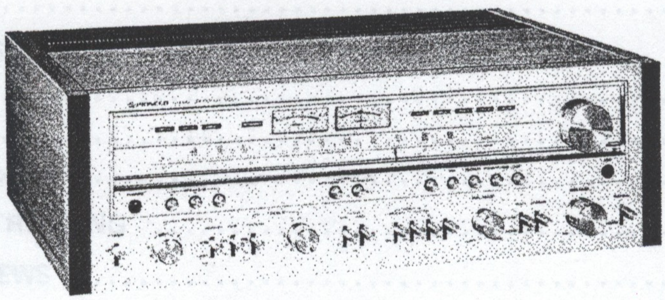
AM/FM STEREO RECEIVER

SX-950

KCU

<ART-155-0>



PIONEER®

CONTENTS

1. SPECIFICATIONS 5
2. FRONT PANEL FACILITIES 7
3. CONNECTION DIAGRAM 9
4. BLOCK DIAGRAM 11
5. CIRCUIT DESCRIPTIONS
 5.1 FM Tuner 13
 5.2 AM Tuner 15
 5.3 Equalizer Amplifier 16
 5.4 Control Section 17
 5.5 Power Amplifier 19
 5.6 Protection Circuit 19
 5.7 Power Supply 21
6. LEVEL DIAGRAM 22
7. DISASSEMBLY 23
8. PARTS LOCATIONS
 8.1 Front Panel View 25
 8.2 Front View with Panel Removed 27
 8.3 Top View 29
 8.4 Bottom View 31
 8.5 Rear View 33
9. ADJUSTMENTS
 9.1 AM Tuner 35
 9.2 FM Tuner 36
 9.3 Power Amplifier 38
10. DIAL CORD STRINGING 39
11. EXPLODED VIEWS 40
12. SCHEMATIC DIAGRAMS, P.C. BOARD PATTERNS AND PARTS LISTS
 12.1 Miscellaneous-parts 48
 12.2 Schematic Diagram 49
 12.3 Tuner Assembly (AWE-066) 53
 12.4 Microphone Jack Assembly (AWX-094) 59
 12.5 Equalizer Amplifier Assembly (AWF-011) 60
 12.6 5P Connector Assembly (AWX-062) 63
 12.7 Switch Assembly (AWS-094) 64
 12.8 Flat Amplifier Assembly (AWG-038) 67

12.9 Switch Assembly (AWS-093) 71
12.10 Tone Amplifier Assembly (AWG-039) 72
12.11 Switch Assembly (AWX-095) 75
12.12 Power Amplifier Assembly (AWH-050) 76
12.13 Protection Circuit Assembly (AWM-062) 81
12.14 Power Supply Assembly (AWR-101) 84
12.15 Switch Assembly (AWS-095) 88
13. PACKING 90
14. PARTS LIST OF EXPLODED VIEWS 91

1. SPECIFICATIONS

Semiconductors

FETs 4
ICs 4
Transistors 55
Diodes 36

Power Amplifier Section

Continuous Power Output form 20 Hertz to 20,000 Hertz
(Both channels driven). . . 85 watts per channel (8 ohms)
110 watts per channel (4 ohms)

Total Harmonic Distortion
(20 Hertz to 20,000 Hertz, from AUX)
Continuous Rated Power Output . . . No more than 0.1%
43 watts per channel power
output, 8 ohms . . . . No more than 0.05%
1 watt per channel power
output, 8 ohms . . . . No more than 0.05%

Intermodulation Distortion
(50 Hertz: 7,000Hertz=4:1, from AUX)
Continuous Rated Power Output . . . No more than 0.1%
43 watts per channel power
output, 8 ohms . . . . No more than 0.05%
1 watt per channel power
output, 8 ohms . . . . No more than 0.05%

