Service Manual

8013
8015
8017
8018
801 *Gravemaster*

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Tel: 01538 757500, Fax: 01538 757590

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Alternator (cont'd)

Dismantling and Assembly

Dismantling

1 Scribe an alignment mark across the end housing and the stator frame.

2 Remove the housing through bolts **A.**

3 Separate the front housing **B** and rotor assembly **C** from the rear housing **D.**

4 Remove the nut **E** and the lockwasher **F** from the end of the rotor shaft.

5 Remove the pulley **G** and the fan **H.**

6 Remove the pulley key from the end of the rotor shaft.

7 Remove spacer **J.**

8 Remove the rotor assembly **C** from the front housing **B.**

9 Remove collar **K.**

10 Remove the front bearing cover screws **L** and cover **M.**

11 Remove the front bearing **N** from the front housing.

NOTE: *If a press is required to remove the bearing from the housing, support the housing close to the bearing boss to prevent damage to the housing:*

12 Remove the dust seal cover **P** and dust seal 0.

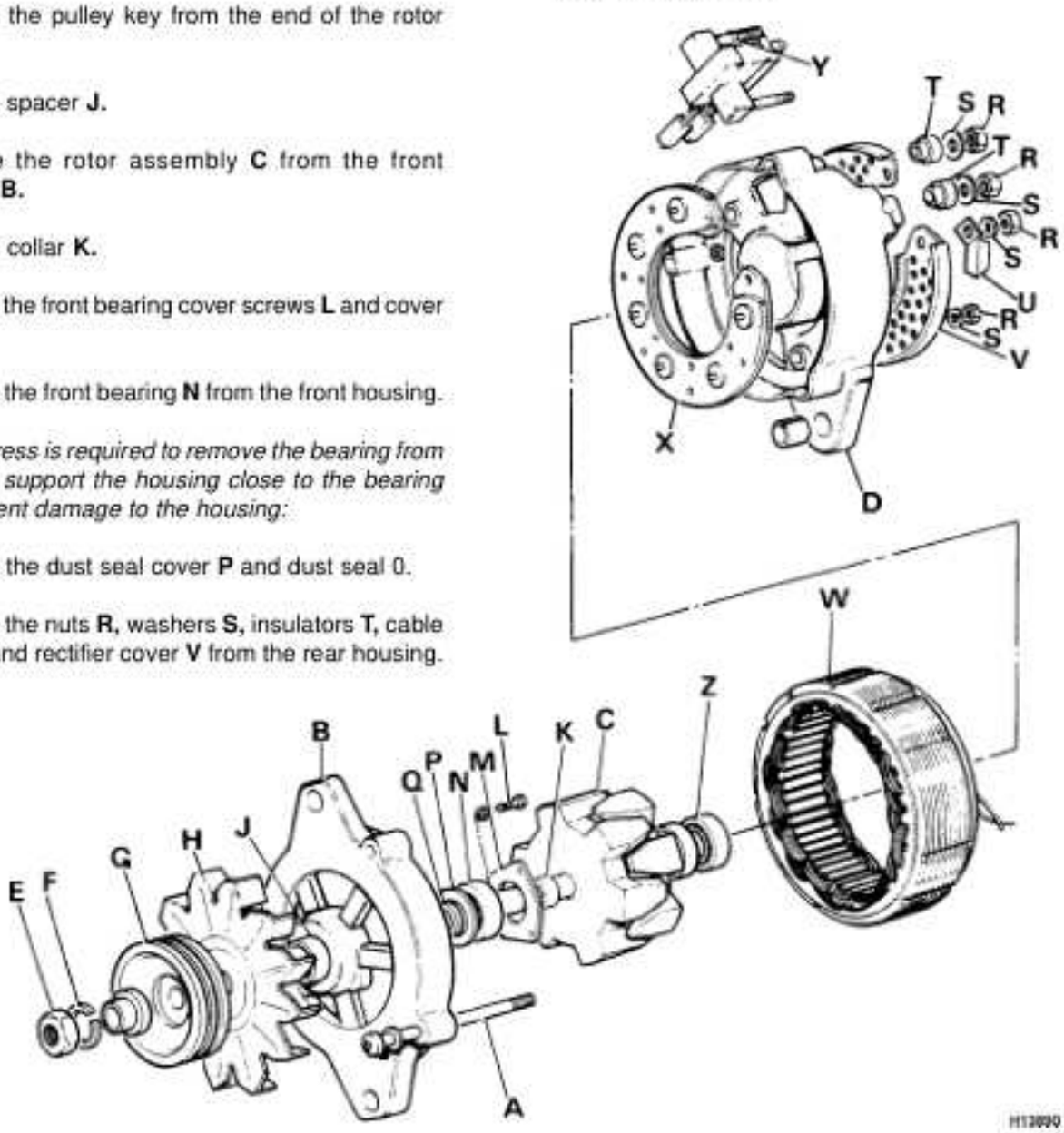
13 Remove the nuts **R,** washers **S,** insulators **T,** cable clips **U** and rectifier cover **V** from the rear housing.

