SERVICE MANUAL

EH160
Crawler Excavator



6-75770NA

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Table of Contents

Page

A. GROUND TRANSPORTATION 5-2
1. Machine Preparation 5-2
2. Loading the Machine 5-3
B. LIFTING MACHINE 5-5
1. Lifting Machine With Attachment Installed 5-5
2. Lifting Machine Without Attachment 5-7
C. ATTACHMENT SHIPPING DIMENSIONS 5-9

WARNING

READ, UNDERSTAND AND FOLLOW ALL SAFETY PRECAUTIONS AND PROCEDURES FOUND IN THIS MANUAL BEFORE ATTEMPTING ANY OPERATION, INSPECTION OR MAINTENANCE OF THIS MACHINE, ATTACHMENT OR SYSTEMS OPERATION. THE MANUFACTURER CANNOT ANTICIPATE EVERY CIRCUMSTANCE THAT MIGHT INVOLVE A POTENTIAL HAZARD. THE WARNINGS IN THIS PUBLICATION AND ON THE PRODUCT ARE THEREFORE NOT ALL INCLUSIVE. IF A TOOL, PROCEDURE, WORK METHOD OR OPERATING TECHNIQUE NOT SPECIFICALLY RECOMMENDED BY THE MANUFACTURER IS USED, YOU MUST SATISFY YOURSELF THAT IT IS SAFE FOR YOU AND OTHERS. YOU SHOULD ALSO ENSURE THAT THE PRODUCT WILL NOT BE DAMAGED OR MADE UNSAFE BY THE OPERATION, LUBRICATION, MAINTENANCE AND/OR REPAIR PROCEDURES YOU CHOOSE.

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Table of contents

Page

6.1 SK160LC-VI GENERAL SPECIFICATIONS 6-2
A.MACHINE DIMENSIONS– Figure 6.2A 6-2
B. WORKING WEIGHTS 6-2
C. DIGGING FORCES 6-2
D. STANDARD ATTACHMENT WORKING RANGES– Figure 6.3 6-3
E. BUCKET SELECTION CHART 6-3
F. BOOM– Figure 6.4A 6-4
G. ARM– Figure 6.4B 6-4
H. BUCKET– Figure 6.4C 6-4
I. SHOES– FIGURE 6.4D 6-4
J. PERFORMANCE SPECIFICATIONS 6-5
1. Travel Speed, Swing Speed & Gradeability 6-5
2. Engine 6-5
3. Hydraulic Components 6-5
4. Operating Pressures 6-5
K. MACHINE & COMPONENT WEIGHTS 6-5
L. LIFTING CAPACITIES 6-6
SK160LC-VI LIFTING CAPACITIES 6-6
ED190LC-VI LIFTING CAPACITIES 6-10
6.2 TORQUE SPECIFICATIONS 6-19
A. CAPSCREWS & NUTS 6-19
B. ORS JOINT (O-RING SEALING TYPE) 6-19
C. NUTS & SLEEVES 6-20
D. FLARE TYPE FITTING JOINTS 6-20
E. N2 (NYLON) TUBE FITTING JOINTS 6-20
F. TORQUE VALUES FOR MOST COMMON BOLTS 6-21
6.3 MISCELLANEOUS INFORMATION 6-22
A. TEMPERATURE TABLE 6-22
C. WEIGHT OF MATERIALS TABLE 6-22
B. SPECIAL PIPE WRENCHES 6-22
D. CAPS AND PLUGS FOR TUBES AND HOSE FITTINGS 6-22
E. SOME CONVERSION UNITS 6-24

