.00
		C14,15,12,20									
037	171031	CAP,TA,47U,6V,20%,RA,(T362)		ZZ	P	1	P	C	P	EA	3.00
		C17,9,4									
038	171060	CAP,TA,1.0U,35V,10%,RA,(T362)	B	H7	P	1	P	C	P	EA	2.00
		C8,C13									
039	171063	CAP,TA,10U,35V,10%,RA,(T362)	A	ZZ	P	1	P	B	P	EA	3.00
		C6,11,C7									
	NOTES:										

PARENT PART: 202987-01 ASM,REMOTE CONTROL,REPRO UM: EA ERC: C

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
002	203068-01	PWA,REMOTE CONTROL,REPRO	B	HX	A	1	P	C	P	EA	1.00
003	203071-01	OVERLAY,REMOTE CONTROL,REPRO	B	HX	F	1	P	C	P	EA	1.00
004	161126	CABLE,ALPHA,1179		ZZ	X	1	P	C	P	LF	30.00
005	160268	CONN,HSNG,12POS,(1-480708-0)		Z7	P	1	P	C	P	EA	1.00
006	162340	CLAMP,STRAIN RELIEF		Z7	P	1	P	C	P	EA	2.00
007	110272	SCRW,PAN,XREC,6X5/8,ST,BLK OX,S MET		ZZ	X	1	P	C	P	EA	2.00
008	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	9.00
009	112557	BUSHING,SNUB,1/4"WIRE		H7	P	1	P	C	P	EA	1.00
010	112022	SPACER,.375X.250X.140,RND,CDPL/BRS	A	Z7	P	1	P	C	P	EA	3.00
011	110222	SCRW,FLAT,XREC,4-40X5/8,SST		Z7	X	1	P	C	P	EA	3.00
012	111062	NUT,KEP,4-40,EXT LOCK		ZZ	X	1	P	C	P	EA	3.00
013	201372-01	BUMPER,SWITCH	A	ZZ	F	1	P	C	P	EA	4.00
014	203120-01	ENCLOSURE,REMOTE CONTROL ASM	B	HX	F	1	P	C	P	EA	1.00
015	201779-01	LABEL,IDENT,PART/SER	B	Z7	X	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 203068-01 PWA,REMOTE CONTROL,REPRO UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	203069-01	PWA,REMOTE CONTROL	A	HX	F	1	P	C	P	EA	1.00
002	203070	SCHEM,REMOTE CONTROL PWA	B	HX	D	1	P	*	U	EA	0.00
003	162494	SWITCH,PUSH BUT,SPDT,(DIGITAST#SR) S2,S3,S4		HZ	P	1	P	A	P	EA	3.00
004	162495	SWITCH,PUSH BUT,W/LED,(DIGITAST#SRL S5		HZ	P	1	P	B	P	EA	1.00
005	149054	RES,CRB,390,1/4W,5% R2		ZZ	X	1	P	C	P	EA	1.00
006	171077	CAP,TA,470,6V,20%,AX,(T310) C1		ZZ	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 203017-01 ASM,XFMR,OUTPUT (INACTIVE) UM: EA
ERC: B

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
001	157006	XFMR,LINE OUTPUT,(S-81-X)	ZZ	P	1	P	A	P		EA	1.00
002	160172	CONN,HSNG,2POS,NYL,(87159-3)	ZZ	P	1	P	C	P		EA	1.00
003	160185	PIN,CONTACT,FEMALE,HIGH PRESSURE	ZZ	Y	1	P	B	P		EA	2.00
004	110174	SCRW,PAN,XREC,6-32X1/4,SST	ZZ	X	1	P	C	P		EA	2.00
005	111115	NUT,KEP,6-32,EXT LOCK,1/4 HEX	ZZ	X	1	P	C	P		EA	2.00

NOTES:

PARENT PART: 203065-01 ASM,CPSTN MOTOR,REPRO,7.5 IPS,60HZ UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202881-01	MOTOR,CAPSTAN,7.5 IPS,60 HZ	F	HB	F	1	P	A	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	4.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	Y	1	P	C	P	EA	4.00

NOTES:

END OF REPOR

PARENT PART: 203065-02 ASM,CPSTN MOTOR,REPRO,3.75 IPS,60H7 UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202881-02	MOTOR,CAPSTAN,3.75 IPS,60 HZ	E	HB	F	1	P	B	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	4.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00

NOTES:

END OF REPORT

PARENT PART: 203065-03 ASM,CPSTN MOTOR,REPRO,7.5 IPS,50HZ UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202881-03	MOTOR,CAPSTAN,7.5 IPS,50 HZ	E	HB	F	1	P	B	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	4.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00
	NOTES:										

PARENT PART: 203065-04 ASM,CPSTN MOTOR,REPRO,3.75 IPS,50HZ UM: EA
ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202881-04	MOTOR,CAPSTAN,3.75 IPS,50 HZ	E	HB	F	1	P	C	P	EA	1.00
002	160167	CONN,HSNG, 9POS,3ROW,NYLON	A	ZZ	P	1	P	C	P	EA	1.00
003	160166	SOCKET,.062 DIA,FEMALE	B	ZZ	X	1	P	C	P	EA	4.00
004	162198	STRAP,CABLE,NYLON	A	ZZ	X	1	P	C	P	EA	4.00

NOTES:

PARENT PART: 202951-02 KIT,PARTS,MONO REPRO UM: EA ERC: A

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202847-01	SHIELD,HEAD	A	HB	F	1	P	B	P	EA	1.00
002	202846-01	COVER,HEAD SHIELD	A	HB	F	1	P	A	P	EA	1.00
003	202949-01	GUIDE,TAPE	A	HZ	F	1	P	C	P	EA	3.00
004	110173	SCRW,PAN,XREC,4-40X1/4,SST		ZZ	X	1	P	C	P	EA	1.00
005	110184	SCRW,SET,ALEN,6-32X1/2,CUP,ST,RO		ZZ	X	1	P	C	P	EA	3.00
006	110413	SCRW,FLAT,XREC,4-40X1/4,SST	B	HZ	X	1	P	C	P	EA	1.00
007	112561	PLUG,HOLE, .562DIA		HB	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202786-01 PWA,P/B AMPL,REPRO,STEREO,NAB UM: FA ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202787-01	PWB,PLAYBACK AMPL	B	HB	F	1	P	C	P	EA	1.00
002	202788	SCHEM,PLAYBACK AMPLIFIER,STEREO REF DOCUMENT	C	HB	D	1	P	D	N	EA	0.00
003	149011	RES,CRB,1K,1/4W,5% R3,6,18,23,35,36		ZZ	X	1	P	C	P	EA	6.00
004	149012	RES,CRB,47K,1/4W,5% R15,R22		ZZ	X	1	P	C	P	EA	2.00
005	149013	RES,CRB,22K,1/4W,5% R11,R12		ZZ	X	1	P	C	P	EA	2.00
006	149063	RES,CRB,100,1/4W,5% R30,R31		ZZ	X	1	P	C	P	EA	2.00
007	149073	RES,CRB,100K,1/4W,5% R16,25		ZZ	X	1	P	C	P	EA	2.00
008	149087	RES,CRB,1M,1/4W,5% R7,8,9,10		ZZ	X	1	P	C	P	EA	4.00
009	149091	RES,CRB,3.3K,1/4W,5% R17,R20		ZZ	X	1	P	C	P	EA	2.00
010	149095	RES,CRB,330,1/4W,5% R13,R26		ZZ	X	1	P	C	P	EA	2.00
011	149148	RES,CRB,5.6,1/4W,5% R19,R24		ZZ	P	1	P	C	P	EA	2.00
012	149238	RES,MF,68.1,1/8W,1%,CLR/BND,100PPM R28,33	B	BC	P	1	P	C	P	EA	2.00
013	149157	RES,CRB,82K,1/4W,5% R29,R32		ZZ	X	1	P	C	P	EA	2.00
014	149066	RES,CRB,120K,1/4W,5% R27,R34		ZZ	P	1	P	C	P	EA	2.00
015	149421	RES,VAR,10K,PC,(70MIG) R1,R2		HB	P	1	P	C	P	EA	2.00
016	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,2,3,4	C	ZZ	P	1	P	B	P	EA	4.00
017	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/ U1	C	ZZ	P	1	P	C	P	EA	1.00
018	156053	RES,VAR,10K,1/2W,20%,(3359W) R4,R5		ZZ	P	1	P	A	P	EA	2.00
019	162501	KNOB,1/8"SHAFT,BLK		ZZ	P	1	P	C	P	EA	2.00
020	163058	CAP,CER,.001U,500V,20%,RA,Z5U C18,21,24,25		ZZ	P	1	P	C	P	EA	4.00
021	163060	CAP,CER,.02U,25V,20%,X5U C1,2		ZZ	P	1	P	C	P	EA	2.00
022	164009	CAP,ELEC,47U,25V,-10/+50%,AX(3071) C3,4,6,26	A	ZZ	P	1	P	C	P	EA	4.00
023	166001	CAP,MIC,220P,500V,5%,(CM05) C17,C22	A	ZZ	P	1	P	C	P	EA	2.00
024	167032	CAP,POLY,.033U,80V,10%,AX,(192P) C16,23		ZZ	P	1	P	C	P	EA	2.00
025	171013	CAP,TA,10U,35V,20%,RA,(TAG) C5,7,8,9,11,12,19,20		ZZ	P	1	P	A	P	EA	8.00
026	171035	CAP,TA,150U,6V,10%,RA,(T362) C10,C13		ZZ	P	1	P	C	P	EA	2.00

PARENT PART: 202786-01 PWA,P/B AMPL,REPRO,STEREO,NAB UM: EA ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
027	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C14,C15	B	ZZ	P	1	P	C	P	EA	2.00
028	149240	RES,MF,100K,1/8W,1%,CLR/BND,100PPM R14,21	B	ZZ	P	1	P	C	P	EA	2.00
	NOTES:										

PARENT PART: 202786-02 PWA,P/B AMPL,REPRO,MONO,NAB UM: EA ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT RFV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202787-01	PWB,PLAYBACK AMPL	B	HB	F	1	P	C	P	EA	1.00
002	203067	SCHEM,PLAYBACK AMPLIFIER,MONO REF DOCUMENT	C	HB	D	1	P	*	U	EA	0.00
003	149011	RES,CRB,1K,1/4W,5% R6,23,36		ZZ	X	1	P	C	P	EA	3.00
004	149012	RES,CRB,47K,1/4W,5% R22		ZZ	X	1	P	C	P	EA	1.00
005	149013	RES,CRB,22K,1/4W,5% R11,12		ZZ	X	1	P	C	P	EA	2.00
006	149063	RES,CRB,100,1/4W,5% R31		ZZ	X	1	P	C	P	EA	1.00
007	149073	RES,CRB,100K,1/4W,5% R25		ZZ	X	1	P	C	P	EA	1.00
008	149087	RES,CRB,1M,1/4W,5% R7,8,9,10		ZZ	X	1	P	C	P	EA	4.00
009	149091	RES,CRB,3.3K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
010	149095	RES,CRB,330,1/4W,5% R26		ZZ	X	1	P	C	P	EA	1.00
011	149148	RES,CRB,5.6,1/4W,5% R24		ZZ	P	1	P	C	P	EA	1.00
012	149238	RES,MF,68.1,1/8W,1%,CLR/BND,100PPM R33	B	BC	P	1	P	C	P	EA	1.00
013	149157	RES,CRB,82K,1/4W,5% R32		ZZ	X	1	P	C	P	EA	1.00
014	149066	RES,CRB,120K,1/4W,5% R34		ZZ	P	1	P	C	P	EA	1.00
015	149421	RES,VAR,10K,PC,(70MIG) R2		HB	P	1	P	C	P	EA	1.00
016	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q3,4	C	ZZ	P	1	P	B	P	EA	2.00
017	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/ U1	C	ZZ	P	1	P	C	P	EA	1.00
018	156053	RES,VAR,10K,1/2W,20%,(3359W) R5		ZZ	P	1	P	A	P	EA	1.00
019	162501	KNOB,1/8"SHAFT,BLK		ZZ	P	1	P	C	P	EA	1.00
020	163058	CAP,CER,.001U,500V,20%,RA,Z5U C21,24		ZZ	P	1	P	C	P	EA	2.00
021	163060	CAP,CER,.02U,25V,20%,X5U C2		ZZ	P	1	P	C	P	EA	1.00
022	164009	CAP,ELEC,47U,25V,-10/+50%,AX(3071) C3,4,26	A	ZZ	P	1	P	C	P	EA	3.00
023	166001	CAP,MIC,220P,500V,5%,(CM05) C22	A	ZZ	P	1	P	C	P	EA	1.00
024	167032	CAP,POLY,.033U,80V,10%,AX,(192P) C23		ZZ	P	1	P	C	P	EA	1.00
025	171013	CAP,TA,10U,35V,20%,RA,(TAG) C5,7,11,12,20		ZZ	P	1	P	A	P	EA	5.00
026	171035	CAP,TA,150U,6V,10%,RA,(T362) C13		ZZ	P	1	P	C	P	EA	1.00