14 Remove the stator assembly **W** with rectifier plate **X** from the rear housing **D.**

15 Using a pre-heated soldering iron, unsolder the stator wire from the rectifier terminals. Grip each rectifier terminal with needle nose pliers and separate the wire from the terminal as soon as the solder melts. When the wire is separated from each rectifier terminal, touch the terminal with a damp cloth.

16 Remove the brush holder assembly **Y** from the rectifier plate **X.**

17 Using a suitable puller, remove the rear bearing **Z** from the rotor shaft.



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Harness Drawings

Introduction

The following drawings are reproduced from production electrical harness drawings. Each harness drawing includes tables showing wire connections and destinations for all the connectors on the harness.

Harness No.	Issue	Remarks	Page
1 Mainframe Harness			
721/00337	7	8014 machines upto TBA, 8015 machines upto 0821599, 8016 machines upto 0729049, 8017 machines upto 0800622, 8018 machines upto 0801427	11 - 1
721/10676	1	8014 machines from TBA, 8015 machines from 0821600 upto 0894199, 8017 machines from 0800623 upto 0800999, 8018 machines from 0801427 upto 0801999	11 - 3
721/10818	4	8015 machines from 0894200, 8017 machines from 0896000, 8018 machines from 0897000	11 - 5
2 Cab Harness			
721/00685	2	8014 machines from 0791000, 8015 machines from 0730800 upto 0894199 8016 machines from 0728750, 8017 machines from 0800000 upto 0800999, 8018 machines from 0801000 upto 0801999	12 - 1
721/10819	3	8015 machines from 0894200, 8017 machines from 0896000, 8018 machines from 0897000	12 - 1
3 Canopy Harness			
721/00686	5	8014 machines from 0791000, 8015 machines from 0730800 upto 0894199 8016 machines from 0728750, 8017 machines from 0800000 upto 0800999, 8018 machines from 0801000 upto 0801999	13 - 1
721/10820	2	8015 machines from 0894200, 8017 machines from 0896000, 8018 machines from 0897000	13 - 1