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CHAPTER 4

EH160 CRAWLER EXCAVATOR

NEW HOLLAND CONSTRUCTION

CH 04

ATTACHMENT DIMENSIONS

TABLE OF CONTENTS

1. BOOM

1.1 Boom dimensional drawing 1

1.2 Boom maintenance standard 2

1.3 Clearance in pin and bushing on boom section 3

1.3 Clearance in thrust direction on the boom cylinder installation section 4

2. ARM

2.1 Arm dimensional drawing 5, 6

2.5 Arm maintenance standard 8-12

3. BUCKET

3.1 Bucket dimensional drawing 13

3.2 Bucket dimensional table 14

3.3 Legend Bucket and Bucket pin 14

Model Cross-reference: SK160LC is NEW HOLLAND Model EH160

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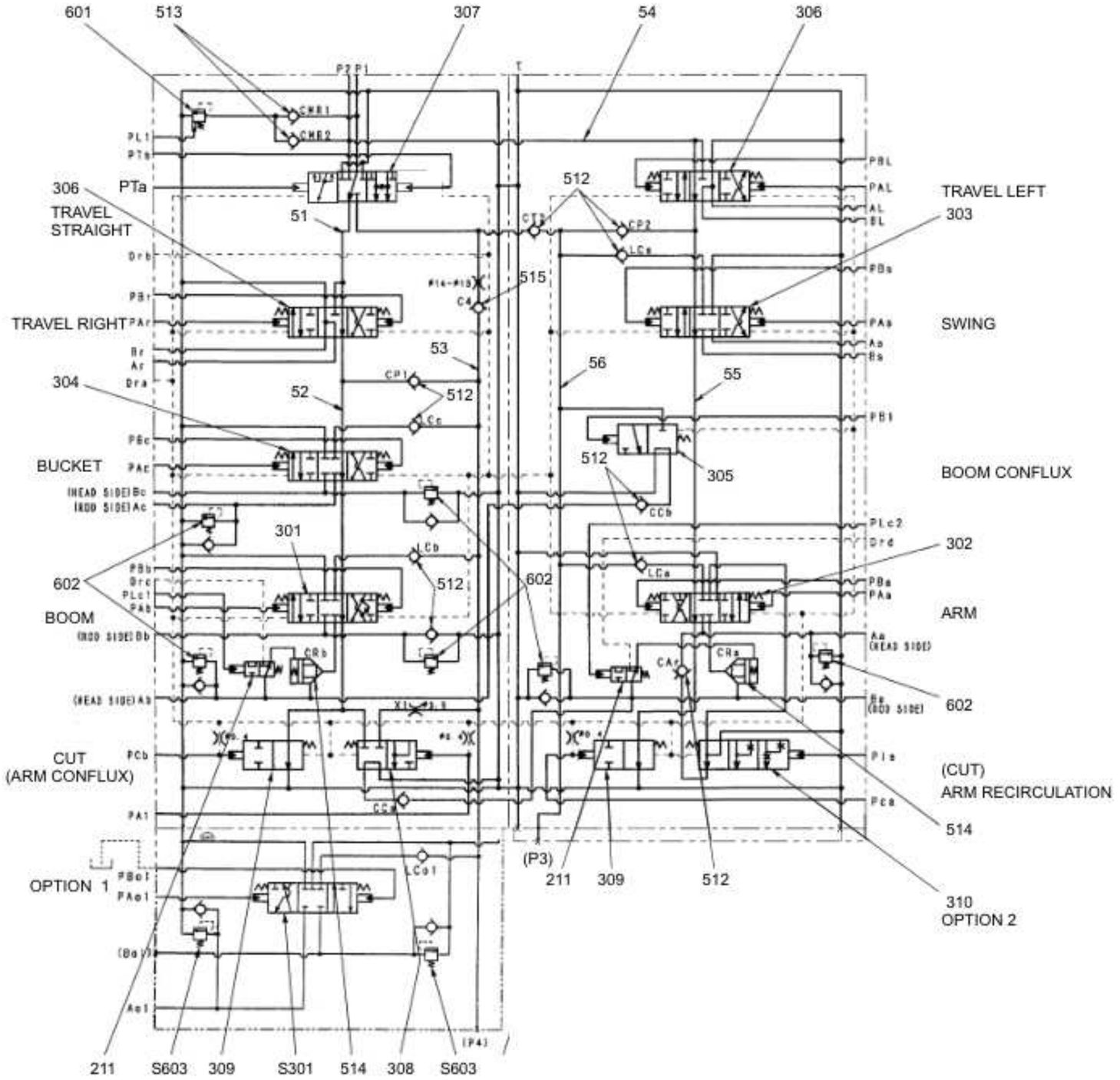


