

Schematic

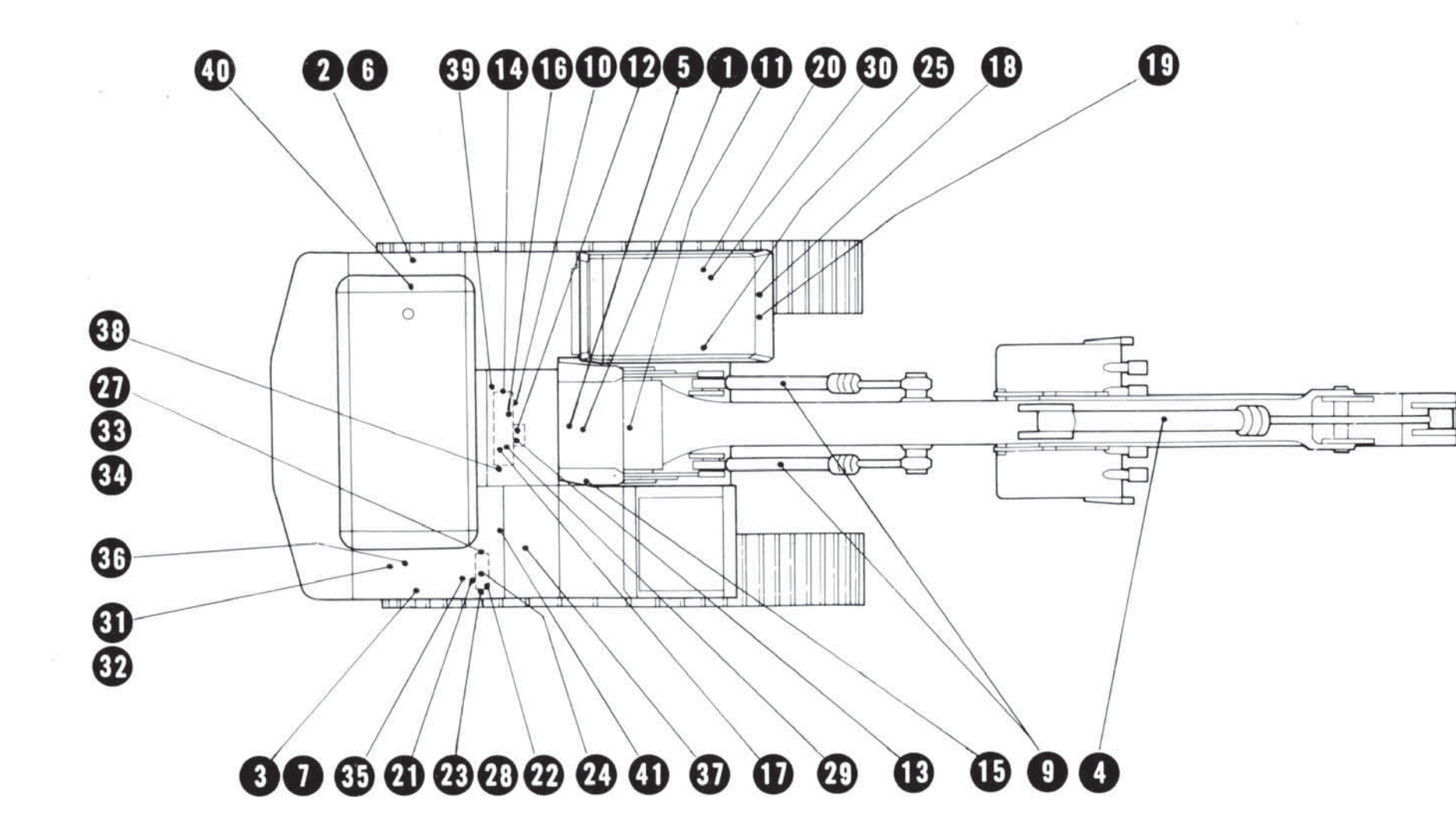
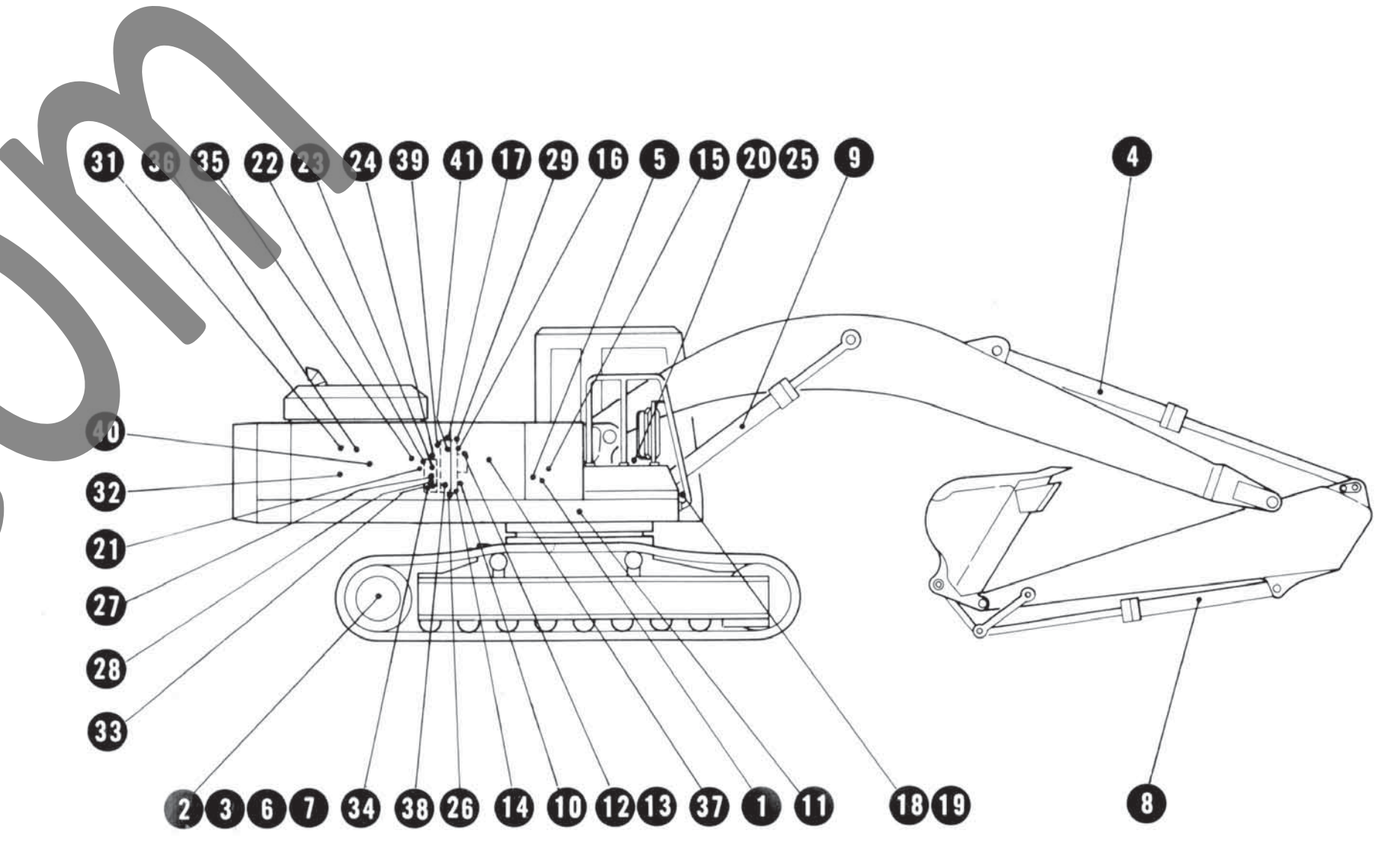
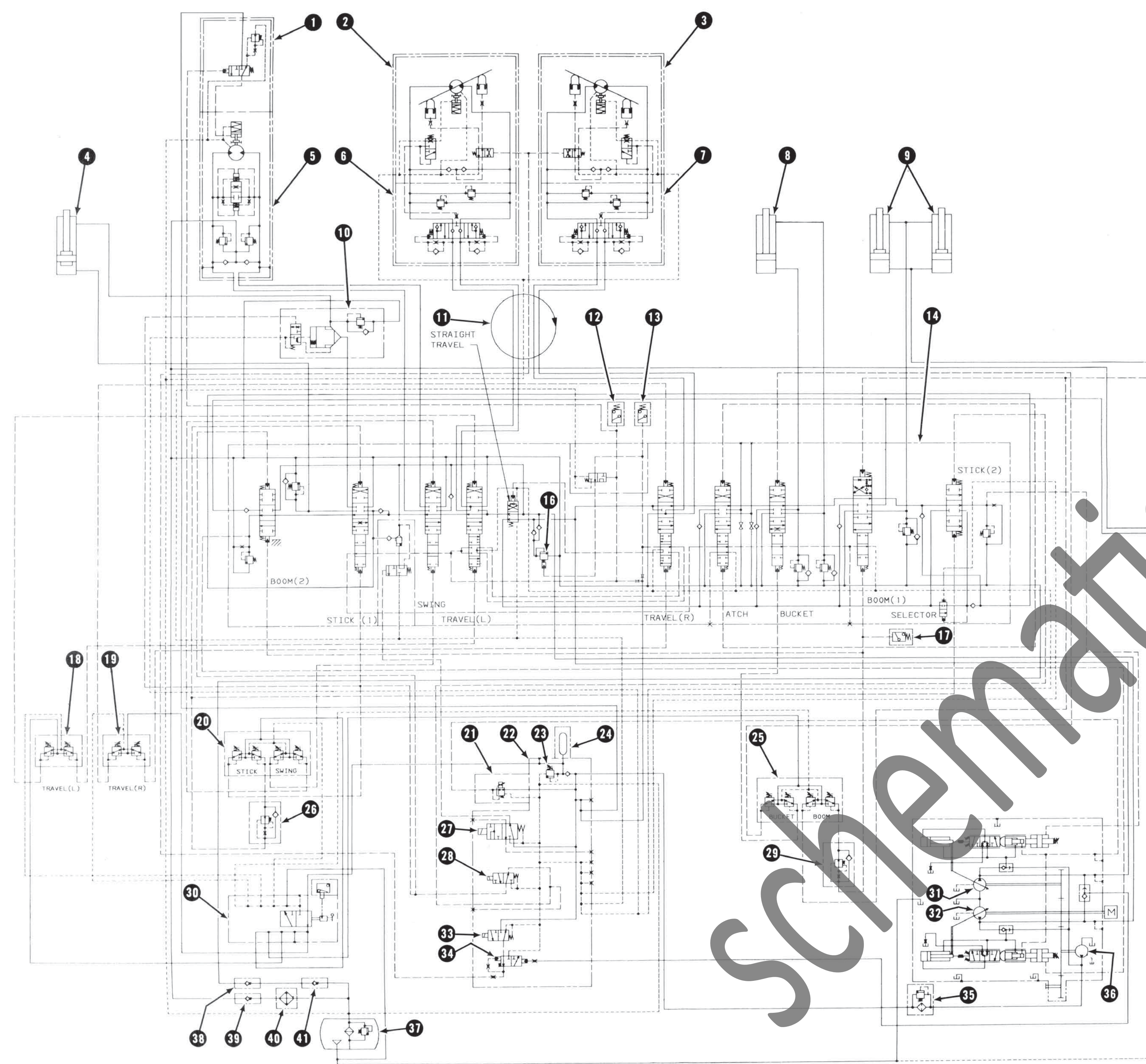
320 and 320L Excavator Hydraulic System

320: 320L:
 3RK1-UP 4BK1-UP
 7WK1-UP 9KK1-UP
 2DL1-UP 1TL1-UP
 2BN1-UP

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FLUID POWER SYMBOLS		
BASIC COMPONENT SYMBOLS		
PUMP OR MOTOR	FLUID CONDITIONER	SPRING
CONTROL VALVES	RESTRICTION	LINE RESTRICTION (FIXED)
RESTRICTION	LINE RESTRICTION (FIXED)	PUMP (2-SECTION)
PUMP (2-SECTION)	PUMP (VARIABLE PRESSURE COMPENSATED)	PUMP (VARIABLE PRESSURE COMPENSATED)
VARIABLE	SPRING (ADJUSTABLE)	LINE RESTRICTION (VARIABLE)
SPRING (ADJUSTABLE)	LINE RESTRICTION (VARIABLE)	PRESSURE COMPENSATION
LINE RESTRICTION (VARIABLE)	PRESSURE COMPENSATION	HYDRAULIC ENERGY TRIANGLES
PRESSURE COMPENSATION	HYDRAULIC ENERGY TRIANGLES	PNEUMATIC ENERGY TRIANGLES
HYDRAULIC ENERGY TRIANGLES	PNEUMATIC ENERGY TRIANGLES	LINE RESTRICTION (VARIABLE & PRESSURE COMPENSATED)
LINE RESTRICTION (VARIABLE & PRESSURE COMPENSATED)	ATTACHMENT	ATTACHMENT
ATTACHMENT	ATTACHMENT	ATTACHMENT
VALVE ENVELOPES		
ONE POSITION	TWO POSITION	THREE POSITION
ONE POSITION	TWO POSITION	THREE POSITION
VALVES		
TWO-WAY	THREE-WAY	FOUR-WAY
TWO-WAY	THREE-WAY	FOUR-WAY
CONTROL VALVES		
NORMAL POSITION	SHIFTED POSITION	INFINITE POSITION