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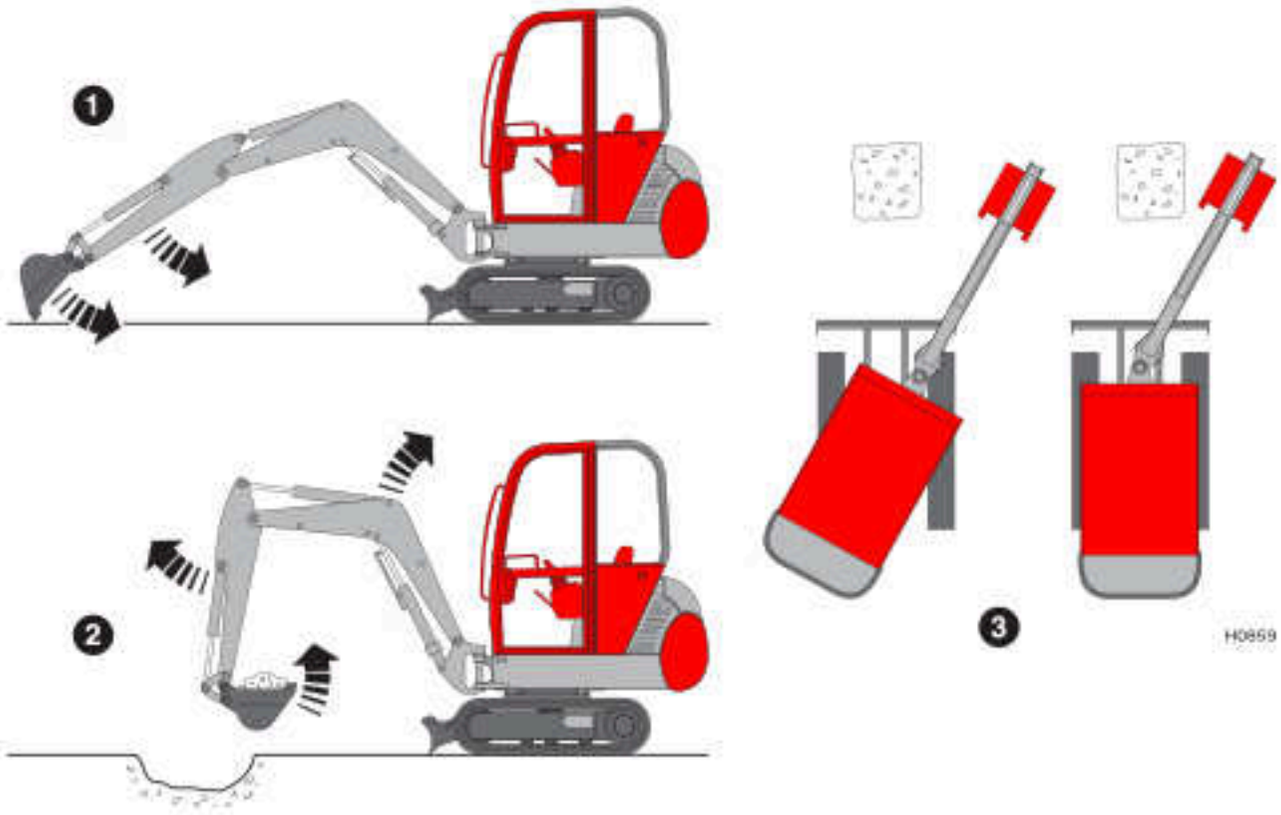
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Technical Data (cont'd)

Valve and Springs		
Valve Stem Diameter	(intake)	6.955 to 6.970 mm (0.2738 to 0.2744 in.)
	(exhaust)	6.94 to 6.95 mm (0.273 to 0.274 in.)
Valve Stem to Guide Clearance		
- intake	(new)	0.03 to 0.06 mm (0.001 to 0.002 in.)
	(service limit)	0.2 mm (0.007 in.)
- exhaust	(new)	0.050 to 0.075 mm (0.002 to 0.003 in.)
	(service limit)	0.25 mm (0.01 in.)
Valve Head Thickness	(new)	0.925 to 1.075 mm (0.036 to 0.042 in.)
	(service limit)	0.2 mm (0.007 in.)
Valve Face Angle		45°
Valve Recessing	(new)	0.85 to 1.15 mm (0.034 to 0.045 in.)
	(service limit)	1.8 mm (0.071 in.)
Spring Free Length	(new)	35 mm (1.4 in.)
	(service limit)	33.5 mm (1.3 in.)
Spring Fitted Length		30.4 mm (1.197 in.)
Load to Compress to Fitted Length	(new)	79.43N (8.1 kgf, 17.9 lbf)
	(service limit)	68.65N (7.0 kgf, 15.4 lbf)
Spring Squareness	(new)	3.4%
	(service limit)	6.0%
Rocker Shaft Diameter	(new)	11.65 to 11.67 mm (0.459 to 0.460 in.)
	(service limit)	11.57 mm (0.456 in.)
Rocker Arm Running Clearance	(new)	0.032 to 0.068 mm (0.001 to 0.002 in.)
	(service limit)	0.2 mm (0.008 in.)

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Working with the Excavator - continued



Digging

It is possible when excavating, to use either full machine slew when discharging a loaded bucket, or if conditions dictate, swinging the excavator end only to the required dumping area.

1 To start the dig, reach out with the boom and dipper and position the bucket as shown.

Slowly close the bucket at the same time bring the dipper in. Make sure the bucket stays at the same angle to the ground while it travels. If necessary, at the same time apply a downward pressure on the boom, to increase the digging force on the bucket.

2 When the bucket is full, close it fully and at the same time move the dipper out a little way. This will keep soil from building up under the machine.