Fig. 4-9-2 Hydraulic circuit diagram

Table. 4-4-2

No.	NAME
51	Main passage (P1 side)
52	Bypass circuit (P1 side)
53	Parallel circuit (P1 side)
54	Main passage (P2 side)
55	Bypass circuit (P2 side)
56	Parallel circuit (P2 side)
211	Lock valve selector A sub
212	Lock valve selector B sub
301	Boom spool
302	Arm spool
303	Swing spool
304	Bucket spool
305	Boom conflux spool
306	Travel spool
307	Travel straight spool
308	Arm conflux spool
309	P1, P2 bypass cut valve
310	Arm recirculation spool
512	Poppet D=20
513	Poppet
514	Lock valve poppet
515	Poppet (with restrictor)
601	Main relief valve
602	Over load relief valve
S301	Spool for option valve
S603	Over load relief valve for option valve

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11. COUNTERWEIGHT

11.1 PREPARATION FOR REMOVAL

Remove plug (C6) on the counterweight and attach two M36 eye bolts (Refer to chapter "YN11 Tools") to the counterweight.

: 55mm

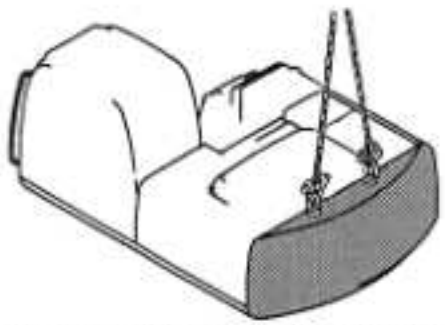


Fig. 11-1 Lifting up counterweight

11.2 REMOVAL

(1) Lifting up counterweight temporarily
Hook wire rope to slinging jig, and lift it and stretch wire rope to the degree where it is providing no slack temporarily.
Weight of counterweight :
Approx. 3900kg (8600 lbs)
Wire more than ∅16 (0.63") :
1.5m (5ft) × 2 pcs.

(2) Removing counterweight
1) Remove four capscrews (C1) M27 × 300.
: 41mm

2) Remove shim (C3), (C4), (C5). (Select)
3) Remove counterweight (A1).

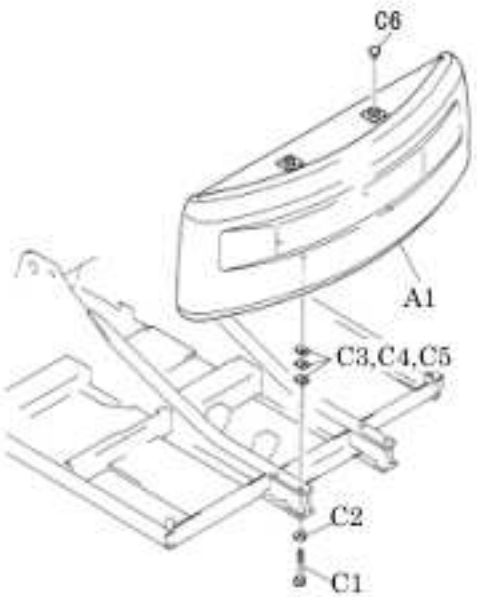


Fig. 11-2 Removing counterweight

11.3 INSTALLATION

(1) Install counterweight in the reverse procedure of removing.

(2) Install shim (C3), (C4), (C5) as it was. (select)

(3) Slinging counterweight
Check that the attaching bolts can be screwed in by hand.

(4) Apply Locktite #242 on capscrews (C1), and tighten them with washers (C2).
: 41mm
Tightening torque : 130kgf-m (940ft-lbs)

(5) Remove slinging tools, and attach plugs (C6).



Fig. 11-3 Fastening the counterweight attaching capscrew

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Table 6-6

Trouble	Cause	Remedy
1. External leakage of hydraulic oil	Defective O ring	Replace all seals.
2. Internal leakage of hydraulic oil	1) Defective slipper seal 2) Sliding face worn excessively	1) Replace all seals. 2) Replace assy.
3. Swivel stem seized	1) Stem and body seized 2) Inappropriate swivel stopper bracket	1) Grind and hone. Replace assy, if stem and body are too loose and causing oil leakage. 2) Reinstall Secure 2~3mm (0.08~0.12in) allowance for bolt stopper.
4. Loose swivel stem and cover	Socket bolt tightened insufficiently.	Retighten.