PARENT PART: 202786-02 PWA,P/B AMPL,REPRO,MONO,NAB UM: EA EPC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
027	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C15	B	Z7	P	1	P	C	P	EA	1.00
028	149240	RES,MF,100K,1/8W,1%,CLR/BND,100PPM R21	B	Z7	P	1	P	C	P	EA	1.00

NOTES:

PARENT PART: 202786-03 PWA,P/B AMPL,REPRO,STEREO,CCIR UM: EA ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202787-01	PWB,PLAYBACK AMPL	B	HB	F	1	P	C	P	EA	1.00
002	202788	SCHEM,PLAYBACK AMPLIFIER,STEREO REF DOCUMENT	C	HB	D	1	P	D	U	EA	0.00
003	149011	RES,CRB,1K,1/4W,5% R3,6,18,23,35,36		ZZ	X	1	P	C	P	EA	6.00
004	149012	RES,CRB,47K,1/4W,5% R15,R22		ZZ	X	1	P	C	P	EA	2.00
005	149013	RES,CRB,22K,1/4W,5% R11,R12		ZZ	X	1	P	C	P	EA	2.00
006	149063	RES,CRB,100,1/4W,5% R30,R31		ZZ	X	1	P	C	P	EA	2.00
007	149073	RES,CRB,100K,1/4W,5% R16,25		ZZ	X	1	P	C	P	EA	2.00
008	149087	RES,CRB,1M,1/4W,5% R7,8,9,10		ZZ	X	1	P	C	P	EA	4.00
009	149091	RES,CRB,3.3K,1/4W,5% R17,R20		ZZ	X	1	P	C	P	EA	2.00
010	149095	RES,CRB,330,1/4W,5% R13,R26		ZZ	X	1	P	C	P	EA	2.00
011	149148	RES,CRB,5.6,1/4W,5% R19,R24		ZZ	P	1	P	C	P	EA	2.00
012	149238	RES,MF,68.1,1/8W,1%,CLR/BND,100PPM R28,33	B	BC	P	1	P	C	P	EA	2.00
013	149157	RES,CRB,82K,1/4W,5% R29,R32		ZZ	X	1	P	C	P	EA	2.00
014	149067	RES,CRB,330K,1/4W,5% R27,R34		ZZ	P	1	P	C	P	EA	2.00
015	149421	RES,VAR,10K,PC,(70MIG) R1,R2		HB	P	1	P	C	P	EA	2.00
016	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q1,2,3,4	C	ZZ	P	1	P	B	P	EA	4.00
017	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/ U1	C	ZZ	P	1	P	C	P	EA	1.00
018	156053	RES,VAR,10K,1/2W,20%,(3359W) R4,R5		ZZ	P	1	P	A	P	EA	2.00
019	162501	KNOB,1/8"SHAFT,BLK		ZZ	P	1	P	C	P	EA	2.00
020	163058	CAP,CER,.001U,500V,20%,RA,75U C18,21,24,25		ZZ	P	1	P	C	P	EA	4.00
021	163060	CAP,CER,.02U,25V,20%,X5U C1,C2		ZZ	P	1	P	C	P	EA	2.00
022	164009	CAP,ELEC,47U,25V,-10/+50%,AX(3071) C3,4,6,26	A	ZZ	P	1	P	C	P	EA	4.00
023	166001	CAP,MIC,220P,500V,5%,(CM05) C17,C22	A	ZZ	P	1	P	C	P	EA	2.00
024	167032	CAP,POLY,.033U,80V,10%,AX,(192P) C16,23		ZZ	P	1	P	C	P	EA	2.00
025	171013	CAP,TA,10U,35V,20%,RA,(TAG) C5,7,8,9,11,12,19,20		ZZ	P	1	P	A	P	EA	8.00
026	171035	CAP,TA,150U,6V,10%,RA,(T362) C10,C13		ZZ	P	1	P	C	P	EA	2.00

PARENT PART: 202786-03 PWA,P/B AMPL,REPRO,STEREO,CCTR UM: EA
ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A R C	P L N	UM	EXTENDED QTY PER
027	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C14,C15	B	ZZ	P	1	P	C	P	EA	2.00
028	149240	RES,MF,100K,1/8W,1%,CLR/BND,100PPM R14,21	B	ZZ	P	1	P	C	P	EA	2.00
	NOTES:										