Frequency Response . . . . . . 7Hz to 90,000Hz $^{+0}_{-1}$dB

Input Sensitivity/Impedance
POWER AMP IN . . . . .1 V/50k ohms

Output
Speaker . . . . A, B, C, A+B, B+C, A+C
Headphone . . . . Low Impedance

Damping Factor
(20Hz to 20,000Hz, 8 ohms) 25

Hum and Noise (IHF, short-circuited, A Network) . . .100dB

Preamplifier Section

Input Sensitivity/Impedance
PHONO 1 . . . . 2.5mV/50k ohms
PHONO 2 . . . . 2.5mV/50k ohms
MIC . . . . 6.5mV/50k ohms
AUX . . . . 150mV/50k ohms
TAPE PLAY 1 . . . . 150mV/50k ohms
TAPE PLAY 2 . . . . 150mV/50k ohms
TAPE PLAY 2 (DIN connector) . . . 150mV/50k ohms

PHONO Overload Level (T.H.D. 0.1%)
PHONO 1 . . . . 200mV (1kHz)
PHONO 2 . . . . 200mV (1kHz)

Output Level/Impedance
TAPE REC 1 . . . . 150mV
TAPE REC 2 . . . . 150mV
TAPE REC 2 (DIN connector) . . . . . 30mV/80k ohms
PRE OUT . . . . 1V/100 ohms

Total Harmonic Distortion
(20Hz to 20,000Hz 1V output). . . No more than 0.05%

Frequency Response
PHONO (RIAA equalization). .30Hz to15,000Hz ±0.2dB
AUX, TAPE PLAY . . . . 15Hz to 40,000Hz $^{+0}_{-1}$dB

Tone Control
BASS . . . . ±7dB/±10dB (100Hz)
Turnover Frequency 200Hz/400Hz
TREBLE . . . . ±7dB/±10dB (10kHz)
Turnover Frequency 5kHz/2.5kHz

Filter
LOW 30Hz (6dB/oct.)
HIGH 6kHz (6dB/oct.)

Loudness Contour (Volume control set
at −40dB position) . . . . +6dB (100Hz), +3dB (10kHz)

Hum and Noise
(IHF, short-circuited, A Network, rated power)
PHONO 75dB
AUX, TAPE PLAY 90dB

Muting . . . . −20dB

FM Section

Usable Sensitivity . . . MONO . . . 10.3dBf (3.6μV/300Ω)
STEREO . . 22.2dBf (14.1μV/300Ω)
Usable Sensitivity (IHF '58) 1.8μV
50dB Quieting Sensitivity . . .
MONO . . . 17.2dBf (8.0μV/300Ω)
STEREO . . 38.0dBf (87μV/300Ω)

Signal to Noise Ratio at 65dBf . MONO 72dB
STEREO 67dB

Distortion at 65dBf 100Hz . . . MONO 0.15%
STEREO 0.3%
1kHz . . . . MONO 0.15%
STEREO 0.3%
6kHz . . . . MONO 0.4%
STEREO 0.4%

Frequency Response . . . . 30Hz to 15,000Hz $^{+0.2}_{-2.0}$%
Capture Ratio 1.0dB
Alternate Channel Selectivity 80dB
Spurious Response Ratio 100dB
Image Response Ratio 85dB
IF Response Ratio 100dB
AM Suppression Ratio 55dB
Muting Threshold 14dBf (5.5μV/300Ω)
Stereo Separation . . .40dB (1kHz), 30dB (30Hz ~ 15kHz)
Subcarrier Product Ratio 62dB
SCA Rejection Ratio 62dB
Antenna Input . . . . 300 ohms balanced
75 ohms unbalanced

AM Section

Sensitivity (IHF, Ferrite antenna)
(IHF, Ext. antenna) .
Selectivity . . . .
Signal to Noise Ratio . . . .
Image Response Ratio . . . .
IF Response Ratio . . . .
Antenna . . . . Built-in F

Miscellaneous

Power Requirements . . . .
Power Consumption . . . .