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2. Loading the Machine

WARNING

NEVER ATTEMPT TO LOAD OR UNLOAD MACHINE WITHOUT RAMPS.

a. Apply parking brakes on tractor and trailer and chock trailer wheels before attempting to load or unload machine.

b. Lower ramps of trailer.

c. Place travel speed select switch on travel lever in 1st (🐢) speed position and move throttle control to the "LOW" idle position. See Figure 5.3A.

CAUTION

Do not fold the blade wings on the ED190, before loading, to avoid contact between the blade wings and the counterweight. Unfold balde wings and lock them in position before unloading machine.

d. Raise the attachments and slowly travel machine up trailer ramps and over rear axles of trailer, see Fig. 5.3B.

WARNING

TO PREVENT THE ARM AND BUCKET CYLINDER (S) FROM ANY DAMAGE, YOU ARE ADVISED TO FOLLOW THE FOLLOWING INSTRUCTIONS. DO NOT HAVE THE ARM AND/OR BUCKET CYLINDER FULLY EXTENDED TO A "RAMP OVER CENTER" SITUATION. THIS ALLOWS SUDDEN AND ABRUPT CONTACT OF THE ARM OR BUCKET TO A TRAILER DECK, RAMP OR THE GROUND. THIS CAN RESULT IN INTERNAL MECHANICAL CONTACT, WHICH CAN STRETCH THE CYLINDER ROD(S).

e. Slowly travel machine completely onto trailer until in proper transport position.

Follow steps f ~ i for ED190(LC)-VI:

f. Place a wood blocks below the blade, equally separated (about one meter (3 ft)) from the center of the blade, and slowly lower the blade onto the wood blocks. See Fig. 5.3C as reference.

WARNING

MAKE SURE TO PLACE THE SAFETY LOCK LEVER IN THE LOCKED (UP) POSITION BEFORE LEAVING THE CAB

CAUTION

DO NOT LOAD/UNLOAD THE ED190LC-VI WITH THE DOZER BLADE WINGS IN THE TRANSPORT POSITION (FOLDED IN). LOAD AND UNLOAD THE MACHINE WITH THE WINGS UNFOLDED AND LOCKED IN THE DOZING POSITION TO AVOID CONTACT BETWEEN THE BLADE WINGS AND THE COUNTERWEIGHT.