PARENT PART: 202786-04 PWA,P/B AMPL,REPRO,MONO,CCIR UM: EA ERC: E

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION REMARKS	EDT REV CD	PR CD	S C E	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
001	202787-01	PWB,PLAYBACK AMPL	B	HB	F	1	P	C	P	EA	1.00
002	203067	SCHEM,PLAYBACK AMPLIFIER,MONO REF DOCUMENT	C	HB	D	1	P	*	U	EA	0.00
003	149011	RES,CRB,1K,1/4W,5% R6,23,26		ZZ	X	1	P	C	P	EA	3.00
004	149012	RES,CRB,47K,1/4W,5% R22		ZZ	X	1	P	C	P	EA	1.00
005	149013	RES,CRB,22K,1/4W,5% R11,R12		ZZ	X	1	P	C	P	EA	2.00
006	149063	RES,CRB,100,1/4W,5% R31		ZZ	X	1	P	C	P	EA	1.00
007	149073	RES,CRB,100K,1/4W,5% R25		ZZ	X	1	P	C	P	EA	1.00
008	149087	RES,CRB,1M,1/4W,5% R7,8,9,10		ZZ	X	1	P	C	P	EA	4.00
009	149091	RES,CRB,3.3K,1/4W,5% R20		ZZ	X	1	P	C	P	EA	1.00
010	149095	RES,CRB,330,1/4W,5% R26		ZZ	X	1	P	C	P	EA	1.00
011	149148	RES,CRB,5.6,1/4W,5% R24		ZZ	P	1	P	C	P	EA	1.00
012	149238	RES,MF,68.1,1/8W,1%,CLR/BND,100PPM R33	B	BC	P	1	P	C	P	EA	1.00
013	149157	RES,CRB,82K,1/4W,5% R32		ZZ	X	1	P	C	P	EA	1.00
014	149067	RES,CRB,330K,1/4W,5% R34		ZZ	P	1	P	C	P	EA	1.00
015	149421	RES,VAR,10K,PC,(70MIG) R2		HB	P	1	P	C	P	EA	1.00
016	152095	XSTR,BC550C,NPN,SI,PWR,500MW,U69 Q3,Q4	C	ZZ	P	1	P	B	P	EA	2.00
017	154020	IC,L,378N,AMP,PWR,DUAL,AUDIO,ETC2/ U1	C	ZZ	P	1	P	C	P	EA	1.00
018	156053	RES,VAR,10K,1/2W,20%,(3359W) R5		ZZ	P	1	P	A	P	EA	1.00
019	162501	KNOB,1/8"SHAFT,BLK		ZZ	P	1	P	C	P	EA	1.00
020	163058	CAP,CER,.001U,500V,20%,RA,Z5U C21,C24		ZZ	P	1	P	C	P	EA	2.00
021	163060	CAP,CER,.02U,25V,20%,X5U C2		ZZ	P	1	P	C	P	EA	1.00
022	164009	CAP,ELEC,47U,25V,-10/+50%,AX(3071) C3,4,26	A	ZZ	P	1	P	C	P	EA	3.00
023	166001	CAP,MIC,220P,500V,5%,(CM05) C22	A	ZZ	P	1	P	C	P	EA	1.00
024	167032	CAP,POLY,.033U,80V,10%,AX,(192P) C23		ZZ	P	1	P	C	P	EA	1.00
025	171013	CAP,TA,10U,35V,20%,RA,(TAG) C5,7,11,12,20		ZZ	P	1	P	A	P	EA	5.00
026	171035	CAP,TA,150U,6V,10%,RA,(T362) C13		ZZ	P	1	P	C	P	EA	1.00

PARENT PART: 202786-04 PWA,P/B AMPL,REPRO,MONO,CCIR UM: EA ERC: F

ITEM NO.	COMPONENT PARTS	PART DESCRIPTION / REMARKS	EDT REV CD	PR CD	S C F	T Y P	S P R	A B C	P L N	UM	EXTENDED QTY PER
027	171061	CAP,TA,2.2U,35V,10%,RA,(T362) C15	B	Z7	P	1	P	C	P	EA	1.00
028	149240	RES,MF,100K,1/8W,1%,CLR/BND,100PPM R21	B	Z7	P	1	P	C	P	EA	1.00
	NOTES:										
	END OF REPOR										

APPENDIX A
ACTIVE FILTERS

All filters used in the 250/255 Series are active, rather than the better-known passive filters. Each stage of the filters consists essentially of an amplifier with frequency sensitive feedback. Thus, the passive components include only resistors and capacitors, indictors are not required (see Appendix C for digital circuits).

A filter of any complexity (for operation in the frequency region below 100-kHz) can be constructed by using suitable combinations of four basic building blocks (filter sections). The following four filter sections are referred to in the appropriate circuit descriptions by the letter designations A, B. C, and D. These sections are shown schematically in Figures A-1 through A-4 as follows:

a. Second-order lowpass section "A" (Figure A-1).
b. First-order lowpass section "B" (Figure A-2).
c. Second-order highpass section "C" (Figure A-3).
d. First-order highpass section "D" (Figure A-4).

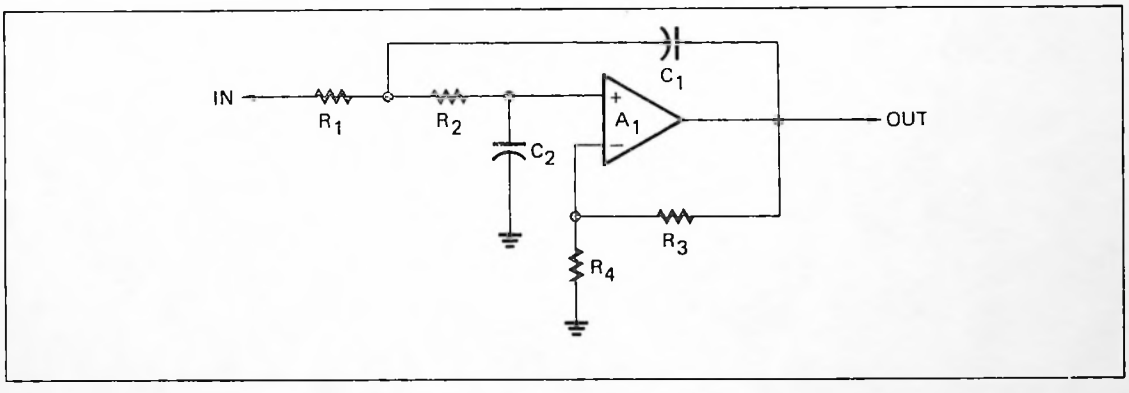


Figure A-1. Filter Section "A," Second-Order Lowpass.

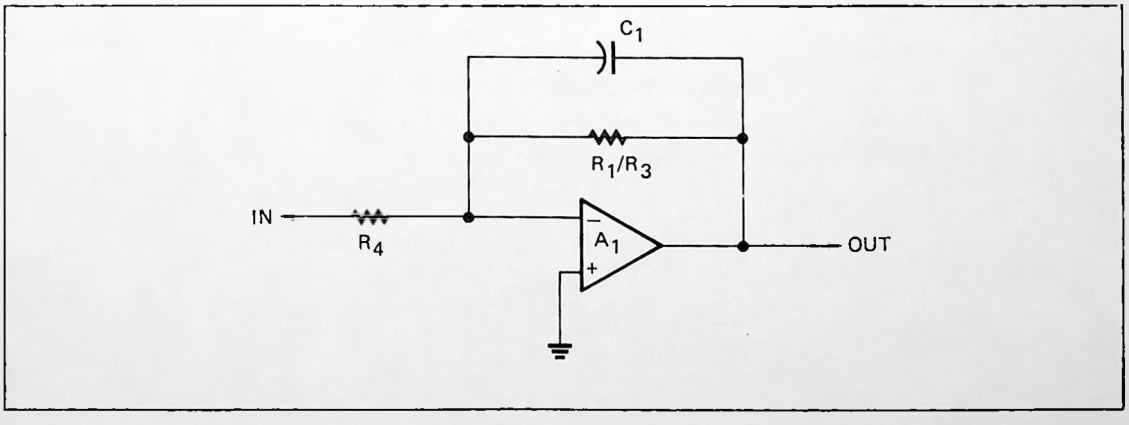


Figure A-2. Filter Section "B," First-Order Lowpass.