3 Slew the machine or swing the bucket to the dump area.

Start dumping as the bucket approaches the pile. Do not waste time by dumping too far from the excavation. Dump close to the start dig position. Swing the bucket back to the excavation and start the next dig.

CAUTION

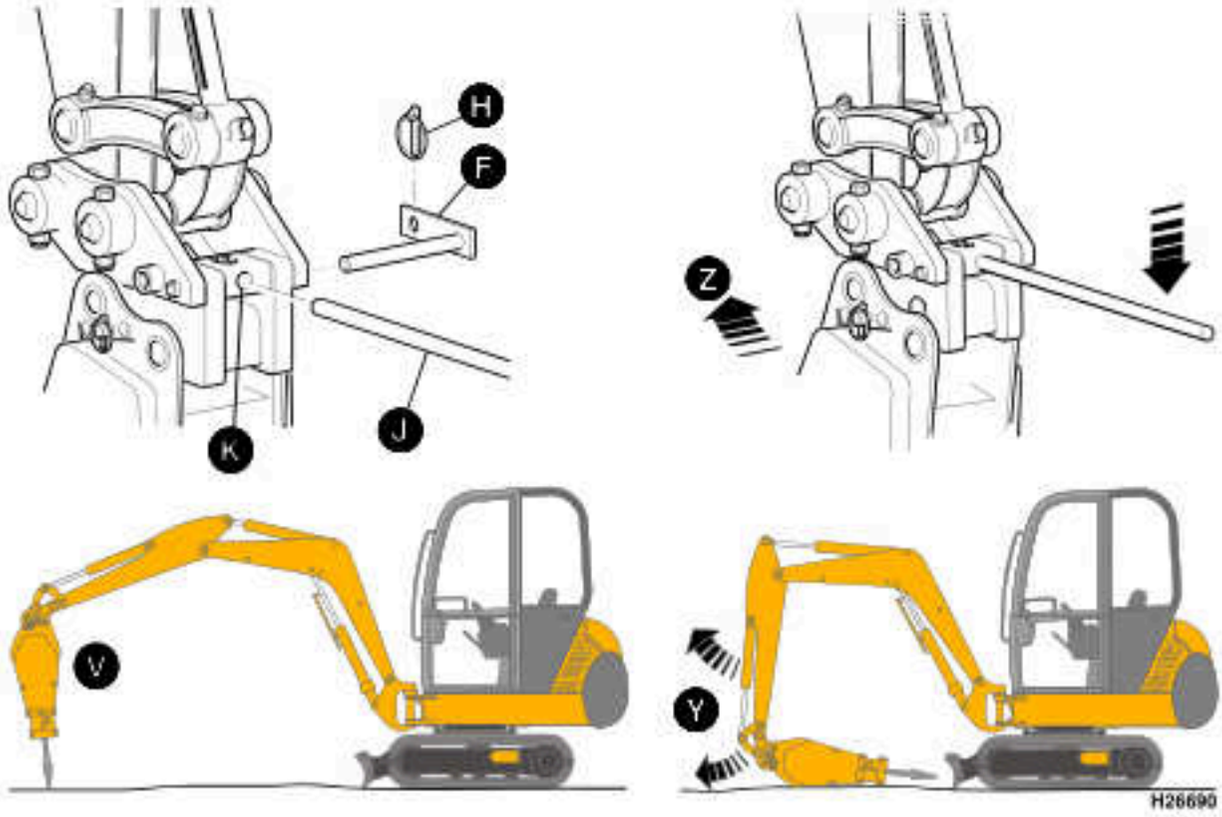
Do not use the side of the excavation to stop the bucket. This could damage the machine and cause the sides of the trench to collapse.

Backfill the excavation by loading the bucket with soil from the pile. Do not push the soil with the side of the bucket.