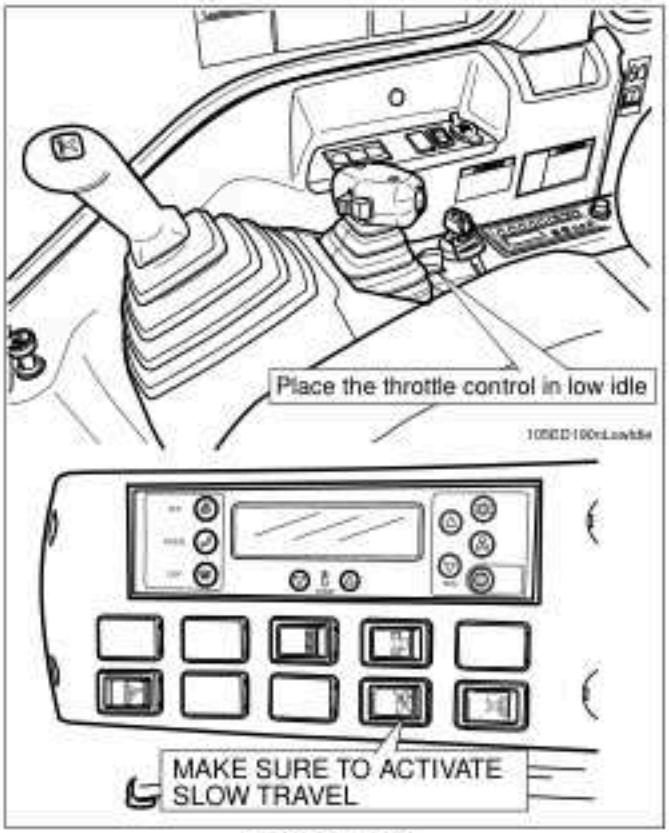


FIGURE 5.3A



FIGURE 5.3B

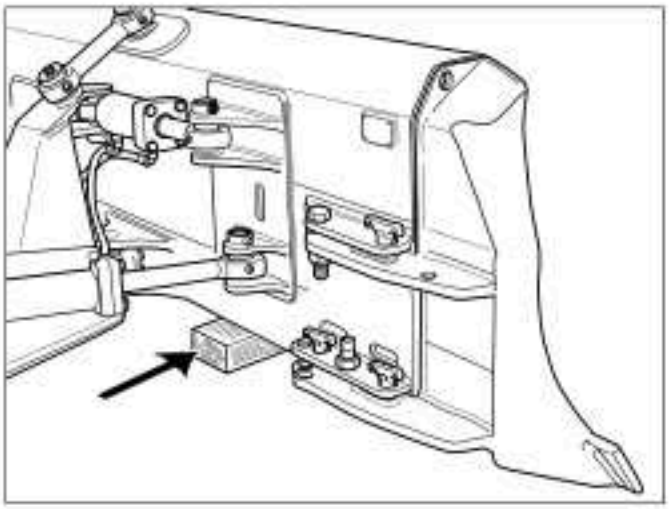


FIGURE 5.3C

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10. TRAVEL SPEED

A. Tools & Equipment

1. Stopwatch
2. Device to mark starting point of tracks.

B. Machine Settings & Site Condition

1. Machine throttle in "High" idle position.
2. Test will be performed with KPSS Mode Switch in "M".
3. Hydraulic oil temperature at 45°C to 55°C (113°F to 131°F).
4. Firm, level testing area.
5. Verify that engine RPM's are at correct specification.

C. Travel Speed Test

1. Move machine to a firm, level testing area.
2. Allow the hydraulic oil to reach a te perature of 45°C to 55°C (113°F to 131°F).
3. Operate Swing Right Control until mchine is sitting across (perpendicular) tracks.
4. Operate the Boom, Arm and Bucket Controls until bucket is on ground. See Figure 7.4.
5. Operate Boom Control until bottom of right track is approximately 300mm (12") off ground. See Figure 7.4. Make reference mark on track.
6. Place Throttle Control in "HI-IDLE" position and KPSS Switch in "M" Mode. See Figure 7.5.
7. Place Travel Speed Select Switch in 1( ) Speed. See Figure 7.6.
8. Operate the Right Travel Control full forward and measure the time it takes for track to make three complete revolutions. Record the time.
9. Repeat Step 7 ands 8 two more times. Averagethe readings and compare to Travel Speed Specification Chart.
10. Place Travel Speed Select Switch in 2( ) speed and repeat steps 8 and 9.
11. Repeat steps 4 through 13 with Left Track approximately 300mm (12") off ground.