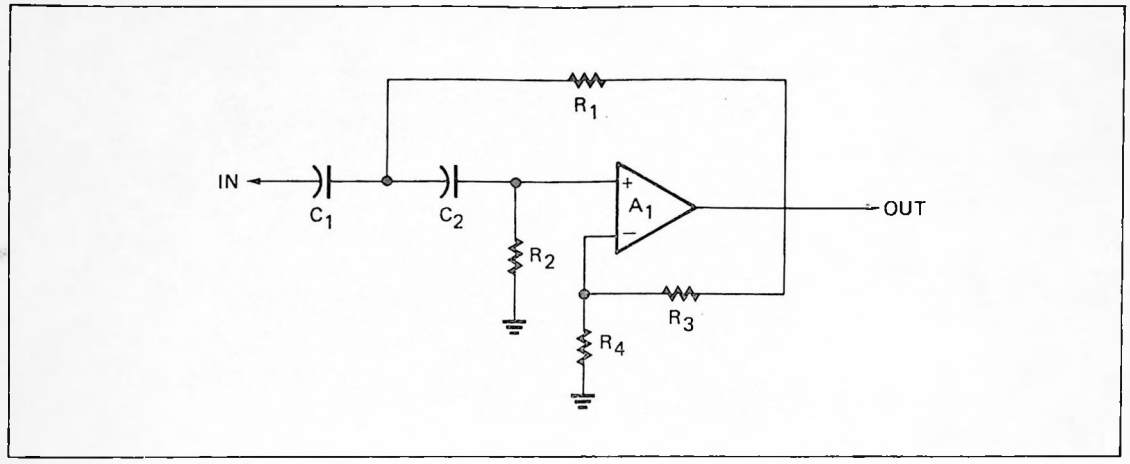


Figure A-3. Filter Section "C," Second-Order Highpass.

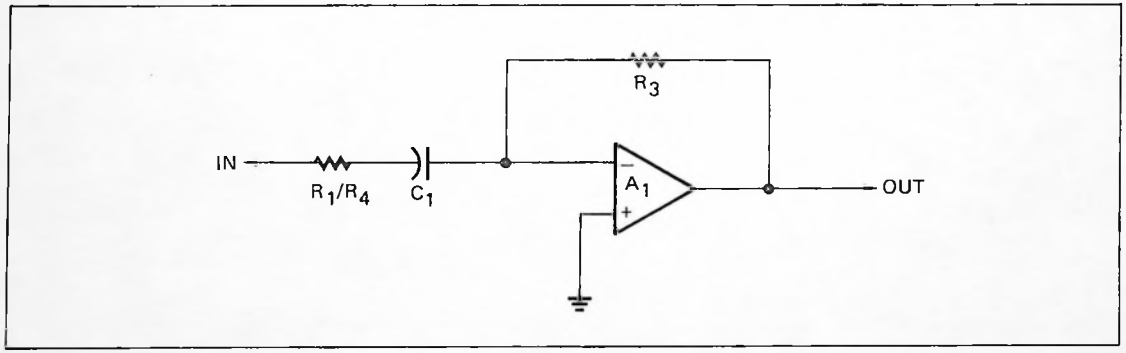


Figure A-4. Filter Section "D," First-Order Highpass.

The R/C components used in the four basic filter sections are shown with their function in Table A-1.

Table A-1. Filter Components

COMPONENT	FUNCTION
A_1	Op Amp
R_1, R_2, C_1, C_2	Frequency sensitive network. Establishes the frequency response of the filter.
R_3	Feedback
R_3, R_4	DC Network. Establishes the dc gain of the filter.

APPENDIX B
OPERATIONAL AMPLIFIERS

Operational amplifiers are used extensively in the 250/255 Series. However, all applications of "op amps" fall into one of the following four classes:

a. Buffer.
b. Comparator.
c. Inverting.
d. Non-inverting.

The first two classes, illustrated in Figures B-1 and B-2, are standard op amp applications. The other two classes, B-3 and B-4 are more complex and require some explanation. Figure B-5 shows the compensation and bypass components used in all applications B-1 thru B-4 (see Appendix C for digital circuits).

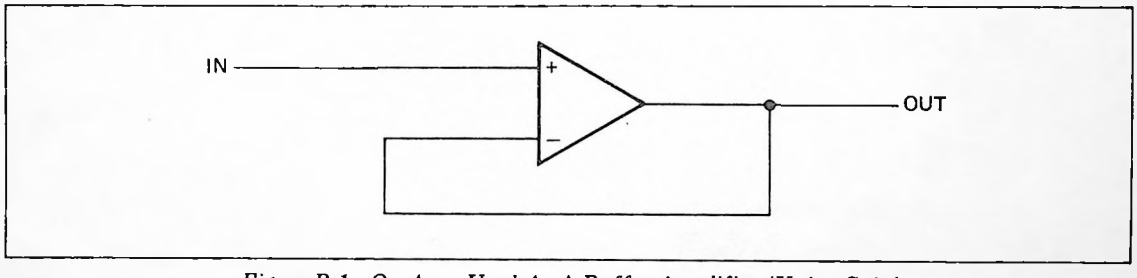


Figure B-1. Op Amp Used As A Buffer Amplifier (Unity Gain).

Inverting

Figure B-3 illustrates the inverting application. This configuration is characterized by:

a. Input impedance = R_1.
b. Input is applied to the inverting (—) terminal.
c. Negative feedback/gain is determined by the ratio: $-\frac{R_2}{R_1}$.
d. Input is stabilized by connecting the non-inverting terminal through R3 to ground.
e. Low output impedance, with 180° phase inversion.