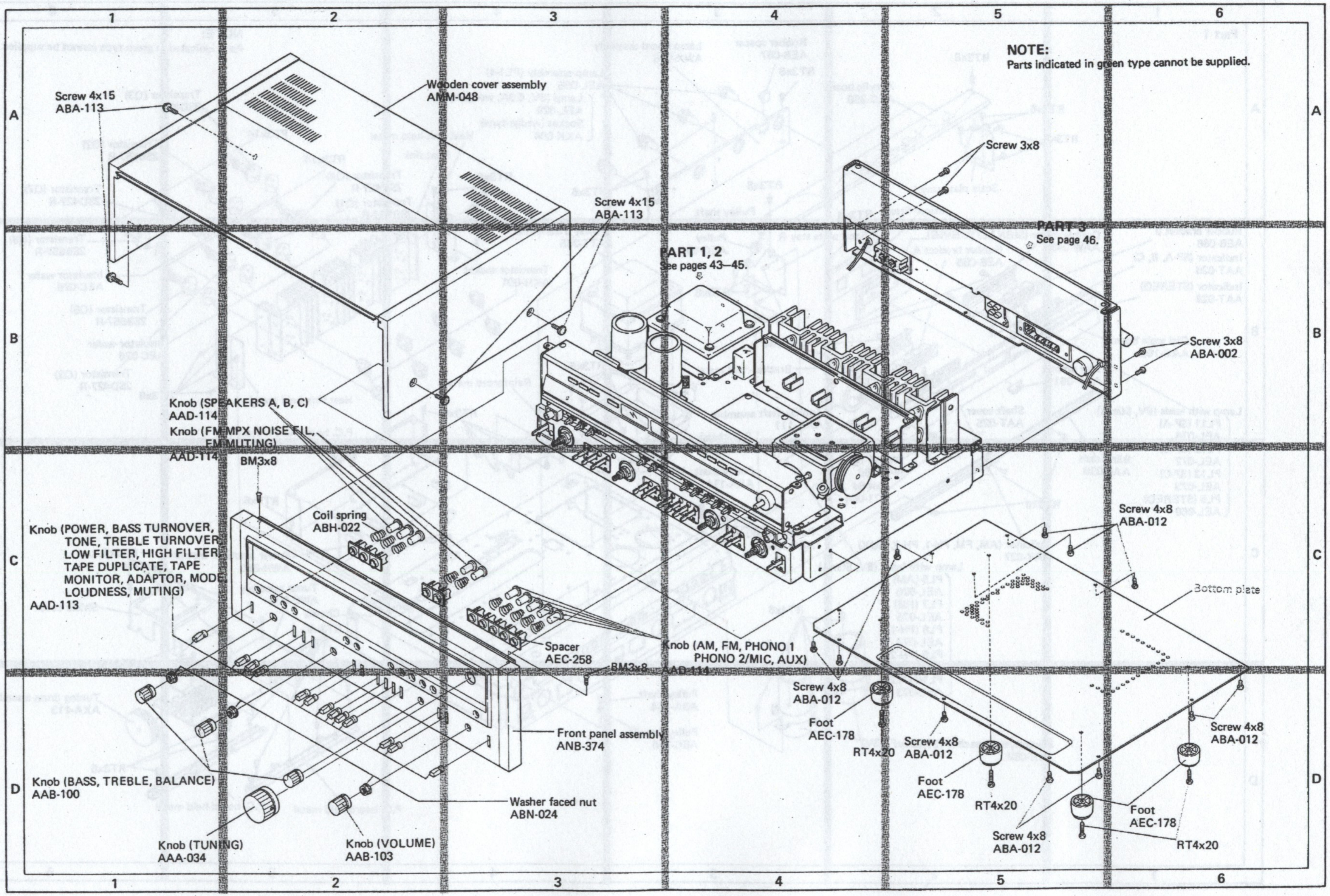
Dimensions . . . . 526.6(
20-3/4(W)x

Weight . . . .