***Note**: Take extra care if extended swing is utilised (see **Excavator Controls - Extended Operation**).*

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Removing a Quickhitch Rockbreaker - Continued



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Main Harness - 721/10676 Issue 1

8014 machines from TBA
8015 machines from 0821600 upto 0894199
8017 machines from 0800623 upto 0800999
8018 machines from 0801427 upto 0801999

MA	MAIN FUSE			20,30,30
TERM	WIRE	SIZE	DEST	TYPE
1	1 N	6.0	M3 1	-
2	17 N/R	6.0	S4	-

MB	STARTER			-
TERM	WIRE	SIZE	DEST	TYPE
1	1 N	6.0	MA 1	BM,BN

MC	STARTER			-
TERM	WIRE	SIZE	DEST	TYPE
1	15 W/R	3.0	MX 4	B,C

MD	ALTERNATOR			BS
TERM	WIRE	SIZE	DEST	TYPE
1	99 N/B	1.0	S11	BT
2	8 W/B	1.0	S3	BT

ME	WATER TEMP SWITCH			
TERM	WIRE	SIZE	DEST	TYPE
1	6 U/G	1.0	S7	X,AP

MF	EARTH RING			-
TERM	WIRE	SIZE	DEST	TYPE
1	20 B	6.0	S10	BG,BP

MG	ELEC. STOP SOL.			-
TERM	WIRE	SIZE	DEST	TYPE
1	39 W/K	1.0	MS 6U	A,C

MH	GLOW PLUG			-
TERM	WIRE	SIZE	DEST	TYPE
1	19 N	4.0	S5	BJ,BP

MJ	OIL PRESSURE			-
TERM	WIRE	SIZE	DEST	TYPE
1	5 W/N	1.0	S6	BH,BP

ML	FUEL SENDER			BV,BW
TERM	WIRE	SIZE	DEST	TYPE
A	59 G/B	0.6	NA 2	BX,BY
B	60 B	0.6	S10	BX,BY

MM	BOOM LIGHT			Y,Z
TERM	WIRE	SIZE	DEST	TYPE
1	11 U/B	1.0	S2	AG,AJ
2	21 B	1.0	S10	AG,AJ

MN	HORN			M,N
TERM	WIRE	SIZE	DEST	TYPE
1	22 P/B	1.4	MZ 2	P,R
2	23 B	1.4	S10	P,R

MP	CAB CONNECTOR			AC,AD
TERM	WIRE	SIZE	DEST	TYPE
1	37 U	1.0	MS 1U	AG,AJ
2	44 R/U	1.4	MT 5	AH,AK
3	45 R/N	1.4	MT 7	AH,AK
4	43 G	1.4	S8	AH,AK
5	4 U/B	1.4	S2	AH,AK
6	36 B	2.0	S10	AH,AK

MR	ALTERNATOR II			BU
TERM	WIRE	SIZE	DEST	TYPE
1	7 N	6.0	S4	BK,BN

MS	FUSE BOX & COVER			AU,AV
TERM	WIRE	SIZE	DEST	TYPE
1	2 N	2.0	S4	AX
1U	37 U	1.0	MP 1	AW
2	3 G	2.0	S1	AX
2U	27A G	2.0	S8	AX
3	14 W	2.0	S1	AX
3U	12 P	2.0	MV 5	AX
4	34 W	2.0	S1	AX
4U	33 G	1.4	S9	AX
5	30 W	2.0	S1	AX
5U	10 G	1.4	MZ 1	AX
6	36 W	2.0	S1	AX
6U	39 W/K	1.0	MG 1	AW

MT	WIPER SWITCH			T
TERM	WIRE	SIZE	DEST	TYPE
1	27 G	1.4	S8	D
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	44 R/U	1.4	MP 2	D
6	-	-	-	-
7	45 R/N	1.4	MP 3	D
8	-	-	-	-

MU	HEATER SWITCH			T
TERM	WIRE	SIZE	DEST	TYPE
1	42 G/Y	1.0	NE 1	E
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	41 G	1.0	S 8	E
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-

MV	ROOM LIGHTS			U
TERM	WIRE	SIZE	DEST	TYPE
1	4A U/B	2.0	S2	D
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-
5	12 P	2.0	MS 3U	D
6	-	-	-	-
7	-	-	-	-
8	-	-	-	-
9	29 U/B	0.6	S2	E
10	29 B	0.6	S10	E

MX	IGNITION SWITCH			-
TERM	WIRE	SIZE	DEST	TYPE
1	18 N	6.0	S4	H,J
2	13 W	3.0	S1	B,C
3	35 N/R	4.0	S5	H,J
4	15 W/R	3.0	MC 1	B,C