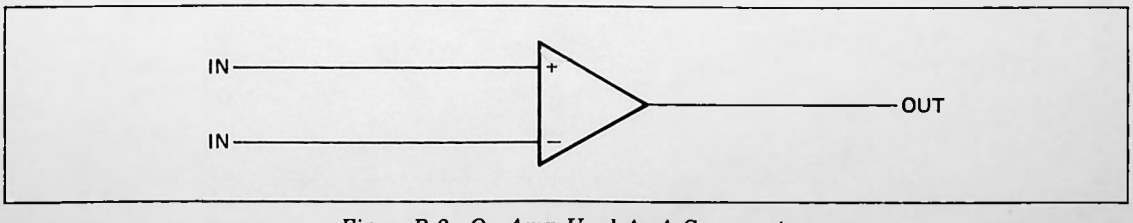


Figure B-2. Op Amp Used As A Comparator.

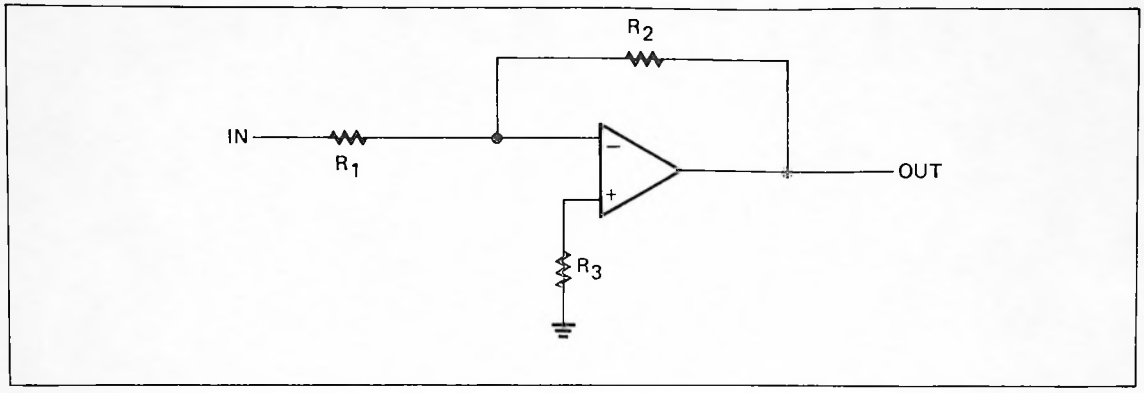


Figure B-3. Op Amp Used In Inverting Application.

Non-inverting

Figure B-4 illustrates the non-inverting application. This configuration is characterized by:

a. High input impedance to non-inverting terminal (+).

b. Gain = $1 + \frac{R_2}{R_1}$ (negative feedback).

c. Output is non-inverted, with low output impedance.

d. Voltage divider R_a/R_b is source to ground for op amp input.

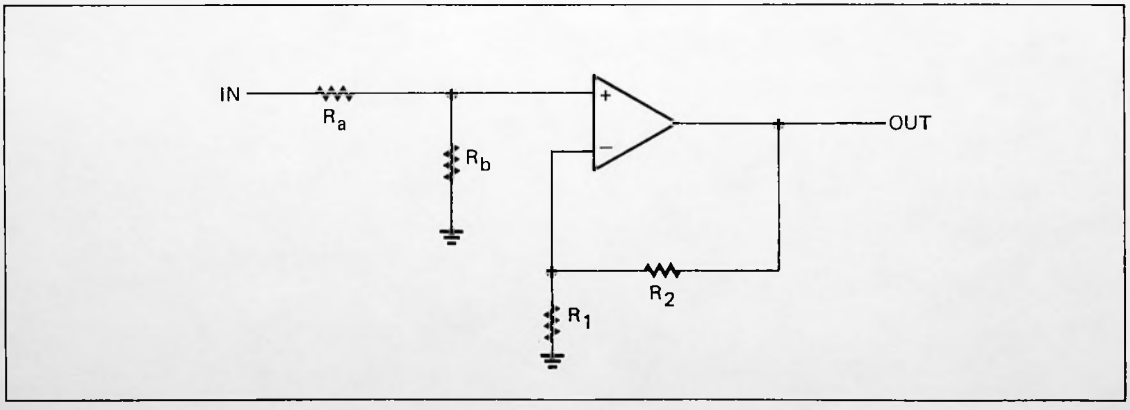


Figure B-4. Op Amp Used In Non-Inverting Application.

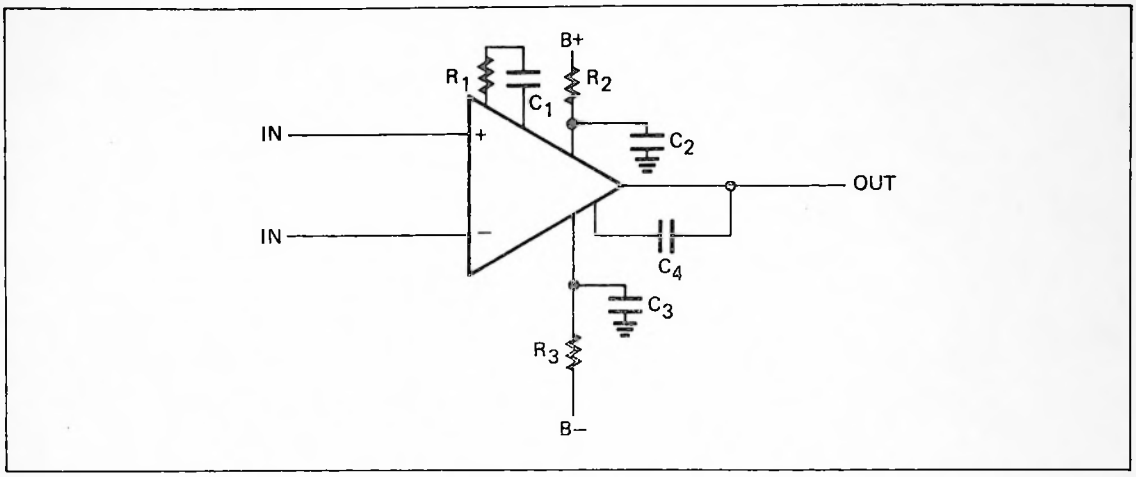


Figure B-5. Op Amp Component Configuration.

a. R_1 — Compensation
b. C_1 — Compensation
c. C_4 — Compensation
d. R_2 — Bypass
e. R_3 — Bypass
f. C_2 — Bypass
g. C_3 — Bypass

APPENDIX C
LOGIC DEFINITIONS

This appendix describes the various logic symbols and logic circuits used on the schematic diagrams and in the circuit descriptions of the 250/255 Series. HIGH (+5 Vdc) true logic is employed in the 250/255 Series. In the logic symbols that follow, the gates are not limited to the two inputs shown. See Appendix A and B for the operation of analog components and circuits.