NORMAL POSITION	SHIFTED POSITION	INFINITE POSITION
CHECK VALVES		
BASIC SYMBOL	SPRING LOADED	SHUTTLE
BASIC SYMBOL	SPRING LOADED	SHUTTLE
SPRING LOADED	SHUTTLE	PLOT CONTROLLED
SPRING LOADED	SHUTTLE	PLOT CONTROLLED
FLUID STORAGE RESERVOIRS		
VENTED	PRESSURIZED	RETURN ABOVE FLUID LEVEL
VENTED	PRESSURIZED	RETURN ABOVE FLUID LEVEL
PRESSURIZED	RETURN ABOVE FLUID LEVEL	RETURN BELOW FLUID LEVEL
PRESSURIZED	RETURN ABOVE FLUID LEVEL	RETURN BELOW FLUID LEVEL
MEASUREMENT		
PRESSURE	TEMPERATURE	FLOW
PRESSURE	TEMPERATURE	FLOW
ROTATING SHAFTS		
UNIDIRECTIONAL	BIDIRECTIONAL	
UNIDIRECTIONAL	BIDIRECTIONAL	
COMBINATION CONTROLS		
SOLENOID	SOLENOID OR MANUAL	SOLENOID & PLOT OR MANUAL
SOLENOID	SOLENOID OR MANUAL	SOLENOID & PLOT OR MANUAL
SOLENOID OR MANUAL	SOLENOID & PLOT OR MANUAL	SERVO
SOLENOID & PLOT OR MANUAL	SERVO	THERMAL
SERVO	THERMAL	DETENT
THERMAL	DETENT	
MANUAL CONTROL SYMBOLS		
PUSH-PULL LEVER	MANUAL SHUTOFF	GENERAL MANUAL
PUSH-PULL LEVER	MANUAL SHUTOFF	GENERAL MANUAL
MANUAL SHUTOFF	GENERAL MANUAL	PUSH BUTTON
GENERAL MANUAL	PUSH BUTTON	PEDAL
PUSH BUTTON	PEDAL	SPRING
PEDAL	SPRING	
RELEASED PRESSURE		
EXTERNAL RETURN	INTERNAL RETURN	SIMPLIFIED
EXTERNAL RETURN	INTERNAL RETURN	SIMPLIFIED
INTERNAL RETURN	SIMPLIFIED	COMPLETE
SIMPLIFIED	COMPLETE	INTERNAL SUPPLY PRESSURE
COMPLETE	INTERNAL SUPPLY PRESSURE	