MY	INDICATOR LAMPS			AR
TERM	WIRE	SIZE	DEST	TYPE
1	9 N/B	0.6	S11	AT
2	-	-	-	-
3	5A W/N	0.6	S6	AT
4	-	-	-	-
5	6A U/G	0.6	S7	AT
6	18 N/R	0.6	S5	AT
7	26 B	0.6	S10	AT
8	-	-	-	-

MZ	HORN BUTTON			-
TERM	WIRE	SIZE	DEST	TYPE
1	10 G	1.4	MS 5U	A,C
2	22 P/B	1.4	MN 1	A,C

NA	FUEL GAUGE/HR METER			AS
TERM	WIRE	SIZE	DEST	TYPE
1	52 G	0.6	S3	AT
2	59 G/B	0.6	ML A	AT
3	61 U/B	0.6	S2	AT
4	24 N/B	0.6	S3	AT
5	58 B	0.6	S10	AT
6	25 G	0.6	S10	AT

NB	BUZZER			-
TERM	WIRE	SIZE	DEST	TYPE
1	55G	0.6	S3	A,C
2	4 W/N	0.6	S9	F,G

NC	DIODE CONNECTOR			AC,AD
TERM	WIRE	SIZE	DEST	TYPE
1	4A	0.6	S9	AG,AJ
2	4B	0.6	S9	AG,AJ
3	4C	0.6	S9	AG,AJ
4	53 U/G	0.6	S7	AG,AJ
5	54 W/N	0.6	S6	AG,AJ
6	9A N/B	0.6	S11	AG,AJ

ND	BEACON FEED			-
TERM	WIRE	SIZE	DEST	TYPE
1	50 U	1.4	S3	A,C
2	51 B	1.4	S10	A,C

NE	HEATER			-
TERM	WIRE	SIZE	DEST	TYPE
1	42 G/Y	1.0	MU 1	A,C
2	47 B	1.0	S10	A,C

NJ	MICRO SWITCH			Y,Z
TERM	WIRE	SIZE	DEST	TYPE
1	56 B	1.0	S10	AG,AJ
2	57 W/G	1.0	S3	AG,AJ

S1		-
WIRE	SIZE	DEST
3 G	2.0	MS 2
13 W	3.0	MX 2
14 W	2.0	MS 3
30 W	2.0	MS 5
34 W	2.0	MS 4
36 W	2.0	MS 6

S2		-
WIRE	SIZE	DEST
4 U/B	1.4	MP 5
4A U/B	2.0	MV 1
11 U/B	1.0	MM 1
28 U/B	0.6	MV 9
61 U/B	0.6	NA 3

S3		-
WIRE	SIZE	DEST
6 W/B	1.0	MD 2
24 N/B	0.6	NA 4
33 G	1.4	MS 4U
50 U	1.4	ND 1
52 G	0.6	NA 1
55 G	0.6	NB 1
57 W/G	1.0	NJ 2

S4		-
WIRE	SIZE	DEST
7 N	6.0	MR 1
17 N/R	6.0	MA 2
2N	2.0	MS 1

S5		-
19 N	4.0	MH 1
16 N/R	0.6	MY 6
35 N/R	4.0	MX 3

S6		-
5 W/N	1.0	MJ 1
5A W/N	0.6	MY 3
54 W/N	0.6	NC 5

S7		-
WIRE	SIZE	DEST
6 U/G	1.0	ME 1
6A U/G	0.6	MY 5
53 U/G	0.6	NC 4

S8		-
WIRE	SIZE	DEST
27 G	1.4	MT 1
41 G	1.0	MU 5
43 G	1.4	MP 4
27A G	2.0	MS 2U

S9		-
WIRE	SIZE	DEST
4 W/N	0.6	NB 2
4A	0.6	NC 1
4B	0.6	NC 2
4C	0.6	NC 3

S10	EARTH	-
WIRE	SIZE	DEST
21 B	1.0	MM 2
23 B	1.4	MN 2
25 B	0.6	NA 6
26 B	0.6	MY 7
29 B	0.6	MV 10
36 B	2.0	MP 6
47 B	1.0	NE 2
51 B	1.4	ND 2
56 B	1.0	NJ 1
58 B	0.6	NA 5
60 B	0.6	ML B
20 B	6.0	MF 1

S11		-
WIRE	SIZE	DEST
9 N/B	0.6	MY 1
9A N/B	0.6	NC 6
9B N/B	1.0	MD 1

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