DEFINITION OF LOGIC LEVELS (VOLTAGES).

a. H = HIGH (+5 Vdc) = Logic 1 (More Positive)

b. L = LOW (GRD) = Logic 0 (More Negative)

250/255 SERIES LOGIC SYMBOLS AND FUNCTIONS.

a. **And.** As shown in Figure C-1, the And-gate output (C) is HIGH (+5 Vdc) when all inputs (in this case A & B) are HIGH (+5 Vdc) simultaneously. When any one input or all inputs go LOW (GRD), the And-gate output (C) is LOW (GRD). Therefore, a LOW (GRD) input controls the And gate. See And Truth Table, Table C-1.

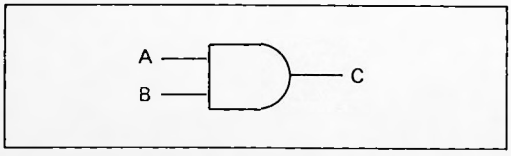


Figure C-1. And Logic Symbol.

Table C-1. And Truth Table

INPUT		OUTPUT
A	B	C
L	L	L
L	H	L
H	L	L
H	H	H

b. **Or.** As shown in Figure C-2, the Or-gate output (C) is HIGH (+5 Vdc) when any one input or all of the inputs (in this case A or B), are HIGH (+5 Vdc). When all inputs are LOW (GRD) the Or-gate output (C) is LOW (GRD). Therefore, a HIGH (+5 Vdc) input controls the Or-gate. See Or Truth Table, Table C-2.

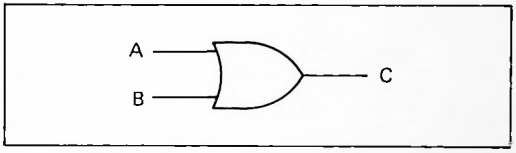


Figure C-2. Or Logic Symbol.

Table C-2. Or Truth Table

INPUT		OUTPUT
A	B	C
L	L	L
L	H	H
H	L	H
H	H	H

c. **Nand.** As shown in Figure C-3, the Nand-gate output (C) is HIGH (+5 Vdc) when any or all inputs (in this case A or B) are LOW (GRD). When all inputs are HIGH (+5 Vdc), the Nand-gate output (C) is LOW (GRD). Therefore, a LOW (GRD) input controls the Nand-gate. See Nand Truth Table, Table C-3.

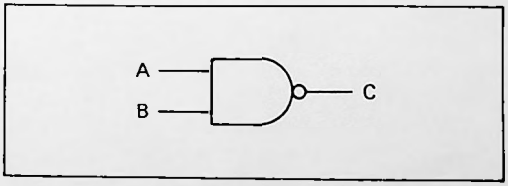


Figure C-3. Nand Logic Symbol.

Table C-3. Nand Truth Table

INPUT		OUTPUT
A	B	C
L	L	H
L	H	H
H	L	H
H	H	L

d. **Nor.** As shown in Figure C-4, the Nor-gate output (C) is HIGH (+5 Vdc) when all inputs (in this case A & B) are LOW (GRD) simultaneously. When any one input or all inputs are HIGH (+5 Vdc), the Or-gate output (C) is LOW (GRD). Therefore, a HIGH (+5 Vdc) input controls the Nor-gate. See Nor Truth Table, Table C-4.

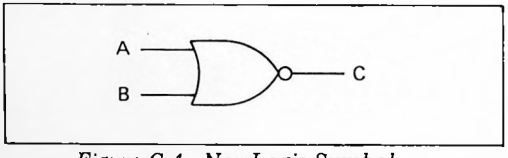


Figure C-4. Nor Logic Symbol.

Table C-4. Nor Truth Table

INPUT		OUTPUT
A	B	C
L	L	H
L	H	L
H	L	L
H	H	L

e. **Inverter.** As shown in Figure C-5, the inverter output (B) is HIGH (+5 Vdc) when the input (A) is LOW (GRD). The Inverter Output (B) is LOW (GRD) when the input (A) is HIGH (+5 Vdc). The inverter has only one input. When Nand and Nor inputs are tied together, they also function as inverters. See Inverter Truth Table, Table C-5.

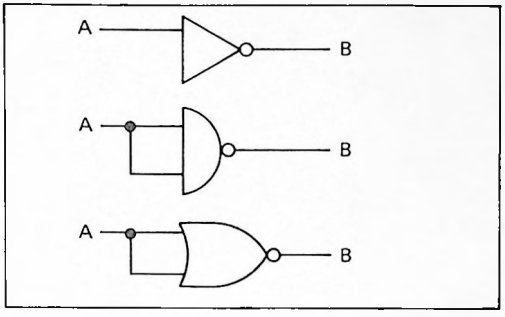


Figure C-5. Inverter Logic Symbols.

Table C-5. Inverter Truth Table

INPUT	OUTPUT
A	B
L	H
H	L

f. **Exclusive Or.** As shown in Figure C-6, the Exclusive Or-gate output (C) is HIGH (+5 Vdc) only when one input at a time is HIGH (+5 Vdc). The Exclusive Or-gate output (C) is LOW (GRD) when all inputs (in this case A & B) are HIGH (+5 Vdc) or when all inputs are LOW (GRD). Therefore, a single HIGH (+5 Vdc) input controls the Exclusive Or-gate. See Exclusive Or Truth Table, Table C-6.

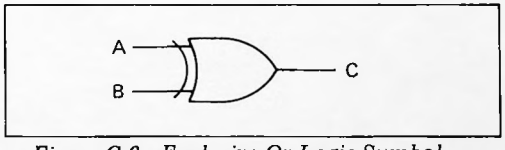


Figure C-6. Exclusive Or Logic Symbol.