PILOT CONTROL SYMBOLS		
RELEASED PRESSURE	PILOT CONTROL SYMBOLS	REMOTE SUPPLY PRESSURE
RELEASED PRESSURE	PILOT CONTROL SYMBOLS	REMOTE SUPPLY PRESSURE
PILOT CONTROL SYMBOLS	REMOTE SUPPLY PRESSURE	
REMOTE SUPPLY PRESSURE		
ACCUMULATORS		
SPRING LOADED	GAS CHARGED	
SPRING LOADED	GAS CHARGED	
CROSSING & JOINING LINES		
LINES CROSSING	LINES JOINING	
LINES CROSSING	LINES JOINING	
HYDRAULIC & PNEUMATIC CYLINDERS		
SINGLE ACTING	DOUBLE ACTING	
SINGLE ACTING	DOUBLE ACTING	
HYDRAULIC PUMPS		
FIXED DISPLACEMENT	VARIABLE DISPLACEMENT NON-COMPENSATED	
FIXED DISPLACEMENT	VARIABLE DISPLACEMENT NON-COMPENSATED	
VARIABLE DISPLACEMENT NON-COMPENSATED		
HYDRAULIC MOTORS		
FIXED DISPLACEMENT	VARIABLE DISPLACEMENT NON-COMPENSATED	
FIXED DISPLACEMENT	VARIABLE DISPLACEMENT NON-COMPENSATED	
VARIABLE DISPLACEMENT NON-COMPENSATED		
INTERNAL PASSAGEWAYS		
INFINITE POSITIONING	3 POSITION	2 POSITION
INFINITE POSITIONING	3 POSITION	2 POSITION
3 POSITION	2 POSITION	
2 POSITION		

ELECTRICAL SYMBOLS TABLE			
HYDRAULIC SYMBOLS (ELECTRICAL)			
TRANSDUCER (FLUID)	TRANSDUCER (GAS / AIR)	GENERATOR	ELECTRIC MOTOR
TRANSDUCER (FLUID)	TRANSDUCER (GAS / AIR)	GENERATOR	ELECTRIC MOTOR
GENERATOR	ELECTRIC MOTOR		
PRESSURE SWITCH	PRESSURE SWITCH (ADJUSTABLE)	TEMPERATURE SWITCH	ELECTRICAL WIRE