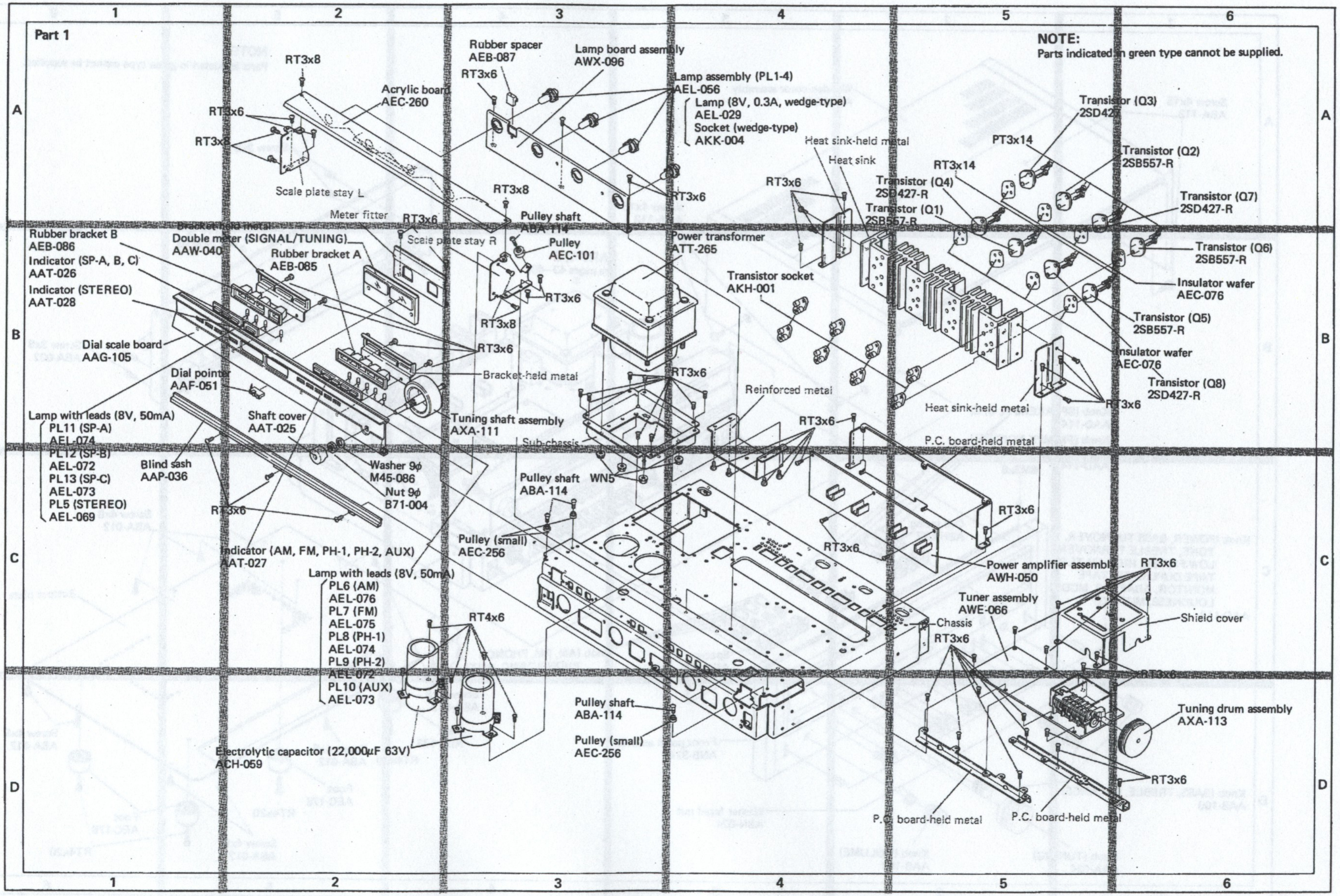
Furnished Parts

FM T-type Antenna . . . .
Operating Instructions . . . .
Hex. Wrench . . . .