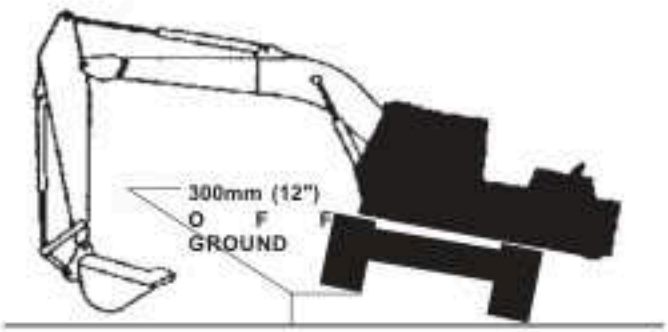


FIGURE 7.4
SK210 ~ SK400 ILLUSTRATED

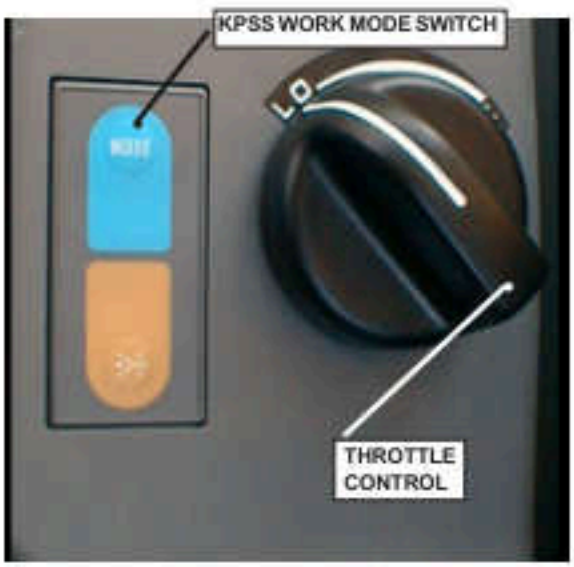


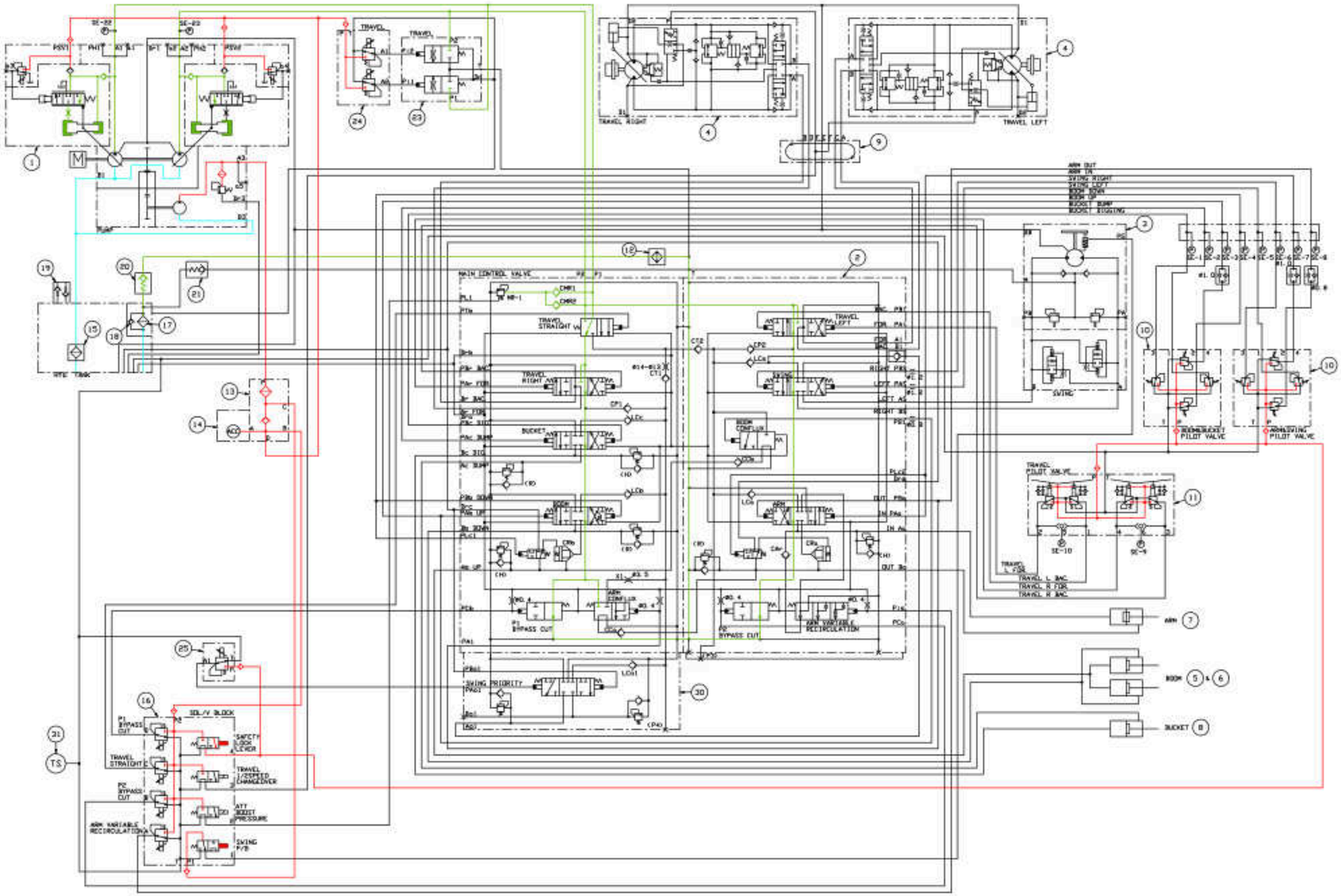
Figure 7.5



Figure 7.6

Unit: Seconds

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2.1 NEUTRAL CIRCUIT SAFETY LOCK ON

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