PRESSURE SWITCH	PRESSURE SWITCH (ADJUSTABLE)	TEMPERATURE SWITCH	ELECTRICAL WIRE
TEMPERATURE SWITCH	ELECTRICAL WIRE		
ELECTRICAL WIRE			
ELECTRICAL SYMBOLS (ELECTRICAL)			
PRESSURE SWITCH	TEMPERATURE SWITCH	LEVEL SWITCH	FLOW SWITCH
PRESSURE SWITCH	TEMPERATURE SWITCH	LEVEL SWITCH	FLOW SWITCH
TEMPERATURE SWITCH	LEVEL SWITCH	FLOW SWITCH	
LEVEL SWITCH	FLOW SWITCH		
FLOW SWITCH			
WIRE NUMBER IDENTIFICATION CODES			
ELECTRICAL SCHEMATIC EXAMPLE CURRENT STANDARD		HYDRAULIC SCHEMATIC EXAMPLE CURRENT STANDARD	
ELECTRICAL SCHEMATIC EXAMPLE CURRENT STANDARD		HYDRAULIC SCHEMATIC EXAMPLE CURRENT STANDARD	
HARNES IDENTIFICATION CODE THIS EXAMPLE INDICATES WIRE 135 IN HARNES "AG"		CIRCUIT NUMBER IDENTIFICATION WIRE COLOR	
HARNES IDENTIFICATION CODE THIS EXAMPLE INDICATES WIRE 135 IN HARNES "AG"		CIRCUIT NUMBER IDENTIFICATION WIRE COLOR	
CIRCUIT NUMBER IDENTIFICATION	WIRE COLOR	WIRE GAUGE	
CIRCUIT NUMBER IDENTIFICATION	WIRE COLOR	WIRE GAUGE	
WIRE COLOR	WIRE GAUGE		
WIRE GAUGE			
PREVIOUS STANDARD		PREVIOUS STANDARD	
PREVIOUS STANDARD		PREVIOUS STANDARD	
CIRCUIT NUMBER IDENTIFICATION	WIRE COLOR	WIRE GAUGE	
CIRCUIT NUMBER IDENTIFICATION	WIRE COLOR	WIRE GAUGE	
WIRE COLOR	WIRE GAUGE		
WIRE GAUGE			
			(EXAMPLE VALVE)



ITEM	DESCRIPTION
1	Swing parking control valve
2	Travel motor (left)
3	Travel motor (right)