Table C-6. Exclusive Or Truth Table

INPUT		OUTPUT
A	B	C
L	L	L
L	H	H
H	L	H
H	H	L

g. **"T" Flip/Flop.** As shown in Figure C-7, the "T" Flip/Flop outputs, Q and $\overline{Q}$, change state each time the trigger pulse at the T (toggle) input transitions from a HIGH (+5 Vdc) to a LOW (GRD). Therefore, a HIGH (+5 Vdc) to LOW (GRD) transition on the toggle input controls the "T" Flip/Flop. A J-K Flip/Flop with J and K inputs tied HIGH (+5 Vdc) also functions like a "T" Flip/Flop. The "T" Flip/Flop may have direct set (SD) and direct reset (RD) inputs, in which case, a HIGH (+5 Vdc) to LOW (GRD) transition on the (SD) lead sets Q HIGH (+5 Vdc). A HIGH (+5 Vdc) to LOW (GRD) transition on the (RD) lead resets $\overline{Q}$ HIGH (+5 Vdc). See "T" Flip/Flop Truth Table, Table C-7.

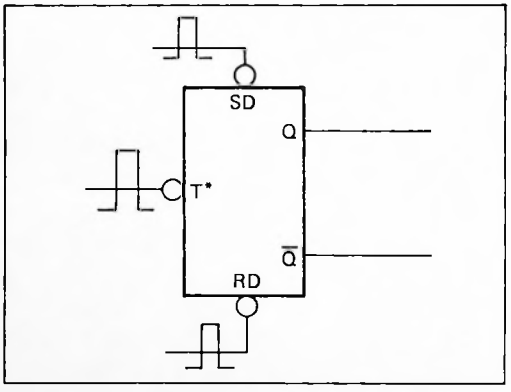


Figure C-7. "T" Flip/Flop Logic Symbol.

Table C-7. "T" Flip/Flop Truth Table

INPUT		OUTPUT	
CONDITION BEFORE TRIGGER AT T*		CONDITION AFTER TRIGGER AT T*	
Q	$\overline{Q}$	Q	$\overline{Q}$
L	H	H	L
H	L	L	H

*T = Clock (CL) = Clock Pulse (CP).

h. **"J-K" Flip/Flop.** As shown in Figure C-8, the "J-K" Flip/Flop Q output goes HIGH (+5 Vdc) when the "J" input is HIGH (+5 Vdc) and the T (toggle) input transitions from a HIGH (+5 Vdc) to a LOW (GRD). The Flip/Flop $\overline{Q}$ output goes HIGH (+5 Vdc) when the "K" input is HIGH (+5 Vdc) and the T (toggle) input transitions from a HIGH (+5 Vdc) to a LOW (GRD). Therefore, a HIGH (+5 Vdc) on one input lead and a HIGH (+5 Vdc) to LOW (GRD) transition on the T input controls the "J-K" Flip/Flop. The "J-K" Flip/Flop may have direct set (SD) and direct reset (RD) inputs in which case, a HIGH (+5 Vdc) to LOW (GRD) transition on (SD) unconditionally sets Q HIGH (+5 Vdc). A HIGH (+5 Vdc) to LOW (GRD) transition on (RD) unconditionally resets $\overline{Q}$ HIGH (+5 Vdc). See "J-K" Flip/Flop Truth Table, Table C-8.

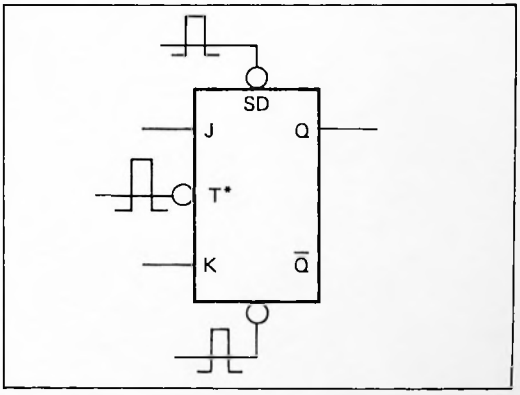


Figure C-8. "J-K" Flip/Flop Logic Symbol.

Table C-8. "J-K" Flip/Flop Truth Table

INPUT			OUTPUT	
T*	J	K	Q	$\overline{Q}$
⊓	L	L	No Change	
⊓	L	H	L	H
⊓	H	L	H	L
⊓	H	H	See "T" Flip/Flop	

*T = Clock (CL) = Clock Pulse (CP).

i. **"R-S" Flip/Flop (latch).** As shown in Figure C-9, a LOW (GRD) applied on the "S" input lead causes the Q output to go HIGH (+5 Vdc). A LOW (GRD) applied on the "R"

input lead causes the $\overline{Q}$ output to go HIGH (+5 Vdc). Therefore, a LOW (GRD) input controls the "R-S" Flip/Flop. See "R-S" Flip/Flop Truth Table, Table C-9.

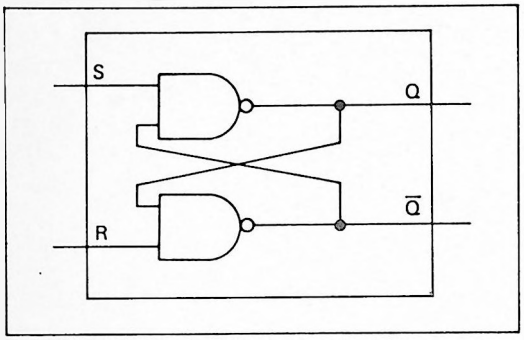


Figure C-9. "R-S" Flip/Flop Logic Symbol.

Table C-9. "R-S" Flip/Flop Truth Table

INPUT		OUTPUT	
R	S	Q	$\overline{Q}$
L	L	No Change if Simultaneous	
L	H	L	H
H	L	H	L
H	H	Undefined State	

j. **Open Collector Gates.** The logic gates shown in Figure C-10 are of the open-collector type. The open-collector gate has no internal pull-up resistor on the output lead, therefore, when any input (A or B) is LOW (GRD), the output transistor turns off and the output lead (C) floats. When all inputs (A and B) are floating, the output transistor in the gate is turned on and the gate generates a LOW (GRD) output. These gates are used in timing circuits, as drivers, and for wire (DOT)-And functions.

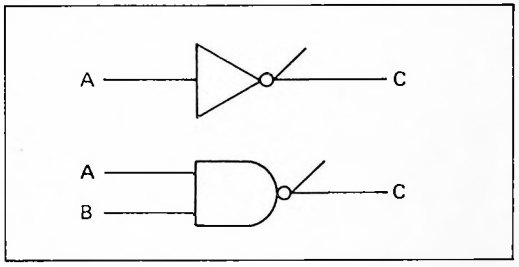


Figure C-10. Open-Collector Logic Symbols.