NOTE:
Specifications and the design subje



NOTE:
Parts indicated in green type cannot be supplied.
Screw 4x15
ABA-113
Wooden cover assembly
AMM-048
Screw 4x15
ABA-113
Screw 3x8
PART 3
See page 46.
PART 1, 2
See pages 43—45.
Screw 3x8
ABA-002
Knob (SPEAKERS A, B, C)
AAD-114
Knob (FM MPX NOISE FIL, FM MUTING)
AAD-114
BM3x8
Coil spring
ABH-022
Knob (POWER, BASS TURNOVER, TONE, TREBLE TURNOVER, LOW FILTER, HIGH FILTER, TAPE DUPLICATE, TAPE MONITOR, ADAPTOR, MODE, LOUDNESS, MUTING)
AAD-113
Screw 4x8
ABA-012
Bottom plate
Spacer
AEC-258
BM3x8
Knob (AM, FM, PHONO 1 PHONO 2/MIC, AUX)
AAD-114
Screw 4x8
ABA-012
Foot
AEC-178
RT4x20
Screw 4x8
ABA-012
Screw 4x8
ABA-012
Front panel assembly
ANB-374
Foot
AEC-178
RT4x20
Knob (BASS, TREBLE, BALANCE)
AAB-100
Washer faced nut
ABN-024
Screw 4x8
ABA-012
Foot
AEC-178
RT4x20
Knob (TUNING)
AAA-034
Knob (VOLUME)
AAB-103


Part 1
NOTE:
Parts indicated in green type cannot be supplied.
RT3x8
Acrylic board
AEC-260
RT3x6
RT3x8
Scale plate stay L
Rubber spacer
AEB-087
RT3x6
Lamp board assembly
AWX-096
Lamp assembly (PL1-4)
AEL-056
Lamp (8V, 0.3A, wedge-type)
AEL-029
Socket (wedge-type)
AKK-004
RT3x8
RT3x6
Meter fitter
Pulley shaft
ABA-114
Pulley
AEC-101
Scale plate stay R
Heat sink-held metal
Heat sink
RT3x6
RT3x14
PT3x14
Transistor (Q3)
2SD427
Transistor (Q2)
2SB557-R
Transistor (Q4)
2SD427-R
Transistor (Q1)
2SB557-R
Transistor (Q7)
2SD427-R
Transistor (Q6)
2SB557-R
Insulator wafer
AEC-076
Transistor (Q5)
2SB557-R
Insulator wafer
AEC-076
Transistor (Q8)
2SD427-R
Heat sink-held metal
Bracket-held metal
Rubber bracket B
AEB-086
Double meter (SIGNAL/TUNING)
AAW-040
Rubber bracket A
AEB-085
Indicator (SP-A, B, C)
AAT-026
Indicator (STEREO)
AAT-028
Dial scale board
AAG-105
Dial pointer
AAF-051
Lamp with leads (8V, 50mA)
PL11 (SP-A)
AEL-074
PL12 (SP-B)
AEL-072
PL13 (SP-C)
AEL-073
PL5 (STEREO)
AEL-069
Blind sash
AAP-036
Shaft cover
AAT-025
Washer 9ϕ
M45-086
Nut 9ϕ
B71-004
RT3x6
RT3x8
RT3x6
Bracket-held metal
Tuning shaft assembly
AXA-111
Power transformer
ATT-265
Transistor socket
AKH-001
RT3x6
Reinforced metal
Sub-chassis
WN5
RT3x6
P.C. board-held metal
Pulley shaft
ABA-114
Pulley (small)
AEC-256
Indicator (AM, FM, PH-1, PH-2, AUX)
AAT-027
Lamp with leads (8V, 50mA)
PL6 (AM)
AEL-076
PL7 (FM)
AEL-075
PL8 (PH-1)
AEL-074
PL9 (PH-2)
AEL-072
PL10 (AUX)
AEL-073
RT4x6
RT3x6
RT3x6
Power amplifier assembly
AWH-050
RT3x6
Tuner assembly
AWE-066
Shield cover
Chassis
RT3x6
RT3x6
Tuning drum assembly
AXA-113
Pulley shaft
ABA-114
Pulley (small)
AEC-256
Electrolytic capacitor (22,000μF 63V)
ACH-059
RT3x6
P.C. board-held metal
P.C. board-held metal