4	Stick cylinder
5	Swing motor
6	Travel brake valve (left)
7	Travel brake valve (right)
8	Bucket cylinder
9	Boom cylinder
10	Stick drift reduction valve
11	Swivel
12	Pressure switch (implement/swing)
13	Pressure switch (travel)
14	Main control valve
15	Boom drift reduction valve
16	Main relief valve
17	Pressure switch (boom RAISE)
18	Pilot control valve (travel left)
19	Pilot control valve (travel right)
20	Pilot control valve (swing and stick)
21	Proportional reducing valve
22	Pilot oil manifold
23	Pilot relief valve
24	Accumulator
25	Pilot control valve (bucket and boom)
26	Shock reducing valve
27	Solenoid valve (swing priority)
28	Solenoid valve (travel speed)
29	Shock reducing valve
30	Hydraulic activation control valve
31	Upper pump
32	Lower pump
33	Solenoid valve (travel speed)
34	Automatic travel speed change valve
35	Pilot filter
36	Pilot pump
37	Hydraulic tank
38	Bypass check valve
39	Slow return check valve
40	Oil cooler
41	Bypass check valve

C47597X1

THIS SCHEMATIC IS FOR THE 320 AND 320L EXCAVATOR HYDRAULIC SYSTEM
 MEDIA NUMBER: SENR5457-01
 SCHEMATIC PART NUMBER: 71-8140, CHANGE: 04, VERSION: HE
 Components are shown installed on a fully operable machine with the key and engine off,
 and with parking brake set.
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.